

# 2008-2009 Catalog

Start here.



Go anywhere.

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General Information

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Business Programs

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Computer Programs

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Health and Service Programs

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Language Programs

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Liberal Arts and Sciences  
Departments and Courses

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Engineering and Technology Programs

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Course Descriptions

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**Saint Paul College**  
A Community & Technical College





**Saint Paul College**  
A Community & Technical College

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Saint Paul College reserves the right to change without notice any of the materials (information, requirements, regulations) published in this catalog. This catalog is not a contract.

Please refer to the College Web site, *Course Schedule* and campus postings for detailed information regarding hours of operation. Hours are subject to change.



# Welcome to Saint Paul College

## A Community & Technical College



We have looked into the future with 20-20 vision, and we think you will like what we see! Our planning process this year was designed to look into the future to determine what we could do to make a difference, to gather perspective about what is important to students now and into the future, and to tap ideas and build commitment from numerous resources. 20-20 Vision is the strategic plan which summarizes all of this information. The future looks bright for Saint Paul College!

Here is what is on the horizon for our College community:

- The completion of a \$10 million remodeling project and the initiation of another \$14 million project both designed to expand the learning facilities for the technical, transportation and construction trades.
- Expanded liberal arts and sciences program leading to the Associate in Arts (AA) degree and transfer to a four-year university including the University of Minnesota through the MnCAP program. Look for our new AS degree in Bio Medical Engineering too!
- The Saint Paul Career Pathways Academy (CPA), a “high school on a college campus” with learning opportunities in four major pathways: Health Sciences; Construction Trades; Engineering & Manufacturing; and Business & Computer Technology.
- The third year of the Power of YOU (POY) program which provides tuition-free college education for recent Saint Paul and Minneapolis high school graduates.
- Additional on-line learning options and on-line enrollment services you can complete at home in less than an hour.
- Exciting new and emerging academic and career programs such as bio-medical engineering, personal training, business and hotel management, and metaverse development and design (computer games and virtual world development and design).

Saint Paul College is also concerned about quality and accountability in everything we do. We have been accredited by the Higher Learning Commission since 1983, and most recently in 2003. The College was accepted into the Academic Quality Improvement Program (AQIP) in 2005 which confirms our commitment to continuous improvement through examination of key projects and processes. The College has acquired numerous professional accreditations which many times lead to student certification in a variety of areas. We are also a Center of Excellence in Applied Manufacturing with Bemidji State University. Just recently Sun Microsystems recognized our Java training and certification programs by designating us their center of excellence—the only two-year college with this distinction!

Please use this catalog as a resource to explore the many opportunities available to you at Saint Paul College. Learn more about Saint Paul College by visiting our Web site at: [www.saintpaul.edu](http://www.saintpaul.edu).

We look forward to working with you! Best wishes for success with your college plans and personal goals. Remember, when you start here, you can go anywhere!

A handwritten signature in black ink that reads "Donovan L. Schwichtenberg". The signature is written in a cursive, flowing style.

Donovan Schwichtenberg, Ph.D.  
President

# Directory of College Services

## Academic Programs

Business, Computer Science Division	651.846.1793
ASL - Interpreting Division	651.846.1793/1654 TTY
Health and Service Division	651.846.1311
Liberal Arts and Sciences Division	651.846.1349
Technical Division	651.846.1320
Transportation, Construction and Building Division	651.846.1320
Administrative Office	651.846.1361
Alumni Relations	651.846.1305
Assessment, Intake	651.846.1650
Bookstore	651.846.1422
Career and Placement Center	651.846.1384
Child Care Center	651.846.1581
Counseling	651.846.1383/1548 TTY
Dean of Student Development and Services	651.846.1362
Disability Services	651.846.1547/1548 TTY
English-as-a-Second-Language Classes (Intensive English Program)	651.846.1555
Enrollment Services	651.846.1555/1548 TTY
Financial Aid	651.846.1386 V/TTY
Information	651.846.1600
Library	651.846.1410
Midwest Center for Postsecondary Outreach	651.846.1337 V/TTY
New Student Information	651.846.1666
Security	651.846.1322
Student Life	651.846.1733
Student Records and Transcripts	651.846.1515
Transfer Center	651.846.1739
Tuition Office	651.846.1395
Veterans Educational Benefits	651.846.1372

# Saint Paul College: Vision, Mission & Values

## Vision

Saint Paul College—A Community & Technical College will be a leader in providing comprehensive life-long learning by utilizing and providing innovative and quality-focused strategies and services.

## Mission

The mission of Saint Paul College is to provide:  
*Education for Employment... Education for Life!*

Saint Paul College offers comprehensive learning opportunities in both career and transfer education to enhance personal knowledge and advance economic opportunity for the benefit of a diverse population of constituents which includes students, business/industry/labor and the community.

## Strategic Goals

### Comprehensive Learning Organization

Saint Paul College is committed to excellence in teaching and learning and offers a wide spectrum of learning opportunities in career and transfer education to meet learner needs.

### Organizational Innovation and Development

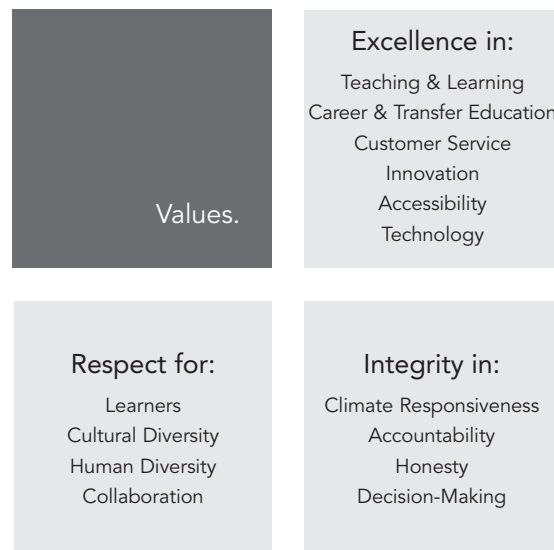
Saint Paul College strives to ensure the successful future of the College through creative thinking and the implementation of quality principles to more efficiently and effectively utilize resources and improve learning and operations.

### A Service-Centered Environment

Saint Paul College is dedicated to an integrated service philosophy that focuses on learner needs.

### Organizational Applied Systems

Saint Paul College is committed to apply systems to improve learning, communication and productivity.



Saint Paul College—A Community & Technical College reserves the right to change without notice any information published in this catalog. This catalog is not a contract. The College makes every effort to provide the courses, programs and services outlined in this catalog. However, academic calendars and the delivery of services are subject to modification. The name of the organization is Saint Paul College—A Community & Technical College, hereinafter referred to interchangeably as “the College” in policy and procedure statements.

Saint Paul College—A Community & Technical College is committed to a policy of nondiscrimination in employment and education opportunity. No person shall be discriminated against in the terms and conditions of employment, personnel practices, or access to and participation in, programs, services, and activities with regard to race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission as defined by law.

Harassment of an individual or group on the basis of race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission has no place in a learning or work environment and is prohibited. Sexual violence has no place in a learning or work environment. Further, Saint Paul College shall work to eliminate violence in all its forms. Physical contact by designated College staff members may be appropriate if necessary to avoid physical harm to persons or property.

Saint Paul College is committed to fostering an environment without discrimination and harassment. The College has a complaint process to review complaints of discrimination, harassment and sexual violence. Inquiries regarding compliance to Federal and State Laws and Statutes may be addressed to Thomas Matos, the Dean of Student Development and Services, who can be reached at 651.846.1362.

Refer to the *Saint Paul College Student Handbook* for important information that each student should read to assure success at the College.

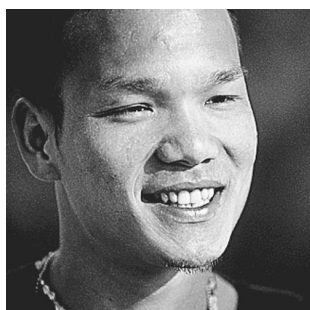
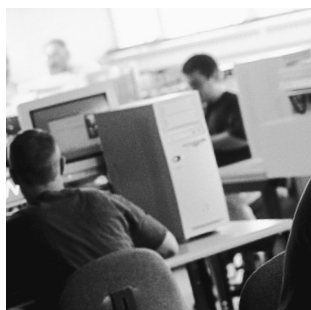
### **Available in Alternate Format**

This document is available in alternative formats to individuals with disabilities by calling 1.800.227.6029, 651.846.1547(V) / 651.846.1548(TTY) or email [DisabilityServices@saintpaul.edu](mailto:DisabilityServices@saintpaul.edu). Relay service is available for deaf and hard of hearing by calling 800.627.3529.

For assistance with alternative format catalog or other disability service needs, contact Shai Wise, Director of Disability Services Office at 651.846.1547(V) or 651.846.1548(TTY).



# General Information



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Enrollment Services

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Registration

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Academic Standards

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Educational Programs

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Minnesota Transfer Curriculum

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# General Information

## Accreditation

Saint Paul College—A Community & Technical College is accredited by The Higher Learning Commission of the North Central Association of Colleges and Schools.

The College also holds program-specific accreditation by: The American Culinary Foundation Accrediting Commission, The Committee on Accreditation for Respiratory Care and the Commission on Accreditation of Allied Health Education Programs, the National Accrediting Agency for Clinical Laboratory Sciences, the Federal Aviation Administration and the National League for Nursing Accrediting Commission. The Practical Nursing Program is approved by the Minnesota Board of Nursing. The Automotive Service Technician Program has National Automotive Technician Education Foundation (NATEF) Certification.

Saint Paul College meets established standards and is approved for the instruction of veterans, orphans of war veterans, state and federal rehabilitation students and members of the workforce needing training or retraining. Saint Paul College meets the definition of an institution of higher education and students are entitled to participate in federal financial assistance programs.

## Minnesota State Colleges and Universities

Saint Paul College is one of the 32 two-year and four-year colleges and universities in the Minnesota State Colleges and Universities system. The colleges in the system provide a wide array of opportunities for life-long education in academic and technical fields, ranging from short-term certificate programs to masters degrees. Approximately 29,000 students graduate from Minnesota State Colleges and Universities each year. Refer to the System Web site [www.mnscu.edu](http://www.mnscu.edu) for further information.

## Alliances and Memberships

### Students, Alumni & the Employer Connection

Saint Paul College offers undergraduate programs of two years or fewer to a widely diverse student population. Students are welcome regardless of their background, experience, or previous educational endeavors. The common goal of all students, however, is their desire for Education for Employment...Education for Life!

### Alumni Relations

Saint Paul College has established an alumni association and is designing a unique program to complement the educational process at the College. Call 651.846.1305 for further information.

## Alliances with Business and Industry

Saint Paul College's greatest asset is its success in providing employment opportunity for graduates. This is due to its partnerships with the businesses, industries and trade unions with whom we collaborate. Saint Paul College relies on these major stakeholders to:

1. Hire our graduates;
2. Serve on our Advisory Committees to ensure relevant and current curriculum content and instruction; and
3. Provide quality assurance and identity within the community.

The College's relationships with businesses, industries, trade unions and alumni have remained strong to help ensure that the tradition of quality will be continuously enhanced through information, involvement and improvement.

Graduate follow-up is conducted each year. Program placement statistics remain consistently high and are available for each program at Saint Paul College.

## Job Placement

The Career and Placement Center provides assistance to students and graduates in their search for part-time and full-time employment. This assistance is a life-long service to students and graduates of Saint Paul College.

Assistance includes:

- Posting of part-time and full-time job openings from employers who contact the College regularly
- Posting of job openings received from the Minnesota WorkForce Center
- Internet access to additional job opportunities nationwide
- Direct electronic mailing of job leads to graduates
- Cover letter and resume development
- Coordination of on-campus interviews with employers

The Career and Placement Center conducts an annual follow-up of Saint Paul College graduates to determine the job status of the most recent program graduates. This information may be obtained from the Job Placement/Employment Office or from the College Web site at [www.saintpaul.edu/general/employment/](http://www.saintpaul.edu/general/employment/). For further information on the Career and Placement Center, please contact the Director of Career and Placement at 651.846.1384.

## PEPNet Midwest Postsecondary Education Programs Network

The U.S. Department of Education, Office of Special Education and rehabilitation services, established the Midwest Center, PEPNet Midwest, at Saint Paul College - A Community & Technical College under a five-year agreement in October of 2006. The purpose of PEPNet is to increase and improve postsecondary educational opportunities for individuals who are deaf in the following thirteen Midwestern states: Iowa, Illinois, Indiana, Kansas, Minnesota, Michigan, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin. A Coordinating Council of Model Programs addresses the outreach activities and dissemination through contracted outreach sites that are assigned by geographic area and population densities. Four sites, the University of Wisconsin – Milwaukee, Milwaukee, Wisconsin, Rockford Center for Sight and Hearing, Rockford, Illinois, Tulsa Community College, Tulsa, Oklahoma, and Saint Paul College, in St. Paul, Minnesota all provide the direct contacts with each State in the Midwest Region.

PEPNet Midwest and its outreach sites provide technical assistance and dissemination information to postsecondary institutions in order to improve existing services, and to establish new services for students who are deaf. The center works primarily at an institutional level to increase the capacity of colleges, universities, and other postsecondary institutions to attract and serve deaf students. To achieve these tasks, PEPNet Midwest utilizes interdisciplinary networks of personnel through the Midwest region and the PEPNet consortium, with an expertise in the use of technology, including web-based applications in postsecondary training efforts and service provision to students. PEPNet Midwest plans to continue its ongoing activities, while planning greater outreach to three groups: professionals and students at a secondary level, culturally diverse deaf students, and deaf consumers with multiple disabilities.

For more information about PEPNet Midwest, or to be placed on the mailing list, contact 651.846.1337. V/TTY or 651.221.1339 FAX. Please visit our Web site at [www.mcpc.org](http://www.mcpc.org).

## Customized Training & Consulting (CTAC)

### Putting People on the Cutting Edge

In the fast-paced business economy of today and tomorrow, the need to improve quality standards, increase service standards and respond to rapidly changing technologies and markets becomes critical.

The answer is *Customized Training & Consulting*, a Division of Saint Paul College, which meets customer needs for: employee assessment, training, design and

delivery of training and training products/services at the place of business and conferences/workshops/seminars.

### Your One Source for Training

Saint Paul College provides Minnesota employers with customized training and tools to educate, retrain, or update their employees for today's ever-changing business world. Today Customized Training & Consulting works with hundreds of companies in the Twin Cities. Training is provided in a wide variety of areas, including Information Technology, manufacturing/technology, leadership/organizational skills and total quality management programs.

Training is provided in the format that works best with the client and their employees, for example:

- **Web-Based Training** features over 100 Courses.
- **Seminars** provide information to participants on important, timely topics.
- **Workshops** are designed to include intense activities to influence employee application of new behaviors, attitudes, or skills.
- **Courses** are aimed at increasing skills or specific knowledge relating to employment and are held over a period of time. Time is allowed for practice, lab work, or independent study.

Whatever the format, you can be assured of thorough, professional training that will effectively bring bottom-line results to your company. "In the end, competitive advantage is not in the technology, but in the people who invent and use it."—ASTD Report on Technical Training in America, how much and who receives it.

### Training Programs:

- AutoCAD
- Leadership 2000
- Lean/Flexible Manufacturing
- Lean Healthcare
- Supervisory & Management Training
- Quality Initiative Training
- Consulting Services Organizational Needs and Individual Skills Assessment

### Location

Customized Training & Consulting is located at 317 Marshall Avenue, just west of the Saint Paul College Main Campus. Any CTAC class can be offered at your work site or custom tailored to meet your employee's need.

Call 651.846.1800 for more information.

# Enrollment Services

## Admissions Process

Saint Paul College welcomes applications for admission to the College. Admission to College majors is based on assessment results and potential to succeed in a program. Admission to many individual courses is open; however, admission to some courses is based on meeting course prerequisites and program admission requirements.

## Admission to a Major Program

Students are accepted into a major program for the purpose of obtaining a specific degree, diploma, or certificate. Students may change their major program by meeting the prescribed admission requirements for the desired program.

## Application Procedure

If you have not applied to or enrolled in Saint Paul College in the past, follow this application procedure:

1. Complete an *Application for Admission* at [www.saintpaul.edu](http://www.saintpaul.edu).
2. Your bill will reflect a one time non-refundable \$20 application fee within 48 hours of your application submission. To pay this fee make checks payable to Saint Paul College.
3. Complete the Assessment in reading, writing, and math or complete the English-as-a-Second-Language (ESL) Assessment if you are a non-native speaker of English. Call 651.846.1555 for more information. Scores must be turned in to the Office of Enrollment Services. If you have taken the ACT or SAT exam in the last 5 years and scored 24 or higher on the related ACT individual subscore or 550 on the SAT individual subscore you may not have to take part or all of the placement exam. Please bring a copy of your ACT or SAT scores to the Transfer Center (Room 159) for further review.
4. Request high school transcripts and/or GED scores, as well as official transcripts, from all secondary and post-secondary institutions attended be sent to *Saint Paul College*.
5. If you have previously applied, enrolled, or requested information from Saint Paul College please contact the Office of Enrollment Services so your records can be updated.

Some major programs require additional assessment. Applicants will be notified if their program requires additional assessment.

Assessment requirements may be waived based on previous college experience as validated by college transcripts.

## Intake Assessment

Saint Paul College and the Minnesota State Colleges and Universities system require assessment of basic academic skills.

The assessment for English native language speakers covers reading comprehension, sentence skills and mathematical computation. The assessment for students whose native language is not English take the English-as-a-Second Language (ESL) assessment. This assessment covers the understanding of English grammar structures and listening comprehension. Students may be assessed in additional subjects for admission to selected programs or placement into certain courses.

These assessments are available on a walk-in basis in the Assessment Center in room 324 and usually take from 1 1/2 to 2 1/2 hours to complete. ESL assessment scores determine ESL placement. In some cases, assessment results may indicate that the student may benefit from developmental coursework in reading, writing, grammar and/or math prior to entering a major program.

Please call 651.846.1555 for additional information about the assessment process.

The assessment requirement may be waived depending on previous college experience and/or college coursework. Contact the Transfer Center to have previous college transcripts reviewed for an assessment waiver.

## Application Procedure for Transfer Students

Students seeking admission to Saint Paul College based on previous college coursework should contact the Transfer Center at [transfer.center@saintpaul.edu](mailto:transfer.center@saintpaul.edu) or 651.846.1739.

Students seeking a degree, diploma, or certificate, who have previously attended accredited institutions, must have all official transcripts sent directly from the previous colleges to the Saint Paul College Records Office. If a transcript is hand carried by the student, ***it is to be delivered in a sealed envelope***. Student copies and faxed transcripts are not considered official but can be used for admission purposes.

## Re-Admission

Students who have interrupted attendance at Saint Paul College must contact the Office of Enrollment Services to apply for re-admission. To have assessment tests waived based on coursework completed at another institution, contact the Transfer Center at 651.846.1739.

## Undeclared Students

A student who has not applied for admission to a major program may register for up to 8 credits. Some classes may be limited to students admitted to a specific major. Undeclared Students are not assigned a faculty advisor and ***do not qualify for financial aid or veterans' educational benefits***.

If at a later date the student decides to pursue a degree, diploma, or certificate, the credits earned as an Undeclared Student may apply toward a program.

### Change of Major

Students who have been admitted to Saint Paul College in a specific major program and want to change that program need to complete the *Change of Major Form* at the Office of Enrollment Services. Mid-semester major program changes are not permitted. The change of major program will be effective for the next semester.

### Credit for Prior Learning

Saint Paul College offers adult students with sufficient work, non-college credit and/or life experiences the opportunity to document competencies relevant to specific course offerings at the College for prior learning credit. Credits earned from prior learning must be applicable to the student's program of study at Saint Paul College and are evaluated for credit by qualified faculty members. Credit for Prior Learning is not available if a CLEP exam exists for that course. Note: Credits earned through Credit for Prior Learning may not transfer to other colleges.

### Post-Secondary Enrollment Options Program (PSEO)

The PSEO program enables Minnesota high school juniors and seniors to take college classes for high school and college credit. The purpose of the program is to promote rigorous academic pursuits and provide a wider variety of options than may be available in high school. Students may attend either part-time or full-time. Tuition, fees and textbooks are provided at no cost. For more information about the PSEO Program, please contact the Office of Enrollment Services at 651.846.1555.

### Tech Prep

Tech Prep affords high school students an opportunity to receive college credit in many subjects. Tech Prep programs effectively blend academic and technical education in a challenging and purposeful course of study that can lead to employment and credit toward further education. Since the workplace has changed significantly enough to require some training after high school, but not necessarily a full four-year degree, tech prep programs offer viable new options for high school students who want to connect learning with life.

Tech Prep credit is awarded for high school classes in Business, Child Development, Culinary Arts, Carpentry, Automotive Service and many other subjects. Many programs are articulated between Saint Paul Public Schools and Saint Paul College. Consult a high school counselor for more information concerning Tech Prep.

## Transfer of Credits from Other Institutions

Saint Paul College will review requests for transfer credit from individuals who completed coursework at other accredited post-secondary institutions. The number of credits transferred to Saint Paul College is dependent upon the specific requirements of each program or degree offered at Saint Paul College. Transfer credits will appear on the Saint Paul College transcript and can be used to satisfy the program graduation requirements but will not be used to calculate the grade point average.

Students interested in receiving transfer credit must submit **official** transcripts to the Student Records Office. Upon admission to the college, transcripts will automatically be reviewed to determine transferable credits. Each credit to be considered for transfer must be supported by an official transcript from the originating institution and must be approved by a transfer specialist and/or the student's Faculty Advisor prior to the awarding of credit. Students who change programs should request a re-evaluation of their transcript credit.

### Treatment of Grades

Grades earned prior to transfer are evaluated according to the following standards:

All college courses in which a student has received a grade of A, B, C, or D, shall be considered for transfer evaluation. P grades shall be accepted as earned credit. If the student's cumulative GPA at the originating institution is less than 2.0 GPA, D grade course credits will not be accepted in transfer from that school. No F grade course credits will be accepted in transfer. Students retain the right to appeal the acceptance of credits. Programs with their own standards may accept transfer grades differently.

### Comparability

Courses approved for transfer must be comparable in nature, content and level and match at least 75% of the content and goals of the course syllabus for which the student is seeking equivalent credit.

### Time Limit for Courses

General education courses shall have no transfer time limit. Additionally, technical courses applying toward an Associate of Arts degree shall have no transfer time limit.

To ensure students graduate with up-to-date skills, technical credits are valid for five years or have a five-year "lifespan." This includes transfer technical credits which are used for specific technical program requirements. Technical courses that are beyond the five-year limit may be accepted, based on currency, relevancy and the student's current work experience.

## Degree Residency

A student shall earn a minimum of 20 credits for all associate degrees at the College. The residency requirement shall be reduced to 12 credits for students transferring with at least 12 college-level credits from another Minnesota State Colleges and Universities institution and the University of Minnesota. One-third of the credits required for a diploma, certificate, or the Minnesota Transfer Curriculum (MnTC) must be earned at the College.

## Equivalency

The number of transfer credits granted per course shall not exceed the number granted by the originating institution. All quarter credits will be converted to semester credits.

## Additional Types of Transfer Credit

### AP—Advanced Placement Exams (for High School Students)

Advanced Placement gives high school students an opportunity to take college-level courses in various subject areas. A score of 3 is the minimum for credit awarded. Grades of 3, 4 or 5 qualify students for credits and/or placement into advanced courses at Saint Paul College. Credit can be given for a specific college course if a test covers substantially similar material. If the test material does not match an existing course, students will be given elective credits.

### CLEP—College Level Examination Program

Saint Paul College will consider CLEP exam credits for students who want to test out of general education courses and selected business courses. A maximum of 30 credits may be applied toward an associate degree. No letter grades will be recorded on the transcript. Credit will be awarded based on the American Council on Education (ACE) recommendations. Credit will not be given which repeats completed coursework.

**Note:** Colleges establish their own policies for accepting CLEP credit. Students should consult their transfer college's CLEP policy to determine whether CLEP credits will transfer and/or how they will be accepted. Consult the College Board Web site ([www.collegeboard.org](http://www.collegeboard.org)) for testing locations, fees and exam information.

**Note:** CLEP exams have changed and there are no longer General Exams as distinguished from Subject Exams. Computer-based CLEP exams administered prior to July 1, 2001 have the same score scale and credit-granting score as its paper-based counterpart. All CLEP computer-based testing (CBT) exams administered after July 1, 2001 have a uniform ACE recommended credit-granting score of 50 for all subjects.

## Credit for Life Work/Work Experience (Prior Learning)

Prior Learning (Competency-Based Education) allows students to present nontraditional learning as competencies to be evaluated for credit by qualified faculty members towards their educational program. These competencies must be the equivalent of what would have been achieved through college coursework. At Saint Paul College, Credit for Prior Learning offers, on a limited basis, students with sufficient work, non-college credit and/or life learning experiences, the opportunity to document competencies and theory learning relevant to specific courses offered at the College. Credits earned from prior learning must be applicable to the student's program of study. The Credit for Prior Learning option may be available for a limited number of courses. Students interested in pursuing the option of earning credit for prior learning must discuss this option with the assigned Faculty Advisor and the Prior Learning Coordinator.

### IB—International Baccalaureate (for High School Students)

The International Baccalaureate (IB) program is an internationally recognized program through which high school students complete a comprehensive curriculum of rigorous study and demonstrate performance on IB examinations. Students may present a full IB diploma or a certificate recognizing specific higher level or standard level test scores. Credit is awarded for the IB Diploma; credit may be awarded for subsidiary level exams at the higher level with a score of 5 or higher.

### International Transcripts

Saint Paul College does not evaluate international transcripts. Students who have completed courses in another country must have their transcripts evaluated by a third-party evaluation service. Colleges and universities differ in how they accept these courses. For more information contact the Transfer Center.

### Military

**Credit for Army training** may be obtained by submitting an Army/American Council on Education Registry System transcript from the Army directly to the college or university. ACE (American Council on Education) translates military courses and occupations into academic credit and provides guidelines to interpret and recommend credit for formal service-school courses, demonstrated proficiency in military occupations and college-level tests. Service members must have separated or retired by 1981.

**Credit for Sailor and Marine training** may be obtained by submitting a Sailor/Marine American Council on Education Registry Transcript (SMART). Service members must have separated or retired from active duty on or after October 1, 1999.

**Credit for Air Force training** may be obtained by submitting a request to the Community College of the Air Force or going to the nearest Air Force base education office.

Service members with credits/training for the Army pre-1981 and Sailors/Marines pre-1999 must request a DD295 and submit it for college credit award review.

Saint Paul College uses *A Guide to the Evaluation of Educational Experiences in the Armed Services* as a guide to award credit for military learning.

### **DANTES—Defense Activity for Non-Traditional Education Support**

The DANTEs program supports the voluntary educational program for active **military personnel** and members of the National Guard and Reserves. The DANTEs Subject Standardized Tests (DSSTs), however, are now available for use by civilians at universities and colleges throughout the country. The DSSTs are a series of examinations in various college and technical subjects. The DSST program allows students the opportunity to demonstrate college-level learning acquired outside the classroom. All tests carry ACE (American Council on Education) credit recommendations. Saint Paul College will honor the ACE recommendation and accept courses applicable to a program or course of study.

### **SOC—Service Members Opportunity Colleges**

Recognizing the problems faced by military students whose jobs require frequent moves, SOC member schools make it easier to obtain college degrees by the following:

- Limiting the amount of coursework students must take at a single college to no more than 25% of degree requirements;
- Designing transfer practices to minimize loss of credit and avoid duplication of course work;
- Awarding credit for military experience; and
- Awarding credit for tests such as CLEP, RCEP and DSST national testing programs.

Colleges and universities that participate in the network degree programs for the Army, Navy and Marine Corps agree to:

- Guarantee to accept each other's courses in transfer within curriculum areas such as management, computer studies, interdisciplinary studies and others.
- Award credit for military service schools and occupational experience.

### **Developmental Coursework**

Developmental coursework has assisted thousands of students in getting started in College programs. The goal of developmental coursework is for students to

acquire the necessary knowledge and skills that will help them succeed in programs.

Developmental coursework is delivered via traditional classes or as computer-based instruction where the students work independently in the Learning Center under the supervision of faculty and support staff.

### **Intensive English Program (English-as-a-Second-Language)**

The purpose of English-as-a-Second-Language (ESL) coursework is to assist limited-English speakers from different ethnic and cultural backgrounds to learn English and increase their chances of success at Saint Paul College. The faculty of this area can communicate with several different language groups. This program offers a variety of support services and specially tailored classes to meet the unique needs of ESL students.

### **Immunization Requirements**

Minnesota Law (M.S. 135A. 14) requires that all students born after 1956 and enrolled in a post-secondary educational institution be immunized against measles, rubella, mumps and diphtheria and tetanus after 12 months of age and within 10 years of first registration, allowing for certain specified exemptions. Students must submit a statement indicating the month and year of each immunization at the first registration for classes or no later than 45 days after the start of their first term. Students born in 1956 or before are not required to provide this information. Students who graduated from a Minnesota high school in 1997 or later are also exempt.

The *Immunization Record* form is designed to provide the College with the information required by law and will be available for review by the Minnesota Department of Health.

Students enrolled in Health programs are required to obtain additional immunizations in accordance with clinical site policy. For more information regarding immunization requirements and resources available to meet those requirements, contact Enrollment Services.

### **Background Checks Policy**

Designated Health and Child Development Careers program students are affected by the following:

Minnesota Statutes require that the Department of Human Services (DHS) conduct background studies on individuals providing direct contact services to people receiving services from facilities and agencies licensed by DHS and the Minnesota Department of Health (MDH). Direct contact is defined as providing face-to-face care, training, supervision, counseling, consultation, or medication assistance to people receiving services from the agency or facility.

An individual who is disqualified from having direct contact with persons served by the program as a result of the background study and whose disqualification

is not set aside, will not be permitted to participate in a clinical placement in facilities with programs subject to licensure under Minnesota statutes. This is to protect the health, safety and rights of persons served by those programs. Failure to participate in a clinical placement required by the academic program could result in ineligibility to qualify for a degree in this program. *The Department of Human Services (DHS) determines disqualification* and the Department of Human Services will inform an individual of this report.

Students are reminded of the background study requirement upon admission to the program, during the first introductory course in the program and when a work setting is identified for a clinical placement. Background studies must be submitted annually.

## Registration

The Saint Paul College *Course Schedule* and Web site contain a listing of classes that are available each semester and are available approximately six weeks before the beginning of the semester. The *Course Schedule* lists the courses, number of credits, class times, instructors' names, room numbers and prerequisites, whenever possible. Registration dates and guidelines are included with the schedules.

Returning students in a declared major have registration priority. Students are encouraged to work with a Faculty Advisor when planning their classes. Students who have questions, or need help in making career decisions, should make an appointment with the Director of the Career and Placement Center.

Class sizes are limited. Closed class lists are posted on the Saint Paul College web site.

Registration for classes takes place each semester and summer term. Information on how and when to register is provided to new students when they are accepted for admission. Information is posted on the Web site for returning students. Not all courses listed in the *College Catalog* are offered every semester.

A Registration Schedule is published for each term and indicates assigned dates and times for registration. New students can register for classes following orientation sessions. Returning students register after consulting with their Faculty Advisor and according to the following procedures:

### Registration Process for Current and Returning Students

1. Select courses, noting course ID numbers.
2. Login to your student account and register online.
3. Pay tuition at the Tuition Office or online with a credit card and receive a paid fee statement.

Tuition/fees will be deferred for students who have applied for financial aid and received an official award letter. The award letter should be processed by the tuition/fee due date prior to each semester.

4. Purchase books and supplies and attend classes. If purchasing books and supplies with agency funding, a book voucher can only be used the first five days of the fall and spring semesters and the first two days of summer term.

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### HELPFUL HINT

Pay for books with your own money and buy them prior to the start of class either at the bookstore or online at [www.saintpaulcollegebookstore.com](http://www.saintpaulcollegebookstore.com). This will help to avoid the long lines at the Bookstore in the first week of the semester.

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### Registration Process for New Students

1. Follow Admission and Intake Assessment process.
2. Attend an Orientation session.
3. Register online.
4. Pay tuition at the Tuition Office window or online using a credit card and receive a paid fee statement.
5. Purchase books and attend classes.

### Adding, Dropping, or Withdrawing

All students, including those receiving financial aid, will be assessed tuition and fees for the term based on the number of credits for which they are registered on the 5th day of the term.

Students may add courses at any time during the published "add" period for each term. Students who drop a course through the 5th day of a term, may receive a tuition refund (pro-rated for summer term). All refunds are mailed and take approximately two weeks to process from the date received.

Students may withdraw from classes to receive a "W" grade from the 6th day of the term through the posted date of withdrawal for the term. For courses that do not run the entire term, withdrawal is permitted before 75% of the class session is over. Students must withdraw from courses online. No refund is permitted after the 5th day. Courses from which a student officially withdraws will be assigned the letter grade "W" (withdraw). Refer to the current *Course Schedule* for details.

Students who do not plan to attend the first day of class (or do not plan to log on for the first day of an online class) need to make arrangements for this absence in advance with their instructor. Students who miss the first day without making prior arrangements with their instructor may be deregistered from class. During add/drop periods this may result in others signing up for the available space in the class.



## Satisfactory Academic Progress Guidelines

Saint Paul College has a Satisfactory Academic Progress policy which requires degree seeking students upon registering for 6 or more credits to maintain a cumulative grade point average of at least 2.0 and/or a completion rate of at least 67% of the cumulative credits attempted with earned grades of A, B, C, D, P or AU. If these requirements are not met, students will be put on academic probation.

### Probation

*Students placed on Grade Point Average (GPA) probation* will have a registration hold placed on their academic record which will prevent them from registering in future terms. Students must contact a Retention Coordinator to have the hold released.

*Students placed on GPA probation* with a GPA of below 2.0 are required to enroll in and successfully complete CSCR 1402 and CSCR 1401 in the next term in which they register. Students who do not register for, withdraw from, or do not successfully complete CSCR 1402 and CSCR1401 may be suspended indefinitely.

*Students placed on GPA probation prior to the Spring 2007 term* who have had a lapse in enrollment must enroll in a college success workshop designed for students on academic probation. Students who do not successfully complete the college success workshop may be suspended indefinitely.

*Students placed on progress probation or students continuing on probation* will have a registration hold placed on their record that can only be removed once the student has completed the following:

1. Schedule a time to meet with a Retention Coordinator
2. Complete and sign a Probation Agreement form.

In order for students to be removed from probationary status they must achieve a cumulative 2.0 GPA and/ or a 67% completion rate in their cumulative attempted credits. Students can remain on continuing probation indefinitely as they attempt to raise their cumulative grade point averages and/ or cumulative completion rate. However, a student must achieve a cumulative grade point average of a 2.0 to graduate from Saint Paul College.

### Academic Suspension

Students who fail to meet satisfactory academic progress standards in their probationary period by not earning a term GPA of at least a 2.0 and/or at least a 67% term completion rate will be suspended for a minimum of two consecutive major semesters.

### Appealing Academic Suspension

*Appealing due to catastrophic extenuating circumstances.* Students who believe they failed to achieve satisfactory academic progress due to catastrophic extenuating circumstances may file an appeal to their suspension prior to taking the required two major terms off. However, students must be able to provide documentation supporting their claim of catastrophic extenuating circumstances interfering with their ability to be successful in school.

*Appealing for reinstatement after serving the required two terms.* Students who have served their suspension period must appeal for reinstatement by writing a letter articulating the changes that have occurred that will allow them to be successful in school along with submitting the required suspension appeal paperwork.

*Readmission after a Suspension Period.* Students whose Suspension Appeals are approved must develop an academic plan with a Retention Coordinator. They must enroll only for the classes approved on their academic reinstatement course plan, which will include CSCR 1402 and CSCR 1401. Changes to the schedule must be approved by the Dean of Student Development and Services. Students who do register for, withdraw from or do not successfully complete CSCR 1402 and CSCR1401 may be suspended indefinitely.

Students with approved petitions will remain on probation. However, if the student fails to meet satisfactory academic progress standards during the term the petition is granted, they will be suspended indefinitely.

### Academic Forgiveness Policy

The Academic Forgiveness policy is available only to students whose coursework was taken at Saint Paul College (formerly St. Paul Technical College). The policy is a one-time opportunity. The student cannot have been enrolled at Saint Paul College for a minimum of two calendar years (24 months) and the student must have a cumulative GPA of less than 2.0. The coursework forgiven will remain on the student's transcript; however, the credits and the grades will not be carried forward into the student's cumulative grade point average. The student will be permitted to pick and choose courses within the semester to be forgiven. Only D's and F's can be forgiven. If more than one term is forgiven, they must be consecutive terms. A maximum of two terms may be forgiven. In order to meet eligibility requirements for Academic Forgiveness, the student must have completed a minimum of 12 credits in residence at Saint Paul College with at least a 2.0 GPA after returning from the minimum 2-year absence. The student must apply for Academic Forgiveness within one calendar year after completing the 12 semester credits with at least a 2.0 GPA. Work completed at another institution cannot be used to satisfy this requirement.

## Student Records

Saint Paul College Student Records Office is the official recorder of the students' academic records.

## Student Transcripts

Requests for Saint Paul College transcripts and other related records, must be processed through the Student Records Office. All financial obligations to Saint Paul College must be met before transcripts can be released.

An official transcript is issued, for a fee, upon **written request** through online submission and is sent to a third party, such as another institution or employer, within three business days. The transcript will serve as the official record of student effort while enrolled at the College. **There is an additional fee for next day service, if requested.**

# Tuition and Fees

## Tuition Rates

The Board of Trustees for Minnesota State Colleges and Universities establishes tuition rates annually. Tuition rates are established on a per-credit basis for all credit course offerings and are subject to change. The *Course Schedule* lists tuition and fee rates for the term.

## Student Fees

All students registered for credit courses are assessed a Student Senate fee. The per-credit fee is assessed for students beginning with the first credit. The fee is also assessed during the summer term. The Minnesota State College Student Association also assesses a per-credit fee each term. All fees are subject to change.

## Technology Fee

A technology fee is charged as allowed by the Minnesota State Colleges and Universities. The technology fee is used to pay for instructional equipment and materials such as computers and software, audio-visual equipment, library technology and support staff.

## Tuition Payment

Tuition and fees are due by the posted date or the student may be dropped from their classes. To retain classes, the Tuition Office must either have full payment, a *Facts Payment Plan* application, or received a *Financial Aid Award Letter*, a certified student loan, a scholarship or a third party authorization. Refer to the *Saint Paul College—Tuition & Fees Payment Options* handout at the Tuition Office.

Students who are qualified senior citizens (over 62) may be able to attend classes at a reduced tuition rate. Refer to the current *Course Schedule* for details. Registration is allowed at this rate beginning the second class session on a space-available basis.

## Reciprocity

Reciprocal tuition agreements exist with Wisconsin, North Dakota, South Dakota and Manitoba, Canada. Residents of Kansas, Michigan, Missouri and Nebraska may enroll at designated institutions and programs at reduced tuition levels outside their home state. Contact the Registrar for further details.

Students attending Saint Paul College under a reciprocity agreement must complete and submit a *Tuition Reciprocity Agreement* form to the Tuition Office Window.

## Non-Payment of Tuition

*Students who have not paid their tuition by the posted due date may lose their place in each registered class.*

Refer to the current *Course Schedule* for further details.

## Tuition/Fee Deferments

Tuition/fees will be deferred for students who have applied for financial aid, have a complete file and have received an official award letter from the Financial Aid Office indicating aid eligibility. Students should allow a minimum of 4–6 weeks for financial aid processing. The award letter must be processed by the tuition/fee due date prior to each semester.

**Note:** Students who have applied for financial aid but have not received an award letter by the tuition due date, should contact the Tuition Office for payment arrangements until an award letter is received.

## Refunds for Total Withdrawal from College

Students who withdraw or drop from **all** courses must give formal written notification to the College and withdraw or drop online from all classes to be eligible for a tuition refund according to the schedule below. ***Failure to attend class does not constitute withdrawal.***

Withdrawal Period— Fall & Spring Terms		Refund
Prior to the 1st day of the term . . . . .		100%
1st through 5th class day of the term . . . . .		100%
6th through 10th class day of the term . . . . .		75%
11th through 15th class day of the term . . . . .		50%
16th through 20th class day of the term . . . . .		25%
After the 20th class day of the term . . . . .		0%

Withdrawal Period— Summer/Other Terms		Refund
<i>(At least 3 weeks but less than 10 weeks in length)</i>		
Prior to the 1st day of the term . . . . .		100%
1st through 4th class day of the term . . . . .		100%
5th through 10th class day of the term . . . . .		50%
After the 10th class day of the term . . . . .		0%

## Refunds for Change of Credit Load

Schedule changes (ADD/DROP) will be handled through the Office of Enrollment Services through the 5th day of the term. No tuition refund will be made, nor will fees be reduced by dropping part of the credits, after the 5th day of the term.

## Refunds for Summer Session Classes

The above refund schedules are pro-rated for summer session. Consult the Office of Enrollment Services for details on summer refunds.

## Refund Time Frame

Refunds for tuition payments made by cash or check will be via check only and mailed to the student. Credit card payments will be refunded to the same credit card that was used when the tuition was paid. A minimum of one week is required to process cash and credit card refunds. A minimum of two weeks is required to process refunds for tuition and fees paid by check.

## Waivers

Saint Paul College may waive amounts due to the College for the following reasons: employee benefits provided by bargaining agreement, death of a student, medical reasons, college error, employment related condition, significant personal circumstances, student leader stipends, course conditions, natural disasters or other situations beyond the control of the College. The College cannot waive the MSCSA student association fee. Contact the Student Records Office to request a Tuition Waiver Form if you feel you are entitled to a waiver.

# Financial Aid

## General Information

Financial aid is money that is available to help students finance the cost of their education. Financial aid comes in the form of grants (money that the student does not have to pay back), loans (money that the student must pay back) and college work-study (money the student earns through employment). Eligibility is determined from the results of the *Free Application for Federal Student Aid*, (FAFSA).

The student and his or her family have the primary responsibility to pay for the student's education. Financial aid is intended to supplement the difference between the cost of education and the expected family contribution. Several programs are available to help students meet their educational expenses. The Financial Aid Office will calculate financial aid eligibility after receiving FAFSA results and all required documents.

The student must declare a major and be admitted to a program at Saint Paul College that leads toward a

degree, diploma, or eligible certificate to be qualified to receive financial aid. For additional information, contact the Financial Aid Office at 651.846.1386.

## Financial Aid Definitions

- **FAFSA**—The FAFSA is the *Free Application for Federal Student Aid*. This is the form that allows the student to apply for all types of financial aid: grants, loans, or college work-study.
- **What is the Cost of Education?** The cost of education includes tuition, fees, and an allowance for room and board, books, supplies, transportation and personal expenses.
- **What is Expected Family Contribution?** An amount, determined by a formula called Federal Methodology, that indicates how much of the student and his or her family's resources should be available to help pay for school. The Expected Family Contribution (EFC) is used in determining the student's eligibility for federal and state financial aid. If a student has unusual expenses that may affect his or her ability to pay for school, the student should notify the Financial Aid Director.
- **What is Financial Need?** Financial need is the difference between the cost of education and the expected family contribution calculated by the federal processing center.
- **Full-Time Enrollment:** 12 credits or more per semester.
- **Three-Quarter-Time Enrollment:** 9–11 credits per semester.
- **Half-Time Enrollment:** 6–8 credits per semester.
- **Less Than Half-Time Enrollment:** 5 credits or fewer per semester.

## Types of Financial Aid

The following types of financial aid are available at Saint Paul College:

### Grants

Grants are gift aid, which the student does not have to pay back. Students who have completed a bachelor's degree, or the equivalent from another college, are not eligible for grants.

### Federal Pell Grant

Students may apply for the Federal Pell Grant by completing the FAFSA. Pell Grants vary from \$400 per year up to the federally legislated maximum. Pell Grant recipients must be enrolled in an eligible program.

### Federal Supplemental Education Opportunity Grant (SEOG)

This program is designed for students who have exceptional financial need. Funds are limited and eligibility is determined by the Financial Aid Office.

### Academic Competitiveness Grant, ACG Grant

This is a grant for students who graduated from high school after January 1, 2006 for a first year grant or after January 1, 2005 for a second year grant. In addition, students must be a US Citizen, Pell Grant eligible, enrolled full time in a two or four year degree program and have completed a rigorous high school program as determined by the applicable state and recognized by the Secretary of Education. Go to [www.fafsa.ed.gov](http://www.fafsa.ed.gov) for more information regarding eligibility and the application process.

### Minnesota State Grant

This is a grant for Minnesota residents. Awards are similar to the Pell Grant. Students apply by completing the FAFSA. Minnesota State grant eligibility requires the FAFSA be received within the first 30 days after the term begins.

### Minnesota Child Care Grant

This grant is for students who are Minnesota residents, have children 12 and under (14 and under, if handicapped), have financial need and have child care expenses. Recipients must not be receiving Minnesota Family Investment Program (MFIP) assistance. Students who have received an award letter may request an application from the Financial Aid Office.

## Work-Study Programs

- Federal Work-Study
- State Work-Study

These programs employ students on campus. Pay is established by the College. These programs provide work for up to 20 hours per week. Total work-study earnings cannot exceed the cost of attendance. Students must be registered for at least 6 credits to qualify for work-study.

## Loans

Loans are financial aid that must be paid back. The student must complete online Entry Loan Counseling and be registered for 6 credits. Need based and non-need based loans are available.

### Federal Stafford Loan

Whether or not students qualify for a grant, they can get help to meet their educational expenses by borrowing money from the Stafford Student Loan Program or one of several available loan programs. Depending upon eligibility, first year students may borrow up to \$3,500 per academic year, and second year students, up to \$4,500.

### Federal Plus Loan Program (PLUS)

The Plus Loan Program for undergraduate students can be used by parents of dependent students who are in need of additional funds to meet the cost of education. The program allows parents to borrow up to the cost of attendance minus other aid.

### Supplemental Loan for Students (SELF)

The SELF program is a long-term, low interest educational loan provided by the State of Minnesota. The SELF loan is for students who cannot obtain the financial aid they need from the existing need-based aid programs. The Minnesota Office of Higher Education (MOHE) is the only lender in the program. The amount a student may borrow depends on other loans the student may already have and is limited by state regulations. The student must have a credit-worthy cosigner in order to apply for the SELF loan.

### Other Sources of Financial Assistance

Several government and private agencies provide financial assistance to eligible students. Contact the local office of the following agencies for consideration.

- Division of Rehabilitation Services (DRS/DVR)  
[www.deed.state.mn.us/rehab](http://www.deed.state.mn.us/rehab)
- Minnesota Indian Scholarship Program  
[www.ohe.state.mn.us](http://www.ohe.state.mn.us)
- Veteran Benefits (VA) [www.vba.va.gov](http://www.vba.va.gov)
- Minnesota Department of Veterans's Affairs  
[www.mymilitary.education.org](http://www.mymilitary.education.org)
- Minnesota Educational Assistance for War Orphans [www.ohe.state.mn.us](http://www.ohe.state.mn.us)
- Minnesota Migrant Council (MMC)
- Services for the Blind (SSB) [www.mnssb.org](http://www.mnssb.org)
- Other public and Private Scholarships—check with a high school counselor, the public library and the following Web sites:
  - [www.fastweb.com](http://www.fastweb.com)
  - [www.finaid.org](http://www.finaid.org)
  - [www.going2college.org](http://www.going2college.org)
  - [www.fastaid.com](http://www.fastaid.com)
  - [www.college-scholarships.com](http://www.college-scholarships.com)
- Saint Paul College Foundation
  - [www.saintpaul.edu/foundation](http://www.saintpaul.edu/foundation)

## How to Apply for Financial Aid

1. Apply for admission to Saint Paul College. Students must declare a major and be enrolled in a program leading to a degree, diploma or eligible certificate to qualify for financial aid. Awards vary based on enrollment level (full-time or part-time). Financial aid will be based on the number of enrolled credits at the end of the drop/add deadline. Financial aid adjustments will not be made after this date.
2. Fill out the *Free Application for Federal Student Aid* (FAFSA). It is recommended you apply electronically through the U.S. Department of Education's Web site at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). Complete the FAFSA Pre-Application Worksheet available on the web site before applying electronically. Enter the Saint Paul College school code, 005533 so the Financial Aid Office will receive an electronic copy of the results. A *Student Aid Report* (SAR) should arrive in 2 weeks, or 4 weeks if mailed.
3. If other post-secondary schools have been attended prior to attending Saint Paul College, request an **official** academic transcript be sent to the Student Records Office for credit evaluation. This is a requirement for Minnesota State Grant eligibility.
4. Once the Financial Aid Office receives the SAR electronically from the Student Federal Aid Program, the student's application will be reviewed for accuracy and completeness. It is important that any requests for additional information be responded to immediately. When the file is complete, financial aid eligibility will be calculated and an award letter will be mailed. The Award Letter is also accessible at the College's Web site under your student account.
5. Carefully read the award letter that provides information regarding financial aid eligibility. The award letter explains procedures for receiving financial aid and/or applying for other financial assistance, such as student loans, child care grants and work-study employment on campus. For more information, call 651.846.1386 or visit the Financial Aid Office.

## Financial Aid Policies and Procedures

### Financial Aid Verification

Saint Paul College verifies data information of students selected by the Central Processing System (CPS) or selected by Saint Paul College. Students selected for Verification will be notified by mail of the required documentation to complete the verification process. All students are required to complete a Verification Worksheet and appropriate income information.

Students should submit all required documentation within 45 days of the date on the letter. The financial aid process will not continue until the required documentation is received. Not submitting the requested documentation within 45 days, without explanation, may result in loss of eligibility for the current academic year.

Once all required documentation has been received, students should allow a minimum 14 business days for the verification process to be completed. If the FAFSA data is correct, the Financial Aid process will continue toward a complete and accurate file at which time the student's Financial Aid will be packaged and an Award Letter will be mailed. The award can also be viewed online at [www.saintpaul.edu](http://www.saintpaul.edu) under the student's account. Any FAFSA discrepancies found as a result of the verification process will be corrected by the Financial Aid Office and electronically submitted to the central processor.

Any cases of suspected fraud, misreported information, or altered documentation to fraudulently obtain federal funds will be discussed with Saint Paul College administration and referred to the Office of Inspector General of the Department of Education via Minnesota State Colleges and Universities.

### Withdrawals

If you withdraw from Saint Paul College by the drop/add deadline, you will not receive financial aid funds because there will be no class registration. If you withdraw from attendance at Saint Paul College for any reason after the drop/add deadline, you will be placed on financial aid probation the following academic term. After completing the next semester with the appropriate grade point average (GPA) and credit hour progression, you will be removed from probation. If you fail to maintain a satisfactory GPA and credit progression, you will be suspended from financial aid.

## Withdrawals and Effect on Financial Aid

Students who receive financial aid and withdraw from all classes are subject to a federal Return of Title IV Funds policy. The policy states that if you withdraw up through 60% of the semester, a proportional amount of financial aid either received or that was applied to your student account must be refunded to the federal government.

**Example:** If a student receiving a Pell Grant of \$2000 drops out after 50% of the semester, 50% of the Pell received, approximately \$1000, must be returned to the federal government by the student and/or institution (minus 50% of the student's calculated share for Pell and SEOG).

Any institution refund calculated within the first four weeks of school will be applied to the student's account to reduce the student's share of the Return of Title IV Funds.

Funds returned to the federal government are used to reduce the federal program amount for which funds were disbursed. Funds are returned in the following order:

- Unsubsidized Federal Stafford Loan
- Subsidized Federal Stafford Loan
- Federal PLUS Loan
- Federal Pell Grant
- Federal SEOG Grant
- Other assistance under Title IV for which a Return of Funds is required

After the institution's share of any required refund to Title IV programs has been refunded, a proportional share of any remaining refunds (not to exceed the amount of the State Grant payment the student initially received for the term), must be returned to the State Grant Program.

## Program Transfers

If you transfer from one program to another, you will be considered for continued financial aid eligibility. However, all grades and coursework will be assessed in determining satisfactory academic progress.

## Consortium Agreements/Enrollment at Other Schools

If you are taking classes required for your program at Saint Paul College at another college, you must complete a consortium agreement if you would like those courses included in financial aid eligibility. *Consortium Agreement* forms may be obtained at the Financial Aid Office. They must be completed and submitted with an attached registration form and paid fee statement from the host school, to the Financial Aid Office by the drop/add deadline. If a consortium agreement is not submitted, financial aid will not reflect courses taken at the host school.

## Tuition and Fee Deferments

Tuition and fees will be deferred provided the following have been met by the posted tuition deadline for the term.

1. Student has received an Award Letter with financial aid eligibility equal to or greater than the tuition/fee charge. (Loan only eligibility requires a submitted Promissory Note.)

OR

2. An electronic Institutional Students Information Record (ISIR) is received resulting from submission of a FAFSA.

**Any tuition/fee balance not covered by Financial Aid is the Student's payment responsibility.**

## Satisfactory Academic Progress Standards for Financial Aid Recipients

Federal regulations require that a college develop a standard of satisfactory academic progress. This satisfactory academic progress standard must have both a qualitative standard (grade point average) and a quantitative standard (course completion). If the student fails to meet either of these two standards, they will first be given a probationary term. If the student fails to meet either of the satisfactory academic progress standards during the probationary term, they *will be suspended from financial aid*. Students who have been suspended from financial aid due to these standards will be reinstated for Financial aid after they have met the satisfactory academic standards or by successfully appealing the loss of aid. Appeal procedures for the loss of financial aid may be obtained from the Financial Aid Office, or online at the Financial Aid section of [www.saintpaul.edu](http://www.saintpaul.edu).

Students bear primary responsibility for their own academic progress and for seeking assistance when experiencing academic difficulty. Students are encouraged to keep a file of their grades and transcripts.

### Qualitative Standard

Students are required to maintain a minimum **2.0 cumulative GPA** for all coursework including withdrawals, incompletes and non-credit courses. Transfer credits do not effect the student's GPA.

### Quantitative Standard

Students are required to complete a minimum of **67% of the cumulative credits** attempted based on their enrollment status. All credits attempted will be calculated into the completion percentage. This includes courses that are designated with a withdrawal, incomplete, non-credit courses and courses that have been repeated. Transfer credits do not effect cumulative completion rate.

## Maximum Timeframe

All students are expected to complete their program within an acceptable period of time. Financial aid recipients meeting Satisfactory Academic Progress requirements may receive aid until they complete their program or until they have attempted **150% of the required coursework** in their current program/declared major. All credits attempted at Saint Paul College count toward the maximum timeframe. This includes withdrawals, incompletes, non-credit courses, and courses that have been repeated. Credits taken under a previous major and transfer credits will count toward maximum time frame provided they fulfill requirements of the current program/declared major.

## Implementation

Academic progress is evaluated at the end of each semester or term. A student who fails to meet cumulative progress requirements will be placed on financial aid probation or suspension. Academic progress will be monitored as follows:

1. Satisfactory Academic progress monitoring begins with the first credit. Upon six (6) credits of enrollment, all students with registered credits during a term will be evaluated at the end of the term.
2. Any student who fails to meet cumulative GPA and completion rate satisfactory academic progress requirements for one term will be placed on probation for the subsequent term and will be notified by mail. Financial aid may be received during a probation status.
3. A student on probation who earns a 2.5 term GPA and/or 100% term completion rate, but fails to meet cumulative satisfactory academic progress requirements for a consecutive term will remain at a probation status and therefore eligible for financial aid.
4. A student on probation who fails to meet the term standards identified in #3 above, and does not meet the required cumulative standards will be suspended from financial aid and notified by mail.
5. Upon evaluation, if Saint Paul College determines that it is not possible for a student to meet the minimum cumulative standards prior to completing a degree/diploma or certificate for their declared major, the student will be suspended from financial aid and will be notified by mail.
6. A student who has exceeded the maximum time frame will be placed on suspension from financial aid and provided with a written decision.

## Suspension for Extraordinary Circumstances

Saint Paul College may immediately suspend a student in certain circumstances, such as:

1. A student who was previously suspended and whose academic performance falls below acceptable levels during a subsequent term
2. A student who demonstrates an attendance pattern that abuses the receipt of financial aid

## Financial Aid Appeals Procedure

A student who fails to make satisfactory academic progress and is suspended from financial aid, has the right to appeal based on unusual or extenuating circumstances which may include, but shall not be limited to, death in the family, injury or illness.

## Appeal Process

Appeals must be submitted in writing on the *Appeals Form* available online in the Financial Aid section at [www.saintpaul.edu](http://www.saintpaul.edu) or in the Financial Aid Office. The appeal must include a thorough explanation of the circumstances that affected academic progress. If applicable, the appeal must include supporting documentation beyond the written explanation. Appeals must be submitted to the Financial Aid Office to be evaluated for an approval or denial. A written decision on the appeal will be provided to the student.

If the appeal is approved, the student may receive financial aid for the next term. Provided a 2.5 GPA and a 100% completion rate is achieved for the succeeding term, the student will remain on probation. If these requirements are not met for the term, or the student does not meet the cumulative progress standards, denied appeals may be resubmitted for consideration by an Appeal Committee which will result in a final determination. The student will go to a suspension status for the next term of enrollment for financial aid eligibility.

## Reinstatement

Students who are placed on suspension for financial aid but are allowed to register after staying out for one term will be reinstated for financial aid after achieving a cumulative 2.0 GPA and 67% completion rate, or after receiving an approved appeal.

## Treatment of Grades

Please see the Academic Standards section of the school catalog.

## Academic Amnesty/Forgiveness

Students who are on Financial Aid Suspension who request Academic Forgiveness for previous enrollment due to an extenuating circumstance must follow the appeal process.

### Audited and Test Out Courses

Courses taken by Audit or Test Out are not eligible for Financial Aid.

### Consortium Credits

Credits for which financial aid is disbursed under a consortium agreement will be recorded as consortium agreement credits and will be included in the calculation of Satisfactory Academic Progress for financial aid.

### College Readiness and ESL Courses

College Readiness and ESL courses will be included in the cumulative GPA and completion rate. ESL courses and up to 30 credits of College Readiness coursework will be excluded from the 150% maximum time frame calculation

### Repeated Courses

Courses may be repeated for financial aid eligibility for “F” grades only, or if program requirements require a higher grade. The cumulative GPA will use the highest grade achieved. Courses repeated a third time require registration permission from the Academic Dean. The cumulative completion rate includes all repeated courses.

### Transfer Credits

Credits taken at previous schools accepted for current program requirements will be included in the 150% maximum time frame.

### Withdrawals

All coursework designated with a withdrawal are calculated in the cumulative completion rate and maximum timeframe.

### Education Tax Credits

The Taxpayer Relief Act (TRA) of 1997 provides for two tax credits that students may be eligible to claim: the Hope Scholarship Tax Credit and the Life-Long Learning Tax Credit. The Hope Scholarship Tax Credit is a tax credit and not a scholarship. If you do not pay federal income tax, this credit will not apply to you. The credit applies to students enrolled at least half-time for at least one term during the calendar year. The credit applies only to citizens or permanent residents of the United States. The credit applies only to tuition and academic fees paid for by the taxpayer (not by grant or third party sponsor). If your grant or other payment will pay for books or other living costs and you pay for tuition and academic fees yourself, you may claim the credit; however, you must report the grant or other payment as income.

Many details surround the Hope Scholarship Tax Credit and the Life-Long Learning Tax Credit. Saint Paul College does not provide Income Tax Counseling. We recommend that you consult with a tax professional to see if you qualify. Information on the Hope Scholarship Tax Credit is available in the Tuition Office. Tax Credit brochures are available in the Financial Aid Office.

## Student Services

### Office of Enrollment Services

Enrollment Services provides prospective and current students with up-to-date information on program options and guide sheets that help guide students through the application and registration processes. The office also processes requests for those students who want to change their major program, as well as applications for admission to the various selective programs offered at the College. Students may also use the computers in Enrollment Services to print copies of their term schedules and their bills. For assistance, call 651.846.1555.

### Transfer Center

The Transfer Center staff works with students transferring to Saint Paul College as well as those planning to transfer on to a 4-year college or university, including students enrolled in the College’s Associate in Arts degree. The Transfer Center also serves as a resource center for students investigating transfer opportunities, articulation agreements, and other college and university application and admission requirements. Transfer guide sheets are located in the Transfer Center. The Center is located in room 159. Advising is available for students interested in transferring to a Bachelor degree program. The Transfer Center also hosts a variety of visits to Saint Paul College by admissions representatives from many regional colleges and universities. For transfer assistance call 651.846.1739 or visit our Web site at [www.saintpaul.edu/academics/transfer](http://www.saintpaul.edu/academics/transfer)

### Academic Advising

Program Faculty Advisors assist students with program planning and course selection. They provide detailed information about programs, employment opportunities and transfer options. Students are strongly encouraged to meet with their Faculty Advisor prior to registering each term.

### Counseling

A personal counselor is available to assist students with short-term counseling related to educational, social, personal, developmental and life career planning goals. The on staff counselor also provides crisis intervention services, career counseling, mediation, referrals to community agencies, and consultations when needed. The Counseling Center is located in room 155S and the counselor is available on an appointment or emergency walk-in basis. For assistance, call 651.846.1383.



## Office of Student Retention

The Office of Student Retention works with students facing academic difficulty, including students who are on academic probation. This Office monitors the Early Alert Referral System (EARS) and advises students in the College Readiness Program (CRP). The Office of Student Retention is located in the Office of Enrollment Services.

## Support Services for ESL Students

In addition to general services at the College, English-as-a-Second-Language (ESL) students have access to services that meet their specialized needs. An ESL assessment for students whose native language is not English is available to assist in appropriate course placement. The College also offers a wide range of courses to assist ESL students in building English skills in reading, writing, speaking and listening. These courses may be available prior to or during enrollment in the major program. ESL students also have access to the Language Lab where they can receive additional assistance from ESL faculty in building their English skills.

For more information on services available to ESL students, please contact the Office of Enrollment Services at 651.846.1555.

## Veterans Educational Benefits

Saint Paul College is approved for the instruction of veterans and orphans of war veterans who have training needs and who are entitled to participate in federal financial assistance programs. A College representative is available to assist veterans with application to the College and eligibility for veterans' benefits. For more information, please contact the Registrar, 651.846.1372.

## Disability Services

Saint Paul College is committed to providing equal access to educational opportunities for all students, including those with disabilities. The Director of Disabilities Services, Shai Wise provides direct assistance such as information, referral, advocacy, support, and academic accommodations for students. Accommodations are made on an individualized and flexible basis. Students with disabilities are responsible for seeking assistance and providing acceptable documentation of their disability prior to receiving accommodations.

The Director of Disability Services, Shai Wise, assists in the transition of students with disabilities to Saint Paul College programs. The Director of Disability Services is responsible for identification, referral, advocacy, accommodation and interagency coordination. The Director of Disability Services, Shai Wise is located in Enrollment Services and can be reached at 651.846.1547.

## Reasonable Accommodation Policy

Disability Services fosters programmatic and environmental access to students with disabilities so that they can achieve their educational goals. The Office also serves as a resource on disability issues to the College and the community.

## Procedures for Obtaining Services

All students who wish to receive assistance through Disability Services must meet with the Director and provide acceptable documentation of their disability prior to receiving services. Available services will be explained and those deemed appropriate will be provided upon the student's request.

## Eligibility and Documentation

Any person who has a documented disability, permanent or temporary, who is a student or prospective student at Saint Paul College, and who is qualified for educational programs is eligible for services.

Saint Paul College requires students with disabilities to submit documentation of their disability prior to receiving academic accommodations. The College requires that documentation:

- Clearly state the specific diagnosed disability or disabilities
- Describe the tests performed in making the diagnosis
- Describe the functional limitations resulting from the disability or disabilities
- Be current (less than 3 years old)
- Describe the specific accommodation(s) requested
- Adequately support each of the requested accommodations
- Be typed or printed on official letterhead and be signed by an evaluator qualified to make the diagnosis, including information about license or certification and area of specialization.

Any documentation that fails to meet any of these criteria may not be sufficient to receive accommodations. Individualized Education Programs (IEP's) are not sufficient documentation to receive accommodations at the higher education level. Students whose documentation is insufficient are invited to resubmit additional documentation at any time. Saint Paul College is not responsible for providing accommodations to students who have not submitted adequate documentation. Documents provided to the college will not be returned.

## Rights of Students with Disabilities

All students at Saint Paul College have the right to be treated with dignity and respect by all staff and employees at the college. Students with disabilities have the right to:

- Have information regarding their disability and services they receive kept confidential and disclosed only on a need-to-know basis
- High quality services and assistance in accordance with Saint Paul College policies and procedures
- Evaluate the services they receive and bring to the attention of the Director of Disability Services, Shai Wise any concerns or problems related to the delivery of services
- Appeal any denied requests for services. All denials will be documented and kept on file by the Disability Services Office.

Students with disabilities should begin working with the Disability Services Office as soon as possible to allow time to put accommodations in place.

## Available Services/Accommodations

Saint Paul College offers the following services to students to remove environmental and programmatic barriers related to a disability:

- Advocacy
- Support and counseling
- Information and referrals
- Early registration

## Physical Access Accommodations

- Assistive listening devices
- Academic accommodations
- Sign language interpreters
- Assistive computer software
- Notetakers
- Test proctoring/accommodations such as extra time, quiet room, tests on tape
- Written materials made available on tape or in other alternative formats
- Adaptive equipment
- Recorders and scribes
- Transition services
- Assistance with course selection and program advising
- Other services as deemed appropriate by staff

## Sign Language Interpreters and Notetakers for Deaf Students

Sign Language Interpreters assist deaf and hard-of-hearing students with classroom communication, as well as communication with students, faculty and staff. Many College events are interpreted/transliterated for deaf students/staff. Notetakers are often necessary during class lectures so deaf and hard-of-hearing students can concentrate fully on the interpreter. Some deaf and hard-of-hearing individuals do not know or use American Sign Language. They may depend entirely on lip reading to communicate. Oral interpreters and notetakers may provide necessary communication when instructors are not facing them. FM aids are available for those hard-of-hearing individuals who wish to use assistive listening devices/equipment during lectures or group discussions.

## Contact Disability Services

Any questions should be directed to Shai Wise, director of Disability Services, 651.846.1547/1548 TTY. The Office of Disability Services is located in the Office of Enrollment Services. If a student is having difficulty with any requested accommodation, please contact the Disability Services Office in a timely manner for assistance.

## Section 504 of the Rehabilitation Act of 1973 and Americans with Disabilities Act of 1990

Persons with disabilities have the right to equal opportunity for education as prescribed by law. Disability Services is responsible for creating a barrier-free environment while empowering students to grow towards independence and self-assertion.

## Career Resources and Classes

Saint Paul College offers a variety of career resources to assist individuals in deciding on a career that matches their interests, skills and goals.

### Career Counseling

Assistance with career exploration and career decision-making is available through the Career and Placement Center. One-to-one assistance is available by appointment. Call the Career and Placement Center at 651.846.1384 to schedule an appointment.

### Career Classes

College Success Strategies and Career Resources (CSCR1405) and Choosing your Career Path (CSCR1403) are credit career and college success courses offered each semester. These courses are for students who want to gain knowledge of career resources and the career planning process. These courses also provide career assessments, career resource information and planning strategies that will assist in developing an individualized career plan.

## Career Workshops

Career workshops provide individuals with a jumpstart on their career planning and decision-making process by offering career assessment and career resource information in a shorter format than the career classes. Workshops are offered to small groups throughout the year.

## Computerized Career Resources

Students can explore interests and career options by using a computerized career planning tool, the Minnesota Career Information System (MCIS). MCIS has up-to-date information on careers that match student interests. For each step of the career planning process MCIS will help with answers to questions related to career, education and job outlook. MCIS will assist a student to decide on a career, find an educational program, select a transfer college and locate financial aid. MCIS is available online through the College. For access information, call 651.846.1317.

ISEEK is another Internet-based career information system that can assist in career planning. For more information on ISEEK, visit the Web site at [www.iseek.org](http://www.iseek.org).

## Vocational Evaluation

Vocational evaluation is available to secondary and post-secondary students with disabilities. Evaluation provides assistance in career planning through assessment of interests, aptitudes and abilities. Please call 651.846.1317.

## Additional Services

### Child Care

Child care services are offered to students enrolled at Saint Paul College, which sponsors on-campus child care in partnership with the Children's Home Society & Family Services (CHSFS). The Center has separate areas that provide appropriate care to three age groups: infants, toddlers and preschoolers.

Interested students may enroll their children on a schedule that accommodates their college class schedule. Student parents are encouraged to visit with their children during class breaks. For information on Center costs and available financial aid, call 651.846.1581. The Center is open year round. Operating hours are Monday through Friday from 6:30am to 4:30pm, except College holidays.

### Cafeteria

Food service is available in the City View Café Monday through Friday. Breakfast, lunch and dinner are served daily. Snacks are available throughout the day. Refer to the College Web site ([www.saintpaul.edu](http://www.saintpaul.edu)) for the cafeteria schedule. The Café is closed during holiday breaks, semester breaks and when school is not in session.

## Student Lounges

City View Commons is available to students to dine, study, or just meet friends. A lounge area is also located by the College's 3rd floor skyway.

## Parking Registration and Fees

All Saint Paul College students are required to have a registered parking permit. Students with handicapped certificates or state-issued handicapped plates are also required to display a Saint Paul College permit. Registration is considered complete when the permit is properly affixed to the registered vehicle. The fees paid for permits do not reserve nor guarantee a parking space. Refer to the last page of this catalog or the *Student Handbook* for complete information on the College's Parking Policy.

## Campus Security

Evening escort services are available for students. The Campus Security phone number is 651.846.1322. Security staff normally patrol the campus between the hours of 7:00am and 10:30pm. The Campus Security and Crime Report is published annually. Copies of this report are available from the Information Center. Refer to the *Student Handbook* for complete information on Campus Security and the Crime Report.

## Bus Transportation

Students who live in the Saint Paul-Minneapolis metro area can access the College using Metropolitan Transit Commission (MTC) bus service. MTC bus passes are available for purchase at the Bookstore. Free MTC bus schedules are also available in the Bookstore. For additional information, call the MTC Information Center at 612.373.3333 or [www.metrotransit.org](http://www.metrotransit.org).

## Health Services

Saint Paul College provides first-aid kits with procedures distributed to all instructors. Information about additional health resources is available from the Dean of the Health and Service Program. Please follow the procedures below regarding your health:

- You should take an active role in your own wellness and health.
- You should wear appropriate medical alert tags (e.g., diabetic or seizure IDs) to assist emergency personnel in assessing an illness or injury more quickly.
- Notify a staff member immediately if you have a question about a medical condition or injury. If you are unable to find a staff member, call Security at 651.846.1322.

## Health Insurance

All students are strongly encouraged to have health insurance as they are responsible for the costs of personal health care, including injuries at the College or Clinical site. Students who do not have medical coverage may purchase an insurance plan for students. This insurance plan is made available through the Minnesota State Colleges and Universities state insurance plan. This insurance coverage is available to all students, with an option for dependent coverage. Students may purchase the plan for a term or for the year. Brochures are available at the Office of Enrollment Services.

International students enrolled with a student visa are required to purchase a health insurance plan through the College.

## Housing

Saint Paul College does not provide residence hall facilities for its students. Students can obtain information about available housing from area newspapers and other community publications. The College assumes no responsibility for housing information or housing referrals that appear in those publications.

## Lockers

Lockers at the College can be rented for \$20.00 per academic year. Only Saint Paul College locks may be used and lockers must be cleaned out by the end of the Spring semester. Students who are interested in renting a locker should stop by the Tuition Office window for more information.

## Lost and Found

Lost and found items may be turned in to the Administration Offices front desk. Due to the volume of items found, unclaimed items will be discarded or donated to charity the first business day of each month. Lost or stolen items are not the responsibility of Saint Paul College. To inquire about a lost article, stop by the Administration Office or call 651.846.1600.

## Student Identification Cards

Students must obtain an identification (ID) card with a receipt of tuition payment and a valid driver's license or state identification. The ID card is required for many school activities and services and allows students to check out library materials. ID service location and hours are posted on monitors throughout the school.

## Saint Paul College Foundation

The Foundation was established in 1986 by a group of individuals concerned about the welfare of today's students. The Foundation's mission is to obtain and distribute resources necessary to support students, faculty, programs and Saint Paul College's vision. The purpose of the Foundation is to solicit private contributions from the community as a means to increase the number of available resources for the College and its populations. The intent of the Foundation is to build partnerships with community leaders and residents to strengthen Saint Paul College.

By generating external funding for Saint Paul College, the Foundation will provide more opportunities for students through scholarships, endowments, advanced technology equipment and additional training machinery. The Foundation will do everything possible to reduce financial obligations for students in pursuit of learning.

For more information, please visit our Web site at [www.saintpaul.edu/foundation](http://www.saintpaul.edu/foundation) or contact the Foundation Director at 651.846.1469

## Student Life

### Student Government

Many students each year are proud to contribute their time and energy to Saint Paul College Student Senate. The Student Senate is the official student governing body, which includes the following officers: President, Vice President, Treasurer and Historian. A Parliamentarian and Secretary are appointed by the President.

Recreational events and other functions are planned by the Senate. Students who volunteer for a number of projects and activities are joining in a tradition of student involvement at Saint Paul College.

## Student Organizations

The Student Senate also includes the following Student Associations:

- African Heritage Organization
- Autobody Club
- Bi-Cultural Enrichment Club
- Computer Career Club
- Respiratory Committee
- Phi Theta Kappa
- Medical Laboratory Technicians
- Somali Student Organization
- Uniquely Challenged Student Association
- Student Ambassadors
- Asian Student Association
- Photo Club
- Speech and Theatre Club
- Watch Club

Each of these associations offers various activities and presentations throughout the school year to the entire student body.

### Minnesota Precision Manufacturing Association (MPMA)

This organization is an affiliate of the National Tooling and Machining Association and is open to students of trades that are involved in the working of metals and is the first of its kind in the nation. Their primary focus is to provide for and strengthen the ties between the students of the metal working trades and their potential employers, almost all of whom are members of the MPMA. This includes Precision Machining, Tool Die and Moldmaking, Sheet Metal Fabrication, Design Technologies, Automation and Welding. Activities include mentoring, internships, training seminars, tours and guest lecturers that will provide an avenue for increased student participation in the activities and functions of the Student Senate.

### SkillsUSA

This organization is established exclusively for students in technical, trade, health and service programs. Students participate in a variety of social, community service and educational activities. One of the main events of the school year is the SkillsUSA Championships. Saint Paul College students have represented the College in local, state, national and international competition. Students compete in a wide range of areas, from cake decorating to cosmetology to sheet metal.

## Alumni Relations

The College has established an alumni association. All Saint Paul College graduates are encouraged to join. Call 651.846.1305 for further information.

## Academic Resource Centers

### Academic Support Center

The Academic Support Center provides free peer tutoring in many subjects each term. Tutoring is available in math, writing, science, as well as, other subjects. Peer tutors are academically successful students who help those who want assistance. The Academic Support Center trains the peer tutors, matches tutors with students and monitors the tutoring process.

### Library

#### Mission

The Saint Paul College Library mission is to support and enhance the educational mission of the College. The Library provides essential educational support to the local campus community as well as to the larger library and information communities, by providing access to local, global and diverse information resources. The Library facilitates appropriate use of new and expanding technologies as well as print resources, which are responsive to current academic and technical coursework.

#### Services

A collection of more than 29,000 books, 158 periodicals and 730 videos and films include subject areas such as liberal arts and sciences, business, computer careers, health, services, technical and trade. Smaller collections of CD-ROMs and audiobooks are available. Materials for career development, personal growth and recreation are also available. Departmental centers house approximately 5,000 additional books and resources.

The Library offers Internet services and Internet subscriptions to resources such as Newsbank and SIRS Researcher. Student e-mail is also accessible. The Library is integrated into the MNPALS consortium. The Library catalog is accessible on MNPALS. Access to over 100 other MNPALS libraries, including all Minnesota State Colleges & Universities campuses, some private colleges and all state agencies, as well as many public library systems is available through interlibrary loan. Magazine articles are available in index, abstract and/or full text formats for more than 2,500 periodicals retrospectively for five years. Access to Lumina, the University of Minnesota Information System, is available via

MNPALS. Patron initiated interlibrary loan service via MNPALS/Minutex is an added MNPALS feature. The Library is also part of the MnLINK library system, providing statewide library and database access.

Library staff are committed to fulfilling the Library mission through ongoing service and education. Library staff encourage full facilitation to library information resources and services. Lifelong learning, critical thinking skills and on-going information literacy are emphasized. Educational guidance is provided for both print and multimedia information resources. Ongoing individual and classroom instruction is provided upon request. The Library is also committed to be an informational resource and educational support to faculty and staff.

### Additional Library Services

The Library was renovated during the years 2000 and 2002. This has enhanced current and future student information and research needs in an attractive and inviting environment. The newly renovated Library offers both an open computer lab and a computer classroom. An expanded circulation area is offered, as is an expanded group study area. A lounge reading area is a new amenity. Shelving space has also been increased to accommodate an ever-increasing book collection.

### Library Location

The Library is located on the main floor of the Saint Paul College Campus, in the East Wing across from the Financial Aid office.

### Hours and Additional Services

Library hours are 7:00am to 8:00pm Monday through Thursday and 7:00am to 4:00pm Friday. Hours are subject to change. A copy machine is available for student use. The Student ID Card also serves as the library card, which allows for full access to MNPALS, including interlibrary loan.

## Instructional Technology Center (ITC)

The Instructional Technology Center (ITC) provides computer labs to students at several locations on campus. Computer labs provide students with access to technology-enhanced learning in math and reading basic skills, software used in courses and the latest in business, multimedia and Internet programming technologies. Computer labs are located on the third floor in Rooms 306 and 308. Students must abide by the Computer Usage Policy while utilizing any computers on campus. Refer to the *Student Handbook* for a copy of the policy. Computer labs are available six days a week (while classes are in session)—Monday through Thursday, 7:30am to 10:00pm, Friday 7:30am to 4:00pm and Saturday 7:30am to 2:00pm.

## Learning Center

The Learning Center is available to students to assist them in the development or upgrading of their basic reading, grammar and math skills. Utilizing computer-based courseware, students are able to work on basic skills development at their own pace under the supervision of faculty and center staff. Computer tutorials are also available in science and other subjects. The Learning Center is located in Room 322 and the hours of availability (when classes are in session) are as follows: Monday through Thursday 7:30am to 10:00pm, Friday 7:30am to 4:00pm and Saturday 7:30am to 2:00pm.

## Distance Learning

Saint Paul College is committed to providing learning opportunities to students that are free of place or time restrictions. By utilizing the latest technology, the College delivers courses at places and times that are convenient to the student. Courses delivered via Interactive Television (ITV), Satellite connections or the Internet allow students and faculty to communicate regardless of the distance between them. Technology and its application allow the expansion of learning access to educational opportunities which may not be otherwise possible. Additional information may be found online at [www.saintpaul.edu](http://www.saintpaul.edu).

## Bookstore Information

Textbooks and a wide range of school and personal supplies can be purchased from the Bookstore. It is located on the first floor near the main entrance. Please check the College Web site and campus postings for Bookstore hours or call 651.846.1422.

### Textbook Costs:

To estimate textbook expenses in advance, please use the Saint Paul College Bookstore Web site, [www.saintpaulcollegebookstore.com](http://www.saintpaulcollegebookstore.com). The student's course schedule will have the information needed to find out more about required textbooks online. Term, Subject (same as Department for the Web site), Course Number and Section Number are needed for textbook inquiry. The listed costs are current estimates.

### Textbook Orders/Reservations:

Students may also order or reserve their textbooks online at the following Web site: [www.saintpaulcollegebookstore.com](http://www.saintpaulcollegebookstore.com). For Web orders and reservations, a credit card is required. The Bookstore accepts Visa, MasterCard or Discover. If students wish to pay by cash, personal check, or book voucher, they may reserve their textbooks online and pick them up at the Bookstore.

**Textbook Refunds and Buy-Back Policy:** Full refunds for most textbooks are given within ten school days of purchase, providing there is proof of purchase (receipt) and the textbook is in new condition.

Textbooks returned prior to the tenth day that are not in new condition will be refunded at current used book pricing. After the tenth day, students will be encouraged to sell their books at the *Textbook Buy-Back*. See the Web site for additional refund information. In an effort to keep textbook costs down, the Bookstore attempts to stock used books whenever possible. In addition, the Bookstore schedules a *Textbook Buy-Back* at the end of each semester, where students may resell their textbooks for cash.

## Rights and Responsibilities

### Academic Integrity Policy

Saint Paul College fosters the highest standards of academic integrity and the highest regard for truth and honesty. The attempt by students to present as their own any work not actually performed by them; collusion, fabrication and cheating on examinations, papers and other course-related work; stealing, duplicating or selling examinations; substituting for others in class discussions or examinations; producing other students' papers or projects; or knowingly furnishing false or misleading academic information on official College records, are considered violations of academic integrity and destructive to the central mission of the College.

Students who violate academic integrity shall, after due process, be subject to College sanctions that may include failure on assignments and examinations, failure in courses and suspension or expulsion. Established academic integrity policies, procedures and sanctions are communicated in classes and publications, such as the online *Student Handbook*.

### Directory Information/Data Privacy

Saint Paul College, in compliance with the Federal Educational Rights and Privacy Act (FERPA) and the Minnesota Data Protection Act, affords students certain rights with respect to their education records. Students can inspect and view their records within 45 days of the date the Registrar receives a written request for access. Students may ask the College to amend a record by writing to the Registrar and clearly identifying what part of the record is inaccurate. Records will not be released to a third party without permission from the student except to those officials or agencies with specific legal authorization. The following information has been designated as directory information and, as such, is available to the general public: student name; major

program of study; dates of attendance; degrees, diplomas, certificates and awards received; full-time or part-time status; and participation in recognized activities. To prevent release of this information outside the College, the student should contact the Student Records Office to sign the *Non-Disclosure Form*.

E-mail addresses are viewed by Saint Paul College as valid addresses for the institutional purpose of distributing student related information, updates, important dates, payment reminders, enrollment dates, etc.

**NOTICE:** *If you are currently enrolled in or receiving services from one college or university within the Minnesota State Colleges and Universities system, your academic records from that institution are available to officials of other schools within the system while you are in attendance. If you seek or intend to enroll at another institution within the system, your academic records from other institutions are also accessible to officials at the school where you are seeking or intend to enroll. Disclosures of your records to other schools under other circumstances may require your prior written consent.*

*You have the right to request a copy of records that have been disclosed. You also have the right to request a hearing to correct any inaccurate, incomplete, or misleading information in those disclosed records. For further information about your rights, please contact the Registrar at the college or university that supplied the records.*

### Code of Student Conduct

Saint Paul College, as a part of Minnesota State College and Universities, operates under the Board of Trustees and recognizes that your rights as a student must be respected.

You are expected to be familiar with the Code of Student Conduct. Your rights and responsibilities, as a student and the expectations of the College are described in the Code of Student Conduct. Refer to the online *Student Handbook* for a copy of the Code of Student Conduct.

You are responsible for conducting yourself in a manner that does not interfere with the educational process. Behavior that is threatening to the safety or welfare of yourself or others, or that is harassing or discriminatory in nature, will be reviewed promptly by the College and appropriate action will be taken. The Code of Student Conduct does not replace nor reduce the requirements of civil or criminal laws.

The College has established a Code of Student Conduct that details procedures for the administration of Student Conduct proceedings. You shall be afforded appropriate due process in the adjudication of any charge(s) of violations of the Code of Student Conduct. Students found guilty of violations may be subject to sanctions, including suspension or expulsion.

Allegation of discrimination or harassment shall be adjudicated under separate procedures in accordance with Saint Paul College policies on those issues.

### Complaints and Grievances

Saint Paul College has a Student Complaint and Grievance procedure. Both procedures are outlined in the *Student Handbook*, which is available online at [www.saintpaul.edu](http://www.saintpaul.edu). If students feel that any of their rights have been violated, they should follow the process as outlined in the *Student Handbook*.

### Discrimination and Harassment Policy

Saint Paul College is committed to providing students with an educational environment free from discrimination and harassment.

***No person shall be discriminated against in the terms and conditions of employment, personnel practices, or access to and participation in, programs, services and activities with regard to race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission as defined by law, or inclusion in any other group or class against which discrimination is prohibited.***

It shall be a violation of this policy for any student, instructor, administrator or other college personnel to harass a student, instructor, administrator or other College personnel through conduct or communication of a sexual nature or regarding religion and race as defined by this policy. (For purposes of this policy, College personnel includes College employees, agents, volunteers, contractors or persons subject to the supervision and control of the College.)

It shall be a violation of this policy for any student, instructor, administrator or other personnel of the College to inflict, threaten to inflict, or attempt to inflict racial, disability, or sexual violence upon any student, faculty member, administrator or other college personnel.

The College will act to investigate all complaints, either formal or informal, verbal or written, in violation of this policy.

Refer to the *Student Handbook* for additional information on the Discrimination and Harassment Policy.

### Drug and Alcohol Policy

Saint Paul College has a policy regarding alcohol and other drug use, including unlawful drug use or abuse in the workplace, in accordance with the Drug Free Workplace Act of 1988 (Public Law 100-690, Title V, Subtitle D) and Drug Free Schools and Communities Act Amendments of 1989 (Public Law 101-226). A copy of the Drug and Alcohol Free Campus information is available in the online *Student Handbook*.

The College forbids the unlawful possession, use or distribution of alcohol and drugs on the College premises, or in conjunction with any College-sponsored activity or event. The College will impose sanctions on students who violate this policy. This prohibition of possession or consumption of alcoholic beverages on campus applies regardless of age.

### Smoking and Tobacco Policy

Smoking and the use of tobacco products are only permitted in designated areas on the College campus.

### College Communication via Email

Email is the official means of communication at Saint Paul College. All students enrolled at the College must initiate their Saint Paul college email address and check their College email on a regular basis. Students are responsible for reading and responding, when called for, to all announcements, requests and other College communications sent via Saint Paul college email. New students will have the opportunity to initiate their College email following orientation and prior to registration.

## Academic Standards

### Grade Point Average

A college-level cumulative grade point average of 2.0 (C) is required to graduate with a degree, diploma, certificate or completion of the Minnesota Transfer Curriculum.

### Grade Point Average Computation

For each grade students earn in a course, they will be assigned honor points.

Grade	Honor Points
A	4
B	3
C	2
D	1
F	0
S	2
I	0
P = Pass	0
AU = Audit	0
W = Withdraw	0



The student's GPA is obtained from these honor points by calculating the total number of points (honor points per credit times the credits for each course) and dividing that total by the total course credits. An example follows:

Course	Credit	Grade	Honor Pts
BIOL 1740	4	B	12
PSYC 1710	4	A	16
BTEC 1410	3	F	0
BTEC 1418	3	S	6
BTEC 1435	<u>3</u>	P	<u>0</u>
<b>Total:</b>	17		34
<b>GPA = 34 / 17 = 2.0</b>			

### Grade Report

End-of-term grade reports are available online approximately 10 days after the term ends at [www.saintpaul.edu](http://www.saintpaul.edu).

### Dean's List

Once a student is admitted to their selected program and has completed 12 credits with a cumulative grade point average of 3.5 or higher they will be placed on the Dean's list and sent a letter of recognition from the Dean of their program. A notation will be made on the student's transcript to indicate this achievement.

### College Readiness Program High Achievement Recognition

Students who are in the College Readiness Program and have completed 9 credits with a cumulative grade point average of 3.5 or higher will receive a letter of recognition for their achievements from the Dean of Student Development and Services. A notation will be made on the student's transcript to indicate this achievement.

### Satisfactory Academic Progress Standards

It is the responsibility of the student to maintain a cumulative grade point average (GPA) of 2.0 and a course completion of at least 67% of attempted credits. Once a student has accumulated 6 or more credits, if the student's cumulative GPA and/or completion rate falls below the minimum, the student may be placed on academic probation, or in some cases suspended. If the cumulative GPA and/or completion rate falls below minimum standards for a second term, the student may be suspended from the College. A 2.0 overall GPA is required for graduation.

Exception: A letter grade of "D" is considered to be a failure in the following programs: Practical Nursing, Medical Laboratory Technician, Respiratory Care Practitioner and Sign Language Interpreter/Transliterater AAS (language and interpreting skill classes), and all ESL classes.

### Incomplete Grades

Illness or other unforeseen emergencies that prevent students from completing course requirements within the allotted time should be communicated to the instructor as soon as possible. The student may be granted an extension after filling out an *Incomplete Grade Request Form* which must be signed by both the instructor and the student.

If a student has received an extension period to complete work of a course, they will be temporarily assigned the grade of incomplete "I". If the student does not complete the course requirements within the extension period, the incomplete status will be turned into a grade of "F". Fall Semester is considered the next term for incomplete grades approved for Spring Semester or Summer Term for students who have not completed their program of study. The extension period starts at the end of the current semester and may not exceed eight weeks. For students who are completing their program of study in the Spring Semester, incomplete grades must be submitted by June 1st.

If a student receives financial aid, extension periods are limited to eight weeks. A grade must be assigned within that time so that the student's grade point average can be calculated to determine future eligibility for aid.

### Course Audits

Students may audit a course on a space-available basis. To audit a course, students must:

1. Register for the class under audit status and pay the required tuition.
2. Obtain instructor approval during the first class session.
3. Provide the Student Records Office with a signed statement from the instructor and the student.

Courses taken on audit status do not count toward requirements for degrees, diplomas, or certificates. In addition, audited courses do not qualify for financial aid or for veterans' benefits.

### Repeated Courses

Students may repeat a course for the purpose of achieving a higher grade or to review course material. Credits will be counted only once as "earned credits." Transfer credits will be removed for any repeated course at Saint Paul College. If both the original and the repeated grade are taken at Saint Paul College, both will appear on the student's transcript. The highest grade will be used to compute the grade point average (GPA). Credit by Exam and independent studies are not acceptable means of making up a failed course. If a student wants to repeat a course a third time, permission from the appropriate Academic Dean is required.

Veterans' benefits will not be paid for repeated courses.

### Maximum Credit Load

To register for 24 or more credits in a semester, or more than 9 credits in summer session, a student must obtain authorization from the Director of Enrollment Services.

Guidelines to exceed the limit are as follows: If the student has compiled at least a 2.75 GPA at the College and has accumulated 20 credits; if a student transfers in with a 3.0 GPA and an accumulation of 20 credits; or if there are other documented circumstances that justify the exception.

### Credit by Examination/Test-Outs for Technical Credit

Registered students who are able to demonstrate achievement in the content of a college-level course may be eligible to receive credit toward a degree. The College offers Credit by Examination for students in technical (non-general education) programs for a course provided that no CLEP exam exists. For testing out of general education courses and selected business courses, students may take the CLEP exam (see *CLEP Policy*).

Credit by Exam is determined on a case-by-case basis in selected areas and is at the instructor's discretion. The non-refundable fee for Credit by Exam is one-half of that course's tuition charge. A maximum of 12 credits may be earned at the College through Credit by Exam. Credits earned by examination do not count toward the Saint Paul College residency requirements. Credit is given only for courses included in Saint Paul College curriculum.

**Note:** Successful Credit by Exam will apply to the Saint Paul College program in which the student is enrolled. Other colleges have their own policies for Credit by Exam and may not accept Saint Paul College Credit by Exam in transfer.

If a student passes the exam, an entry will be made on the transcript with CBE (Credit by Exam) listed with the course title. Students may test only once for each course. No credit by examination will be granted when a student has earned a grade in a more advanced course in the discipline.

Credits received through Credit by Exam are not eligible for financial aid.

Applicants for Credit by Exam must contact the Records Office to start the process. Credit by Exam must be completed prior to the 5th day of a course in which a student is currently enrolled. Students awarded credit by exam are responsible for dropping the corresponding course within the drop/add period. Credits received through Credit by Exam are not eligible for financial aid or veterans' benefits.

### Conversion

The conversion of quarter hours to semester hours is 0.67 for each quarter hour.

## Graduation

To be eligible to graduate from Saint Paul College, students must:

- earn the total required credits and courses listed within the program plan;
- earn a cumulative GPA of 2.0 in 1000 level courses or above;
- complete the *Graduation Application* in the Student Records Office; and
- fulfill all financial obligations to the College.

A graduation ceremony is held in May for students completing their programs during the academic year.

Degrees/diplomas/certificates are conferred by the President to the graduates of Saint Paul College—A Community & Technical College under the authority of the Minnesota State Colleges and Universities Board of Trustees.

### Degree Residency

A student shall earn a minimum of 20 credits for all associate degrees at Saint Paul College. The residency requirement shall be reduced to 12 college-level credits for students transferring with at least 12 college-level credits from another Minnesota State Colleges and Universities institution and the University of Minnesota. One third of the credits required for a diploma, certificate, or the Minnesota Transfer Curriculum (MnTC) must be earned at the College.

### Time Limits for Graduation Requirements

Students entering Saint Paul College will have five years in which to complete their work under the terms of the catalog in effect at the time of their first enrollment. Students must have been in attendance during the catalog year selected. Students taking more than five years to complete their graduation requirements may follow any catalog in effect during the five-year period preceding their date of graduation.

Students must declare which catalog year requirements they will follow on the *Graduation Application*. Students who have a break in their attendance for one year or longer are encouraged to review educational plans upon re-enrolling at the college.

To ensure students graduate with up-to-date skills, technical credits are valid for five years or have a five year "lifespan." This includes transfer technical credits which are used for specific technical program requirements. Technical courses that are beyond the five-year limit may be accepted, depending upon currency, relevancy and the student's current work experience.

## Appeals for Exceptions to College Policy

Students who have questions or want to request an exception to College policy will be handled through an appeals process.

Students must fill out a *Petition Form* and state the exact nature of the requested appeal. Petition forms should include appropriate documentation. Completed forms should be submitted to the Student Records Office.

# Educational Degree Programs

## Liberal Arts and Sciences

### Associate in Arts Degree

The Associate in Arts (AA) degree is the newest degree offering at Saint Paul College. The Associate in Arts degree is awarded for successful completion of a program of 64 semester credits in liberal arts and sciences and is designed to constitute the first two years of a baccalaureate degree. The AA is a liberal arts degree intended primarily for students who plan to transfer to another college or university to complete a bachelor's degree. No specific major is listed in conjunction with the degree; however, students may choose to concentrate in a particular field of study in preparation for a planned major or professional emphasis at a four-year college or university. An AA degree must include the entire Minnesota Transfer Curriculum (40 semester credits), which, pursuant to Minnesota statute, must transfer to any institution in the Minnesota State Colleges and Universities system or the University of Minnesota. Students are to develop an educational plan in consultation with a Saint Paul College Transfer Specialist to assure that degree requirements are fulfilled since requirements may vary depending upon the major and transfer college.

#### Program Outcomes

- Knowledge of the important concepts and principles of the natural sciences, mathematics, history, social and behavioral sciences, arts, and humanities.
- Skills necessary for life roles, including skills in thinking, communication and methods of inquiry and applications of knowledge.
- Critical examination of and an appreciation for diverse people, cultures and life roles.

## General Requirements

- At least 64 earned college-level credits (40 MnTC credits and 24 additional MnTC and/or pre-major elective credits)
- A grade of “C” or better in ENGL 1711
- Cumulative GPA of 2.0
- MNTC GPA of 2.0
- Meet Saint Paul College residency requirement of 20 credits. This requirement shall be reduced to 12 credits for students transferring with at least 12 college-level credits from another Minnesota State Colleges and Universities institution or the University of Minnesota.

### Total Credits Required for the AA Degree

Minnesota Transfer Curriculum (MnTC)	40 credits
Additional MnTC and/or pre-major elective courses	24 credits
<b>Total Requirements</b>	<b>64 credits</b>

### MnTC Distribution Requirements for the AA Degree

The minimum Minnesota Transfer Curriculum (MnTC) distribution requirements for the AA degree are listed below. (Refer to the *MnTC Course List*)

<b>MnTC Goal 1: Communication</b>		<b>9 credits</b>
ENGL 1711	Composition 1	4 credits
ENGL 1712	Composition 2	2 credits
<b>Select one of the following:</b>		
SPCH 1700	Introduction to Speech Communications	3 credits
SPCH 1710	Fundamentals of Public Speaking	3 credits
SPCH 1720	Interpersonal Communication	3 credits
SPCH 1730	Intercultural Communication	3 credits
SPCH 1750	Small Group Communication	3 credits
<b>MnTC Goal 2: Critical Thinking</b>		
Fulfilled when 10 goal areas (40 credits) are completed.		
<b>MnTC Goal 3: Natural Sciences</b>		<b>7 credits</b>
Minimum of two courses from two different disciplines, one of which must be a lab course.		
<b>MnTC Goal 4: Mathematical/Logical Reasoning</b>		<b>3 credits</b>
Minimum of one course. (Courses must be numbered between 1700-1799 or 2700-2799)		
<b>MnTC Goal 5: History and the Social and Behavioral Sciences</b>		<b>9 credits</b>
Minimum of three courses from three different disciplines.		
<b>MnTC Goal 6: Humanities and Fine Arts</b>		<b>9 credits</b>
Minimum of three courses from three different disciplines.		

**MnTC Goal 7: Human Diversity**

One eligible course.

**MnTC Goal 8: Global Perspective**

One eligible course.

**MnTC Goal 9: Ethic and Civil Responsibility**

One eligible course.

**MnTC Goal 10: People and the Environment**

One eligible course.

**Note:** Refer to the MnTC Course List. Some courses may be applied to more than one goal area. If you meet the MnTC goal requirements with fewer than 40 semester credits, select additional MnTC courses to complete the minimum requirement of 40 semester credits.

## Associate in Science Degree

The Associate in Science (AS) degree is awarded for successful completion of a program of 60–64 semester credits in a designated field or area which transfers to a baccalaureate major in a related scientific or technical field. The AS degree provides a balance of liberal arts education and career-oriented classes. The AS degree prepares students for direct employment; however, articulation agreements must exist between the institution awarding the Associate in Science degree and an institution awarding a related baccalaureate degree. An Associate in Science degree shall include a minimum of 30 semester credits in general education as described in the MnTC distribution requirements for the AS degree.

**Transfer Note:** While the AS degree has more limited transferability than the AA degree, specific transfer articulation agreements exist with designated four-year colleges and universities for each AS degree. Minnesota Transfer Curriculum courses within the AS degree transfer to institutions in the Minnesota State Colleges and Universities system and other colleges. Please see a Transfer Specialist and refer to the *Transfer Articulation Agreements Table* for specific information.

### AS Degree Programs

- Biomedical Engineering Technology **NEW!**
- Business Management
- Child Development Careers
- Computer Network Engineering Specialist
- Computer Programming Specialist
- Geomatics (Land Surveying) and Mapping Sciences
- Human Resource Specialist
- Management Information Systems

### General Requirements for the AS degree:

- 60–64 earned college-level credits (a minimum of 30 credits from MnTC courses)
- Cumulative GPA of 2.0
- Meet Saint Paul College residency requirement: 20 credits. The requirement shall be reduced to 12 credits for students transferring with at least 12 college-level credits from another Minnesota State Colleges and Universities institution and the University of Minnesota. For specific course requirements, see the individual program descriptions, located in Enrollment Services and the Transfer Center or speak with your Faculty Advisor.

### MnTC Distribution Requirements for the AS Degree

The minimum Minnesota Transfer Curriculum (MnTC) distribution requirements for the AS degree are listed below. Credit and course requirements are specific for each program. Refer to the curriculum requirements listed in the *Programs of Study* for each AS degree program.

**Note:** Specific course recommendations or requirements for some AS degree programs may apply.

### AS Degree General Education Requirements\* 30 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1 (7 credits)

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	7
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Sciences and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 13 additional credits from Goals 1–10 of the Minnesota Transfer Curriculum	13
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Associate in Applied Science Degree

The Associate in Applied Science degree (AAS) is awarded for successful completion of a program of 60–72 semester credits and is intended for students who desire immediate employment upon graduation. At Saint Paul College, the AAS program shall include a minimum of 20 semester credits of liberal arts and sciences courses as described in the MnTC distribution requirements for the AAS degree.

**Transfer Note:** The AAS degree is not intended to transfer to an upper-division college; however, some articulation agreements exist with designated four-year colleges and universities for several of the AAS degree programs. Minnesota Transfer Curriculum courses within the AAS degree transfer to institutions in the Minnesota State Colleges and Universities system and other colleges. Please see a Transfer Specialist for specific information and refer to the *Transfer Articulation Agreements Table*.

### AAS Programs

Accountant  
 Administrative Assistant  
 Auto Body Repair  
 Automotive Service Technician  
 Chemical Laboratory Technician  
 Child Development Careers with ASL  
 Computer Network Engineering  
 Computer Programmer  
 Cosmetology  
 Culinary Arts  
 Electronic Nanotechnology  
 Electronic Technology  
 Energy Process Technology  
 Engineering Technology  
 Esthetician  
 Health Information Technology  
 Hospitality Management  
 Human Resource Specialist  
 International Trade Specialist  
 Medical Office Professional  
 Medical Laboratory Technician  
 Personal Trainer  
 Practical Nursing  
 Respiratory Therapist/Respiratory Care Practitioner  
 Sign Language Interpreter/Transliterater  
 Visualization Technology

### General Requirements for the AAS Degree:

- 60–72 earned college-level credits (a minimum of 20 credits from MnTC courses)
- Cumulative GPA of 2.0 or higher
- Meet Saint Paul College residency requirement of 20 credits. The requirement shall be reduced to 12 credits for students transferring with at least 12 college-level credits from another Minnesota State Colleges and Universities institution and the University of Minnesota. For specific course requirements, see the individual program descriptions, the Office of Enrollment Services staff or your Faculty Advisor.

### MnTC Distribution Requirements for the AAS Degree

The minimum Minnesota Transfer Curriculum (MnTC) distribution requirements for the AAS degree are listed below. Credit and course requirements are specific for each program. Refer to the curriculum requirements listed in the *Programs of Study* section for each AAS degree program.

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and either SPCH 1700, 1710, 1720, 1730 or 1750 from Goal 1 (7 credits)

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH 1700 Introduction to Speech Communications – 3 cr <b>OR</b> SPCH 1710 Fundamentals of Public Speaking – 3 cr <b>OR</b> SPCH 1720 Interpersonal Communication – 3 cr <b>OR</b> SPCH 1730 Intercultural Communication – 3 cr <b>OR</b> SPCH 1750 Small Group Communication – 3 cr	7
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	3
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Sciences and Behavioral Sciences	3
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	3
Select a minimum of 4 additional credits from Goals 1–10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

**NOTE:** The number of credits required for the AA and AAS programs are subject to change due to recent legislation that may limit the number of credits for these programs to 60 credits.

## Diploma Programs

Diplomas are awarded for successful completion of 30–72 semester college-level credits and are intended for students who desire entry-level employment skills or career advancement. Students in diploma programs are required to complete technical courses as well as general education courses.

## Certificate Programs

Certificates are awarded for successful completion of 9–30 semester college-level credits. Certificates are awarded for successful completion of a program intended to provide students with entry-level employment skills or to enhance a student's technical skills.

## Internships

Some major program areas require an internship. For other areas, an internship is optional. When students are ready to complete this phase of their training, they should consult with their faculty advisor to set up and coordinate the internship.

While completing the internship, the student remains registered at Saint Paul College. Students are not excused from tuition payment and must continue to meet course requirements for all courses in which they are enrolled.

## Saint Paul Joint Apprenticeship

Saint Paul College has worked with the building trades for many years. In cooperation with Advisory and Joint Apprenticeship committees, Saint Paul College works to give trade apprentices the most up-to-date education and training available in the United States.

Most applicants are accepted into an apprenticeship program by either a) working in the occupation, b) being referred by an employer, or c) having completed a pre-apprenticeship training program. To enroll in one of the trade programs, please contact the Office of Enrollment Services for the next available opening date and application. Entrance exams and in some cases interviews, are required.

To enroll in a program without a program completion requirement, students must contact that apprenticeship coordinator. Students may obtain their name or number by calling the Trade Division, 651.846.1320.

## Saint Paul Joint Apprenticeship Committees

(Includes both day and evening programs)

- Floorcoverers
- Ironworkers
- Pipefitters
- Plasterers
- Plumbers

# Minnesota Transfer Curriculum

The Saint Paul College mission endorses the centrality of general education in its programming and its commitment to offer breadth as well as depth of study in its curriculum. The Minnesota Transfer Curriculum is a coherent requirement of Saint Paul College programs and is clearly identifiable as an integral part of the curriculum. The College is committed to and strives toward outcomes that impart common knowledge, intellectual concepts and attitudes every person ought to possess.

## Minnesota Transfer Curriculum Goals

The Minnesota State Colleges and Universities system has developed a common general education curriculum called the Minnesota Transfer Curriculum (MnTC). Completion of this defined transfer curriculum at one institution enables a student to receive credit for all lower division general education upon admission to any other Minnesota public institution.

The MnTC is intended to achieve the following ten goals:

### 1. Written and Oral Communication

To develop writers and speakers who use the English language effectively and who read, write, speak and listen critically. As a base, all students should complete introductory communication requirements early in their collegiate studies. Writing competency is an ongoing process to be reinforced through writing-intensive courses and writing across the curriculum. Speaking and listening skills need reinforcement through multiple opportunities for interpersonal communication, public speaking and discussion.

**2. Critical Thinking**

To develop thinkers who are able to unify factual, creative, rational and value-sensitive modes of thought. Critical thinking will be taught and used throughout the general education curriculum in order to develop students' awareness of their own thinking and problem-solving procedures. To integrate new skills into their customary ways of thinking, students must be actively engaged in practicing thinking skills and applying them to open-ended problems.

**3. Natural Sciences**

To improve students' understanding of natural science principles and of the methods of scientific inquiry, i.e., the ways in which scientists investigate natural science phenomena. As a basis for lifelong learning, students need to know the vocabulary of science and to realize that while a set of principles has been developed through the work of previous scientists, ongoing scientific inquiry and new knowledge will bring changes in some of the ways scientists view the world. By studying the problems that engage today's scientists, students learn to appreciate the importance of science in their lives and to understand the value of a scientific perspective. Students should be encouraged to study both the biological and physical sciences.

**4. Mathematical/Logical Reasoning**

To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments and detect fallacious reasoning. Students will learn to apply mathematics, logic and/or statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**5. History, Social and Behavioral Sciences**

To increase students' knowledge of how historians and social and behavioral scientists discover, describe and explain the behaviors and interactions among individuals, groups, institutions, events and ideas. Such knowledge will better equip students to understand themselves and the roles they play in addressing the issues facing humanity.

**6. Humanities and Fine Arts**

To expand students' knowledge of the human condition and human cultures, especially in relation to behavior, ideas and values expressed in works of human imagination and thought. Through study in disciplines such as literature, philosophy and the fine arts, students will engage in critical analysis, form aesthetic judgments and develop an appreciation of the arts and humanities as fundamental to the health and survival of any society. Students should have experiences in both the arts and humanities.

**7. Human Diversity**

To increase students' understanding of individual and group differences (e.g., race, gender, class) and their knowledge of the traditions and values of various groups in the United States. Students should be able to evaluate the United States' historical and contemporary responses to group differences.

**8. Global Perspective**

To increase students' understanding of the growing interdependence of nations and peoples and develop their ability to apply a comparative perspective to cross-cultural social, economic and political experiences.

**9. Ethical and Civic Responsibility**

To develop students' capacity to identify, discuss and reflect upon the ethical dimensions of political, social and personal life and to understand the ways in which they can exercise responsible and productive citizenship. While there are diverse views of social justice or the common good in a pluralistic society, students should learn that responsible citizenship requires them to develop skills to understand their own and others' positions, be part of the free exchange of ideas and function as public-minded citizens.

**10. People and the Environment**

To improve students' understanding of today's complex environmental challenges. Students will examine the inter-relatedness of human society and the natural environment. Knowledge of both bio-physical principles and socio-cultural systems is the foundation for integrative and critical thinking about environmental issues.

## Minnesota Transfer Curriculum (MnTC) Course List

To earn the full **Minnesota Transfer Curriculum**, all ten goal areas listed below must be completed. A total of at least **40 semester credits** must be earned. Courses designated with a superscript (e.g., BIOL 1710<sup>10</sup>) satisfy more than one goal area; however, credits are counted only once toward the 40-credit minimum requirement. A (p) indicates a prerequisite is required for that course. Completion of the MnTC meets the lower division general education requirements at Minnesota State Colleges and Universities and the University of Minnesota. Contact the Transfer Center staff for more information.

To follow the Associate in Science or Associate in Applied Science requirements for general education courses, choose from the MnTC courses in the goals below *according to the distribution requirements for your degree*. The Associate in Science degree requires 30 MnTC credits; the Associate in Applied Science degree requires 20 MnTC credits.

*For any additions or changes in the MnTC Course List, contact the College Transfer Specialist located in the Transfer Center.*

Goal 1: Communication		Credits
ENGL 1711	Composition 1 (Required) (p)	4
ENGL 1712 <sup>2</sup>	Composition 2 (p)	2
SPCH 1700 <sup>8</sup>	Introduction to Speech Communications	3
SPCH 1710 <sup>6</sup>	Fundamentals of Public Speaking	3
SPCH 1720 <sup>7</sup>	Interpersonal Communication	3
SPCH 1730 <sup>6</sup>	Intercultural Communication	3
SPCH 1735 <sup>7</sup>	Gender Communications Across Cultures	3
SPCH 1750 <sup>9</sup>	Small Group Communication	3
SPCH 1770 <sup>9</sup>	Family Communications	3
SPCH 1780 <sup>7</sup>	Gender Communication Across Cultures	3

Goal 2: Critical Thinking		Credits
Fulfilled when all 10 goal areas (40 credits) are completed.		

Goal 3: Natural Sciences		Credits
BIOL 1725* <sup>10</sup>	Environmental Science	4
BIOL 1730*	Human Body Systems	3
BIOL 1735	Exploring Biology	4
BIOL 1740*	General Biology: The Living Cell	5
BIOL 1745*	General Biology: The Living World (p)	5
BIOL 1750*	General Microbiology (p)	4
BIOL 1760	Nutrition	3
BIOL 1771	Medical Terminology	2
BIOL 1782	Introduction to Forensic Science	4
BIOL 1785 <sup>9</sup>	Biology of Women	3
BIOL 2721*	Human Anatomy & Physiology 1 (p)	4
BIOL 2722*	Human Anatomy & Physiology 2 (p)	4
CHEM 1700*	Chemistry Concepts (p)	4

CHEM 1711*	Principles of Chemistry 1 (p)	4
CHEM 1712*	Principles of Chemistry 2 (p)	4
CHEM 2711*	Organic Chemistry 1	4
CHEM 2712*	Organic Chemistry 2	4
NSCI 1710 <sup>10</sup>	Earth Science	3
NSCI 1720 <sup>10</sup>	Physical Geology	3
NSCI 1730 <sup>10</sup>	Introduction to Oceanography	3
NSCI 1740 <sup>10</sup>	Introduction to Meteorology	3
NSCI 1750 <sup>10</sup>	Natural Disasters	3
NSCI 1760 <sup>10</sup>	Descriptive Astronomy	3
NSCI 1770 <sup>10</sup>	Introduction to Energy & the Environment	3
NSCI 1780 <sup>9</sup>	Contemporary Issues in Science	3
PHYS 1720*	Introductory Physics (p)	4
PHYS 2700*	General Physics 1 (w/ Calculus) (p)	5
PHYS 2710*	General Physics 2 (w/ Calculus) (p)	5

Goal 4: Mathematical/Logical Reasoning		Credits
MATH 1710	Liberal Arts Mathematics (p)	3
MATH 1730 <sup>2</sup>	College Algebra (p)	3
MATH 1740	Introduction to Statistics (p)	4
MATH 1760	Pre-Calculus (p)	4
MATH 2751	Calculus 1 (p)	5
MATH 2752	Calculus 2 (p)	5
PHIL 1710	Logic	3

Goal 5: History, Social Sciences, and Behavioral Sciences		Credits
ANTH 1710 <sup>7</sup>	Introduction to Cultural Anthropology	4
ANTH 1720 <sup>10</sup>	Introduction to Physical Anthropology	4
ANTH 1790	Special Topics in Anthropology	3
ECON 1710	Introduction to the American Economy	3
ECON 1720 <sup>8</sup>	Macroeconomics	3
ECON 1730 <sup>8</sup>	Microeconomics	3
GEOG 1700 <sup>10</sup>	Physical Geography	3
GEOG 1720 <sup>10</sup>	Human Cultural Geography	3
GEOG 1730 <sup>8</sup>	Global Economic Geography	3
HIST 1730 <sup>8</sup>	Contemporary World History	3
HIST 1741 <sup>7</sup>	U.S. History 1: to 1865	3
HIST 1742 <sup>7</sup>	U.S. History 2: 1865 to the Present	3
HIST 1750 <sup>10</sup>	Minnesota History	3
HIST 1760 <sup>8</sup>	History of World Civilizations to 1500	3
HIST 1761 <sup>8</sup>	History of World Civilizations since 1500	3
HIST 1770 <sup>9</sup>	History of Women in the United States	3
HIST 2740 <sup>9</sup>	Immigration and Ethnic History of the United States	3
INTS 1785 <sup>9</sup>	Foundations in Women's Studies	3
POLS 1720 <sup>9</sup>	Introduction to American Government	3
POLS 1740 <sup>8</sup>	Introduction to World Politics	3
POLS 1750 <sup>9</sup>	Introduction to Political Science	3

\*Course contains lab

(p) = Indicates prerequisite required for course



POLS 1760 <sup>9</sup>	Introduction to Political Thought	3
PSYC 1710 <sup>2</sup>	General Psychology	4
PSYC 1720 <sup>9</sup>	Psychology Throughout the Lifespan	3
PSYC 1730	Introduction to Child Psychology (p)	3
PSYC 1740 <sup>7</sup>	Abnormal Psychology (p)	4
PSYC 1750 <sup>7</sup>	Intro to Health Psychology	3
PSYC 1760 <sup>7</sup>	Social Psychology	4
SOCI 1710 <sup>7</sup>	Introduction to Sociology	4
SOCI 1720 <sup>8</sup>	Social Problems	3
SOCI 1730 <sup>7</sup>	Sociology of Families and Relationships	3
SOCI 1740 <sup>8</sup>	Making a Living in a Global Era: Sociology of Work	3
SOCI 1760	Mass Media and Society	4
SOCI 1765 <sup>7</sup>	Sociology of Deviance	3
SOCI 1780	Social Psychology	4
SOCI 1790	Special Topics in Sociology	3
SOCI 2760 <sup>7</sup>	Sociology through Film and Music	3
SPCH 1740 <sup>9</sup>	Mass Media and Communications	3
SPCH 1745 <sup>9</sup>	Mass Media Production Techniques	1
SPCH 1770 <sup>1</sup>	Family Communications	3
SPCH 1782 <sup>7</sup>	Workplace Interpersonal Communication	3

**Goal 6: Humanities and Fine Arts** **Credits**

ARTS 1710	Fundamentals of Photography 1	3
ARTS 1711	Fundamentals of Photography 2 (p)	3
ARTS 1712	Advanced Photography (p)	3
ARTS 1720 <sup>8</sup>	Art Appreciation	3
ARTS 1730	Drawing 1	3
ARTS 1731	Drawing 2 (p)	3
ARTS 1740	Introduction to Painting	3
ARTS 1742	Intermediate Painting	3
ARTS 1760 <sup>8</sup>	World Art	3
ARTS 1770	American Art	3
ARTS 1790	History of Photography	3
ARTS 2710	Advanced Studio Arts	3-4
ENGL 1780 <sup>7</sup>	Recently Arrived-Contemporary Immigrant Literature	3
ENGL 1790 <sup>7</sup>	Contemporary Writers of Color	3
ENGL 2721 <sup>7</sup>	Survey of American Literature 1 (p)	3
ENGL 2722 <sup>7</sup>	Survey of American Literature 2 (p)	3
ENGL 2730 <sup>2</sup>	Post-Civil War American Novel (p)	3
ENGL 2740 <sup>7</sup>	Native American Literature (p)	3
ENGL 2750 <sup>7</sup>	African American Literature (p)	3
ENGL 2760 <sup>2</sup>	The English Novel (p)	3
ENGL 2770 <sup>2</sup>	Introduction to Poetry (p)	3
ENGL 2775 <sup>2</sup>	Science Fiction and Fantasy (p)	3
ENGL 2778 <sup>2</sup>	Urban Literature-Lost in the City	3
HUMA 1710 <sup>8</sup>	The Art of Being Human	4
HUMA 1720 <sup>8</sup>	The Ancient and Medieval World	4
HUMA 1730 <sup>8</sup>	The Modern World	4
HUMA 1750 <sup>8</sup>	Culture & Civ.: Spanish-Speaking Cultures	3

HUMA 1770 <sup>7</sup>	The Art of Film	3
HUMA 1780 <sup>7</sup>	American Film	3
HUMA 1790 <sup>8</sup>	International Film	3
MUSC 1740 <sup>8</sup>	Music Appreciation	3
MUSC 1750 <sup>7</sup>	Jazz History	3
PHIL 1700	Introduction to Philosophy	3
PHIL 1720 <sup>9</sup>	Ethics	3
PHIL 1722 <sup>9</sup>	Health Care Ethics	3
PHIL 1750 <sup>8</sup>	Eastern Philosophy	3
PHIL 1760 <sup>8</sup>	World Religions	3
THTR 1710	Introduction to Theatre	3
THTR 1720	Exploring Theatre Arts	3
THTR 1730	Theatre Stage Craft and performance	3

**Goal 7: Human Diversity** **Credits**

ANTH 1710 <sup>5</sup>	Introduction to Cultural Anthropology	4
ASLS 1435	Deaf Studies/Culture (p)	3
ENGL 1780 <sup>6</sup>	Recently Arrived-Contemporary Immigrant Literature	3
ENGL 1790 <sup>6</sup>	Contemporary Writers of Color	3
ENGL 2721 <sup>6</sup>	Survey of American Literature 1 (p)	3
ENGL 2722 <sup>6</sup>	Survey of American Literature 2 (p)	3
ENGL 2740 <sup>6</sup>	Native American Literature (p)	3
ENGL 2750 <sup>6</sup>	African American Literature (p)	3
HIST 1741 <sup>5</sup>	U.S. History 1: to 1865	3
HIST 1742 <sup>5</sup>	U.S. History 2: From 1865 to the Present	3
HUMA 1770 <sup>6</sup>	The Art of Film	3
HUMA 1780 <sup>6</sup>	American Film	3
MUSC 1750 <sup>6</sup>	Jazz History	3
PSYC 1740 <sup>5</sup>	Abnormal Psychology (p)	4
PSYC 1750 <sup>5</sup>	Introduction to Health Psychology	3
PSYC 1760 <sup>7</sup>	Social Psychology	4
SOCI 1710 <sup>5</sup>	Introduction to Sociology	4
SPCH 1720 <sup>1</sup>	Interpersonal Communication	3
SOCI 1730 <sup>5</sup>	Sociology of Families and Relationships	3
SPCH 1735 <sup>1</sup>	Gender Communication Across Cultures	3
SOCI 1765 <sup>5</sup>	Sociology of Deviance	3
SOCI 2760 <sup>5</sup>	Sociology through Film and Music	3
SPCH 1780 <sup>1</sup>	Gender Communication Across Cultures	3
SPCH 1782 <sup>5</sup>	Workplace Interpersonal Communication	3

**Goal 8: Global Perspective** **Credits**

ARTS 1720 <sup>6</sup>	Art Appreciation	3
ARTS 1760 <sup>6</sup>	World Art	3
ASLS 1413	American Sign Language 3 (p)	3
ASLS 1414	American Sign Language 4 (p)	3
ECON 1720 <sup>5</sup>	Macroeconomics	3
ECON 1730 <sup>5</sup>	Microeconomics	3
GEOG 1730 <sup>5</sup>	Global Economic Geography	3
HIST 1730 <sup>5</sup>	Contemporary World History	3

\*Course contains lab

(p) = Indicates prerequisite required for course

HIST 1760 <sup>5</sup>	History of World Civilizations to 1500	3
HIST 1761 <sup>5</sup>	History of World Civilizations since 1500	3
HUMA 1710 <sup>6</sup>	The Art of Being Human	4
HUMA 1720 <sup>6</sup>	The Ancient and Medieval World	4
HUMA 1730 <sup>6</sup>	The Modern World	4
HUMA 1750 <sup>5</sup>	Culture & Civ.: Spanish-Speaking Cultures	3
HUMA 1790 <sup>6</sup>	International Film	3
MUSC 1740 <sup>4</sup>	Music Appreciation	3
PHIL 1750 <sup>4</sup>	Eastern Philosophy	3
PHIL 1760 <sup>6</sup>	World Religions	3
POLS 1740 <sup>5</sup>	Introduction to International Relations	3
SOCI 1720 <sup>5</sup>	Social Problems	3
SOCI 1740 <sup>5</sup>	Making a Living in a Global Era: Sociology of Work	3
SPAN 1730	Intermediate Spanish 1 (p)	5
SPAN 1740	Intermediate Spanish 2 (p)	5
SPCH 1700 <sup>1</sup>	Introduction to Speech Communications	3
SPCH 1710 <sup>1</sup>	Fundamentals of Public Speaking	3
SPCH 1730 <sup>1</sup>	Intercultural Communication	3

Goal 9: Ethic and Civic Responsibility		Credits
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BIOL 1785 <sup>3</sup>	Biology of Women	3
HIST 1770 <sup>5</sup>	History of Women in the United States	3
HIST 2740 <sup>5</sup>	Immigration and Ethnic History of the United States	3
INTS 1785 <sup>5</sup>	Foundations in Women's Studies	3
NSCI 1780 <sup>3</sup>	Contemporary Issues in Science	3
PHIL 1720 <sup>6</sup>	Ethics	3
PHIL 1722 <sup>6</sup>	Health Care Ethics	3
POLS 1720 <sup>5</sup>	Introduction to American Government	3
POLS 1750 <sup>5</sup>	Introduction to Politics	3
POLS 1760 <sup>5</sup>	Introduction to Political Thought	3
PSYC 1720 <sup>5</sup>	Psychology Throughout the Lifespan (p)	3
SPCH 1740 <sup>5</sup>	Mass Media and Communications	3
SPCH 1745 <sup>3</sup>	Mass Media Production Techniques	1
SPCH 1750 <sup>1</sup>	Small Group Communication	3

Goal 10: People and the Environment		Credits
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ANTH 1720 <sup>5</sup>	Introduction to Physical Anthropology	4
BIOL 1725 <sup>3*</sup>	Environmental Science	4
GEOG 1700 <sup>5</sup>	Physical Geography	4
GEOG 1720 <sup>5</sup>	Human Cultural Geography	4
HIST 1750 <sup>5</sup>	Minnesota History	3
NSCI 1710 <sup>3</sup>	Earth Science	4
NSCI 1720 <sup>3</sup>	Physical Geology	3
NSCI 1730 <sup>3</sup>	Introduction to Oceanography	3
NSCI 1740 <sup>3</sup>	Introduction to Meteorology	3
NSCI 1750 <sup>3</sup>	Natural Disasters	3
NSCI 1760 <sup>3</sup>	Descriptive Astronomy	3
NSCI 1770 <sup>3</sup>	Introduction to Energy & the Environment	3

\*Course contains lab

(p) = Indicates prerequisite required for course

## Transfer to Other Institutions

To ensure a smooth transfer from Saint Paul College to a four-year college or university, it is important to understand the types of degrees offered at the College:

The **Associate in Arts (AA)** degree is designed for transfer and offers flexibility in terms of the variety of colleges to which a student can transfer and in the variety of majors that can be chosen. The AA degree requires mostly general education courses (40 credits), which is what gives it more transferability. The AA degree consists of the Minnesota Transfer Curriculum (MnTC). Completion of the MnTC with a 2.0 GPA meets the general education requirements at any of the public Minnesota State Colleges and Universities institutions and the University of Minnesota. Several private colleges also honor the AA degree. Some four-year majors require specific general education courses referred to as pre-major requirements. **Note:** Course requirements may vary depending on the major and transfer college, so it is important to talk to a Transfer Specialist at Saint Paul College and to the appropriate person at the transfer college. Refer to the *General Transfer Table*.

For students who are undecided about their major and who are interested in a four-year degree, the AA is a good program to follow until deciding.

The **Associate in Science (AS)** degree is intended to prepare students for immediate employment; however, students can transfer to complete a Bachelor's degree when they transfer to colleges *with which Saint Paul College has articulation agreements*. The AS degree requires 30 credits of general education (MnTC) courses. Additional general education courses may be required to complete a Bachelor's degree, particularly if students transfer to a college where an articulation agreement does not exist. Refer to the *Transfer Articulation Agreements Table*.

The **Associate in Applied Science (AAS)** degree is intended mainly to prepare students for direct employment. Students who are following an AAS degree and who are interested in transfer are strongly advised to talk to a Saint Paul College Transfer Specialist in the Transfer Center as transfer options are more limited. The AAS degree requires 20 credits of general education (MnTC) courses. Additional general education courses typically would be required to complete a Bachelor's degree for students who transfer, particularly to colleges with which articulation agreements do not exist. Refer to the *Transfer Articulation Agreements Table*.

## Understanding Transfer of Credits

The receiving college or university decides which credits transfer and if those credits meet its degree requirements; however, a course that meets a Minnesota Transfer Curriculum (MnTC) goal at Saint Paul College will meet the same goal at a Minnesota State Colleges and Universities institution. **Note:** A course can meet a Minnesota Transfer Goal at the sending institution and yet may or may not be considered equivalent to a course at the receiving institution. The accreditation of both the

sending and receiving institution can affect the transfer of credits earned, but it is not the only factor in determining transfer of credits.

Institutions accept credits from courses and programs like those they offer. They look for similarity in course goals, content and level: “like” transfers to “like.” The name of a course is not sufficient to determine equivalency. Not everything that transfers counts toward graduation. Bachelor’s degree programs usually count credits in three categories: general education, major/minor courses and prerequisites/electives. The key question is, “Will your credits fulfill requirements of the degree or program you choose?”

A change in career goal or major might make it difficult to complete all degree requirements within the usual number of graduation credits.

Colleges and universities differ in how they accept courses and other types of college credits (CLEP, AP, IB international credits, etc.).

Since requirements and acceptance of Saint Paul College credits differ from one college to another, it is important to talk to a Saint Paul College Transfer Specialist, consult college catalogs and Web sites and talk to advisors at the four-year institution. Transfer Specialists and other transfer resources are available in the Transfer Center. Transfer guides to four-year institutions may be available to provide guidance in selecting the courses intended to transfer from Saint Paul College. Also access the Saint Paul College Web site ([www.saintpaul.edu](http://www.saintpaul.edu)) or the Minnesota Transfer Web site ([www.mntransfer.org](http://www.mntransfer.org)) for more information.

Obtain the following materials and information from the four-year institution:

- College catalog
- Transfer brochure, if available
- Information about admissions criteria and materials required for admission (e.g., transcripts, test scores, portfolio, etc). Note that some majors have limited enrollments and/or special admission requirements such as higher grade point averages.
- Information on financial aid (how to apply and by what date).

**Note:** Minnesota State Colleges and Universities and the University of Minnesota have high school preparation requirements for admission. Consult an advisor at your intended transfer school for more information.

After reviewing this information, contact the Transfer Center or someone in the division or program of interest. Be sure to ask about course transfer and admissions criteria.

### Applying for Transfer Admission (at other Institutions)

Application for admission is the first step in transferring. Fill out the application early, prior to the deadline and enclose the required application fee.

Request official transcripts be sent from all previously attended institutions. The student is also required to provide a high school transcript or GED test scores.

Make certain the college or university has been supplied with all the necessary paperwork. Most colleges make no decisions until all required documents are filed.

If nothing has been heard from the intended college of transfer after one month, call to check on application status.

After receiving notification of acceptance, transcribed credits will be evaluated for transfer. A written evaluation should explain which courses transfer and which do not. How courses specifically meet degree requirements may not be decided until orientation or selection of a major.

Call the credit evaluator in the Office of Enrollment Services with questions or to find out why judgments were made about specific courses. Each student has the right to an appeal. See *Your Rights as a Transfer Student*.

### Your Rights as a Transfer Student

Students are entitled to:

- A clear, understandable statement of an institution’s transfer policy.
- A fair credit review and an explanation of why credits were or were not accepted.
- A copy of the formal appeals process.
- A review of eligibility for financial aid or scholarships.

### Steps in the Appeals Process:

1. The student fills out an appeals form. Supplemental information provided to reviewers can include: a syllabus, course description, or reading list, depending upon the type of appeal.
2. A review by the appropriate department or committee will be conducted.
3. The decision is conveyed in writing to the student.
4. The student may appeal the decision.

*For help with transfer questions or concerns, contact the Transfer Center or your advisor at the transfer college.*

### Transfer Articulation Agreements

Saint Paul College has formed articulation agreements with a number of public and private institutions to assist students following some AS, AAS, diploma or certificate programs with their transfer goals. Please see a Transfer Specialist for further information or see the *Transfer Articulation Agreements Table*.

## General Transfer Table 2008-2009

(for students following the Associate in Arts or other general transfer)

The following table summarizes transfer to many colleges. Students who are planning to transfer to other institutions should work with transfer specialists at Saint Paul College and the college to which they are transferring. Certain majors require specialized coursework, so the following provides a guide for general transfer; it is not intended to cover specific requirements for all majors. Admission requirements may vary depending on the major the student is pursuing. Students should consult with the transfer college and use transfer guides to find out admission deadlines and requirements. Note: Students are free to explore transfer to any college, including colleges not listed in the following table.

Transfer guides are available for many of the colleges listed – go to [www.saintpaul.edu](http://www.saintpaul.edu), click on “current students,” “Transfer Center,” and “Articulation Agreement” listed in the gray box. Transfer guides are also available in the Transfer Center in room 159.

Saint Paul College	Degree/Major Offered	Transfer Institution
AA/MnTC	- Various Majors	All Minnesota State Colleges and Universities
AA/AS	BA Psychology	Argosy University
AA/MnTC	- Various Majors	Augsburg College
AA	BS Education (DLiTE program)	Bemidji State University
Selected Liberal Arts Courses	- Various Majors	Bethel University
AA/AS	BS Business or Information Technology	Capella University
Selected Liberal Arts Courses	- Various Majors	College of St. Catherine
AA/MnTC	- Various Majors	College of St. Scholastica
AA/MnTC	- Various Majors	Concordia University
Selected Liberal Arts Courses	- Various Majors	Hamline University
Selected Liberal Arts Courses	- Various Majors	Macalester College
Selected Liberal Arts Courses	- Various Majors	Northwestern College
AA/MnTC	- Various Majors	Saint Mary's University, Mpls
AA/MnTC	- Various Majors	University of Minnesota
AA/MnTC	- Various Majors	University of North Dakota
Selected Liberal Arts Courses	- Various Majors	University of Wisconsin-River Falls
AA/MnTC	- Various Majors	University of Wisconsin - Stout
Selected Liberal Arts Courses	- Various Majors	University of St. Thomas

## Transfer Articulation Agreements Table 2008-2009

(for students following specified AS, AAS, diploma or certificate programs)

Saint Paul College has formed articulation agreements with a number of public and private institutions to assist students with their transfer goals. These agreements facilitate credit transfer and provide a smooth transition from one related program to another. Please see a transfer specialist for additional information. Additional general education credits will likely be required to complete a degree. The number of credits that transfer may vary depending on the program. Note: Students are free to explore transfer to any college, including colleges not listed in the following table; however, the number of credits that transfer may be more limited.

Accounting AAS	BS Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS Industrial Management	University of Wisconsin - Stout
Accounting AAS, Diploma	BS Various Majors	Saint Mary's University - Minneapolis
Administrative Assistant AAS	BS Industrial Management	University of Wisconsin - Stout
Administrative Assistant AAS, Certificate	BS Various Majors	Saint Mary's University - Minneapolis
Administrative Management AAS	BS Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS Business	Saint Mary's University - Minneapolis
	BS Industrial Management	University of Wisconsin - Stout
Auto Body Repair Diploma	BA Industrial Technology	Bemidji State University
	BS Various Majors	Saint Mary's University - Minneapolis
Automotive Service Tech. Diploma	BA Industrial Technology	Bemidji State University
	BS Industrial Technology	Moorhead State University
	BS Various Majors	Saint Mary's University - Minneapolis
	BS Industrial Management	University of Wisconsin - Stout
Business Logistic Mgmt AAS	BS Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS Business	Saint Mary's University - Minneapolis
	BS Industrial Management	University of Wisconsin - Stout
Business Logistic Mgmt Certificate	BS Various Majors	Saint Mary's University - Minneapolis
Business Management AS	BS Busn. Or Info Tech	Capella University
	BS Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS Business	Saint Mary's University - Minneapolis
	BS Industrial Management	University of Wisconsin - Stout

Cabinetmaking Diploma	BA	Industrial Technology	Bemidji State University
	BS	Industrial Technology	Moorhead State University
	BS	Various Majors	Saint Mary's University - Minneapolis
	BS	Industrial Management	University of Wisconsin - Stout
Carpentry Diploma	BA	Industrial Technology	Bemidji State University
	BS	Various Majors	Saint Mary's University - Minneapolis
Child Development AS	BS	Hospitality, Restaurant, & Tourism Management	University of Wisconsin - Stout
Child Development AS, AAS	BAS	Early Childhood Studies	Metropolitan State University
	BA	Psychology	Metropolitan State University
	BS	Industrial Management	University of Wisconsin - Stout
Child Development AS, AAS, Diploma, Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Child Development ASL, AS	BAS	Early Childhood Studies	Metropolitan State University
Computer Courses (designated courses)	BA	Computer Info Systems	Metropolitan State University
	BS	Computer Science	Metropolitan State University
Computer Graphics and Visualization AS Degree	BS	Operations Management	Minnesota State University-Moorhead
Computer Network Engineering AAS	BS	Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS	Industrial Management	University of Wisconsin - Stout
	BS	Industrial Technology	Minnesota State University-Moorhead
	BS	Operations Management	Minnesota State University-Moorhead
Computer Network Engineering Specialist AS	BS	Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS	Business or Info Tech	Capella University
	BS	Industrial Management	University of Wisconsin - Stout
Computer Network Engineering Specialist AS, AAS, Advanced Certificates	BS	Various Majors	Saint Mary's University - Minneapolis
Computer Programmer AAS	BS	Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS	Industrial Management	University of Wisconsin - Stout
	BS	Operations Management	Minnesota State University-Moorhead
Computer Programming Specialist AS	BS	Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BS	Business or Info Tech	Capella University
	BA	Comp Sci./Info Syst.	College of St. Scholastica
	BS	Information Technology	Saint Mary's University - Minneapolis
	BS	Industrial Management	University of Wisconsin - Stout
Computer Programming Specialist AS, AAS	BS	Various Majors	Saint Mary's University - Minneapolis
Computer Programming AAS, Diploma	BS	Industrial Technology	Minnesota State University-Moorhead
	BS	Operations Management	Minnesota State University-Moorhead
Computer Science AS	BS	Various Busn. Degrees	Cardinal Stritch University - Woodbury
	BA	Comp Sci./Info Systems	College of St. Scholastica
	BS	Industrial Management	University of Wisconsin - Stout
	BS	Operations Management	Minnesota State University-Moorhead
Construction Electricity Diploma	BA	Industrial Technology	Bemidji State University
	BS	Industrial Technology	Moorhead State University
	BS	Various Majors	Saint Mary's University - Minneapolis
	BS	Industrial Management	University of Wisconsin - Stout
Cosmetology AAS, Diploma	BS	Various Majors	Saint Mary's University - Minneapolis
Cosmetology AAS	BS	Industrial Technology	University of Wisconsin - Stout
Culinary Arts AAS	BAS	Hospitality Management	Metropolitan State University
	BS	Hospitality, Restaurant, & Tourism Management	University of Wisconsin - Stout
	BS	Industrial Management	University of Wisconsin - Stout
Culinary Arts AAS, Diploma, Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
	BAS	Hospitality Management	Metropolitan State University
Domestic Appliance, Repair Certificate	BA	Industrial Technology	Bemidji State University
	BS	Various Majors	Saint Mary's University - Minneapolis
Electronic Technology AAS	BS	Operations Management	Minnesota State University-Moorhead
Electronic Technology AAS, Diploma	BA	Industrial Technology	Bemidji State University
	BS	Industrial Technology	Moorhead State University
	BS	Various Majors	Saint Mary's University - Minneapolis
	BS	Industrial Management	University of Wisconsin - Stout
Energy Process Technician AAS, Adv. Technical Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Energy Process Technician AAS	BS	Industrial Management	University of Wisconsin - Stout
	BS	Operations Management	Minnesota State University-Moorhead
Esthetician AAS, Diploma, Cert.	BS	Various Majors	Saint Mary's University - Minneapolis
Esthetician AAS	BS	Industrial Management	University of Wisconsin - Stout
Floor Covering Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Geomatics & Mapping Science AS	BS	Land Surveying/Mapping Science	St. Cloud State University
	BS	Busn or Info Tech	Capella University
	BS	Industrial Technology	Moorhead State University
	BS	Various Majors	Saint Mary's University - Minneapolis
	BS	Industrial Management	University of Wisconsin - Stout
	BS	Operations Management	Minnesota State University-Moorhead

Health Unit Coordinator Certificate	BS BA	Various Majors Individualized Studies (First College)	Saint Mary's University - Minneapolis Metropolitan State University
Human Resource Spec. AS	BS	Busn. Or Info. Tech.	Capella University
Human Resource Spec. AS, AAS, Certificate	BS	Human Resource Mgmt.	Saint Mary's University - Minneapolis
Human Resource Spec. AS, AAS	BS BS	Industrial Management Various Busn. Degrees	University of Wisconsin - Stout Cardinal Stritch University - Woodbury
International Trade Spec. AAS	BS BAS BS	Various Busn. Degrees International Commerce Industrial Management	Cardinal Stritch University - Woodbury Metropolitan University University of Wisconsin - Stout
International Trade Spec. AAS, Certificate	BS BA	Various Majors First College (Individualized Major)	Saint Mary's University - Minneapolis Metropolitan State University
Machine Operator Certificate	BA BS	Industrial Technology Various Majors	Bemidji State University Saint Mary's University - Minneapolis
Machine Tool Tech: (Precision Machining, Tool and Die Moldmaking Diplomas) Tool & Die Moldmaking Diploma	BA BS BS BS	Industrial Technology Industrial Technology Various Majors Industrial Management	Bemidji State University Moorhead State University Saint Mary's University - Minneapolis University of Wisconsin - Stout
Major Appliance Repair Diploma	BA	Industrial Technology	Bemidji State University
Management Info Systems AS	BS BS BA BS BS	Information Technology Various Busn. Degrees Comp. Sci./ Info Syst. Industrial Management Operations Management	Saint Mary's University - Minneapolis Cardinal Stritch university College of St. Scholastica University of Wisconsin - Stout Minnesota State University-Moorhead
Massage Therapy Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Medical Office Professional AAS	BS BS	Various Majors Industrial Management	Saint Mary's University - Minneapolis University of Wisconsin - Stout
Medical Coding, Records, Receptionist, Transcriptionist Cert.	BS	Various Majors	Saint Mary's University - Minneapolis
Medical Laboratory Tech AAS (selected coursework)	BS	Clinical Lab Science	University of North Dakota
Medical Laboratory Tech AAS	BA BS BAS BS	First College (Individualized Program) Various Majors Clinical Lab Science Industrial Management	Metropolitan State University Saint Mary's University - Minneapolis University of Minnesota (College of Continuing Education) University of Wisconsin - Stout
Micro Mechanical Tech Diploma	BS	Industrial Management	University of Wisconsin - Stout
Nail Care Technician Diploma	BS	Various Majors	Saint Mary's University - Minneapolis
Plumbing Diploma	BA BS BS	Industrial Technology Various Majors Industrial Management	Bemidji State University Saint Mary's University - Minneapolis University of Wisconsin - Stout
Practical Nursing Diploma	BS AS	Various Majors Nursing	Minnesota State Colleges & Universities Saint Mary's University - Minneapolis
Respiratory Therapist/Care AAS	BS BA BS	Industrial Management First College (Individualized Program) Various Majors	University of Wisconsin - Stout Metropolitan State University Saint Mary's University - Minneapolis
Sheet Metal Diploma	BA BS	Industrial Technology Various Majors	Bemidji State University Saint Mary's University - Minneapolis
Sign Language Interpreter AAS	BA BS	Psychology Industrial Management	Metropolitan State University University of Wisconsin - Stout
Sign language Interpreter AAS Certificate/ ASL Certificate	BA BS	First College (Individualized Program) Various Majors	Metropolitan State University Saint Mary's University - Minneapolis
Software Support Spec./ Help Desk Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Truck Technician Diploma	BA BS BS	Industrial Technology Industrial Technology Various Majors	Bemidji State University Moorhead State University Saint Mary's University - Minneapolis
Visualization Technology AAS	BS BS	Various Majors Industrial Management	Saint Mary's University - Minneapolis University of Wisconsin - Stout
Watchmaking Certificates/ Clockmaking Certificate	BS	Various Majors	Saint Mary's University - Minneapolis
Web Designer Adv. Tech Certificate	BA BS	Industrial Technology Various Majors	Bemidji State University Saint Mary's University - Minneapolis
Welding Fabrication Diploma	BA BS BS BS	Industrial Technology Industrial Technology Various Majors Industrial Management	Bemidji State University Moorhead State University Saint Mary's University - Minneapolis University of Wisconsin - Stout
Welding Metal Fabrication Cert.	BA BS	Industrial Technology Various Majors	Bemidji State University Saint Mary's University - Minneapolis
Welding Cert.	BA BS	Industrial Technology Various Majors	Bemidji State University Saint Mary's University - Minneapolis

# Programs

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Business Programs

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Computer Programs

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Health and Service Programs

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Language Programs

ASL-Interpreting Programs  
English-as-a-Second-Language

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Liberal Arts and Sciences  
Departments and Courses

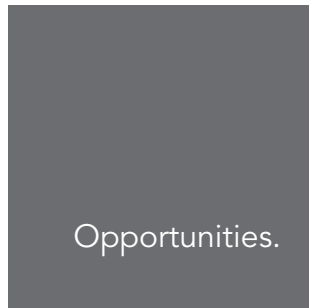
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Engineering and Technology Programs

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Transportation, Construction and  
Building Programs

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# Business Programs

<b>Accounting</b>	<b>48</b>
	Accountant AAS Degree Accounting Technician Diploma
<b>Business Administration/Business Technology</b>	<b>49</b>
	Business Administration AAS Degree Business Information Technology AAS Degree Business Information Technology Certificate Business Applications Specialist Certificate
<b>Business Logistics Management</b>	<b>52</b>
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<b>Business Management</b>	<b>54</b>
	Business Management AS Degree Supervision Certificate Project Management: Business & Information Systems Certificate
<b>Marketing and Entrepreneurship</b>	<b>63</b>
	Marketing and Entrepreneurship AAS Degree Marketing and Entrepreneurship Certificate
<b>Hospitality, Sports and Entertainment Management</b>	<b>64</b>
	Hospitality, Sports and Entertainment Management AAS Degree Restaurant Management Certificate Hotel Marketing and Sales Certificate
<b>Human Resources</b>	<b>66</b>
	Human Resources AAS Degree Human Resources Certificate Human Resources On-line Accelerated Certificate
<b>International Trade</b>	<b>67</b>
	International Trade Specialist AAS Degree International Trade Professional Certificate
<b>Health Information Technology and Medical Office Careers</b>	<b>68</b>
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	See Computer Graphics



# Computer Programs

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## Computer Graphics Careers

55

Visualization Technology AAS Degree  
Visualization Technology Certificate  
Web Design Certificate

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## Computer - Management Information Systems

57

Management Information Systems AS Degree

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## Computer Network Careers

58

Computer Network Engineering Specialist AS Degree  
Computer Network Engineering AAS Degree  
Linux Systems Administration Certificate  
Microsoft Network Administration Certificate

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## Computer Programming

60

Computer Programming Specialist AS Degree  
Computer Programmer AAS Degree  
C++/Java Programmer Certificate  
J2EE Application Development Certificate  
**NEW!** Web 2.0 Development Certificate

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## Computer Science

62

Computer Science AS Degree

# Accounting

Accounting AAS Degree . . . . . 72 Credits  
 Accounting Technician Diploma . . . . . 40 Credits

## Program Overview

An Accountant examines, analyzes and interprets accounting data for the purpose of giving advice and preparing financial statements. Duties may include performing such activities as recording receipts and disbursements and preparing state and federal reports. The accountant may prepare reports and statements on a computer or manually.

The Accounting Technician monitors and controls various types of electronic data processing equipment used to process accounting data. Applications would include automated general ledger and other accounting subsystems, spreadsheet applications, database management and the use of graphics. The Accounting Technician may also assist in the planning and implementation of automated accounting systems.

Students must have a high school diploma or an equivalency certificate. Excellent reading skills and a combination of interest and ability to concentrate on detail, an analytical mind, good judgment and absolute integrity are necessary for success in the field of accounting.

## Career Opportunities

With more and more emphasis being placed on computer usage for accounting careers, opportunities for employment in this field are excellent. Rate of advancement may be swift and the rewards generous.

The Accounting profession offers a vast arena of employment potential. Typical places of employment include accounting departments in governmental agencies, financial institutions, private business and industry and public accounting firms. Other job titles may be tax accountant, cost accountant, staff accountant, government accountant, auditor, junior accountant or comptroller. The financial accounting technician positions are found in the areas of public accounting, private accounting, non-profit accounting, auditing, taxation, cost accounting and managerial positions.

## Program Outcomes

1. Graduates of the Accounting Program will be prepared for a career in the accounting profession.
2. Graduates will be proficient in computer software and its application to financial accounting, taxation and financial analysis.
3. Graduates will have knowledge of financial accounting theory and financial statement analysis.

4. Graduates will have completed general education requirements for employment and personal roles.
5. Graduates will serve their employers and clients in all phases of accounting, including cost accounting, tax, estates and trusts and non-profit accounting.

## Accounting AAS Degree

### Professional Component

Course		Cr
BUSN 1410	Introduction to Business	3
ACCT 1411	Principles of Accounting 1	4
ACCT 1412	Principles of Accounting 2	4
BUSN 2470	Legal Environment of Business	3
BTEC 1421	Business Information Applications 1	3
BTEC 1445	Business Communications	3

### Accounting Courses

Course		Cr
ACCT 1511	Federal Taxation 1	4
ACCT 1512	Federal Taxation 2	4
ACCT 1521	Accounting Computer Applications	4
ACCT 2411	Intermediate Accounting	4
ACCT 2420	Managerial Accounting	4
ACCT 2520	Auditing	4
ACCT 2530	Fundamental of Non-Profit Accounting	4
ACCT 2540	Spreadsheet Math Formulas and Functions for Accounting	4
<b>Total</b>		<b>32</b>
<b>General Education Requirements</b> (ECON 1720 or 1730 is required)		<b>20</b>
<b>Total Program Credits</b>		<b>72</b>

### AAS Degree General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Accounting Technician Diploma

### Program Requirements

Course		Cr
ACCT 1411	Principles of Accounting 1	4
ACCT 1412	Principles of Accounting 2	4
ACCT 1511	Federal Taxation 1	4
ACCT 1512	Federal Taxation 2	4
ACCT 1521	Accounting Computer Applications	4
ACCT 2420	Managerial Accounting	4
ACCT 2540	Spreadsheet Math Formulas/Functions	4
BTEC 1421	Business Applications 1	3
BUSN 1480	Career Resources	1
	<b>Business Elective</b>	<b>4</b>
COMM	Communication course (Choose a COMM or SPCH course, 1000 level or higher, or ENGL 1711 or higher)	3
	<b>Total Program Credits</b>	<b>40</b>

## Business Administration/ Business Technology

Business Administration AAS Degree . . . . .	62 Credits
Business Information Technology AAS Degree	64 Credits
Business Information Technology Certificate . .	30 Credits
Business Applications Specialist Certificate. . .	25 Credits

## Business Administration

### Program Overview

Effective use of people, technology, systems, equipment, and space are the keys to competent office management. Students graduating from this program are prepared to manage functions in the business environment. Business Administration is recommended for experienced staff (those wishing to increase their potential for promotion), as well as entry-level employees. Graduates will have expert skills and in-depth software knowledge.

### Career Opportunities

The opportunities for employment in the business administration area are unlimited depending on the individual's strengths and interests. Employment for managers is expected to grow at an average pace despite mergers and takeovers. The jobs that are expected to grow the fastest are with service and professional firms. Earnings vary with size of company, location, industry, function, responsibilities, education, experience, and ability.

### Program Outcomes

1. Graduates will possess the knowledge and skills for immediate employment in related business support areas.
2. Graduates will be experienced in business protocol via internships and/or capstone courses.
3. Graduates will have successfully mastered the general education program requirements for work and life roles.
4. Graduates will be proficient in the use of business administration skills and software applications.

## Business Administration AAS Degree

### Program Prerequisites

Course		Cr
BTEC 1400	Keyboarding or Keyboarding Skills	
BTEC 1418	Computer Fundamentals or Knowledge of Computers	

### Required Business Core

Course		Cr
BUSN 1410	Introduction to Business	3
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BUSN 2470	Legal Environment of Business	3
ACCT 1411	Principles of Accounting 1	4
BTEC 1445	Business Communications	3

### Program Requirements

Course		Cr
BTEC 1423	Business Information Applications 2	4
BUSN 2450	Management Fundamentals	3
BTEC 1530	Communication Technology	4
BTEC 2410	Business Procedures	4
BTEC 2550	Emerging Business Technologies	4
BUSN 1440	Marketing Principles	3
	Business electives: Choose 4 credits from the following:	4
BTEC 2506	Business Information Applications 3	4
ACCT 1412	Principles of Accounting 2	4
BUSN 1482	Business Career Resources	2
BTEC 1410	Advanced Keyboarding Applications	3
	<b>Subtotal</b>	<b>42</b>
	<b>Required Business Core</b>	<b>16</b>
	<b>General Education Requirements</b>	<b>20</b>
ECON 1720	Macroeconomics <b>OR</b>	
ECON 1730	Microeconomics is required	
	<b>Total Program Credits</b>	<b>62</b>

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr. SPCH 1710, 1720, 1730 or 1750	
Students are required to complete one of the following from Goal 3 or Goal 4:	4
Goal 3: Natural Sciences NSCI 1770 Introduction to Energy and the Environment is recommended – 4 cr Goal 4: Mathematical/Logical Reasoning MATH 1740 Introduction to Statistics – 4 cr	
Select a minimum of 3 credits from Goal 5:	3
ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6:	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 3 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	3

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Business Information Technology

### Program Overview

A graduate of the Business Information Technology AAS Degree will be trained for a business and information support position that may use a wide range of systems and software applications such as database, spreadsheet, presentation graphics, word processing, and integrated software applications, business websites, templates, and desktop publishing. Students graduating with the Business Information Technology degree can provide support for business systems end-users and assist with business training, problem solving, and troubleshooting.

Graduates in this program are equipped with knowledge of cutting-edge technology and software, a professional attitude, enhanced skills in the business environment, the ability to work independently or in workgroups under pressure and within deadlines, and flexibility to cope with interruptions and business system/software problems.

Program graduates are working in small and large companies. Other graduates are continuing their education. Graduates in this program cover content in preparation for the Microsoft Certified Application Specialist certification exams.

### Career Opportunities

Opportunities are excellent for skilled, capable, and dependable graduates.

Graduates can be employed in a variety of business administrative and information support positions that require advanced technical training such as: administrative assistant, office coordinator, assistant manager, and executive assistant.

### Program Outcomes

1. Graduates will possess the knowledge and skills for immediate employment in related business support areas.
2. Graduates will be experienced in business protocol via course projects and capstone courses.
3. Graduates will have successfully mastered the general education program requirements for work and life roles.
4. Graduates will be proficient in the use of business software applications.

## Business Information Technology AAS Degree

### Program Prerequisites

Course		Cr
BTEC 1400	Keyboarding (or Keyboarding Skills)	3
BTEC 1418	Computer Fundamentals <b>OR</b> Knowledge of Computers	3

### Required Business Core

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BTEC 1445	Business Communications	3
BTEC 1421	Business Information Application 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment of Business	3

### Program Requirements

Course		Cr
BTEC 1410	Advanced Keyboarding Applications	3
BTEC 1423	Business Information Applications 2	4
BTEC 1530	Communication Technology	4
BTEC 2410	Business Procedures	4
BTEC 2506	Business Information Applications 3	4
BTEC 2550	Emerging Business Technologies	4
<b>Choose 5 credits from the following electives:</b>		<b>5</b>
BTEC 1401	Keyboarding/Skillbuilding Applications	2
BTEC 1430	Computer 10-Key	2
BTEC 1435	Business Proofreading	3
BUSN 1482	Business Career Resources	2
<b>Subtotal</b>		<b>28</b>
<b>Required Business Core</b>		<b>16</b>
<b>General Education Requirements</b>		<b>20</b>
ECON 1720	Macroeconomics <b>OR</b>	
ECON 1730	Microeconomics is required	
<b>Total Program Credits</b>		<b>64</b>

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH 1710, 1720, 1730 or 1750	
Select a minimum of 4 credits from Goal 3 or Goal 4:	4
Goal 3: Natural Sciences NSCI 1770 Introduction to Energy and the Environment is recommended – 4 cr	
Goal 4: Mathematical/Logical Reasoning MATH 1740 Introduction to Statistics – 4 cr	
Select a minimum of 3 credits from Goal 5:	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6:	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 3 additional credits from	
Goals 1-10 of the Minnesota Transfer Curriculum	3

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Business Information Technology

### Program Overview

The Business Information Technology graduate will work in a business support position that may use a wide range of systems and software applications such as databases, spreadsheets, graphics, word processing, integrated software applications, business websites, templates, and desktop publishing. Students graduating with the Business Information Technology degree provide support for business systems and end-users. Graduates may assist with business training, problem solving, and troubleshooting.

Graduates in this program are equipped with knowledge of cutting-edge technology and software and have enhanced skills for use in the business environment. Graduates may work independently or in workgroups under pressure and within deadlines. Program graduates work in small and large companies.

### Career Opportunities

Opportunities are excellent for skilled, capable, and dependable graduates. Graduates can be employed in a variety of business, administrative, and information support positions that require advanced technical training such as: administrative assistants, office coordinators, assistant managers, and executive assistants.

### Program Outcomes

1. Graduates will possess the knowledge and skills for immediate employment in related business support areas.
2. Graduates will be experienced in business protocol via internships and capstone courses,
3. Graduates will have successfully mastered the general education program requirements for work and life roles.
4. Graduates will be proficient in the use of business software applications.

## Business Information Technology Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Keyboarding (or Keyboarding Skills)	3
BTEC 1418	Computer Fundamentals <b>OR</b> Knowledge of Computers	3

### Required Business Core

Course		Cr
BTEC 1421	Business Information Applications 1	3
BTEC 1445	Business Communications	3

### Program Requirements

Course		Cr
BTEC 1410	Advanced Keyboarding Applications	3
BTEC 1423	Business Information Applications 2	4
BTEC 1430	Computer 10-Key	2
BTEC 1530	Communication Technology	4
BTEC 2410	Business Procedures	4
<b>Electives: choose 4 credits from the following:</b>		<b>4</b>
BTEC 1401	Keyboarding/Skillbuilding Applications	2
BTEC 1435	Business Proofreading	3
BTEC 2506	Business Information Applications 3	4
BTEC 2550	Emerging Business Technologies	4
BUSN 1482	Business Career Resources	2
<b>Subtotal</b>		<b>21</b>
<b>Required Business Core Credits</b>		<b>6</b>
<b>General Education Requirements</b> (COMM 1460 Applied Interpersonal Communications <b>OR</b> SPCH 1720 Interpersonal Communication is recommended)		<b>3</b>
<b>Total Program Credits</b>		<b>30</b>

## Business Applications Specialist

### Program Overview

Business Applications Specialists utilize a wide range of business systems and software applications such as: electronic mail, the Internet, word processing, Excel worksheets, Access database management, PowerPoint presentation graphics, planning and scheduling, desktop publishing, and business website development. Business personnel work with communication technology such as instant messaging, voice mail, cell phones, voice recognition, and various multimedia features.

Graduates in this program will have excellent technical software support skills. Professionals in this field enjoy working with computers and software, show a strong interest in emerging technology, and have a strong desire to work as part of a team.

The Business Applications specialist certificate is a short-term, concentrated format that is recommended for experienced business staff who are looking for advancement or enhancement within their current organization, or students wanting to quickly enter the business market with strong computer software skills.

### Career Opportunities

Employment opportunities will continue to grow in this business software support area. The Business Application Specialist program is designed to provide students with advanced Microsoft Office software skills. Graduates will possess the necessary skills to be employed in a variety of business support positions such as: Administrative Assistants, Executive Assistants, Virtual Coordinators, Software User Support Specialist, Office Systems Specialists, Assistant Managers, Project Assistants, Office Coordinators, and Desktop Publishing Specialists.

### Program Outcomes

1. Graduates will possess the knowledge and skills for immediate employment in related professional software support areas.
2. Graduates will have successfully mastered the general education program requirements for work and life roles.
3. Graduates will be prepared for the Microsoft Office certification in Word, Excel, Access and PowerPoint.

## Business Applications Specialist Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Keyboarding or Keyboarding Skills	3
BTEC 1418	Computer Fundamentals <b>OR</b> Knowledge of Computers	3

### Required Business Core

Course		Cr
BTEC 1421	Business Information Applications 1	3
BTEC 1445	Business Communication	3

### Program Requirements

Course		Cr
BTEC 1423	Business Information Applications 2	4
BTEC 1530	Communication Technology	4
BTEC 2506	Business Information Applications 3	4
BTEC 2550	Emerging Business Technologies	4
<b>Subtotal</b>		<b>16</b>
<b>Required Business Core</b>		<b>6</b>
<b>General Education Requirements</b> (COMM 1460 Applied Interpersonal Communications <b>OR</b> SPCH 1720 Interpersonal Communications are recommended)		<b>3</b>
<b>Total</b>		<b>25</b>

Students may complete courses in the Business Applications Specialist Certificate online. To be successful in an online course, students must have easy access to the Internet, ability to work independently, be self-disciplined and self-motivated and have good time management skills.

## Business Logistics Management

Business Logistics Management AAS Degree . 64 Credits  
Business Logistics Management  
Advanced Technical Certificate . . . . . 19 Credits

### Program Overview

Logistics management is concerned with the movement, storage and processing of materials and information across the whole of the supply chain, from acquisition of raw materials and components, through manufacturing, to delivery of finished products to end users.

This program provides students the opportunity of understanding modern supply chain management. Supply Chain management demands a multidisciplinary and cross-functional approach to business which transcends the traditional functional boundaries and management disciplines that characterize many organizations.

The certificate is transferable to the AAS Degree.

### Career Opportunities

Business Logistics Management offers a wide variety of employment opportunities. Some of these are purchasing and supplier management, manufacturing logistics, inventory management, transport management, distribution, warehousing management, customer service management, information management and logistics and supply chain strategy. Because of the wide range of jobs open to graduates, prospective students are asked to consult with the program instructor for specific job forecasts.

### Program Outcomes

1. Graduates will have knowledge and skills in distribution planning, transportation management and logistics.
2. Graduates will have knowledge and skills in customer service.
3. Graduates will be prepared for positions in transportation, distribution and supply chain management.
4. Graduates will have knowledge and skills to provide foresight of potential opportunities in the business logistics marketplace.

## Business Logistics Management AAS Degree

### Required Business Core

Course		Cr
<b>Professional Component</b>		
ACCT 1411	Principles of Accounting 1	4
BTEC 1421	Business Information Applications 1	OR
CSCI 2410	Management Information Systems	
BTEC 1445	Business Communications	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment of Business	3
	<b>Total</b>	<b>16</b>

### Major

Course		Cr
BSLM 1410	Transportation Management	3
BSLM 1510	Distribution Management	3
BSLM 2420	Supply Chain Management	4
BSLM 2450	Purchasing Principles and Applications	3
BUSN 1440	Marketing Principles	3
BUSN 1482	Business Career Resources	2
BUSN 2472	Business Negotiation Skills	3
INTL 1510	Export Shipping and Documentation	4
INTL 2420	U. S. Customs and Importing	3
	<b>Subtotal</b>	<b>28</b>
	<b>Business Core Courses</b>	<b>16</b>
	<b>General Education Requirements</b>	<b>20</b>
	(ECON1720 Macroeconomics OR ECON1730 Microeconomics is required)	
	<b>Total Program Credits</b>	<b>64</b>

### AAS Degree General Education Requirements\*

20 Credits

Students are required to complete ENGL 1711 and any Speech Course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr OR ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Business Logistics Management Advanced Technical Certificate\*

### Program Requirements

Course		Cr
BSLM 1410	Transportation Management	3
BSLM 1510	Distribution Management	3
BSLM 2420	Supply Chain Management	4
BSLM 2450	Purchasing Principles and Applications	3
BUSN 1440	Marketing Principles	3
BUSN 2472	Business Negotiation Skills	3
	<b>Total Program Credits</b>	<b>19</b>

\* In order to be admitted to the Business Logistics program, the student must have related work experience or a business degree (minimum – AAS)

# Business Management

Business Management AS Degree . . . . . 60 Credits  
 Supervision Certificate. . . . . 12 Credits  
 Project Management: Business & Information  
 Systems Certificate. . . . . 14 credits

## Program Overview

The Business Management AS degree prepares students for general management responsibilities. Students learn about the functions of business, including accounting, management, marketing and human resources. Students study a broad background of business and liberal arts subjects that prepare them for entry-level positions in business. They may also continue their education in business towards a bachelor's degree at four-year institutions. Some bachelor's degree majors include Management, Marketing, Accounting, Human Resources and International Business.

## Career Opportunities

Employment opportunities are very good for skilled, capable and dependable business professionals. Employers are looking for business professionals with excellent communication skills, organizational skills, human relations skills and enthusiasm for the job and organization. Graduates may choose to continue their education towards a bachelor's degree or begin work in a variety of settings. Graduates can explore opportunities that match their interests and education in a variety of industries.

## Program Outcomes

1. Graduates will have the skills, knowledge and abilities, in core business functions including accounting, marketing and management.
2. Graduates will have a basic understanding of the laws that impact the business environment.
3. Graduates will be prepared for entry-level employment in business.
4. Graduates will have successfully mastered the general education requirements for work and life roles.

## Business Administration Core

The following professional core is for programs in Marketing and Entrepreneurship, Hospitality, Sports and Entertainment Management, Human Resources, International Trade, Administrative Management (Business Administration), Administrative Assistant (Business Information Technology), Business Logistics Management, and Business Management.

# Business Management AS Degree

## Required Business Core

Course		Cr
BUSN 1410	Introduction to Business	3
ACCT 1411	Principles of Accounting 1	4
BUSN 2470	Legal Environment of Business	3
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BTEC 1445	Business Communications	3

## Program Requirements

Course		Cr
ACCT 1412	Principles of Accounting 2	4
BUSN 1440	Marketing Principles	3
BUSN 2450	Management Fundamentals	3
BUSN 1482	Business Career Resources	2
BUSN 2480	Business Management Internship	2
<b>Subtotal</b>		<b>14</b>
<b>Required Business Core Credits</b>		<b>16</b>
<b>General Education Requirements</b>		<b>30</b>
(ECON 1720 Macroeconomics <b>OR</b> ECON 1730 Microeconomics is Recommended)		
<b>Total Program Credits</b>		<b>60</b>

## Professional Component

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BTEC 1445	Business Communications	3
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment/Ethics of Business	3
Choose one of the following:		
ECON 1720	Macroeconomics <b>OR</b>	
ECON 1730	Microeconomics	3
<b>Total Core Credits</b>		<b>16</b>



## AS Degree General Education Requirements\*

30 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Students are required to complete the following from Goal 4	4
Goal 4: Mathematical/Logical Reasoning MATH 1740 Intro to Statistics – 4 cr	
Students are required to complete the following from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics is required. Additional course to meet Goal 5 requirements	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 12 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	12
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	
Recommended: SPCH 1710 Fundamentals of Public Speaking, ECON 1730 Microeconomics	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Recommended Electives for Business Management AS Degree

BUSN 2455	Essentials of Entrepreneurship & Small Business Management	3
BUSN 2480	Business Management Internship	3
CSCI 1410	Computer Science & Information Systems	4
HMRS 1400	Human Resource Management	3
INTL 1400	Introduction to International Trade	3
INTL 1410	International Communication and Cultural Awareness	3
	Other Courses with Advisor approval	

## Supervision Certificate

### Program Requirements

Course		Cr
BUSN 1410	Introduction to Business	3
BUSN 2450	Management Fundamentals	3
BUSN 2472	Business Negotiation Skills	3
HMRS 2410	Employee/ Labor Relations	3
	<b>Total Program Credits</b>	<b>12</b>

## Project Management: Business & Information Systems Certificate

### Program Requirements

Course		Cr
CSCI 2410	Management Information Systems	3
CSCI 2430	Information Systems Project Management	4
BUSN 2475	Business Decisions and Project Management	4
	<b>Elective Course</b>	<b>3</b>
	<b>Total Program Credits</b>	<b>14</b>

### Electives Select one from below

BSLM 2450	Purchasing Principles and Applications	3
BUSN 2450	Management Fundamentals	3
BUSN 2472	Business Negotiation Skills	3
HMRS 1400	Human Resource Management	3
HMRS 2520	Training and Development	3

## Computer Graphics Careers

Visualization Technology AAS Degree	60 Credits
Visualization Technology Certificate	21 Credits
Web Design Certificate	18 Credits

## Visualization Technology AAS Degree

### Program Overview

This program prepares enterprising individuals to become marketing professionals or entrepreneurs. Students will learn how to start and market a business that will add economic and cultural value within a community. Students will develop business and marketing plans that address financial, managerial and operational aspects.

### Career Opportunities

Employment opportunities are excellent for skilled and capable marketers and entrepreneurs. Marketing opportunities include, Sales Representative, Product Development Specialist, Marketing Specialist, Marketing Representative and Advertising Assistant Account Executive. Opportunities are available for starting a new business, enhancing an existing business or department or partnering with other small business.

### Program Outcomes

1. Graduates will have the skills, knowledge and abilities in core business functions including accounting, marketing and management.
2. Graduates will have an understanding of how to start and market an entrepreneurship/ small business operation.
3. Graduates will be prepared to manage, market and enhance an entrepreneurship/small business operation.
4. Graduates will have successfully mastered the general education required for work and life roles.

## Visualization Technology AAS Degree

### Program Requirements

Course		Cr
CSCI 1410	Computer Science and Information Systems	4
CSCI 1450	Web Fundamentals/HTML	4
CSCI 2600	Computer Graphics 1	4
CIST 1443	Dreamweaver 1	2
CIST 1444	Dreamweaver 2	2
CIST 1448	Flash 1	2
CIST 1449	Flash 2	2
CIST 1483	Photoshop 1	2
CIST 1484	Photoshop 2	2
CIST 1526	Quark Xpress	2
CIST 2562	Illustrator	3
CIST 2566	InDesign	3
CIST 2569	Digital Portfolio Development	2
CIST 2570	Digital Photography 1	2
CIST 2587	Digital Video 1	2
CIST 2588	Digital Video 2	2
<b>Subtotal</b>		<b>40</b>
<b>General Education Requirements</b>		<b>20</b>
<b>Total Program Credits</b>		<b>60</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 4	3
Goal 4: MATH 1730 College Algebra – 3 cr	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science & Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts ARTS 1710 Fundamentals of Photography 1 – 3 cr (recommended)	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for Specific course options.

## Visualization Technology Certificate

### Program Overview

This certificate program is a series of entry level courses that are part of the Visualization Technology AAS degree at Saint Paul College. The certificate option is available for students who may not choose to complete the entire AAS degree and gain some experience with courses used in computer graphics, particularly courses in the Adobe software suite. This would be a new certificate option for Saint Paul College.

## Visualization Technology Certificate

### Program Requirements

Course		Cr
CIST 1443	Dreamweaver 1	2
CIST 1448	Flash 1	2
CIST 1484	Photoshop 1	2
CIST 2562	Illustrator	3
CIST 2566	InDesign	3
CIST 2570	Digital Photography 1	2
CSCI 2600	Computer Graphics 1	4
<b>Subtotal</b>		<b>18</b>
<b>General Education Requirements</b> (any ARTS course may be taken)		<b>3</b>
<b>Total Program Credits</b>		<b>21</b>

## Web Design Certificate

### Program Requirements

Course		Cr
CIST 2570	Digital Photography 1	2
CSCI 1443	Dreamweaver 1	2
CSCI 1448	Adobe/Macromedia Flash 1	2
CSCI 1450	Web Fundamentals/HTML	4
CSCI 1470	Web Design	4
CSCI 2440	Internet Programming 1 – Client Side	4
<b>Total Program Credits</b>		<b>18</b>

# Computer - Management Information Systems

Management Information Systems  
AS Degree ..... 62 Credits

## Program Overview

The Associate in Science Degree in Management Information Systems is designed to provide the students with opportunities for immediate employment or for transfer to four-year institutions with whom Saint Paul College has articulation agreements. The College has developed articulation agreements with four-year institutions to assist students with their transfer goals. See a Transfer Specialist for further information.

Students planning a career in this area should have above average mathematical reasoning and communication skills. Students should exhibit qualities of patience, perseverance and preciseness and should enjoy working in a team environment.

## Career Opportunities

A management information system degree prepares the student for a career that combines business techniques and computer systems capability. Students study how to provide business transactions, reporting and analysis using best practices in information technology.

Graduates will find opportunities in the information systems field in business, manufacturing, government and education. With additional education and experience, students may advance to positions such as Systems Analyst, Software Architect and Business Analyst. Graduates of this program may choose to continue their education at a four-year institution in a Management Information Systems or related field. Others may elect to enter the workforce following graduation.

## Program Outcomes

1. Graduates will be able to analyze complex business processes and develop process improvements and comprehensive information system requirements specifications to support them.
2. Graduates will be able to help build and test information systems in an organization.
3. Graduates will be able to utilize accounting and business systems information to develop recommendations for operating cost reduction and improved use of capital investment.
4. Graduates will have a sound understanding of business systems, current technologies, organizational structures, communication tools and critical thinking skills to help guide Management Information Systems success.

# Management Information Systems AS Degree

## Program Requirements

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BUSN 1440	Marketing Principles	3
BUSN 2450	Management Fundamentals	3
CSCI 1410	Computer Science & Info Systems	4
CSCI 1450	Web Fundamentals/HTML	4
CSCI 2430	Information Systems Project Mgmt.	4
CSCI 1550	Database Management Fundamentals	4
CSCI 2410	Management Information Systems	3
	<b>Subtotal</b>	<b>29</b>
	<b>Electives:</b> Choose one BUSN OR CSCI elective	<b>3</b>
	<b>General Education Requirements</b> (Select at least 30 credits of General Education according to the requirements listed below)	<b>30</b>
	<b>Total Program Requirements</b>	<b>62</b>

## AS Degree General Education Requirements\*

30 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Students are required to complete the following from Goal 4	7-9
Goal 4: Mathematical/Logical Reasoning MATH 1740 Intro to Statistics – 4 cr MATH 1730 College Algebra – 3 cr OR MATH 2751 Calculus 1 – 5 cr	
Students are required to complete the following from Goal 5	6
Goal 5: History, Social Science and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
<b>General Education Electives</b>	<b>5-7</b>
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Project Management: Business & Information Systems Certificate (located in Business Management Section)

## Computer Network Careers

Computer Network Engineering Specialist AS Degree . . . . .	62 Credits
Computer Network Engineering AAS Degree . . . . .	64 Credits
Linux Systems Administration Certificate . . . . .	16 Credits
Microsoft Network Administration Certificate . . . . .	16 Credits

### Program Overview

Networking Specialists can work in a wide variety of jobs. The work could include purchasing, installing, configuring, administrating and/or supporting. Some jobs in networking could include help desk support, user training, installing and maintaining local and/or wide area networks.

The student should have excellent communications and math skills. For the certificate programs the student is expected to have prior microcomputer and/or networking experience. He/she should exhibit qualities of patience, perseverance and preciseness and be a logical thinker. The student should enjoy working in a team environment and be able to work independently. All networking programs emphasize preparation for either the Microsoft Certified System Administration or Linux Professional Institute (LPI) Certification.

### Career Opportunities

With almost every size company connected to some type of network, the jobs in networking have become the fastest growing in the computer field. With companies networking to share resources and reduce expenses the networking specialist is an invaluable part of the new company structure. There is a wide variety of jobs in networking including installation, maintenance, training, managing and user support.

Graduates find excellent opportunities as Network Administrators, Network Support and Certified Network Engineers in business, manufacturing, government and education. Jobs for Networking

Specialists in all types of installations are found throughout the country with opportunities for excellent earnings and rapid advancement. Jobs include the following:

- Networking Engineer
- Network Administrator
- Network Help Desk Support
- LAN Specialist
- Datacommunications Specialist
- Telecommunications Specialist
- PC Network Administrator
- Information Specialist
- Certified Network Engineer
- LAN Manager
- WAN Manager

### Program Outcomes

1. Graduates will have knowledge and skills in computer network engineering.
2. Graduates will have knowledge and experience in system design, analysis and maintenance.
3. Graduates of the computer Network Programs will be prepared for employment as computer network engineers.
4. Graduates will be prepared to take industry certification exams.

## Computer Network Engineering Specialist AS Degree

### Program Requirements

Course		Cr
CIST 1423	Windows Client Configuration	4
CIST 2451	Microsoft Server 1	4
CIST 2452	Microsoft Server 2	4
CIST 2460	Linux Fundamentals	4
CSCI 1410	Computer Science & Information Systems	4
CSCI 1420	Introduction to Operating Systems	4
CSCI 1440	Networking Fundamentals	4
CSCI 1521	Structure of Computer Programming 1	4
<b>Subtotal</b>		<b>32</b>
<b>General Education Requirements</b> (Select at least 30 credits of General Education according to the requirements listed below)		<b>30</b>
<b>Total Program Credits</b>		<b>62</b>

## AS Degree General Education Requirements\* 30 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Students are required to complete Math 1730 and 1740 Select a minimum of 7 credits from Goal 3 or Goal 4	7
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning MATH 1730 College Algebra – 3 cr MATH 1740 Intro to Statistics – 4 cr	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 9 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	9
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Computer Network Engineering AAS Degree

### Program Requirements

Course	Cr
CIST 1423 Windows Client Configuration	4
CIST 2460 Linux Fundamentals	4
CIST 2475 A+ Hardware/Operating System Prep	4
CSCI 1410 Computer Science & Information Systems	4
CSCI 1420 Introduction to Operating Systems	4
CSCI 1440 Networking Fundamentals	4
CSCI 2430 Information Systems Project Management	4
<b>Technical Electives</b>	<b>4</b>
<b>Subtotal</b>	<b>32</b>
<b>Linux or Microsoft Emphasis</b> (Select one of the emphases listed below)	<b>12</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)	<b>20</b>
<b>Total Program Credits</b>	<b>64</b>
<b>Linux Systems Admin. Emphasis</b>	
CIST 2464 Linux Administration	4
CIST 2466 Linux Networking	4
CIST 2469 Advanced Linux Topics	4
<b>Microsoft Emphasis</b>	
CIST 2451 Microsoft Server 1	4
CIST 2452 Microsoft Server 2	4
CIST 2477 Microsoft Server Security	4

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Linux Systems Administration Certificate

### Program Prerequisites

Course	Cr
CSCI 1410 Computer Science & Information Systems	4
CSCI 1420 Introduction to Operating Systems	4
CSCI 1440 Networking Fundamentals	4

### Program Requirements

Course	Cr
CIST 2460 Linux Fundamentals	4
CIST 2464 Linux Administration	4
CIST 2466 Linux Networking	4
CIST 2469 Advanced Linux Topics	4
<b>Total Program Credits</b>	<b>16</b>

## Microsoft Network Administration Certificate

### Program Prerequisites

Course	Cr
CSCI 1410 Computer Science & Information Systems	4
CSCI 1420 Introduction to Operating Systems	4
CSCI 1440 Networking Fundamentals	4

### Program Requirements

Course	Cr
CIST 1423 Windows Client Configuration	4
CIST 2451 Microsoft Server 1	4
CIST 2452 Microsoft Server 2	4
CIST 2477 Microsoft Server Security	4
<b>Total Program Credits</b>	<b>16</b>

# Computer Programming

Computer Programming Specialist AS Degree . . . . .	62 Credits
Computer Programmer AAS Degree . . . . .	64 Credits
C++/Java Programmer Certificate . . . . .	16 Credits
J2EE Application Development Certificate . . . . .	16 Credits
Web 2.0 Development Certificate . . . . .	16 Credits

## Program Overview

The job of the applications programmer is to (1) review job specifications provided by the system analyst and end user and (2) plan, code, test and document a programming solution which takes the available data input and produces the desired output in the form of a printed report or a screen display. The programming language(s) used depends on the nature of the problem and the languages available to the programmer at his/her installation.

The student should have above average communications and math skills. He/she should exhibit qualities of patience, perseverance and preciseness and should enjoy working in a team environment and also be able to work independently. All programs emphasize training for industry certification.

## Career Opportunities

Graduates find excellent opportunities as computer programmers in business, manufacturing, government and education. Jobs for computer programmers for all types of computer systems are found throughout the country with opportunities for good earning and rapid advancement. Jobs include: Programmer, Database Project Specialist, Applications Programmer, Technical Programmer, Systems Analyst, MIS Coordinator, Software Developer, Junior Programmer-Analyst, and Senior Programmer-Analyst.

## Program Outcomes

1. Graduates will be able to design and code production software applications.
2. Graduates will be able to analyze complex organizational problems and create design specifications to address these problems.
3. Graduates will be able to use industry standard database management systems to support their applications.
4. Graduates of the degree programs will have mastered the general education requirements for work and life roles.
5. Graduates will be prepared to take certification exams in their area of specialization.

# Computer Programming Specialist AS Degree

## Program Requirements

Course		Cr
CSCI 1410	Computer Science & Information Systems	4
CSCI 1420	Introduction to Operating Systems	4
CSCI 1450	Web Fundamentals	4
CSCI 1521	Structure of Computer Programming 1	4
CSCI 1522	Structure of Computer Programming 2	4
CSCI 1531	C/C++ Programming 1	4
CSCI 1550	Database Management Fundamentals	4
CSCI 1560	Object Oriented Analysis & Design – UML	4
<b>Subtotal</b>		<b>32</b>
<b>General Education Requirements</b> (Select at least 30 credits of General Education according to the requirements listed below)		<b>30</b>
<b>Total Program Credits</b>		<b>62</b>

## AS Degree General Education Requirements\*

**30 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1

	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 13 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	13
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Computer Programmer AAS Degree

### Program Requirements

Course		Cr
CSCI 1410	Computer Science & Information Systems	4
CSCI 1420	Introduction to Operating Systems	4
CSCI 1450	Web Fundamentals/HTML	4
CSCI 1521	Structure of Computer Programming 1	4
CSCI 1522	Structure of Computer Programming 2	4
CSCI 1550	Database Management Fundamentals	4
CSCI 1560	Object Oriented Analysis & Design – UML	4
	<b>Subtotal</b>	<b>28</b>
	<b>Technical Electives</b>	<b>16</b>
	<b>General Education Requirements</b>	<b>20</b>
	(Select at least 20 credits of General Education according to the requirements listed below)	
	<b>Total Program Credits</b>	<b>64</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## C++/Java Programmer Certificate

This program is designed for individuals who have computer programming knowledge or are currently employed in the computer programming field.

### Program Requirements

Course		Cr
CSCI 1531	C/C++ Programming 1	4
CSCI 1541	Java Programming 1	4
CSCI 1542	Java PProgramming 2	4
	<b>Students should select 1 of the following courses</b>	
CSCI 1532	C/C++ Programming 2	4
CSCI 2466	J2EE JSP Servlets	4
CSCI 2467	J2EE Application Development	4
	<b>Total Program Credits</b>	<b>16</b>

## J2EE Application Development Certificate

This program is designed for individuals who have computer programming knowledge or are currently employed in the computer programming field.

### Program Requirements

Course		Cr
CSCI 1541	Java Programming 1	4
CSCI 1542	Java Programming 2	4
	<b>Students should select any 2 of the following courses</b>	
CSCI 1560	OOAD with UML	4
CSCI 2450	Adv OOAD with UML & Rational RUP	4
CSCI 2463	XML Programming	4
CSCI 2466	J2EE JSP Servlets	4
CSCI 2467	J2EE Application Development	4
	<b>Total Program Credits</b>	<b>16</b>

## Web 2.0 Development

### Program Overview

The technical underpinnings of “Web 2.0” have evolved into a set of related technologies which are changing the use of the Web from an “inquiry-response” paradigm to a “dialog-collaborative” paradigm. This program defines technologies relevant to “Web 2.0” and provides instruction in their usage and deployment. This certificate will introduce students to the multimedia and gaming environment and prepare students for “open source” and “digital web” certification. Courses include: Web 2.0 Open Source Software Foundations; Web 2.0 Architecture of Participation and Future Actions; Web 2.0 Multimedia Tools; and Web 2.0 Programming Paradigm and Software Tools.

## Web 2.0 Development Certificate

### Program Requirements

Course		Cr
CSCI 2605	Web 2.0 Technologies	4
	<b>Select 12 credits from the following:</b>	<b>12</b>
CSCI 2610	Web 2.0 Multimedia Tools	4
CSCI 2615	Web 2.0 Open Source Software Foundations	4
CSCI 2620	Web 2.0 Programming Paradigms and Software Tools	4
CSCI 2621	Web 2.0 Ruby on Rails	4
CSCI 2622	Web 2.0 Ajax	4
	<b>Total Program Credits</b>	<b>16</b>

# Computer Science

Computer Science AS Degree . . . . . 62 Credits

## Program Overview

The Associate in Science Degree in Computer Science is designed to provide students with opportunities for immediate employment or for transfer to four-year institutions with whom Saint Paul College has articulation agreements. The College has developed articulation agreements with four-year institutions to assist students with transfer goals. See a Transfer Specialist for further information.

Students planning a career in this area should have above average mathematical reasoning and communication skills. Students should exhibit qualities of patience and preciseness and should enjoy working in a team environment.

## Career Opportunities

Graduates of this program may choose to continue their education at a four-year institution in a Computer Science or related field. Others may elect to enter the workforce following graduation. Graduates will find opportunities in the computer science field in the areas of programming or database management in business, manufacturing, government and education. With additional education and experience, students may advance to positions such as Database Analyst, Systems Analyst, Software Developer or Programmer-Analyst.

## Program Outcomes (Computer Science)

1. Graduates will be able to develop complex algorithms which underlie common programming tasks.
2. Graduates will be able to construct and analyze the performance of complex data structures and use them to develop efficient computer programs.
3. Graduates will have a sound understanding of the mathematics that underlies Computer Science and be able to develop and deploy computer programs which utilize it.
4. Graduates of the program will have mastered the general education requirements for work and life roles.

# Computer Science AS Degree

## Program Requirements

Course		Cr
CSCI 1410	Computer Science & Information Systems	4
CSCI 1521	Structure of Computer Programming 1	4
CSCI 1522	Structure of Computer Programming 2	4
CSCI 1531	C/C++ Programming 1	4
CSCI 1541	Java Programming 1	4
<b>Select two courses (8 credits) from the following:</b>		
CSCI 2460	Discrete Structures of Computer Science	4
CSCI 2570	Machine Architecture and Organization	4
CSCI 2580	Introduction to Numerical Computing	4
<b>Subtotal</b>		<b>28</b>
<b>General Education Requirements</b>		<b>34</b>
(Select at least 34 credits of General Education according to the requirements listed below)		
<b>Total Program Credits</b>		<b>62</b>

## AS Degree General Education Requirements\*

**34 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4cr SPCH XXXX – 3 cr	
Students are required to complete the following from Goal 3 & Goal 4	20
Goal 3: Natural Sciences PHYS 2700 General Physics 1 – 5cr PHYS 2710 General Physics 2 – 5 cr	
Goal 4: Mathematical/Logical Reasoning MATH 2751 Calculus 1 – 5 cr MATH 2752 Calculus 2 – 5 cr	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
<b>Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.</b>	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.



# Marketing and Entrepreneurship

Marketing and Entrepreneurship AAS Degree . . . 62 credits  
Marketing and Entrepreneurship Certificate. . . . 30 credits

## Program Overview

This program prepares enterprising individuals to become marketing professionals or entrepreneurs. Students will learn how to start and market a business that will add economic and cultural value within a community. Students will develop business and marketing plans that address financial, managerial and operational aspects.

## Career Opportunities

Employment opportunities are excellent for skilled and capable marketers and entrepreneurs. Marketing opportunities include, Sales Representative, Product Development Specialist, Marketing Specialist, Marketing Representative and Advertising Assistant Account Executive. Opportunities are available for starting a new business, enhancing an existing business or department or partnering with other small business.

## Program Outcomes

1. Graduates will have the skills, knowledge and abilities in core business functions including accounting, marketing and management.
2. Graduates will have an understanding of how to start and market an entrepreneurship/small business operation.
3. Graduates will be prepared to manage, market and enhance an entrepreneurship/small business operation.
4. Graduates will have successfully mastered the general education required for work and life roles.

# Marketing and Entrepreneurship AAS Degree

## Program Requirements

### Business Core

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BTEC 1445	Business Communications	3
BTEC 1421	Business Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BUSN 2470	Legal Environment of Business	3
BUSN 1410	Introduction to Business	3
	<b>Subtotal</b>	<b>16</b>
	<b>Business Core Requirements</b>	<b>16</b>
	<b>Entrepreneurship Emphasis</b>	<b>26</b>
	<b>Subtotal</b>	<b>42</b>
	<b>General Education Requirements</b>	<b>20</b>
	(ECON 1720 Macroeconomics <b>OR</b> ECON 1730 Microeconomics is recommended)	
	<b>Total Program Credits</b>	<b>62</b>

### Entrepreneurship Emphasis

Course		Cr
BUSN 1440	Marketing Principles	3
BUSN 2450	Management Fundamentals	3
BUSN 2455	Essentials of Entrepreneurship & Small Business Management	3
BUSN 2460	Entrepreneurship Resources	2
BUSN 2472	Business Negotiation Skills	3
BUSN 1482	Business Career Resources	2
HMRS 1400	Human Resource Management	3
HMRS 2410	Employee/Labor Relations	3
	Business Electives	4
Electives	Choose 3 credits approved by program advisor, from the following suggested electives:	3
BUSN 2475	Business Decisions and Project Mgmt.	4
HMRS 1400	Human Resource Management	3
BUSN 2480	Business Management Internship	1-3

### Marketing Emphasis

Course		Cr
BUSN 1440	Marketing Principles	3
BUSN 1442	Marketing Research and Analysis	3
BUSN 1444	Advertising and Promotional Strategies	3
BUSN 1446	Sales and Sales Management	3
BUSN 1448	Retailing Principles	3
INTL 2530	International Marketing	3
BUSN 2450	Management Fundamentals	3
BUSN 1482	Business Career Resources	2
Electives	Choose 3 credits approved by program advisor, from the following suggested electives:	3
BUSN 2475	Business Decisions and Project Mgmt.	4
HMRS 1400	Human Resource Management	3
BUSN 2480	Business Management Internship	3

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences	
Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Marketing and Entrepreneurship Certificate

### Program Requirements

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BUSN 1410	Introduction to Business	3
BUSN 1440	Marketing Principles	3
BUSN 2455	Essentials of Entrepreneurship & Small Business Management	3
BUSN 2460	Entrepreneurship Resources	2
BUSN 2470	Legal Environment of Business	3
BUSN 2472	Business Negotiation Skills	3
HMRS 1400	Human Resource Management	3
HMRS 2410	Employee/Labor Relations	3
	<b>Subtotal</b>	<b>27</b>
	<b>General Education</b>	<b>3</b>
	<b>Total Program Credits</b>	<b>30</b>

## Hospitality, Sports and Entertainment Management

Hospitality, Sports and Entertainment Management AAS Degree . . . . .	66 Credits
Restaurant Management Certificate . . . . .	16 Credits
Hotel Marketing and Sales Certificate . . . . .	19 Credits

## Program Overview

The Hospitality, Sports and Entertainment Management curriculum focuses on the management of today's exciting hospitality, sports and entertainment industries. Students will receive a solid foundation of business practices related to this growing service industry. Courses will examine organizations in lodging, tourism, sports, and entertainment, food and beverage operations.

## Program Outcomes

1. Graduates will understand broad hospitality, food and entertainment concepts.
2. Graduates will have knowledge of the hotel, travel and tourism industry.
3. Graduates will understand the business of sports and sports related industries.
4. Graduates will develop strong customer service, human relations and communications skills.
5. Graduates will demonstrate problem-solving skills and integrate new ways of thinking and learning.

## Career Opportunities

According to Hospitality Minnesota, a Roseville – based trade association, the industry employs more than 127,000 people and pays \$3.3 billion in wages each year making it the state's second-largest industry. Nationally, the U.S. Bureau of Labor Statistics estimates have noted that the hospitality industry would generate more than 2 million new jobs between 2002 – 2012. There are a wide variety of employment opportunities including hotel/lodging operations, restaurant and catering management, travel and tourism, sports, recreation and facilities management, gaming and casino operations, meeting, convention and special event management.

## Hospitality, Sports and Entertainment Management AAS Degree

### Business Administration Core

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BTEC 1445	Business Communications	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment of Business	3

## Program Requirements

Course		Cr
BUSN 1440	Marketing Principles	3
BUSN 2450	Management Fundamentals	3
BUSN 1482	Business Career Resources	2
HMRS 1400	Human Resource Management	3
HSPM 1440	Event Management Planning	3
<b>Hospitality, Sports and Entertainment Requirements</b>		<b>14</b>
<b>Business Core Requirements</b>		<b>16</b>
<b>Emphasis Area</b>		<b>16</b>
<b>General Education Requirements</b>		<b>20</b>
<b>Total Program Credits</b>		<b>66</b>

## Hotel/Lodging Emphasis

Course		Cr
HSPM 1410	Introduction to Hospitality Management	3
HSPM 1420	Introduction to Tourism	3
HSPM 2420	Hotel and Lodging Operations	3
HSPM 2440	Hospitality Marketing and Sales	3
CULA 1540	Food Service Supervisory Management	2
HSPM 2591	Hospitality, Sports and Entertainment Management Internship	1-3

## Sports Emphasis

Course		Cr
HSPM 1430	Introduction to Sports Management	3
HSPM 2472	Mgmt. of Youth Sports, Recreation and Fitness	3
HSPM 2476	Sports Marketing and Promotions	3
HSPM 2478	Sports Facilities Management	3
BUSN 1446	Sales and Sales Management	3
HSPM 2591	Hospitality, Sports and Entertainment Management Internship	1-3

## Restaurant Emphasis

Course		Cr
HSPM 1410	Introduction to Hospitality Management	3
CULA 1540	Food Service Supervisory Management	2
CULA 1560	Food, Beverage & Labor Cost Control	3
CULA 1470	Food Service Sanitation	2
HSPM 2440	Hospitality Marketing and Sales	3
HSPM 2591	Hospitality, Sports and Entertainment Management Internship	3

## AAS Degree General Education Requirements\*

20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1

7

Goal 1: Communication  
ENGL 1711 Composition 1 – 4 cr  
SPCH XXXX – 3 cr

Select a minimum of 3 credits from Goal 3 or Goal 4 3

Goal 3: Natural Sciences

Goal 4: Mathematical/Logical Reasoning

Select a minimum of 3 credits from Goal 5 3

Goal 5: History, Social Science, and Behavioral Sciences  
ECON 1720 Macroeconomics – 3 cr OR  
ECON 1730 Microeconomics – 3 cr

Select a minimum of 3 credits from Goal 6 3

Goal 6: Humanities and Fine Arts

Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum 4

\*Refer to the Minnesota Transfer Curriculum Course List for Specific course options.

## Restaurant Management Certificate

### Program Requirements

Course		Cr
BUSN 2450	Management Fundamentals	3
HSPM 1410	Introduction to Hospitality Management	3
CULA 1540	Food Service Supervisory Management	2
CULA 1560	Food, Beverage Labor Cost Control	3
CULA 1470	Food Service Sanitation	2
HSPM 2440	Hospitality, Sports and Entertainment Internship	3
<b>Total Program Credits</b>		<b>16</b>

## Hotel Marketing and Sales Certificate

### Program Requirements

Course		Cr
HSPM 1410	Introduction to Hospitality Management	3
HSPM 1420	Introduction to Tourism	3
HSPM 2420	Hotel and Lodging Operations	3
HSPM 2440	Hospitality Marketing and Sales	3
BUSN 1446	Sales and Sales Management	3
HSPM 2591	Hospitality, Sports and Entertainment Internship	1-3
<b>Total Program Credits</b>		<b>19</b>

# Human Resources

Human Resources AAS Degree . . . . .	62 Credits
Human Resources Certificate . . . . .	29 Credits
Human Resources On-line Accelerated Certificate . . . . .	15 Credits

## Program Overview

The human resource professional, in any organization, plays a strategic role in the success of the organization. A human resource professional needs to be competent in human resource knowledge, able to facilitate change, have personal credibility which includes trust and confidentiality and the understanding of how a business operates. Specific duties may involve facilitating employee communication, managing human resource record keeping, administering employee compensation and benefit plans, recruiting, hiring and orienting new employees, writing policies and applying federal, state and local employment laws and regulations.

Qualifications include excellent communication and human relation skills, computer skills, flexibility and the ability to work under pressure.

## Career Opportunities

Employment opportunities are excellent for skilled, capable and dependable Human Resource program graduates.

Human Resource program graduates may be employed in positions such as: Human Resource Representative, Human Resource Coordinator, HR Assistant, Human Resource Specialist, Human Resource Generalist, Compensation or Benefits Specialist, Staffing Coordinator, Employment Specialist, Payroll Specialist, or Training and Development Assistant. Typical salaries for entry-level positions range from \$28,000–\$32,000 and for mid-level positions from \$35,000–\$45,000.

## Program Outcomes

1. Graduates will have the skills, knowledge and abilities in core human resource functions (i.e., HRIS, Record Keeping, Compensation/Benefits Admin and staffing procedures).
2. Graduates will have the skills, knowledge and abilities to identify and deal with employee relation issues and to communicate effectively in a work environment.
3. Graduates will have the skills, knowledge and abilities in applicable federal, state and local employment regulations and a working knowledge of basic employment laws.
4. Graduates will be prepared for employment in the field of human resources (in a variety of positions).
5. Graduates will have successfully mastered the general education requirements for work and life roles.

## Human Resources AAS Degree

The Human Resources Associate in Applied Science Degree is intended for students who desire immediate employment upon graduation, or who plan to transfer to another institution of higher education.

### Business Core Courses

Course		Cr
<b>Professional Component</b>		
ACCT 1411	Principles of Accounting 1	4
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BTEC 1445	Business Communications	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment of Business	3
<b>Total Core Credits</b>		<b>16</b>

### Program Requirements

BUSN 1482	Business Career Resources	2
BUSN 2450	Management Fundamentals	3
HMRS 1400	Human Resource Management	3
HMRS 1490	Talent Management	3
HMRS 1510	HR Information Systems & Records	3
HMRS 1520	Compensation & Benefits Administration	3
HMRS 2420	Employment Law & HR Policies	3
HMRS 2410	Employee/Labor Relations	3
HMRS 2591	Human Resource Internship	3
<b>Subtotal</b>		<b>26</b>
<b>Professional Component Credits</b>		<b>16</b>
<b>General Education Requirements</b>		<b>20</b>
(ECON 1720 Macroeconomics <b>OR</b> ECON 1730 Microeconomics is required)		
<b>Total Program Credits</b>		<b>62</b>

### AAS Degree General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Human Resources Certificate

This program is designed for an individual who desires to enter the Human Resources field with a general grounding in Human Resources and within a short period of time. This program has two emphases. The first, HR Specialist emphasis, is for an individual who has a background in computer and office skills. The second, HR Technician emphasis, is for an individual who seeks to gain, or improve computer skills that will enable them to enter the job market. The certificate program is transferable to the AAS program.

### Program Requirements

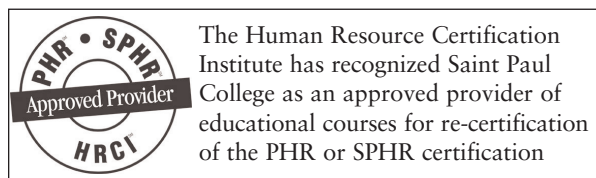
Course		Cr
BUSN 1410	Introduction to Business	3
COMM	Choose a COMM or SPCH course, 1000 level or higher, or ENGL 1711 or higher	3
BUSN 1482	Business Career Resources	2
HMRS 1400	Human Resources Management	3
HMRS 1490	Talent Management	3
HMRS 1510	HR Information Systems & Records	3
HMRS 2410	Employee/Labor Relations	3
HMRS 2420	Employment Law & HR Policies	3
	Business Elective Credits	6
	<b>Total Program Credits</b>	<b>29</b>
<b>Business Electives, choose 6 Credits</b>		
BTEC	Business Elective	3
BUSN	Business Management Elective	3
HMRS 2591	Human Resources Internship	3

## Human Resources On-line Accelerated Certificate

This online certificate is designed for an individual who is currently working in the Human Resource field, or has management background dealing with HR issues. This accelerated program is offered completely through distance learning. Program advisor approval is needed prior to entrance into this program. This certificate program is transferable to the Human Resources AAS degree.

### Program Requirements

Course		Cr
HMRS 1400	Human Resource Management	3
HMRS 1490	Talent Management	3
HMRS 1510	HR Information Systems & Records	3
HMRS 1520	Compensation & Benefits Administration	3
HMRS 2420	Employment Law & HR Policies	3
	<b>Total Program Credits</b>	<b>15</b>



## International Trade

International Trade Specialist AAS Degree . . . 66 Credits  
 International Trade Professional Certificate . . . . . 16 Credits

Program Advisor approval is needed prior to entrance into the certification program. This certificate is transferable to the AAS program.

### Program Overview

Applicants are required to have a high school diploma or equivalent. The international trade area is especially suited for persons who are self reliant, imaginative, adaptable and who possess an interest in working with people from other cultures.

### Career Opportunities

More than four million people in the United States work in jobs related to international trade. In Minnesota, many businesses engage in international trade, with a dramatic increase in trade activity expected within five years.

A career in International Trade offers you the opportunity to work in the international marketplace. The International Trade Specialist Program will provide you with knowledge and skills which will prepare you for employment in the export and import departments of businesses. You will be working with people from foreign countries, handling foreign orders, filling overseas orders, handling customer matters and determining tariff rates for the entry of foreign goods through U.S. Customs. Job titles include: International Sales/Marketing Assistant, International Marketing Communication Coordinator, International Documentation Specialist, International Customer Service Coordinator, Export-Import Coordinator, International Banker and International Transportation Coordinator.

This program also provides an excellent foundation for individuals wanting to be entrepreneurs in the import/export business. The import/export field is growing! You can grow with it.

### Program Outcomes

1. Graduates will have knowledge and skills in domestic and international transportation management and logistics.
2. Graduates will have knowledge of U.S. Custom regulations and classifications.
3. Graduates will demonstrate the ability to successfully perform as International Trade Specialist via Internships.
4. Graduates will be prepared for employment as International Trade Specialists.
5. Graduates will have knowledge and skills in customer service.

## International Trade Specialist AAS Degree

### Business Core Courses

Course		Cr
ACCT 1411	Principles of Accounting 1	4
BTEC 1421	Business Information Applications 1 <b>OR</b>	
CSCI 2410	Management Information Systems	3
BTEC 1445	Business Communications	3
BUSN 1410	Introduction to Business	3
BUSN 2470	Legal Environment of Business	3
<b>Total Business Core Credits</b>		<b>16</b>

### Program Requirements

Course		Cr
BSLM 1410	Transportation Management	3
BSLM 1510	Distribution Management	3
BUSN 1482	Business Career Resources	2
INTL 1400	Introduction to International Business	3
INTL 1410	International Communications and Cultural Awareness	3
INTL 1510	Export Shipping and Documentation	4
INTL 2420	U.S. Customs and Importing	3
INTL 2520	International Business Law	3
INTL 2530	International Marketing	3
	Business Elective	3
<b>Subtotal</b>		<b>30</b>
<b>Required Business Core Credits</b>		<b>16</b>
<b>General Education</b>		<b>20</b>
(ECON 1720 Macroeconomics <b>OR</b> ECON 1730 Microeconomics is required)		
<b>Total Credits</b>		<b>66</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH 1700 XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences ECON 1720 Macroeconomics – 3 cr <b>OR</b> ECON 1730 Microeconomics – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## International Trade Professional Certificate\*

### Program Requirements

Course		Cr
INTL 1410	International Communication and Cultural Awareness	3
INTL 1510	Export Shipping and Documentation	4
INTL 2420	U. S. Customs and Importing	3
INTL 2520	International Business Law	3
INTL 2530	International Marketing	3
<b>Total Program Credits</b>		<b>16</b>

\* Program Advisor approval required

## Health Information Technology and Medical Office Careers

Health Information Technology AAS Degree\* . 65 Credits  
 Medical Office Professional AAS Degree . . . . . 60 Credits  
 Medical Coding Certificate . . . . . 30 Credits  
 Medical Records Clerk Certificate. . . . . 17 Credits  
 Medical Receptionist Certificate . . . . . 20 Credits  
 Medical Transcriptionist Certificate. . . . . 30 Credits

\* The Health Information Technology AAS Degree Program is pending accreditation by the Commission on Accreditation of Health Informatics and Information Management Education ([www.cahiim.org](http://www.cahiim.org))

### Program Overview

Health Information Technicians play a vital role in the health care industry by participating in the creation, completion, distribution and retention of medical record documentation according to policies and procedures outlined by several regulating bodies such as the Joint Commission on Accreditation of Health Care Facilities and Medicare.

Those individuals enrolled in the program will obtain a broad body of knowledge which will allow them to become employed in many capacities within a health information department. Some of the positions include such tasks as: release of information, various registries, incomplete chart room, processing of medical documentation, coding and abstracting, and may include supervisory or leadership roles based on skill and ability. Students who successfully complete the Health Information Technology degree are allowed to sit for the national examination given by the American Health Information Management Association to become a Registered Health Information Technician upon successful completion of the examination.

## Career Opportunities

Graduates of the Health Information Technology degree will find positions in various health care settings such as private physician offices, clinics, specialty clinics, hospitals, long-term care facilities, and rehabilitation facilities. Employment can also be found in government offices, the insurance industry, dental and chiropractic clinics, and information technology suppliers.

## Program Outcomes

1. Graduates will apply policies and procedures to assure the accuracy of health information.
2. Graduates will use specialized software in the completion of HIM processes such as record tracking, release of information, coding, grouping, registries, billing, and quality improvement.
3. Graduates will apply procedure codes using ICD-9-CM and CPT/HCPCS.
4. Graduates will apply policies and procedures to comply with the changing regulations among various payment systems for healthcare services.
5. Graduates will possess a knowledge base which will allow them to find employment in the health care industry.
6. Graduates will be prepared to sit for the certification examination given by the American Health Information Management Association to become a Registered Health Information Technician.

## Health Information Technology AAS Degree

### Program Prerequisite

Course		Cr
BTEC 1400	Microcomputer Keyboarding	2
BTEC 1418	Computer Fundamentals	3

### Program Requirements

Course		Cr
BTEC 1421	Business Information Applications 1	3
BUSN 1482	Business Career Resources	2
MEDS 1420	Health Information Foundations	3
MEDS 1470	Anatomy & Physiology/Medical Office	3
MEDS 1480	Medical Terminology	3
MEDS 1560	Computerized Health Information	3
MEDS 1562	Billing and Reimbursement	2
MEDS 1570	Human Disease	3
MEDS 2430	Pharmacology for the Medical Office	2
MEDS 2432	Alternative Health Record Systems	2
MEDS 2434	Legal and Ethical Aspects of Health Information	2
MEDS 2440	Supervision of Health Information	2
MEDS 2460	ICD-9-CM Coding	3
MEDS 2470	CPT-4 Coding	3
MEDS 2480	Advanced Coding	3
MEDS 2510	Quality Management and Health Statistics	3
MEDS 2590	HIT Internship	3
<b>Subtotal</b>		<b>45</b>
<b>General Education</b>		<b>20</b>
<b>Total Program Credits</b>		<b>65</b>

### General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any speech course from Goal 1

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	7
Select a minimum of 3 credits from Goal 3 Goal 3: Natural Sciences	3
Select a minimum of 3 credits from Goal 5 Goal 5: History, Social Science and Behavioral Sciences	3
Select a minimum of 3 credits from Goal 6 Goal 6: Humanities and Fine Arts	3
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for Specific course options.

## Medical Office Careers

### Program Overview

Medical Office professionals are critical to the support of clinical staff in the health care industry. Physicians, nurses and other direct patient-contact personnel rely on well-trained medical office professionals to assist them in the creation and retention of quality medical documentation based on patient care. The medical office professional's job may include transcribing medical documents, creating and processing correspondence, coding of diagnoses and procedures, scheduling patient appointments, pulling and filing of medical records, releasing of information, collecting or abstracting medical data, understanding reimbursement methodologies, meeting physician documentation needs, as well as other related duties.

High school graduation or equivalent is required. Applicants should possess excellent communication skills, meticulous attention to detail, good spelling, finger dexterity and extreme accuracy in their work. Candidates considering this field should be comfortable reading and analyzing data for long periods of time, listening to dictated material for an extended period, assisting the public with concerns and being given a directive to complete.

### Career Opportunities

Medical Office Professionals enjoy salaries in the top bracket of office professionals. Some may advance to office supervisors or managers with further education; and some may develop their own business based on their medical office specialty, such as transcription or coding. The Medical Office Professional may work in a clinic, physician's office, surgery center, specialty clinic, hospital, insurance company, government agency, research foundation, long-term care facility, dental office, consulting firm, rehabilitation center or other health care facility.

### Program Outcomes

1. Graduates will possess the knowledge and skills for immediate employment as a Medical Office Professional.
2. Graduates will have successfully mastered the general education requirements for work and life roles.
3. Graduates will be proficient in the use of basic computer software applications.
4. Graduates will possess a complete understanding of the language of medicine or medical terminology.

## Medical Office Professional AAS Degree

### Program Prerequisites

Course		Cr
BTEC 1400	Microcomputer Keyboarding Knowledge of Computers <b>OR</b>	2
BTEC 1418	Computer Fundamentals for Beginners	3

### Program Requirements

Course		Cr
BTEC 1410	Document Formatting	3
BTEC 1421	Business Information Applications 1	3
BTEC 1423	Advanced MS Office	4
BTEC 1435	Business Proofreading and Editing	3
BUSN 1480	Career Resources	1
MEDS 1420	Health Information Foundations	3
MEDS 1470	Anatomy/Physiology/Medical Office	3
MEDS 1480	Medical Terminology	3
MEDS 1551	Medical Formatting/Transcription 1	3
MEDS 1552	Medical Transcription 2	3
MEDS 1560	Computerized Health Information	3
MEDS 1570	Human Disease	3
MEDS 2430	Pharmacology for the Medical Office	2
<b>Subtotal</b>		<b>37</b>
<b>Electives</b>		<b>3</b>
(Select 3 credits of electives from any Business career program with advisor approval)		
<b>General Education Requirements</b>		<b>20</b>
(Select at least 20 credits of General Education according to the requirements listed below)		
<b>Total Program Credits</b>		<b>60</b>

### AAS Degree General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.



## Medical Coding Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Microcomputer Keyboarding	2
BTEC 1418	Computer Fundamentals for Beginners	3

### Program Requirements

Course		Cr
BTEC 1421	Business Information Applications 1	3
BUSN 1480	Career Resources	1
MEDS 1420	Health Information Foundations	3
MEDS 1470	Anatomy/Physiology/Medical Office	3
MEDS 1480	Medical Terminology	3
MEDS 1560	Computerized Health Information	3
MEDS 1570	Human Disease	3
MEDS 2430	Pharmacology for the Medical Office	2
MEDS 2460	ICD-9-CM Coding	3
MEDS 2470	CPT-4 Coding	3
MEDS 2480	Advanced Coding	3
<b>Total Program Credits</b>		<b>30</b>

## Medical Records Clerk Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Microcomputer Keyboarding	2
BTEC 1418	Computer Fundamentals for Beginners	3

### Program Requirements

Course		Cr
BTEC 1421	Business Information Applications 1	3
BTEC 1530	Communication Technology	4
BUSN 1480	Career Resources	1
MEDS 1420	Health Information Foundations	3
MEDS 1480	Medical Terminology	3
MEDS 1560	Computerized Health Information	3
<b>Total Program Credits</b>		<b>17</b>

\*Substitution course with advisor approval

## Medical Receptionist Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Microcomputer Keyboarding	2
BTEC 1418	Computer Fundamentals for Beginners	3

### Program Requirements

Course		Cr
BTEC 1421	Business Information Applications 1	3
BTEC 1530	Communication Technology	4
BUSN 1480	Career Resources	1
MEDS 1420	Health Information Foundations	3
MEDS 1470	Anatomy/Physiology/Medical Office	3
MEDS 1480	Medical Terminology	3
MEDS 1560	Computerized Health Information	3
<b>Total Program Credits</b>		<b>20</b>

## Medical Transcriptionist Certificate

### Program Prerequisites

Course		Cr
BTEC 1400	Microcomputer Keyboarding - 30 wpm	2
BTEC 1418	Computer Fundamentals for Beginners	3

### Program Requirements

Course		Cr
BTEC 1421	Business Information Applications 1	3
BUSN 1480	Career Resources	1
MEDS 1420	Health Information Foundations	3
MEDS 1470	Anatomy/Physiology/Medical Office	3
MEDS 1480	Medical Terminology	3
MEDS 1551	Medical Formatting/Transcription 1	3
MEDS 1552	Medical Transcription 2	3
MEDS 1553	Medical Transcription 3	3
MEDS 1560	Computerized Health Information	3
MEDS 1570	Human Disease	3
MEDS 2430	Pharmacology for the Medical Office	2
<b>Total Program Credits</b>		<b>30</b>



# Health and Service Programs

## Child Development Careers 74

Child Development Careers Certificate  
 Child Development Careers Diploma  
 Child Development Careers AAS Degree  
**NEW!** Child Development Careers ASL AS Degree  
 Child Development Careers AS Degree  
 Child Development Administration Advanced Technical Certificate

## Cosmetology Careers 77

Cosmetology AAS Degree  
 Cosmetology Diploma  
 Nail Care Technician Certificate

## Culinary Arts 79

Culinary Arts AAS Degree  
 Culinary Arts Diploma  
 Baking and Decorating Certificate  
 Food Service Management Certificate  
 Short Order Cooking Certificate  
 Wine Professional Certificate

## Esthetics 81

Esthetician AAS Degree  
 Esthetician Diploma  
 Esthetician Certificate

## Health Unit Coordinator 83

Health Unit Coordinator Certificate

## Health Information Technology 68

See Medical Office in Business section

## Massage Therapy Careers 84

Clinical Massage Therapy AAS Degree  
 Massage Therapy Certificate  
 Reflexology Certificate  
**NEW!** Yoga Instructor Training Certificate

## Medical Laboratory Technician 86

Medical Laboratory Technician AAS Degree

## Nursing Assistant/Home Health Aide 88

Nursing Assistant/Home Health Aide Certificate

## Personal Trainer 88

Personal Trainer AAS Degree  
 Personal Trainer Diploma

## Practical Nursing 90

*Coming Soon: LPN to BSN through Metropolitan State University*

Practical Nursing AAS Degree  
 Practical Nursing Diploma

## Respiratory Therapist/Respiratory Care Practitioner 92

Respiratory Therapist/Respiratory Care Practitioner AAS Degree  
**NEW!** Polysomnographic Technology Certificate

## Watchmaking/Clockmaking 94

Micro Mechanical Technology Diploma  
 Watchmaking Certificate  
 Clockmaking Certificate

# Child Development Careers

Child Development Careers Certificate . . . . .	17 Credits
Child Development Careers Diploma . . . . .	35 Credits
Child Development Careers AAS Degree . . . . .	66 Credits
Child Development Careers AS Degree . . . . .	64 Credits
Child Development Careers ASL AS Degree . . . . .	64 Credits
Child Development Administration Advanced Technical Certificate . . . . .	10 Credits

## Program Overview

This program is designed to prepare individuals for employment in a variety of early childhood settings. Courses were designed in collaboration with the other Minnesota Technical and Community Colleges. This program offers a certificate, diploma, AAS and AS Degree. All coursework meets Minnesota Department of Human Services educational requirements for early childhood teachers and assistant teachers. Throughout the program, students will learn about child development, guidance, professional relationships, nutrition, health and safety, cultural sensitivity and techniques for promoting learning in young children. Each level provides lab, internship, or practicum opportunities which allow students to apply their skills and knowledge in a practical experience.

Students must have a high school diploma, or GED and pass a criminal background study. Respect for cultural differences is essential. Good judgment and absolute integrity are also necessary for success in the field of child development.

## Career Opportunities

The field of Child Development Careers offers many opportunities for employment as more and more parents seek quality care and educational programs for their children. There is currently such a high demand for trained child development professionals, that our job placement rate is well over 95%. The Bureau of Labor Statistics estimates that the employment outlook will grow faster than average through 2010.

Graduates of the Child Development Certificate Program will qualify to work as an assistant teacher in a child care setting or preschool program, a family child care provider, or nanny.

Graduates of the Child Development Diploma Program will qualify to work at any of the previous occupations (at a higher pay rate) as well as a lead teacher in a child care setting or preschool program, an assistant teacher in a Head Start program, or child care resource and referral counselor.

Graduates of the Child Development AAS or AS Program will qualify to work at any of the previous occupations (at a higher pay rate) as well as a Lead Teacher in a Head Start program, a teacher assistant or education assistant in the public schools, Early Childhood Special Education, Early Childhood Family Education, Child Life Assistant (working with children in a hospital setting). The ASL/AS Program qualifies the graduate to work in the same programs as listed, however, this program has a focus on using ASL in a child development setting.

The Child Development Administration Advanced Technical Certificate is for current child care center directors and assistant directors who seek advanced certification.

## Program Outcomes

1. Graduates will demonstrate knowledge of child safety, health and nutrition.
2. Graduates will demonstrate knowledge in the fundamental principles of child development and developmentally appropriate practices.
3. Graduates will demonstrate the knowledge and skills in developing and implementing early childhood curriculum.
4. Graduates will have the knowledge and will demonstrate skills in family, community, and staff relations.
5. Graduates will have hands-on training in a variety of Child Development settings.
6. Graduates will possess the knowledge and skills for immediate employment in the Child Development field.
7. Graduates will have successfully mastered the general education program requirements for work and life roles.

## Child Development Careers Certificate

### Program Requirements

Course		Cr
CHDV 1200	Professional Relations in Early Childhood Careers	3
CHDV 1210	Foundations of Child Development	3
CHDV 1220	Child Safety, Health & Nutrition	4
CHDV 1230	Guidance: Managing the Physical/Social Environments	4
SOCI 17XX	Any may be taken, however	
SOCI 1720	Social Issues in a Changing World <b>OR</b>	
SOCI 1730	Sociology of Families and Relationships is recommended	3
<b>Total Program Credits</b>		<b>17</b>

## Child Development Careers Diploma

### Program Requirements

Course		Cr
CHDV 1200	Professional Relations in Early Childhood Careers	3
CHDV 1210	Foundations of Child Development	3
CHDV 1220	Child Safety, Health & Nutrition	4
CHDV 1230	Guidance: Managing the Physical/Social Environments	4
CHDV 1340	Planning & Implementing Curriculum	3
CHDV 1910	Internship 1	4
ENGL 1711	Composition 1	4
SOCI 17XX	Any may be taken, however	
SOCI 1720	Social Issues in a Changing World <b>OR</b>	
SOCI 1730	Sociology of Families and Relationships is recommended	3
<b>Subtotal</b>		<b>28</b>
<b>Choose 1 of the 4 courses listed below:</b>		<b>4</b>
CHDV 1310	Infant & Toddler Dev. & Learning <b>OR</b>	4
CHDV 1312	Preschool Development & Learning <b>OR</b>	4
CHDV 1314	School Age Development & Learning <b>OR</b>	4
CHDV 1316	Mixed Age Development & Learning	4
<b>Electives: Choose 3 credits of technical electives from the following courses:</b>		<b>3</b>
CHDV 1940	Internship 2: Special Setting	3
CHDV 2500	Shadow Study	1
CHDV 2520	Peaceful Classroom	3
CHDV 2530	Challenging Children: Behavior Management Strategies	3
CHDV 2540	Sensory/Motor Learning Experiences	3
CHDV 2550	Cognitive/Multimedia Learning Experience	3
CHDV 2560	Language/Literature Learning Experience	3
CHDV 2570	Multicultural Learning Experience	3
CHDV 2580	Creative Development Learning Experience	3
CHDV 2590	Social-Emotional Learning Experience	3
CHDV 2597	Special Topics	1-4
HLTH 1432	CPR for the Professional	1
<b>Total Program Credits</b>		<b>35</b>

## Child Development Careers AAS Degree

### Program Requirements

Course		Cr
CHDV 1200	Professional Relations in Early Childhood Careers	3
CHDV 1210	Foundations of Child Development	3
CHDV 1220	Child Safety, Health & Nutrition	4
CHDV 1230	Guidance: Managing Physical/Social Environ.	4
CHDV 1340	Planning & Implementing Curriculum	3
CHDV 1910	Internship 1	4
CHDV 2320	Profiles of the Exceptional Child	3
CHDV 2600	Professional Leadership	3

CHDV 2610	Practicum	3
CHDV 2640	Program Planning	3
<b>Subtotal</b>		<b>33</b>

<b>Choose 1 of the 4 courses listed below:</b>		<b>4</b>
CHDV 1310	Infant & Toddler Dev. & Learning or	4
CHDV 1312	Preschool Development & Learning or	4
CHDV 1314	School Age Development & Learning or	4
CHDV 1316	Mixed Age Development & Learning	4

<b>Electives: Choose a minimum of 9 credits from the following Technical Electives:</b>		<b>9</b>
CHDV 1940	Internship 2 (Special Setting)	3
CHDV 2500	Shadow Study	1
CHDV 2520	Peaceful Classroom	3
CHDV 2530	Challenging Children: Behavior Mgmt. Strategies	3
CHDV 2540	Sensory/Motor Learning Experiences	3
CHDV 2550	Cognitive/Multimedia Learning Experiences	3
CHDV 2560	Language & Literature Learning Experiences	3
CHDV 2570	Multicultural Learning Experiences	3
CHDV 2580	Creative Development Learning Experiences	3
CHDV 2590	Social-Emotional Learning Experiences	3
CHDV 2597	Special Topics	1-4
HLTH 1432	CPR for the Professional	1
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)		<b>20</b>
<b>Total Program Credits</b>		<b>66</b>

### AAS Degree General Education Requirements\* **20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1 **7**

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
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Select a minimum of 3 credits from Goal 3 or Goal 4 **3**

Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
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Select a minimum of 3 credits from Goal 5 **3**

Goal 5: History, Social Science and Behavioral Sciences	
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Select a minimum of 3 credits from Goal 6 **3**

Goal 6: Humanities and Fine Arts	
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Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum **4**

\* Refer to the Minnesota Transfer Curriculum Course List.

## Child Development Careers AS Degree

### Program Requirements

Course		Cr
CHDV 1200	Professional Relations in Early Childhood Careers	3
CHDV 1210	Foundations of Child Development	3
CHDV 1220	Child Safety, Health & Nutrition	4
CHDV 1230	Guidance: Managing the Physical/Social Environment	4
CHDV 131N	(age specific) Development and Learning	4
CHDV 1340	Planning and Implementing Curriculum	3
CHDV 1910	Internship 1	4
CHDV 2320	Profiles of the Exceptional Child	3
CHDV 25NN	Technical Elective <b>OR</b>	
CHDV 2640	Program Planning	3
CHDV 2600	Professional Leadership	3
	<b>Subtotal</b>	<b>34</b>
	<b>General Education Requirements</b> (Select at least 30 credits of General Education according to the Requirements below)	<b>30</b>
	<b>Total Program Credits</b>	<b>64</b>

### AS Degree General Education Requirements\* 30 Credits

Students are required to complete ENGL 1711 and either SPCH 1720, 1730 or 1750 from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences	
Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 13 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	13

\*Refer to the Minnesota Transfer Curriculum Course List for Specific course options.

## Child Development ASL AS Degree

### Program Requirements

Course		Cr
CHDV 1200	Professional Relations in Early Childhood Careers	3
CHDV 1210	Foundation of Child Development	3
CHDV 1220	Child Safety, Health & Nutrition	4
CHDV 1230	Guidance in the Early Childhood Environment	4
ASLS 1411	American Sign Language 1	3
ASLS 1412	American Sign Language 2	3
ASLS 14XX	ASL Linguistics (Theory)	2
CHDV 2320	Profiles of the Exceptional Child	3
CHDV 2560	Language & Literature Learning Experiences	3
CHDV 2577	Early Childhood Education - Special Settings/ASL	2
CHDV 2599	Internship (in a special setting)	4
	<b>Subtotal</b>	<b>34</b>
	<b>General Education Requirements</b> (ASLS 1413 American Sign Language 3 ASLS 1414 American Sign Language 4 recommended as 6 of the 13 additional credits from goals 1-10)	<b>30</b>
	<b>Total Program Credits</b>	<b>64</b>

## Child Development Administration Advanced Technical Certificate

### Program Requirements

Course		Cr
CHDV 2800	Child Development Administration	3
CHDV 2820	Child Development Financial Management	3
CHDV 2840	Child Development Staffing & Supervision	3
CHDV 2860	Advanced Internship – Administration of CD Setting	1
	<b>Total Program Credits</b>	<b>10</b>

**Note:** For this certificate please see the Child Development program advisor.

# Cosmetology Careers

Cosmetology AAS Degree . . . . .	72 Credits
Cosmetology Diploma . . . . .	58 Credits
Nail Care Technician Certificate . . . . .	16 Credits

## Cosmetology

### Program Overview

Cosmetology services include the cleaning, conditioning, shaping, reinforcing, coloring and enhancing of the body surface in the areas of head, scalp, face, arms, hands, legs and feet.

Nail Technician services include the cleaning, shaping, conditioning and care for the fingers, hands, toes and feet as well as the preparation and application of artificial nails.

Students must have a high school diploma or equivalent (GED). Science courses provide a good background for the skills taught in hair analysis and treatment. Physical requirements include finger dexterity, negative allergic reaction to cosmetic preparations and artistic flair for creative design. The professional cosmetologist and nail technician should enjoy working with the public and in a team atmosphere. People skills and time management skills are essential.

### Career Opportunities

The job outlook has never been better for cosmetologists, estheticians and nail technicians. Increasing population, incomes and demand for cosmetology services will stimulate job growth. In addition, numerous job openings will stem from rapid turnover in salons and the large size of the occupation. The rapid growth of nail salons and full-service day spas will generate numerous job openings for cosmetologists skilled in hair, skin and nails.

After cosmetology students complete 1550 hours of skills and theory training and pass the written exam given through the State designated testing service and skills certification they are eligible for licensure through the Minnesota Board of Barber and Cosmetology. Cosmetologists work in a variety of settings including beauty salons and full-service day spas.

After Nail Technician students complete 350 hours of skills and theory training and pass the written exam given through the State designated testing service, and skills certification, they are eligible for licensure from the Minnesota Board of Barber and Cosmetology. Nail technicians work in beauty salons, nail salons and spas.

### Program Outcomes (Cosmetology)

1. Graduates will pass the skills certification.
2. Graduates will pass the Minnesota State Cosmetology written exam and state law test administered through the State designated testing service (access through [www.bceboard.state.mn.us](http://www.bceboard.state.mn.us)).
3. Graduates will have knowledge and skills in cosmetology services (hair, nails and skin).
4. Graduates will have knowledge and skills in salon operations.
5. Graduates will be prepared for immediate employment as Cosmetologists.
6. Graduates will have successfully mastered the general education program requirements for work and life roles.

### Program Outcomes (Nail Technician)

1. Graduates will pass the skills certification.
2. Graduates will pass the Minnesota State written exam and state law test administered through the State designated testing service (access through [www.bceboard.state.mn.us](http://www.bceboard.state.mn.us)).
3. Graduates will possess knowledge and skills for manicures, pedicures and application of artificial nails.

Saint Paul College's Cosmetology Program is a Pivot Point Member School

Pivot Point International, Inc.  
1560 Sherman Ave Suite 700  
Evanston, IL 60201  
1-800-886-4247  
[www.pivot-point.com](http://www.pivot-point.com)



## Cosmetology AAS Degree

### Program Requirements

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems & Diseases	4
CHSN 1461	Clinic 1 – Nails	3
CHSN 1462	Clinic 2 – Skin	4
CHSN 1463	Clinic 3 – Advanced Skin	4
CHSN 1464	Clinic 4 – Hair Shaping and Styling	4
CHSN 1465	Clinic 5 – Advanced Hair and License Prep	3
COSM 1405	Preclinic Hair Care 1	3
COSM 1406	Preclinic Hair Care 2	3
COSM 1407	Preclinic Nail Care	3
COSM 1409	Preclinic Chemical Control	3
COSM 1413	Preclinic Hair Color	3
COSM 1415	Advanced Hair Care	3
ESTH 1445	Cosmetic Chemistry & Makeup Applications	4
ESTH 1455	Skin Analysis & Massage	4
<b>Subtotal</b>		<b>52</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)		<b>20</b>
<b>Total Program Credits</b>		<b>72</b>
<b>Select from the following electives as needed:</b>		
COSM 1451	Salon Operations 1	1
COSM 1452	Salon Operations 2	2
COSM 1453	Salon Operations 3	3
COSM 1454	Salon Operations 4	4
COSM 1455	Salon Operations 5	5
COSM 1456	Salon Operations 6	6
COSM 1491	Cosmetology Internship Elective	2-8

### AAS Degree General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH 1720 Interpersonal Communications – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List.

## Cosmetology Diploma

### Program Requirements

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems and Diseases	4
CHSN 1461	Clinic 1 – Nails	3
CHSN 1462	Clinic 2 – Skin	4
CHSN 1463	Clinic 3 – Advanced Skin	4
CHSN 1464	Clinic 4 – Hair Shaping and Styling	4
CHSN 1465	Clinic 5 – Advanced Hair and License Prep	3
COSM 1405	Preclinic Hair Care 1	3
COSM 1406	Preclinic Hair Care 2	3
COSM 1407	Preclinic Nail Care	3
COSM 1409	Preclinic Chemical Control	3
COSM 1413	Preclinic Hair Color	3
COSM 1415	Advanced Hair Care	3
ESTH 1445	Cosmetic Chemistry & Makeup Applications	4
ESTH 1455	Skin Analysis & Massage	4
<b>Subtotal</b>		<b>52</b>
<b>General Education Requirements</b> (SPCH 1720 Interpersonal Communications OR SPCH 1782 Workplace Interpersonal Communications)		<b>3</b>
<b>Required Electives</b> (must select at least 3 credits of the following Technical Electives to complete the required 1550 hours needed for licensure)		<b>3</b>
COSM 1451	Salon Operations 1	1
COSM 1452	Salon Operations 2	2
COSM 1453	Salon Operations 3	3
COSM 1454	Salon Operations 4	4
COSM 1455	Salon Operations 5	5
COSM 1456	Salon Operations 6	6
COSM 1491	Cosmetology Internship	2-8
<b>Total Program Credits</b>		<b>58</b>

## Nail Care Technician Certificate

### Program Requirements

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems & Diseases	4
CHSN 1461	Clinic 1 – Nails	3
COSM 1407	Preclinic Nail Care	3
COSM 1452	Salon Operations 2	2
<b>Total Program Credits</b>		<b>16</b>
<b>Select from the following electives as needed:</b>		
COSM 1451	Salon Operations 1	1
COSM 1453	Salon Operations 3	3



# Culinary Arts

Culinary Arts AAS Degree . . . . .	72 Credits
Culinary Arts Diploma . . . . .	55 Credits
Baking and Decorating Certificate . . . . .	9 Credits
Food Service Management Certificate . . . . .	18 Credits
Short Order Cooking Certificate . . . . .	25 Credits
Wine Professional Certificate . . . . .	9 Credits

## Program Overview

Chefs and cooks prepare a variety of foods in many different environments, from preparation of a la carte (prepared to order) to banquets for hundreds of people. Responsibilities include sanitation, maintaining an accounting and inventory control system, estimating the amount of food needed, purchasing food supplies and planning menus. Nutritional aspects of healthy cooking are increasingly incorporated into the chef's menu.

A good general education, good reading ability and a working knowledge of mathematics is important so that students can interpret weights and measures, calculate recipes and understand cost control, inventory control and forecasting.

## Career Opportunities

According to the U.S. Bureau of Labor Statistics and National Restaurant Association, meal preparation continues to shift out of the home, providing plentiful opportunities for chefs, cooks and other food service workers. Americans spend more than \$300 billion each year on meals eaten outside the home. The restaurant industry employs 11.6 million people, almost 9% of the total U.S. workforce. The number is expected to reach 13 million by 2010.

Opportunities are available in hotels, restaurants, resorts, clubs, catering and corporate dining, government and school kitchens. Institutional opportunities include health care, schools, corporations and government facilities. Culinary Arts careers can lead in many different directions such as hospitality management, sales, product development, or owning your own business. Articulation agreements exist with 4-year degree granting institutions to pursue advanced degrees in the culinary arts field.

These programs are accredited by the American Culinary Federation Accrediting Commission.

## Program Outcomes

1. Graduates will have knowledge and skills in culinary arts.
2. Graduates will demonstrate knowledge and skills in restaurant operations.
3. Graduates will be experienced in food preparation and presentation for business and industry.
4. Graduates will be prepared for immediate employment in the food service industry.
5. Graduates will have mastered the general education program requirements for work and life roles.
6. Graduates will be eligible for Minnesota Food Manager Certification.
7. Graduates will be eligible for certification by ACF "Certified Culinarian."

## Culinary Arts AAS Degree

### Program Requirements

Course		Cr
CULA 1400	Culinary Basics 1	3
CULA 1420	Culinary Basics 2	4
CULA 1440	Breakfast	1
CULA 1450	Meat Fabrication	2
CULA 1460	Basic Menu Production	2
CULA 1470	Food Service Sanitation	2
CULA 1480	Nutrition	2
CULA 1490	Food Service Math	2
CULA 1510	Commercial Bakery Production	2
CULA 1520	Commercial Pantry Production	2
CULA 1530	Commercial Range Production	2
CULA 1535	Catering	1
CULA 1540	Food Service Supervisory Management	2
CULA 1550	Grill/Short Order Cooking	2
CULA 1560	Food, Beverage & Labor Cost Control	3
CULA 1570	Basic Cake Decorating	2
CULA 2410	Restaurant Operations Theory	2
CULA 2411	Restaurant Operations Lab 1	3
CULA 2412	Restaurant Operations Lab 2	3
CULA 2420	Service	2
CULA 2430	Advanced Foods and Wine Appreciation	2
CULA 2440	Ice Carving	1
CULA 2450	Advanced Cake & Pastry	2
CULA 2460	Classical Buffet	3
<b>Subtotal</b>		<b>52</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)		<b>20</b>
<b>Total Program Credits</b>		<b>72</b>

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	7
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List.

## Culinary Arts Diploma

### Program Requirements

Course	Cr
CULA 1400 Culinary Basics 1	3
CULA 1420 Culinary Basics 2	4
CULA 1440 Breakfast	1
CULA 1450 Meat Fabrication	2
CULA 1460 Basic Menu Production	2
CULA 1470 Food Service Sanitation	2
CULA 1480 Nutrition	2
CULA 1490 Food Service Math	2
CULA 1510 Commercial Bakery Production	2
CULA 1520 Commercial Pantry Production	2
CULA 1530 Commercial Range Production	2
CULA 1535 Catering	1
CULA 1540 Food Service Supervisory Management	2
CULA 1550 Grill/Short Order Cooking	2
CULA 1560 Food, Beverage & Labor Cost Control	3
CULA 1570 Basic Cake Decorating	2
CULA 2410 Restaurant Operations Theory	2
CULA 2411 Restaurant Operations Lab 1	3
CULA 2412 Restaurant Operations Lab 2	3
CULA 2420 Service	2
CULA 2430 Advanced Foods and Wine Appreciation	2
CULA 2440 Ice Carving	1
CULA 2450 Advanced Cake & Pastry	2
CULA 2460 Classical Buffet	3
<b>Subtotal</b>	<b>52</b>
<b>General Education Requirement</b>	<b>3</b>
SPCH 1782 Workplace Interpersonal Communication	
COMM 1510 Customer and Occupational Relations (recommended)	
<b>Total Program Credits</b>	<b>55</b>

## Baking and Decorating Certificate

### Program Requirements

Course	Cr
CULA 1400 Culinary Basics 1	3
CULA 1470 Food Service Sanitation	2
CULA 1490 Food Service Math	2
CULA 1570 Basic Cake Decorating	2
<b>Total Program Credits</b>	<b>9</b>

## Food Service Management Certificate\*

### Program Requirements

Course	Cr
HSPM 1410 Introduction to Hospitality Management (new)	3
BUSN 2450 Management Fundamentals	3
CULA 1540 Food Service Supervisory Management	2
CULA 1560 Food, Beverage & Labor Cost Control	3
CULA 1470 Food Service Sanitation	2
HSPM 2591 Hospitality Management Internship	5
<b>Total Program Credits</b>	<b>18</b>

\*Also see Hospitality Management under Business Programs.

## Short Order Cooking Certificate

### Program Requirements

Course	Cr
CULA 1400 Culinary Basics 1	3
CULA 1420 Culinary Basics 2	4
CULA 1440 Breakfast	1
CULA 1450 Meat Fabrication	2
CULA 1460 Basic Menu Production	2
CULA 1470 Food Service Sanitation	2
CULA 1480 Nutrition	2
CULA 1490 Food Service Math	2
CULA 1520 Commercial Pantry Production	2
CULA 1550 Grill/Short Order	2
<b>Subtotal</b>	<b>22</b>
<b>General Education Requirement</b>	<b>3</b>
<b>Total Program Credits</b>	<b>25</b>

## Wine Professional Certificate

Must be 21 years of age. All credits must be completed in one semester.

### Program Overview

The Wine Professional certificate provides the graduate with a strong knowledge of wine, wine service skills and wine marketing strategies.

### Career Opportunities

The wine industry is rapidly expanding within the United States, with wine sales more than doubling from \$10.9 billion in 1991 to \$26.6 billion in 2005, up 13.5% in the past twelve month period alone. Wine sales are an important profit center for the restaurant/hospitality industry and thus a comprehensive knowledge of wine is critical for maximizing outcomes.

Opportunities are available in hotels, restaurants, resorts, clubs, catering and corporate dining. Graduates of the Wine Professional Certificate will be prepared for careers in the restaurant/hospitality industry, wine distribution and wholesale/retail wine trade.

### Program Outcomes (Wine Professional)

1. Graduates will have knowledge/skills in professional tasting techniques for assessment and evaluation of wine.
2. Graduates will have knowledge and skills in wine service techniques.
3. Graduates will have knowledge and skills in wine business considerations.
4. Graduates will have knowledge and skills in wine merchandising, marketing and public relations.

## Wine Professional Certificate

### Program Requirements

Course		Cr
CULA 1600	Professional Introduction to Wine	2
CULA 1610	Flavor Dynamics of Wine	2
CULA 1620	Professional Wine Service	1
CULA 1630	Strategies for Pairing Wine with Food	2
CULA 1640	Wine Marketing	2
<b>Total Program Credits</b>		<b>9</b>

## Esthetics

Esthetician Certificate . . . . .	27 Credits
Esthetician AAS Degree. . . . .	72 Credits
Esthetician Diploma . . . . .	64 Credits

### Program Overview

Esthetician services include specialized work with skin care products, analysis of skin, skin exfoliation, massage techniques, aromatherapy and facials. Students learn to apply makeup, provide temporary hair removal, and to use machines designed to administer skin treatments.

Esthetician AAS Spa Technician Emphasis or Esthetician Diploma will meet the criteria for the CIDESCO exam requirement of 1200 hours of training in skin, massage and nail services. Therefore graduates of these 2 program options are trained in therapeutic skin and body services.

### Career Opportunities

After esthetician students complete 600 hours of skills and theory training and pass the written exam through the State designated testing service and skills certification, they are eligible for licensure through the Minnesota Board of Barber and Cosmetology. Estheticians work in a variety of settings including salons, spas, fitness centers, and dermatologist, plastic surgeon offices and hospitals. CIDESCO examinees are able to license as an esthetician, nail technician and certify as a massage therapist. Cross trained therapists are able to work in Spas, Medical Offices, Cruise Ships and 5 Star Resorts.

### Program Outcomes (Esthetician)

1. Graduates will pass the esthetician skills certification.
2. Graduates will pass the Minnesota State Esthetician written exam and state law test administered through the state designated testing service (access through [www.bceboard.state.mn.us](http://www.bceboard.state.mn.us)).
3. Graduates will have knowledge and skills in esthetician (skin) services.
4. Graduates will have knowledge and skills in salon operations focusing on skin services.
5. Graduates will possess knowledge and skills for personal care of the skin.
6. Graduates will be prepared for immediate employment as an esthetician.
7. Graduates will have the knowledge and skills for work and life roles.
8. Graduates will have the knowledge in cosmetic care product ingredients.

**Program Outcomes (Esthetician AAS - Spa Technician emphasis and Esthetician Diploma) (in addition to certificate outcomes above)**

1. Graduates will pass the CIDESCO exam.
2. Graduates will have knowledge and skills in spa operations focusing on therapeutic skin and body services..
3. Graduates will be prepared for immediate employment as a CIDESCO diploma holder.

Saint Paul College's Esthetician Program is a CIDESCO school. This means the program is allowed to prepare candidates for the CIDESCO examination.

Comite International d'Esthetique et de Cosmetologie  
E-mail: info@CIDESCO.com  
Web site: www.cidesco.com



**Esthetician Certificate**

**Program Requirements**

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems & Diseases	4
CHSN 1462	Clinic 2 – Skin	4
CHSN 1463	Clinic 3 – Advanced Skin	4
ESTH 1445	Cosmetic Chemistry & Makeup Applications	4
ESTH 1455	Skin Analysis & Massage	4
<b>Subtotal</b>		<b>24</b>
<b>General Education Requirements</b>		<b>3</b>
SPCH 1720 Interpersonal Communication		OR
SPCH 1782 Workplace Interpersonal Communication (recommended)		
<b>Total Program Credits</b>		<b>27</b>

Select from the following electives as needed:

ESTH 1551	Salon Operations for Estheticians 1	1
ESTH 1552	Salon Operations for Estheticians 2	2
ESTH 1553	Salon Operations for Estheticians 3	3
ESTH 1554	Salon Operations for Estheticians 4	4
ESTH 1555	Salon Operations for Estheticians 5	5
ESTH 1556	Salon Operations for Estheticians 6	6

**Esthetician AAS Degree**

**Program Requirements**

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems & Diseases	4
CHSN 1462	Clinic 2 – Skin	4
CHSN 1463	Clinic 3 – Advanced Skin	4
COSM 1407	Preclinic Nail Care	3
ESTH 1445	Cosmetic Chemistry & Makeup Applications	4
ESTH 1455	Skin Analysis and Massage	4
HLTH 1410	Medical Terminology	1
HLTH 1420	Anatomy & Physiology	4
HLTH 1425	Clinical Applications in Kinesiology	3
HLTH 1417	Somatic Practitioner: Business and Ethics	3

**Subtotal 38**

**Select one emphasis: Medical Esthetician OR Spa Technician Emphasis 14**

**General Education Requirements 20**

(Select at least 20 credits of General Education according to the requirements listed below)

**Total Program Credits 72**

**Medical Esthetician Emphasis**

BIOL 1760	Nutrition	3
HLTH 1900	Pathology for the Somatic Practitioner	4
PSYC 1720	Psychology Throughout the Lifespan (meets goal 5 of Gen. Ed Requirements)	3
HLTH 1455	Yoga Postures	2
HLTH 1456	Relaxation Therapy	2

The following General Education courses are required for the **Medical Esthetician Emphasis:**

BIOL 1740	General Biology 1: the Living Cell	5
CHEM 1711	Principles of Chemistry 1	4
SPCH 1720	Interpersonal Communication	3

**Spa Technician Emphasis**

MASS 1400	Intro to Therapeutic Massage	4
MASS 1421	Massage Spa Techniques	2
MASS 1422	Massage Clinical Techniques	4
MASS 1480	Massage Therapy Practicum	4

The following General Education course is required for the **Spa Technician Emphasis:**

BIOL 1760	Nutrition	3
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Select from the following electives as needed:

ESTH 1551	Salon Operations for Estheticians 1	1
ESTH 1552	Salon Operations for Estheticians 2	2
ESTH 1553	Salon Operations for Estheticians 3	3
ESTH 1554	Salon Operations for Estheticians 4	4
ESTH 1555	Salon Operations for Estheticians 5	5
ESTH 1556	Salon Operations for Estheticians 6	6

## AAS Degree General Education Requirements\*

20 Credits

Students are required to complete ENGL 1711 and any speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List.

## Esthetician Diploma

### Program Requirements

Course		Cr
CHSN 1410	Preclinic Introduction	4
CHSN 1420	Body Systems & Diseases	4
CHSN 1461	Clinic 1 – Nails	3
CHSN 1462	Clinic 2 – Skin	4
CHSN 1463	Clinic 3 – Advanced Skin	4
COSM 1407	Preclinic Nail Care	3
ESTH 1445	Cosmetic Chemistry & Makeup Applications	4
ESTH 1455	Skin Analysis and Massage	4
HLTH 1410	Medical Terminology	1
HLTH 1420	Anatomy & Physiology	4
HLTH 1425	Clinical Applications in Kinesiology	3
HLTH 1460	Nutrition for the Health Professions	2
HLTH 1900	Pathology for the Somatic Practitioner	4
MASS 1400	Introduction to Therapeutic Massage	4
MASS 1421	Massage Spa Techniques	2
MASS 1422	Massage Clinical Techniques	4
MASS 1480	Massage Therapy Practicum	4
	<b>Subtotal</b>	<b>58</b>
	<b>General Education Requirements</b>	<b>6</b>
	<b>Total Program Credits</b>	<b>64</b>
Select from the following electives as needed:		
ESTH 1551	Salon Operations for Estheticians 1	1
ESTH 1552	Salon Operations for Estheticians 2	2
ESTH 1553	Salon Operations for Estheticians 3	3
ESTH 1554	Salon Operations for Estheticians 4	4
ESTH 1555	Salon Operations for Estheticians 5	5
ESTH 1556	Salon Operations for Estheticians 6	6

## Health Unit Coordinator

Health Unit Coordinator Certificate . . . . . 17 Credits

### Program Overview

Health Unit Coordinators work at the nursing station in health care facilities. As the center of communications on the nursing unit, they are responsible for reading doctor's orders for patient treatments, medications and tests and accurately relaying those orders to the appropriate department. The Health Unit Coordinator is responsible for performing clerical tasks for the nursing stations such as answering the telephone, operating the computer, assisting visitors, filing, managing station records and maintaining patient's charts.

Health Unit Coordinators must be able to complete detailed tasks with a high degree of accuracy, while working in a busy environment. They must be self-motivated and conscientious to complete work independently and be able to solve problems logically. Excellent written and verbal communication skills are essential. All health care workers must have a high degree of ethics in maintaining the confidentiality of patient information. Health Unit Coordinators must be professional in interactions with others, performance of job responsibilities, appearance and be proficient in the English language.

### Career Opportunities

Health Unit Coordinators are employed in front desk positions at various metropolitan private and public hospitals, long term care facilities and clinics. The approximate starting pay is \$13.00 + per hour. The National Association of Health Unit Coordinators conducts an optional certification exam for Health Unit Coordinators.

### Program Outcomes

1. Graduates will possess the knowledge necessary to process physicians' orders.
2. Graduates will have the ability to manage the clerical aspects of the nursing unit.
3. Graduates will have the ability to function in the receptionist role on the nursing unit.
4. Graduates will demonstrate their knowledge and skills by performing as a HUC via Internship.
5. Graduates will be prepared for immediate employment as a HUC.
6. Graduates will be prepared for the National HUC certification exam.

This program meets National Association of HUC Standards and prepares students for the National HUC certification exam.  
NAHUC Web site: [www.NAHUC.org](http://www.NAHUC.org)

## Health Unit Coordinator Certificate

### Program Requirements

Course		Cr
HLUC 1410	Diagnostic & Therapeutic Procedures	4
HLUC 1420	Health Unit Coordinator Fundamentals	4
HLUC 1510	Processing Physicians Orders 1	3
HLUC 1511	Processing Physicians Orders 2	3
HLUC 2491	Health Unit Coordinator Internship	3
<b>Total Program Credits</b>		<b>17</b>

## Massage Therapy Careers

Clinical Massage Therapy AAS Degree . . . . .	68 Credits
Massage Therapy Certificate . . . . .	30 Credits
Reflexology Certificate . . . . .	24 Credits
Yoga Instructor Training Certificate . . . . .	10, 24 Credits

## Massage Therapy

### Program Overview

Massage Therapists manipulate soft tissue structures of the body to prevent and alleviate pain, using techniques such as Swedish Massage, Reflexology, Sports Massage, Neuromuscular Therapy, Myofascial Release, Lymphatic Drainage, PNF and AIS stretching techniques and Travel Trigger Point Therapy. Graduates of the certificate program integrate manual massage techniques to positively contribute to the well-being of the client in a safe and skillful manner. Graduates of the Clinical Massage Therapy Program perform all of the skills in the certificate program and learn to perform thorough patient assessments and develop care plans based on assessments. Students implement care plans utilizing carefully selected techniques for the given disorders including recommended exercises for the client.

### Career Opportunities

The employment outlook for massage therapists is projected to be better than average in the upcoming years. The increasing population, increasing personal incomes, longer life spans and an increasing recognition that massage is beneficial to reduce stress, relieve pain and improve overall health all contribute to an increased demand for these workers. Factors affecting long term growth include economic well-being and the degree to which insurance companies and HMO's will reimburse for this service. Graduates perform massage therapy in health spas, resorts, health clubs, retirement residences, country clubs, hospitals, chiropractic offices, long-term care facilities and clinics, or may be self-employed.

The Massage Therapy Certificate program meets the minimum requirement of 600 technical hours of study required for accreditation by the American Massage Therapy Association Commission on Massage Therapy Accreditation and 600 hours of study for state licensure required in surrounding states. The AAS in Clinical Massage Therapy builds upon the existing Certificate Program. Students are trained in specific Medical Massage Therapy techniques and pathologies as recommended by the American Medical Massage Association. Upon completion of the 1500 hour program, students will be eligible to apply for National Certification in Medical Massage Therapy. This is the only program in Minnesota addressing Medical Massage.

### Program Outcomes (Massage Therapy Certificate)

1. Graduates will provide application of manual techniques to positively contribute to the well-being of the client in a safe and skillful manner.
2. Graduates will be prepared to take the national certification exam in massage therapy.
3. Graduates will be prepared for employment in an entry-level capacity.

### Program Outcomes (Clinical Massage Therapy AAS) (in addition to certificate outcomes above)

1. Graduates will be prepared to take the national certification exam in medical massage therapy.
2. Graduates will be prepared for employment in a medical environment.

## Clinical Massage Therapy AAS Degree

### Program Requirements

Course		Cr
HLTH 1410	Medical Terminology	1
HLTH 1417	Somatic Practitioner: Business & Ethics	3
HLTH 1420	Anatomy & Physiology	4
HLTH 1425	Clinical Applications in Kinesiology	3
HLTH 1465	Functional Holistic Nutrition	4
HLTH 1485	Therapeutic Exercise	5
HLTH 1900	Pathology for the Somatic Practitioner	4
MASS 1400	Introduction to Therapeutic Massage	4
MASS 1421	Massage Spa Techniques	2
MASS 1422	Massage Clinical Techniques	4
MASS 1423	Massage Advanced Clinical Techniques	5
MASS 1480	Massage Therapy Practicum	4
MASS 1490	Clinical Massage Internship	5
<b>Subtotal</b>		<b>48</b>
<b>General Education Requirements</b>		<b>20</b>
(See below for specific General Education requirements for this program)		
<b>Total Program Credits</b>		<b>68</b>

## AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course.	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Students are required to take the following from Goal 3	3
Goal 3: Natural Sciences BIOL 1760 Nutrition – 3 cr	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences PSYC 1750 Intro to Health Psychology (recommended) – 3 cr	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Any other General Education elective	4

\*Refer to the Minnesota Transfer Curriculum Course List.

## Massage Therapy Certificate

### Program Requirements

Course	Cr
HLTH 1410 Medical Terminology	1
HLTH 1417 Somatic Practitioner: Business & Ethics	3
HLTH 1420 Anatomy and Physiology	4
HLTH 1425 Clinical Applications in Kinesiology	3
HLTH 1460 Nutrition for the Health Professions	2
MASS 1400 Introduction to Therapeutic Massage	4
MASS 1421 Massage Spa Techniques	2
MASS 1422 Massage Clinical Techniques	4
MASS 1480 Massage Therapy Practicum	4
<b>General Education Requirements</b>	<b>3</b>
PSYC 1750 Intro to Health Psychology (recommended)	
<b>Total Program Credits</b>	<b>30</b>

## Reflexology

### Program Overview

Reflexology is a complementary therapy that works on the feet or hands enabling the body to heal itself. Reflexology can be used to restore and maintain the body's natural equilibrium and encourage healing by causing a relaxation response in the corresponding body part.

A Reflexologist uses hands only to apply pressure to the feet and/or hands. For each person the application and the effect of the therapy is unique. Reflexology is suitable for acute and chronic conditions, stress related conditions and as preventative therapy.

Graduates will perform skills in reflexology and clearly understand the difference between consultative and prescriptive healing practices.

## Career Opportunities

Reflexology can be a stand alone modality or easily incorporated into a massage, esthetics and/or nail service.

Legal requirements for reflexologists vary from state to state. The American Reflexology Certification Board was established in 1991 and administered the first exam in 1992. The current version of the exam has been in use since 1998 and requires a minimum of 110 hours of training and 90 post graduate sessions. The College's Reflexology Certificate provides over 300 hours of training in the required content areas of the exam. Currently, Minnesota has a full and fair disclosure requirement. A majority of reflexologists are self employed. With increased interest in complementary and alternative therapy and more demand for personal investment services, opportunities will be available to those skilled in various modalities such as reflexology.

### Program Outcomes

1. Graduates will provide application of reflexology techniques to contribute to restoring balance in the body.
2. Graduates will recognize indications and contraindications to reflexology services.
3. Graduates will be prepared to deliver reflexology services in the employment setting.

## Reflexology Certificate

### Program Requirements

Course	Cr
HLTH 1410 Medical Terminology	1
HLTH 1417 Somatic Practitioner: Business and Ethics	3
HLTH 1420 Anatomy & Physiology	4
HLTH 1425 Clinical Applications in Kinesiology	3
HLTH 1900 Pathology for the Somatic Practitioner	4
MASS 1471 Reflexology 1	3
MASS 1472 Reflexology 2	3
<b>Subtotal</b>	<b>21</b>
<b>General Education Requirements</b>	<b>3</b>
PSYC 1720 Psychology throughout the Lifespan (recommended)	
<b>Total Program Credits</b>	<b>24</b>

## Yoga Instructor Training

### Program Overview

Yoga instructors teach the principles of yoga including how it strengthens and tones the body as well as calms the mind and spirit. Yoga instructors teach students in specific methods of yoga.

The 200 or 500 hour yoga teacher training required for certification includes information about possible health benefits from yoga practice such as building one's core strength, improving overall flexibility and developing overall muscle tone. This program also provides training in identifying potential contraindications to yoga for individuals with certain health conditions.

### Career Opportunities

Yoga instructors are listed under the main category of fitness workers with Department of Labor. Training for yoga instructors is ever changing. According to the US Department of Labor Statistics, demand for teachers of yoga has grown faster than the ability to train them properly as the interest in yoga exercise has exploded in recent years. Saint Paul College's program is designed to meet Yoga Alliance 200 hour and 500 hour standards.

As health clubs strive to provide more personalized service to keep their members motivated, they continue to offer a wide variety of group exercise classes. The aging population, in particular, demand low-impact forms of exercise which yoga provides.

Yoga instructors work in: HMO's in the areas of heart health and pregnancy, wellness centers, studios with massage therapists, fitness centers, educational institutions, conference centers, chiropractic offices, spas, community education, yoga studios and cruise ships.

### Program Outcomes

1. Graduates will be prepared to instruct students in the principles of yoga.
2. Graduates will recognize indications and contra-indications to yoga practice.
3. Graduates will meet the Yoga Alliance Standards of Yoga Teacher Training.

## Yoga Instructor Training (Level 1) Certificate

### Program Requirements

Course		Cr
HLTH 1420	Anatomy and Physiology	4
HLTH 1540	Introduction to Techniques for the Yoga Instructor	3
HLTH 1542	Teaching Methodology for the Yoga Instructor	3
<b>Total Program Credits</b>		<b>10</b>

## Yoga Instructor Training (Level 2) Certificate

### Program Requirements

Course		Cr
HLTH 1420	Anatomy and Physiology	4
HLTH 1455	Yoga Postures/Asanas	2
HLTH 1456	Relaxation Therapy	2
HLTH 1457	Yoga Postures 2	2
HLTH 1460	Nutrition for the Health Professions	2
HLTH 1540	Introduction to Techniques for the Yoga Instructor	3
HLTH 1542	Teaching Methodology for the Yoga Instructor	3
HLTH 1560	Internship for the Yoga Instructor	3
<b>Subtotal</b>		<b>21</b>
<b>General Education Course of Choice</b>		<b>3</b>
<b>Total Program Credits</b>		<b>24</b>

## Medical Laboratory Technician

Medical Laboratory Technician AAS Degree . . . 72 Credits

### Program Overview

Medical/Clinical Laboratory Technicians collect blood, examine and analyze body fluids, tissues and cells. They look for bacteria, parasites, or other microorganisms; analyze the chemical content of fluids; match blood for transfusions and test for drug levels in the blood to show how a patient is responding to treatment. They also prepare specimens for examination, or count cells and look for abnormal cells. They use automated equipment and instruments that perform a number of tests simultaneously, as well as microscopes, cell counters and other kinds of sophisticated laboratory equipment to perform tests. Then they analyze the results and relay them to physicians.

Qualifications include an interest in science and mathematics, accuracy, moral and intellectual integrity, self-discipline and desire to contribute to quality health care. Laboratory workers must have the skill to perform and master a variety of tasks.

Upon completion of the program, the student is eligible to take an examination administered by the Board of Registry under the direction of ASCP and/or National Credentialing Agency (NCA).



## Career Opportunities

Laboratory tests are of vital importance to modern medical practice. Increased job opportunities relate to both the volume of tests and the number of new tests developed. Labs are hiring increasing numbers of Medical/Clinical Laboratory Technicians as their core staff. Technicians are employed in hospital laboratories, clinics, doctor's offices, public health agencies and pharmaceutical, industrial and medical research laboratories.

## Program Outcomes

1. The graduate will demonstrate proper use, calibration, adjustment and operation of most laboratory precision instrumentation including clinical microscopes, spectrophotometers, centrifuges, automated counters, computers, and chemistry analyzers.
2. The graduate will demonstrate standard safety practices in the medical laboratory designed to prevent injury, illness, or loss of life to those working in and/or around the medical laboratory equipment with particular emphasis on the skills required for collection and testing of numerous body fluids and specimens using Standard Precautions (including the use of personal protective equipment).
3. The graduate will correlate pathological conditions of the human body, including cause and symptoms, to the laboratory's role in diagnosis and treatment.
4. The graduate will demonstrate organized work skills as reflected in efficient time and material utilization while performing proficiently and safely in the clinical environment.
5. The graduate will perform a wide variety of testing procedures employed in a medical laboratory and relate the principles of quality assurance and the importance of these procedures to the diagnosis and treatment of disease processes in the following areas: clinical chemistry, hematology and hemostasis, urinalysis, microbiology, immunohematology and immunology.
6. The graduate will pass the examination administered by the Board of Registry under the direction of ASCP and ASCLST/or National Credentialing Agency (NCA).
7. The graduate will demonstrate preparedness for entry level employment as a Medical Laboratory Technician; including both technical expertise and effective communication skills.

This program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

NAACLS  
8410 W. Bryn Mawr, Suite 670  
Chicago, IL 60631-3415  
Phone: 773.714.8880  
Fax: 773.714.8886  
E-mail: [naacinfo@naacils.org](mailto:naacinfo@naacils.org)  
URL: [www.naacils.org](http://www.naacils.org)

## Medical Laboratory Technician AAS Degree\*

### Program Requirements

Course		Cr
HLTH 1410	Medical Terminology	1
MDLT 1400	Orientation	1
MDLT 1410	Laboratory Techniques	3
MDLT 1421	Hematology 1	2
MDLT 1422	Hematology 2	4
MDLT 1430	Urinalysis/Body Fluids	3
MDLT 1441	Clinical Chemistry 1	2
MDLT 1442	Clinical Chemistry 2	4
MDLT 1446	Phlebotomy	1
MDLT 1510	Immunology	2
MDLT 2400	Mycology/Parasitology	2
MDLT 2410	Immunohematology	3
MDLT 2420	Clinical Microbiology	4
MDLT 2430	Clinical Practice Orientation	1
MDLT 2591	Clinical Practice	9
MDLT 2593	Comprehensive Examinations	1
	<b>Subtotal</b>	<b>43</b>
	<b>General Education Requirements</b>	<b>29</b>
	(Select 29 credits of General Education according to the distribution listed below)	
	<b>Total Program Credits</b>	<b>72</b>

Select from the following electives as needed:

MDLT 1451	Learning Lab 1	1
MDLT 1452	Learning Lab 2	1
MDLT 1453	Learning Lab 3	1
MDLT 1454	Learning Lab 4	1
MDLT 2455	Learning Lab 5	1
MDLT 2456	Learning Lab 6	1

\* To apply to become an MLT major; student assessment scores must indicate readiness for ENGL 1711, or that student has completed the course; and readiness for CHEM 1711 or completion of course prerequisite.

**AAS Degree General Education Requirements\*** **29 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1 7

- Goal 1: Communication
- ENGL 1711 Composition 1 – 4 cr
- SPCH XXXX – 3 cr

Students are required to complete BIOL 1730, BIOL 1740, CHEM 1711 and CHEM 1712 from Goal 3 16

- Goal 3: Natural Sciences
- BIOL 1730 Human Body Systems – 3 cr
- BIOL 1740 General Biology
- The Living Cell – 5 cr
- CHEM 1711 Chemistry 1 – 4 cr
- CHEM 1712 Chemistry 2 – 4 cr

Select a minimum of 3 credits from Goal 5 3

- Goal 5: History, Social Science and Behavioral Sciences
- PSYC 1710 General Psychology **OR**
- SOCI 1720 Social Issues in a Changing World - recommended

Select a minimum of 3 credits from Goal 6 3

- Goal 6: Humanities and Fine Arts
- PHIL 1720 Ethics recommended

\* Refer to the Minnesota Transfer Curriculum Course List.

## Nursing Assistant/ Home Health Aide

Nursing Assistant/  
Home Health Aide Certificate . . . . . 5 Credits

### Program Overview

Nursing assistants and Home Health Aides provide direct client care under the direction of a nurse or doctor in a variety of health care settings. Using technical skills learned in both the classroom and clinical setting, nursing assistants and home health aides perform such tasks as feeding, bathing, positioning, ambulating and comfort measures for the client. Students explore and discuss legal, ethical and safety issues in client care. Students are prepared to take the Nursing Assistant/Home Health Aide test to be placed on the Minnesota State Nursing Assistant Registry. Qualifications include achieving a reading score of 55 on the accuplacer or 49 on the CELSA.

### Career Opportunities

Graduates of the Nursing Assistant/Home Health Aide Program must successfully take and complete the nursing assistant test exam administered through the designated State testing service to be placed on the Minnesota State Nursing Assistant Registry. Nursing assistants must be on the registry to be employed in the long term care setting.

In Minnesota, employment for nursing assistants is expected to grow about as fast as average through 2012. Nationally the number of jobs is expected to grow faster than average.

## Nursing Assistant/Home Health Aide Certificate

### Program Requirements

Course		Cr
NAST 1111	Nursing Assistant/Home Health Aide	4
NAST 1112	Nursing Assistant Clinical Theory	1
<b>Total Program Credits</b>		<b>5</b>

### Program Outcomes

1. Graduates will be prepared to provide direct client care in a long term care facility.
2. Graduates will be prepared to take the Nursing Assistant test out.
3. Graduates will be prepared to meet the requirements to be placed on the Minnesota State Nursing Assistant Registry.

## Personal Trainer

Personal Trainer AAS . . . . . 60 Credits  
Personal Trainer Diploma . . . . . 45 Credits

### Program Overview

Personal Trainers instruct clientele in the betterment of their health through an integrated approach using sound knowledge of appropriate exercises. Functional training techniques, aerobic exercises, advanced stretching modalities (such as PNF and AIS) are implemented appropriately based on initial fitness testing. Graduates from the program perform patient assessments and build customized fitness plans for individuals including clients with special needs. Methods of teaching various group fitness classes and nutritional consulting are also utilized.

## Career Opportunities

According to IHRSA research, "the US Health Club Industry provides services to over 36.3 million health club members and employed 205,000 full-time employees in 2004. Fifty percent of these Clubs identified Personal Training as their number one most profitable service."

The US Bureau of Labor and Statistics listed the Personal Fitness Trainer as one of the top overall job openings. They also cited it as the "third fastest growing occupation requiring Post Secondary Vocational School training and is expecting 44% growth by year 2012."

Graduates perform personal training duties at fitness centers, health clubs, private clubs, sports rehabilitation facilities, or may work in a private practice.

## Program Outcomes

1. Graduates will provide application of personal training techniques to positively contribute to the well-being of the client in a safe and skillful manner.
2. Graduates will be prepared to take the National Academy of Sports Medicine (NASM) exam for Personal Training Certification.
3. Graduates will be prepared for employment as a Personal Trainer.

## Personal Trainer AAS

### Program Requirements

Course	Cr
HLTH 1410 Medical Terminology	1
HLTH 1417 Somatic Practitioner: Business & Ethics	3
HLTH 1420 Anatomy & Physiology	4
HLTH 1425 Clinical Applications in Kinesiology	3
HLTH 1900 Pathology for the Somatic Practitioner	4
HLTH 1465 Functional Holistic Nutrition	4
HLTH 1485 Therapeutic Exercise	5
PTRN 1410 Personal Training 1	5
PTRN 1420 Personal Training 2	5
PTRN 1490 Personal Training Internship	5
<b>Subtotal</b>	<b>39</b>
<b>General Education Requirements</b>	<b>21</b>
<b>Total Program Credits</b>	<b>60</b>

## AAS Degree General Education Requirements\*

21 Credits

Students are required to complete ENGL 1711 and any Speech Course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 - 4 cr. SPCH XXXX – 3 cr	
Students are required to take the following from Goal 3	3
Goal 3: Natural Sciences BIOL 1760 Nutrition - 3 cr	
Students are required to take the following 3 credit course from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences PSYC 1750 Introduction to Health Psychology – 3 cr	
Students are required to select a minimum of 4 credits from Goal 6	4
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goal 5 of the Minnesota Transfer Curriculum.	4

\*Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Personal Trainer Diploma

### Program Requirements

Course	Cr
BIOL 1760 Nutrition	3
PTRN 1410 Personal Training 1	5
HLTH 1410 Medical Terminology	1
HLTH 1417 Somatic Practitioner: Business & Ethics	3
HLTH 1420 Anatomy & Physiology	4
HLTH 1425 Clinical Applications in Kinesiology	3
HLTH 1900 Pathology for the Somatic Practitioner	4
HLTH 1465 Functional Holistic Nutrition	4
PTRN 1420 Personal Training 2	5
HLTH 1485 Therapeutic Exercise	5
PTRN 1490 Personal Training Internship	5
<b>General Education Requirements</b>	<b>3</b>
PSYC 1750 Introduction to Health Psychology (recommended)	
<b>Total Program Credits</b>	<b>45</b>

## Practical Nursing

Practical Nursing AAS Degree . . . . . 63 Credits  
Practical Nursing Diploma . . . . . 54 Credits

### Program Overview

Under the supervision of registered nurses and physicians, licensed practical nurses may care for infants and mothers; children and adolescents; and young, middle and older adults. Using learned technical skills, practical nurses assist clients in meeting their physical and psychosocial needs. Licensed practical nurses administer medications and perform treatments.

The Practical Nursing AAS degree includes many of the general education courses required to enter an accelerated RN program or the upcoming LPN to BSN program in collaboration with Metropolitan State University.

### Career Opportunities

Employment of LPNs is expected to increase faster than the average for all occupations in response to the long-term care needs of a rapidly growing population of elderly people, the general growth of the health care field and the nursing shortage.

Graduates may be employed in hospitals, long-term care agencies, clinics, home care agencies and other ambulatory care settings. Upon completion of the program, students are qualified to take the National licensure examination for practical nursing (NCLEX-PN).

### Program Outcomes

1. The graduate will participate in the nursing process of assessment, planning, implementation and evaluation to provide basic therapeutic and preventive nursing care to clients.
2. The graduate will communicate effectively with clients, families, significant others and health care personnel.
3. The graduate will meet and exceed the Minnesota Board of Nursing abilities plan.
4. The graduate will pass the NCLEX-PN licensure exam.
5. The graduate will obtain job placement in nursing care.

## Practical Nursing AAS Degree

### Program Requirements

Course		Cr
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These 4 courses must be taken prior to applying to the program major. Applicants must attend a Practical Nursing Seminar, take the NET (Nursing Entrance Test) and complete application to the Practical Nursing Major.

BIOL 2721	Human Anatomy & Physiology 1 (Fulfills Gen. Ed. Requirement - Goal 3)	4
ENGL 1711	Composition 1 (Fulfills Gen. Ed. Requirement - Goal 1)	4
HLTH 1410	Medical Terminology	1
HLTH 1460	Nutrition for the Health Professions	2

**These courses must be completed before starting the program PRNS courses.**

BIOL 2722	Human Anatomy & Physiology 2 (Fulfills Gen. Ed. elective)	4
PSYC 1720	Psychology throughout the Lifespan (Fulfills Gen. Ed. Requirement – Goal 5)	3
SPCH 1720	Interpersonal Communication <b>OR</b>	
SPCH 1730	Intercultural Communications (Fulfills Gen. Ed. Requirement – Goal 1)	3
PHIL 1722	Health Care Ethics	3
BIOL 1750	General Microbiology <b>OR</b>	
CHEM 1711	Principles of Chemistry 1	4

**You may take either or both of these 2 courses if you have completed all previous courses.**

PRNS 1420	Essentials of Clinical Pharmacology	3
PRNS 2410	Psycho/Social Nursing	2
PRNS 1430	Fundamentals of Nursing	5
PRNS 1491	Clinical 1	4

**A CPR course/certificate must be completed prior to taking PRNS 1492 Clinical 2.**

PRNS 1492	Clinical 2	4
PRNS 1493	Clinical 3	4
PRNS 1521	Medical Surgical 1	4
PRNS 1522	Medical Surgical 2	4
PRNS 1530	Maternal/Child Health	3
PRNS 2491	Integrated Nursing Practicum	2

**Program Major Credits 35**  
**Total Program Credits 63**

### Optional Courses

HLTH 1415	Success Strategies for Health Care Providers	2
PRNS 1410	Clinical Refresher	2
CSCR 1401	College Success Strategies – First Year Experience	1
CSCR 1402	Study Skills for Success Strategies	1

## AAS Degree General Education Requirements\* 25 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1-4 cr SPCH 1720 Interpersonal Communication – 3 cr <b>OR</b> SPCH 1730 Intercultural Communication – 3 cr <b>OR</b> SPCH 1750 Small Group Communications	
Students are required to complete the following courses from Goal 3	
Goal 3: BIOL 1750 General Microbiology <b>OR</b> CHEM 1711 Principles of Chemistry 1 BIOL 2721 Anatomy & Physiology 1 BIOL 2722 Anatomy & Physiology 2	4 4 4
Goal 5: PSYCH 1720 Psych throughout Lifespan	3
Students are required to complete the following course from Goal 6	
Goal 6: Humanities and Fine Arts- PHIL 1722 Health Care Ethics	3
Select a minimum 4 additional credits from Goal 1-10 (fulfilled by BIOL 2722 Anatomy & Physiology 2)	

## Practical Nursing Diploma

### Program Prenursing Requirements

Course	Cr
These courses must be completed prior to applying to the Practical Nursing Major.	
ENGL 1711 English Composition 1	4
HLTH 1410 Medical Terminology	1
HLTH 1420 Anatomy & Physiology	4
HLTH 1460 Nutrition for the Health Professions	2
These courses must be completed before starting the program PRNS courses.	
HLTH 1450 Healthcare Law & Ethics	2
PSYC 1720 Psychology throughout the Lifespan	3
SPCH 1720 Interpersonal Communication <b>OR</b>	
SPCH 1730 Intercultural Communication <b>OR</b>	
SPCH 1750 Small Group Communication	3
<b>Subtotal</b>	<b>19</b>

Please refer questions regarding transferring to a Registered Nursing(RN) Program to the Transfer Specialist at 651.846.1739

## Program Major Requirements

Course	Cr
You may take either or both of these 2 courses if you have completed all of the above courses.	
PRNS 1420 Essentials of Clinical Pharmacology	3
PRNS 2410 Psycho/Social Nursing	2
PRNS 1430 Fundamentals of Nursing	5
PRNS 1491 Clinical 1	4
<b>A CPR course/certificate must be completed prior to taking PRNS 1492 Clinical 2.</b>	
PRNS 1492 Clinical 2	4
PRNS 1493 Clinical 3	4
PRNS 1521 Medical Surgical 1	4
PRNS 1522 Medical Surgical 2	4
PRNS 1530 Maternal/Child Health	3
PRNS 2491 Integrated Nursing Practicum	2
<b>Total Program Credits</b>	<b>54</b>

### Optional Courses

HLTH 1415 Success Strategies for Health Care Providers	2
PRNS 1410 Clinical Refresher	2
CSCR 1401 College Success Strategies– First Year Experience <b>OR</b>	1
CSCR 1402 Study Skills for Success Strategies	1

For more information about the curriculum, please contact the Dean, Marilyn Krasowski 651.846.1314 or marilyn.krasowski@saintpaul.edu

Saint Paul College recognizes Practical Nursing graduates often continue their studies in an RN program. Although the Practical Nursing specific courses designated with the prefix PRNS transfer as a nursing package; there are General Education course recommendations to consider prior to pursuing the RN program. The Practical Nursing AAS requires the student to complete 25 General Education requirements and is designed to provide the student with a significant portion of the Gen Eds required for RN programs. RN programs have specific General Education (chemistry and biology) course requirements. Note: The receiving college determines which courses are accepted in transfer. Please refer questions to the Transfer Specialist at 651.846.1352 or call 651.846.1739 for an appointment.

This program is accredited by the National League for Nursing Accrediting Commission

33rd Floor  
61 Broadway  
New York, NY 10006  
Phone: 800.669.1656  
Fax: 212.812.0390  
URL: www.nlnac.org

# Respiratory Therapist/ Respiratory Care Polysomnography Practitioner

Respiratory Therapist/Respiratory Care  
Practitioner AAS Degree . . . . . 80 Credits  
Polysomnographic Technology Certificate . . . . 16 Credits

## Program Overview

Respiratory Care Practitioners administer gas therapy, aerosol medications, various breathing treatments and chest physiotherapy. They provide mechanical ventilation, special diagnostic and therapeutic procedures and cardiopulmonary resuscitation. Laboratory procedures including pulmonary function testing and arterial blood-gas analysis are also performed.

Students must have a high school diploma or equivalency certificate. Preparation best suited for this program includes excellent reading skills, biology, chemistry and physics. High school algebra is required for this program. Further, one should have good manual dexterity and an ability to lift fifty pounds.

## Career Opportunities

Employment of respiratory therapists is expected to increase much faster than the average for all occupations because of substantial growth of the middle-aged and elderly population, a development that will heighten the incidence of cardiopulmonary disease.

Respiratory Care Practitioners are employed by hospitals, clinics or laboratories and home care agencies. Graduates may find employment through contacts made during the clinical training experiences and employment requests received by the instructional staff.

## Program Outcomes

1. Graduates will have demonstrated knowledge and skills in Respiratory Therapist/Respiratory Care Practitioner clinical experiences.
2. Graduates will have demonstrated knowledge and skills in Respiratory Therapist/Respiratory Care Practitioner clinical simulations.
3. Graduates will pass the National Certification Exam.
4. Graduates will be prepared for employment as Respiratory Therapists/Respiratory Care Practitioners.
5. Graduates will have successfully mastered the general education program requirements for work and life roles.

This program is accredited by the Committee on Accreditation for Respiratory Care (CoArc) and the Commission on Accreditation of Allied Health Education Programs (CAAHEP)

1701 W. Euless Blvd., Suite 300  
Euless, TX 76040-6823  
Phone: 817.283.2835 or 800.874.5615

## Respiratory Therapist/Respiratory Care Practitioner AAS Degree

### Program Requirements

Course		Cr
HLTH 1410	Medical Terminology	1

Students are required to take the following 3 courses prior to taking further RESP courses:

Course		Cr
HLTH 1420	Anatomy & Physiology	4
HLTH 1450	Health Care Law & Ethics	2
RESP 1410	Respiratory Care Essentials	3

### Completion of American Heart Association CPR Course "C"

RESP 1510	Cardiopulmonary Pathophysiology 1	3
RESP 1520	Respiratory Care Therapeutics	5
RESP 1540	Respiratory Care Pharmacology	2
RESP 1591	Respiratory Care Clinical 1	2
RESP 1592	Respiratory Care Clinical 2	3
RESP 1593	Respiratory Care Clinical 3	4
RESP 1594	Respiratory Care Clinical 4	6
RESP 1595	Respiratory Care Clinical 5	6
RESP 2410	Mechanical Ventilation	4
RESP 2420	Cardiopulmonary Pathophysiology 2	1
RESP 2430	Neonatal/Pediatric Respiratory Care	2
RESP 2440	Management of the Critically Ill Patient	4
RESP 2450	Cardiopulmonary Diagnostics	1
RESP 2470	Registry Review	3
RESP 2510	Survey of Human Disease	2
RESP 2520	Respiratory Care in Alternate Sites	2

**Subtotal** **59**

**General Education Requirements** **21**

(Select at least 21 credits of General Education according to the requirements listed below)

**Total Program Credits** **80**

### AAS Degree General Education Requirements\* **21 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1 **7**

Goal 1: Communication  
ENGL 1711 Composition 1 – 4 cr  
SPCH XXXX – 3 cr

Students are required to complete the following from Goals 3 & 4 **8**

Goal 3: CHEM 1711 Principles of Chemistry 1 – 4 cr  
Goal 4: BIOL 1750 General Microbiology – 4 cr

Select a minimum of 3 credits from Goal 5 **3**

Goal 5: History, Social Science and Behavioral Sciences

Select a minimum of 3 credits from Goal 6 **3**

Goal 6: Humanities and Fine Arts

\* Refer to the Minnesota Transfer Curriculum Course List.

## Polysomnographic Technology

### Program Overview

The Polysomnographic Technology (Sleep) Program is designed to prepare active Respiratory Care Practitioners/Respiratory Therapists as Polysomnographic Technologists. Polysomnography is a highly competitive industry that specializes in sleep disorders with cross correlations of physiologic lung and cardiac abnormalities. These highly trained specialists spend countless hours obtaining and evaluating high quality sleep recordings.

This certificate option provides theory, lab and clinical rotations in terminology, instrumentation setup and calibration recording and monitoring techniques and hands-on skills required of an entry level Polysomnographic Technologist. Graduates of this program are eligible to take the Comprehensive Registry Exam in Polysomnography Technology (RPSGT) after only six months of work-related experience.

### Career Opportunities

Polysomnography is a rapidly growing specialty with the number of sleep labs increasing both statewide and nationally. The job outlook continues to be excellent for qualified sleep technologists.

### Program Outcomes

1. Graduates will demonstrate knowledge and skills in Polysomnographic (Sleep) Technology lab experiences.
2. Graduates will demonstrate knowledge and skills in Polysomnographic (Sleep) Technology clinical experiences.
3. Graduates will be prepared for employment in a sleep lab.
4. Graduates will be prepared to take and pass the (RPSGT) Comprehensive Registry Exam in Polysomnography Technology.

## Polysomnographic Technology Certificate

### Program Major Requirements\*

Course		Cr
RESP 2590	Polysomnographic Technology 1	4
RESP 2591	Polysomnographic Technology 1-- Clinic 1	3
RESP 2595	Polysomnographic Technology 2	3
RESP 2596	Polysomnographic Technology 2 – Clinic 2	6
<b>Total Program Credits</b>		<b>16</b>

\* Prerequisite – Respiratory Therapist/Respiratory Care Practitioner AAS

# Watchmaking/Clockmaking

Micro Mechanical Technology Diploma. . . . . 72 Credits  
 Watchmaking Certificate . . . . . 30 Credits  
 Clockmaking Certificate. . . . . 29 Credits

## Micro Mechanical Technology

The Micro Mechanical Technology Diploma at Saint Paul College is designed to prepare students for employment in industries that require a high degree of dexterity and precision such as: watch repair, medical device manufacturing and aerospace. New students can start in the Micro Mechanical Technology Program only in the spring semester of each year.

Students in this program will learn to design, fabricate and manipulate precise mechanical components and mechanisms using precision hand tools, microscope, watchmakers' loupe, watchmakers' lathe and turns. Tolerances will be held to as little as 5 microns. Mastery of these skills will be continually assessed by Saint Paul College faculty and Swiss industry professionals to insure that the highest standards are achieved and maintained.

This is a full-time 40 hour/week program and cannot be taken on a part-time basis. All courses in this program must be taken sequentially due to the scheduling of the international collaboration and assessment by the Watchmakers of Switzerland Training and Education Program(WOSTEP).

### Career Opportunities

Graduates from this program are in high demand. Companies that seek employees with the skills and knowledge taught in this program are Honeywell, Lockheed Martin, Medtronic. The salary range for graduates is \$30,000 to \$40,000.

This program is also the prerequisite for the Watchmaking Certificate Program. Students who pass all of the intermediate assessments and successfully complete all of the requirements of this program and have a GPA of 3.0 "B" or better will be accepted into the Watchmaking Certificate Program which must begin at the start of the summer semester immediately following the completion of this prerequisite program.

### Program Outcomes

1. Graduates will demonstrate knowledge of the fundamentals of the micro mechanical processes through the use of hand tools such as hand files, jeweler's saw and various vices and clamps to manufacture defined projects to precision tolerances.
2. Graduates will demonstrate the proper use and function of a watchmaker's lathe and turns to make cylindrical shapes to precise measurements.
3. Graduates will set jeweled bearings and perform precision oiling.

## Micro Mechanical Technology Diploma

### Program Requirements

Course		Cr
WMCM 1200	Micro Mechanics - Filing 1	5
WMCM 1201	Micro Mechanics - Filing 2	5
WMCM 1202	Micro Mechanics - Turning 1	5
WMCM 1203	Micro Mechanics - Turning 2	5
WMCM 1204	Micro Mechanics - Tool Making 1	5
WMCM 1205	Micro Mechanics - Tool Making 2	5
WMCM 1206	Micro Mechanics - Mainsprings	5
WMCM 1207	Micro Mechanics - Gear Train	5
WMCM 1208	Micro Mechanics - Escapement	5
WMCM 1209	Micro Mechanics - Balance Wheel	5
WMCM 1210	Micro Mechanics - Hairspring 1	5
WMCM 1211	Micro Mechanics - Hairspring 2	5
WMCM 1212	Micro Mechanics - Timing	5
WMCM 1213	Micro Mechanics - External Parts/Capstone	4
<b>Subtotal</b>		<b>69</b>
<b>General Education Requirements</b>		<b>3</b>
<b>Total Program Credits</b>		<b>72</b>
<b>Optional Electives:</b>		
WMCM 1480	Horological Lab 1	3
WMCM 1580	Horological Lab 2	3
WMCM 2480	Horological Lab 3	3



# Watchmaking

## Program Overview

Watch repair is a rewarding and challenging career that requires patience, excellent eyesight and steady hands. Well-qualified watchmakers are in great demand to repair the complex, high-end watches that are being sold today. The Rolex Foundation has joined with Saint Paul College to create a technologically current facility for our long-established Micro Mechanical Technology/Watchmaking Program. The Watchmaking Certificate Program at Saint Paul College is an advanced certificate and a continuation of the skills and knowledge taught in the Micro Mechanical Technology Diploma Program. This program also serves as preparation for certification by the Watchmakers of Switzerland Training and Education Program (WOSTEP).

Students in this program will be taught the fine art of watchmaking. Vintage, modern, simple and complicated watches will be cleaned, oiled and adjusted with strong emphasis on troubleshooting and problem solving. Students will be required to perform “real world” repairs in addition to the class watches. Electronic portfolios will be used to document the individual’s work. Communication skills, both written and oral and workshop organization will be emphasized to better prepare the student for employment.

This is a full-time 40 hour/week program and cannot be taken on a part-time basis. All courses in this program must be taken sequentially due to the scheduling of the international collaboration and assessment by the Watchmakers of Switzerland Training and Education Program (WOSTEP). Enrollment in this program is only open to those students who have passed all of the intermediate assessments and successfully completed all of the requirements for the Micro Mechanical Technology Diploma Program with a GPA of 3.0 “B” or better. Participation in this program must begin at the start of the summer semester immediately following the completion of this prerequisite program due to the same scheduling constraints stated above.

## Career Opportunities

Graduates of the program are qualified to apply for a variety of positions:

- Watch repairer in a workshop or repair center for mechanical and electronic watches
- Owner, manager or employee of a watch repair center or jewelry store
- Person in charge of after-sales service network for a watch distributor or brand on a regional or national basis
- Manager of a jewelry store that specializes in sales and repair

Starting salaries in these positions range from \$40,000 to \$45,000.

## Program Outcomes

1. Graduates will demonstrate effective repair techniques for historical and modern watch calendar mechanisms.
2. Graduates will demonstrate effective repair techniques for historical and modern automatic winding watch mechanisms.
3. Graduates will demonstrate the diagnoses, disassembly, reassembly and adjusting of chronograph movements.

# Watchmaking Certificate

## Program Requirements

Course		Cr
WMCM 2300	Watchmaking - Calendar	5
WMCM 2301	Watchmaking - Automatic	5
WMCM 2302	Watchmaking - Quartz	5
WMCM 2303	Watchmaking - Precision Timing	5
WMCM 2304	Watchmaking - Chronograph	5
WMCM 2305	Watchmaking - Capstone/Career Prep	5
<b>Total Program Credits</b>		<b>30</b>
<b>Optional Electives:</b>		
	WMCM 1480 Horological Lab 1	3
	WMCM 1580 Horological Lab 2	3
	WMCM 2480 Horological Lab 3	3

## Clockmaking

### Program Overview

The Clockmaking Certificate Program offers preparation for students to develop skills and knowledge needed for clock repair. The Clockmaking Certificate includes learning basic repair techniques using tools specific to clock repair, assessing needed repairs, estimating costs to repair clocks, using lathes and making tools and parts.

### Career Opportunities

Graduates obtain employment in repair shops or start their own independent repair business. Demand for trained individuals remains due to the number of clocks people own and collect. Antique pieces are particularly valued and require repair.

### Program Outcomes

1. Graduates will have knowledge and skills in clockmaking.
2. Graduates will demonstrate skills in clock repair via simulations.
3. Graduates will be prepared for employment in clockmaking and repair.

## Clockmaking Certificate

### Program Requirements

Course		Cr
WMCM 1202	Turning 1	5
WMCM 2510	Basic Clock Repair	4
WMCM 2511	Basic Clock Benchwork	3
WMCM 2512	Introduction to Clock Escapements	3
WMCM 2530	Westminster Chime Clock Repair	3
<b>Subtotal</b>		<b>18</b>
<b>General Education Requirements</b>		<b>3</b>
Select 8 credits from the following Electives		<b>8</b>
WMCM 1203	Turning 2	5
WMCM 2531	Antique & European Clock Repair	4
WMCM 2532	Cuckoo Clock Repair	3
WMCM 2535	Repair of Specialty Clocks	3
<b>Total Program Credits</b>		<b>29</b>
<b>Optional Electives:</b>		
WMCM 1480	Horological Lab 1	3
WMCM 1580	Horological Lab 2	3
WMCM 2480	Horological Lab 3	3

# Language Programs

<b>American Sign Language Studies</b>	<b>98</b>
<hr/>	
American Sign Language Studies Certificate	
<b>Sign Language Interpreter/Transliterater</b>	<b>99</b>
<hr/>	
Sign Language Interpreter/Transliterater AAS Degree	
<b>Intensive English Program (English-as-a-Second-Language)</b>	<b>101</b>
<hr/>	
English-as-a-Second-Language Courses	

# American Sign Language Studies

American Sign Language Studies  
 Certificate. . . . . 30 Credits

## Program Overview

The American Sign Language Studies Certificate Program provides students with the knowledge and skills of American Sign Language (ASL); focusing on the uniqueness of ASL as a language, Deaf Culture and Deaf History. The program encourages students to become involved in the social and cultural activities of the Deaf Community. The curriculum provides a solid and basic foundation for entry into a career in a deafness-related field and prepares students for continued educational studies in a variety of disciplines. It is a pathway to entering the Sign Language Interpreter/Transliterater Program at Saint Paul College or similar programs at other institutions. Individuals who intend to or currently work with Deaf and/or Hard-of-Hearing individuals in fields such as education, human/social services, community service agencies, and vocational rehabilitation benefit from the opportunity to learn and develop stronger skills in American Sign Language.

## Career Opportunities

Completion of the American Sign Language Studies Certificate:

- Enhances ability to work and communicate more effectively with Deaf and Hard-of-Hearing people in academic, agency, and business settings.
- Provides opportunities to enhance ASL fluency and acquire Deaf Culture knowledge which is applicable to a variety of educational disciplines
- Prepares students to meet the ASL prerequisites for the Sign Language Interpreter/Transliterater Program
- Enhances American Sign Language fluency for potential or current teachers of Deaf and Hard-of-Hearing students.
- Meets general education requirements in some state colleges and universities.

## Program Outcomes

1. Graduates will be prepared to meet the ASL prerequisites for the Sign Language Interpreter/Transliterater Program.
2. Graduates will develop ASL skills and Deaf Culture awareness to more effectively communicate with Deaf and Hard-of-Hearing people in a variety of settings.
3. Graduates will meet world language requirements at the high school and college/university level.

4. Graduates will be prepared to take an American Sign Language Proficiency Interview and to meet K-12 Skill Levels.
5. Graduates will meet entrance requirements for undergraduate or graduate programs in ASL Studies, Linguistics, and Deaf Education.

# American Sign Language Studies Certificate

## Program Requirements

Course	Cr
SPCH 1700, SPCH 1710, SPCH 1720, SPCH 1730 OR SPCH 1750	3
ASLS 1411 American Sign Language 1	3
ASLS 1412 American Sign Language 2	3
ASLS 1413 American Sign Language 3	3
ASLS 1414 American Sign Language 4	3
ASLS 1420 ASL Linguistics	4
ASLS 1430 Classifiers	3
ASLS 1435 Deaf Studies/Culture	3
ASLS 1443 ASL Fingerspelling and Numbers	3
<b>Subtotal</b>	<b>28</b>
<b>Technical Credits</b>	<b>2</b>
<b>Total Program Credits</b>	<b>30</b>

## Select 2 credits of Technical Electives from the courses listed below

ASLS 1415 American Sign Language 5	3
ASLS 1444 ASL Sign Reading	2
ASLS 1446 ASL Non-Manual Markers	2
ASLS 1448 American Sign Language Semantics	2
ASLS 1497 Special Topics: ASL	1-5

### Optional Courses:

*ASLS 1455 Contrastive Text Analysis	2
*ASLS 1469 Deaf Heritage of Minnesota	2
*ASLS 1470 ASL Discourse	2

\*These ASLS courses are not offered annually.

If a student has successfully completed a Saint Paul College Credit by Exam/Test-Out of ASLS 1411 American Sign Language 1 and/or ASLS 1412 American Sign Language 2, then ASLS 1415 American Sign Language 5 must be taken as a course substitution to meet total program requirements. Additional Credits may be chosen from one or more of the following elective courses:

Course	Cr
ASLS 1444 ASL Sign Reading	2
ASLS 1446 ASL Non-Manual Markers	2
ASLS 1448 ASL Semantics	2
ASLS 1497 ASL Special Topics	1-5
INTP 1465 Cross Cultural	1
INTP 1465 Content Specific Sign Vocabulary	1

# Sign Language Interpreter/Transliterater

Sign Language Interpreter/Transliterater  
AAS Degree . . . . . 72 Credits

## Program Overview

This program prepares individuals to work as interpreter/transliterators facilitating and mediating communication between Deaf/Hard of Hearing and hearing people. Interpreters must convey accurate messages, feelings and attitudes of participants, whether those messages are spoken or signed. To accomplish this, above average competency in English and strong American Sign Language skills are necessary. A strong academic background, and traits that demonstrate maturity, responsibility, flexibility, and the ability to work well under pressure, are assets.

The curriculum requires both general education courses as well as courses specifically related to the Deaf Community and interpreting. The program covers a variety of subject areas which include ASL linguistics and language development, interpreting process theory and application, interpreter roles and responsibilities, interpreter's code of professional conduct, history of deaf people and their culture, and the historical evolution of the interpreting profession. Interpreting and Transliterating skills courses provide guided practice in developing the skills necessary to effectively interpret/transliterate.

Students will experience a variety of learning environments including classroom work, laboratory practice and field placement. Students will be required to have both in-class and out-of-class experiences with members of the Deaf Community to further develop ASL fluency and cultural awareness.

There is a specific program admission process that is identified in the ITP Admission document located on the college Web site. Admission requirements include completing the following course work before full acceptance into the INTP AAS program:

- American Sign Language 1 with a "C" or better
- American Sign Language 2 with a "C" or better
- American Sign Language 3 with GPA of 3.0 in ASL 3 & ASL 4
- American Sign Language 4 with GPA of 3.0 in ASL 3 & ASL 4
- English Composition 1 (ENGL 1711 or comparable course) with a "C" or better
- General Psychology (PSYC 1710 or comparable course) with a "C" or better

Students who have not had recent ASL courses (within the past 18 months) at date of application will need to refresh their skills by repeating the last ASL course or complete a Credit by Examination/Test-Out.

**Note:** Credit by Examination/Test-Out is available for ASL and ASL 2 only. Credit by Examination/Test-Out are not transferable from another educational institution.

Above average skills on college assessment tests for reading and writing English are used to determine entry into the program. Refer to the College Web site for the 2008 ITP program admission requirements.

## Career Opportunities

Graduates will be qualified for careers as entry-level sign language interpreters with social service agencies, educational programs, community-based settings, or recreational situations. The employment outlook due to accessibility legislation has dramatically increased the need for interpreters. This need is expected to continue.

Graduates will have opportunities to further their education and to specialize in their work through professional affiliations or by obtaining national certification. Graduates who plan to work in K-12 educational settings must obtain a Provisional Certificate which allows them to become a practitioner for a maximum of two years or until they obtain national certification.

## Bachelor of Arts Degree

A Bachelor of Arts degree in Psychology, with an emphasis in Sign Language Interpreting, is available through an articulation agreement with Metropolitan State University.

## Program Outcomes

1. Graduates will have an understanding and knowledge about the theoretical, ethical and practical foundations of the interpreting field needed to pass the NAD-RID National Interpreter Certification (NIC) exam.
2. Graduates will have the knowledge and skills of the art and science of interpreting between American Sign Language and English.
3. Graduates will have the knowledge and skills of the art and science of transliterating between spoken English and a signed form of English.
4. Graduates will have the knowledge and skills to function as cross-cultural mediators in order to transmit and transfer culturally based linguistic and non-linguistic information.

5. Graduates will demonstrate the necessary employment knowledge, skills and professional behaviors that are requisite for immediate employment as Sign Language Interpreters/Transliterators.
6. Graduates will sit for national certification within two years of graduation.

## Sign Language Interpreter/Transliterators AAS Degree

### Program Premajor Requirements:

- American Sign Language 1 with a “C” or better
- American Sign Language 2 with a “C” or better
- American Sign Language 3 with GPA of 3.0 in ASL 3 & ASL 4
- American Sign Language 4 with GPA of 3.0 in ASL 3 & ASL 4
- English Composition 1 (ENGL 1711 or comparable course) with a “C” or better
- General Psychology (PSYC 1710 or comparable course) with a “C” or better

### Program Prerequisites

Course	Cr
ASLS 1411 American Sign Language 1	3
ASLS 1412 American Sign Language 2	3
ASLS 1413 American Sign Language 3	3
ASLS 1414 American Sign Language 4	3

### Program Requirements

Course	Cr
ASLS 1420 ASL Linguistics	4
ASLS 1430 Classifiers	3
ASLS 1435 Deaf Studies/Culture	3
INTP 1440 Orientation to Interpreting	3
INTP 1511 Interpreting Process	3
INTP 1512 Consecutive Interpreting 1	4
INTP 1513 Consecutive Interpreting 2	2
INTP 2411 Sign to Voice Interpreting 1	4
INTP 2412 Sign to Voice Interpreting 2	2
INTP 2421 Voice to Sign Interpreting 1	4
INTP 2422 Voice to Sign Interpreting 2	2
INTP 2431 Transliterating 1	4
INTP 2432 Transliterating 2	2
INTP 2510 Educational Interpreting	2

INTP 2550 Community Resources Seminar	1
INTP 2585 Internship Seminar	1
INTP 2591 Interpreter Internship	6
<b>Select 2 credits of the following electives:</b>	<b>2</b>
ASLS 1415 American Sign Language 5	3
ASLS 1443 ASL Fingerspelling and Numbers	3
ASLS 1444 ASL Sign Reading	2
ASLS 1446 ASL Non-Manual Markers	2
ASLS 1448 American Sign Language Semantics	2
ASLS 1455 Contrastive Text Analysis	2
INTP 1465 Special Topics: Interpreting	1-5
<b>Subtotal</b>	<b>52</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)	<b>20</b>
<b>Total Program Credits</b>	<b>72</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List.

## Optional Courses for Interpreter/Transliterators Programs

(Most courses require prerequisites)

Course	Cr
<b>Optional Courses:</b>	
ASLS 1469 Deaf Heritage of Minnesota	2
ASLS 1470 ASL Discourse	2
INTP 1465 Special Topics: Interpreting	1-5
INTP 2450 Deaf/Blind Interpreting	2

# Intensive English Program

## English-as-a Second-Language (ESOL)

### Overview

The English-as-a-Second-Language courses are designed to assist limited English speakers from different ethnic and cultural backgrounds to succeed in the community and technical system as well as in the transfer curriculum. Applicants interested in information may contact 651.846.1555.

Intensive English Program courses at various levels prepare students to enroll in major programs or transfer curriculum. It is an intensive program allowing students to be in class up to five hours per day. Courses include listening, speaking, reading, writing, as well as grammar and pronunciation. Advanced ESL students may take developmental courses related to their major field.

Prospective students interested in enrolling in Intensive English Program classes must take the English language proficiency exams. Call 651.846.1555 for a testing schedule. The exams assess understanding of English grammar structures, reading, listening comprehension and in some cases a writing sample may be required. Students accepted into the Intensive English Program classes must have a high school diploma, a GED, or pass “Ability to Benefit” tests.

### Program Outcomes

1. Enter a major program or transfer curriculum.
2. Apply writing and critical thinking skills.
3. Demonstrate fluency in a variety of contexts.
4. Demonstrate active listening.
5. Speak clearly using correct pronunciation.
6. Demonstrate organization and study skills.
7. Understand concepts of grammar to facilitate other skills.
8. Understand American culture and work ethic.

### ESOL Courses

(English-as-a-Second-Language)

Course		Cr
ESOL 0806	Speaking/Listening Skills/ESL 3	3
ESOL 0807	Reading/Writing Skills/ESL 3	3
ESOL 0808	Low Intermediate Grammar	3
ESOL 0809	Speaking/Listening Skills/ESL 4	3
ESOL 0810	Reading/Writing Skills/ESL 4	3
ESOL 0811	Speaking/Listening Skills/ESL 5	3
ESOL 0812	Reading/Writing Skills/ESL 5	3
ESOL 0813	High Intermediate Grammar	3
ESOL 0814	Speaking/Listening Skills/ESL 6	3
ESOL 0815	Reading/Writing Skills/ESL 6	3
ESOL 0820	Pronunciation and Articulation	1
ESOL 0831	Advanced ESL	3
ESOL 0840	ESL for Working Adults	3
ESOL 1410	Advanced Grammar	3





# Liberal Arts and Sciences Departments and Courses

<b>Anthropology</b>	<b>105</b>
<b>Art</b>	<b>105</b>
<b>Biology</b>	<b>106</b>
• Biomedical Engineering Technology – (See also page 114)	
<b>Chemistry</b>	<b>107</b>
• Chemistry AS Degree	
• Chemical Technology Certificate – (See also page 114)	
<b>Economics</b>	<b>107</b>
<b>English</b>	<b>108</b>
<b>Geography</b>	<b>108</b>
<b>History</b>	<b>108</b>
<b>Humanities</b>	<b>109</b>
<b>Interdisciplinary Studies</b>	<b>109</b>
<b>Mathematics</b>	<b>109</b>
<b>Music</b>	<b>109</b>
<b>Natural Sciences</b>	<b>110</b>
<b>Philosophy</b>	<b>110</b>
<b>Physics</b>	<b>110</b>
<b>Political Science</b>	<b>110</b>
<b>Psychology</b>	<b>110</b>
<b>Sociology</b>	<b>111</b>
<b>Spanish</b>	<b>111</b>
<b>Speech</b>	<b>111</b>
<b>Theatre</b>	<b>111</b>

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# Liberal Arts and Sciences

The Liberal Arts and Sciences division of Saint Paul College encompasses English and Speech, Fine Arts and Humanities, Social and Behavioral Sciences, Natural Sciences and Mathematics. These areas provide the foundation of academic study for students enrolled in AA, AS, and AAS degree programs. Carrying out the Minnesota Transfer Curriculum ten goal requirements and outcomes, the broad-based general education courses in liberal arts and sciences prepare students to think critically and use logic and scientific inquiry to question and solve problems, understand and appreciate diverse cultures, express thoughts, and communicate knowledge effectively. The faculty are committed to excellence in teaching with a student-centered focus in traditional and on-line course offerings.

## Educational Degree Programs

- Associate in Arts Degree in Liberal Arts and Sciences
- Associate in Science Degree
- Associate in Applied Science Degree

## Associate in Arts Degree (AA) Preparation for a Bachelor's Degree

The Associate in Arts degree (AA) is awarded for successful completion of a program of 64 semester credits in the Liberal Arts and Sciences and is designed to constitute the first two years of a four-year degree. The AA degree is intended primarily for students who plan to transfer to another college to complete a bachelor's degree. No specific major is listed in conjunction with the degree; however, many students choose to concentrate in a particular field of study as preparation for a planned major at a four-year college or university. Students may choose to follow one of the AA Pre-Major Tracks or develop an individual plan within the general AA degree. Both options are designed to identify the appropriate core of courses for transfer in a student's major to their chosen four-year college or university. At least 40 of the 64 credits must be taken within the Minnesota Transfer Curriculum (MnTC). Students are strongly encouraged to develop an educational plan in consultation with a Saint Paul College Transfer Specialist to assure that degree requirements are fulfilled.

## Objectives

Upon completion of the AA curriculum, the student will have acquired the following competencies:

- Knowledge of important concepts and principles of the natural sciences, mathematics, history, social sciences and behavioral sciences, arts, and humanities.
- Skills necessary for work and life roles, including skills in thinking, communication and methods of inquiry and application of knowledge.

- Critical examination of and appreciation for diverse peoples, cultures, and life roles.
- Pre-major competencies for selected emphasis.

## Distribution Requirements – Associate in Arts Degree (64 credits total)

All courses must be numbered 1700 or higher.

## Required Minnesota Transfer Curriculum Distribution \* (40 credits)

MnTC Goal 1 Communication, 3 courses

MnTC Goal 2 Critical Thinking, Fulfilled when 10 goal areas are completed

MnTC Goal 3 Natural Science, 2 courses

MnTC Goal 4 Mathematical/Logical Reasoning, 1 course

MnTC Goal 5 History/Social Sciences/Behavioral Sciences, 3 courses

MnTC Goal 6 Humanities/Fine Arts/Literature, 3 courses

MnTC Goal 7 Human Diversity, 1 course

MnTC Goal 8 Global Perspective, 1 course

MnTC Goal 9 Ethic and Civic Responsibility, 1 course

MnTC Goal 10 People and the Environment, 1 course

More information can be found on the Minnesota Transfer Curriculum (MnTC) page.

\*Some courses may be applied to more than one goal area in completion of the 10 goals with fewer than 40 credits. If this occurs, additional credits from the 10 goals listed must be taken to complete a minimum of 40 credits

## Electives, Liberal Arts and Sciences, Pre-Major (24 credits)

Courses generally numbered 1700 and above from any department may be used to fulfill these electives. These electives may be freely chosen or selectively used for transfer requirements. The Pre-Major Tracks in the AA degree or individual educational plans developed with a transfer specialist are used to focus these electives to meet transfer coursework for specific majors. Consult with a transfer specialist about course options for the pre-major electives.

## Preparation for a Bachelor's Degree

An Associate in Arts degree allows students to complete both general education requirements and pre-major requirements for a wide range of majors and programs at four-year colleges and universities. Students may choose to follow one of the Pre-Major Tracks within the AA degree or develop an individual educational plan to focus their course selection on their transfer plans. Students are to consult with a Saint Paul College Transfer Specialist to assure that courses taken at Saint Paul College fulfill the requirements of a particular field of study.

Listed below are examples of the bachelor degree or pre-professional programs a student may begin at Saint Paul College.

Accounting	Interdisciplinary Studies
Human Resources Management	Industrial Education
Agriculture	Information Networking
Anthropology	Kinesiology
Architecture	Liberal Arts
Art	Mass Communications
Art History	Mathematics
Biology	Medical Technology
Business Management and Administration	Medicine
Chemistry	Nursing
Communications & Speech	Paralegal
Computer and Information	Pharmacy
Computer Science	Philosophy
Construction Management	Physical Therapy
Criminal Justice	Physics
Economics	Political Science
Elementary Education	Psychology
Engineering – Biomedical	Secondary Education
English	Social Work
Geography	Sociology
Geology	Statistics
History	Theatre Arts
Humanities	Veterinary Medicine
Hospitality Management	World Language
Individualized Professional Study	Zoology

## Anthropology

### Program Overview

The Anthropology department offers courses that cover human nature and society in a global context. Students are exposed to the biological and cultural evolution of our species and the cultural worlds past, present and future. Forces which have shaped us and which we continuously shape are discussed within local, national and global perspectives. Students are encouraged to critically assess as well as celebrate the cultural diversity

of our world. Anthropology courses fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
ANTH 1710*	Introduction to Cultural Anthropology	4
ANTH 1720*	Introduction to Physical Anthropology	4
ANTH 1790	Special Topics in Anthropology	3

\* Traditional and on-line sections available

## Art

### Program Overview

Art courses are designed to provide the highest quality coursework for students majoring in art as well as students who are interested in exploring their creative expression through the creation of artwork in a studio class or the study of art in a historical context. Our art coursework provides students with a richer understanding of the world and themselves. The instructors are committed to excellence in teaching and scholarship. The fine art and humanities department offers a large variety of studio and art history coursework that transfers towards a major in art or art history at a four-year institution.

Students who plan on majoring in art at a four-year institution should include art history, studio art and humanities coursework in order to be prepared for upper division work in whatever area of art they may choose for their area of concentration.

Art and art history classes also fulfill requirements for the Minnesota Transfer Curriculum, as well as graduation requirements.

Course		Cr
ARTS 1710	Fundamentals of Photography 1	3
ARTS 1711	Fundamentals of Photography 2	3
ARTS 1712	Advanced Photography	3
ARTS 1720*	Art Appreciation	3
ARTS 1730	Drawing 1	3
ARTS 1731	Drawing 2	3
ARTS 1740	Introduction to Painting	3
ARTS 1742	Intermediate Painting	3
ARTS 1760*	World Art	3
ARTS 1770*	American Art	3
ARTS 1790*	History of Photography	3
ARTS 2710	Advanced Studio Arts	3-4

\* Traditional and on-line sections available

# Biology

Biomedical Engineering Technology  
AS Degree . . . . . 60 Credits

## Program Overview

The Biology department provides high quality educational experiences in the biological sciences including: environmental science, general biology for majors and non-majors (cell structure and function and survey of plants and animals), microbiology, nutrition, medical terminology, introduction to forensic science, biology of women and human anatomy and physiology for majors and non-majors.

The faculty believe biology occupies a central position in the physical sciences and that an understanding of fundamental biological principles enables students to make better-informed decisions for work and life roles. The Biology faculty promote active learning in lecture and lab activities interacting closely with students at various levels of academic development.

Biology courses serve the College and students by providing offerings that satisfy requirements for general education, allied health and pre-professional transfer programs. Biology faculty are committed to excellence in teaching and scholarship providing a variety of lab/field experiences and online applications.

Course		Cr
BIOL 1725*	Environmental Science	4
BIOL 1730	Human Body Systems	3
BIOL 1735	Exploring Biology	4
BIOL 1740	General Biology: The Living Cell	5
BIOL 1745	General Biology: The Living World	5
BIOL 1750	General Microbiology	4
BIOL 1760*	Nutrition	3
BIOL 1771*	Medical Terminology	2
BIOL 1782	Introduction to Forensic Science	4
BIOL 1785	Biology of Women	3
BIOL 2721	Human Anatomy and Physiology 1	4
BIOL 2722	Human Anatomy and Physiology 2	4

\* Traditional and online sections available.

# Biomedical Engineering Technology

## Program Overview

The *new* Biomedical Engineering Technology AS Degree provides students with functional skills in the growing field of biomedical engineering technology, which involves the design, construction, and use of electronic and mechanical devices to solve medically-relevant needs. Examples of work in this field include medical device design, fabrication and testing, physiological function monitoring, and biomedical informatics, among numerous other career paths. Math, biology, physics, and chemistry are required program components as well as the engineering technology course requirements.

The Biomedical Engineering Technology AS Degree is offered in partnership with the Saint Paul Public Schools and the University of Minnesota. Students meeting graduation requirements for the AS degree are eligible for transfer to the University of Minnesota to attain a BS degree in Biomedical Engineering, or a degree in Applied Engineering from the Manufacturing and Applied Engineering Center for Excellence at Bemiji State.

## Biomedical Engineering Technology AS Degree

### Program Requirements

Course		Cr
BIOL 1750	Human Body Systems	3
BIOL 1771	Medical Terminology	2
BMED 1701	Biomedical Engineering Seminar	1
BMED 1761	Bio Medical Lab Safety, Environmental Rules, & Regulations	3
BMED 1770	Biomedical Internship & Advanced Seminar	3
CHEM 1711	Chemistry 1	4
CHEM 1712	Chemistry 2	4
ELEC 1423	Basic Electronic Instrumentation	3
MTTP 1411	Introduction to Manufacturing Processes	4
<b>This course is offered on site and on-line</b>		
CADX XXXX	CAD/CAM/CNC Lab	3
<b>Subtotal</b>		<b>30</b>
<b>General Education Requirements</b>		<b>30</b>
<b>Total Program Credits</b>		<b>60</b>

# Chemistry

Chemical Technology AS Degree . . . . . 60 Credits  
 Chemical Technology Certificate . . . . . 26 Credits

## Program Overview

The Chemistry Department offers courses that provide an understanding of chemical principles across the discipline.

The chemistry faculty believe that an understanding of fundamental chemical principles enables students to make better-informed decisions on a wide variety of issues related to work and life roles. The Chemistry faculty interact closely with students, a diverse population at various levels of academic development, to help them develop capabilities in science and become lifelong learners.

Chemistry courses serve the College and students by providing offerings that satisfy requirements for general education, allied health and pre-professional transfer programs.

Course		Cr
CHEM 1700*	Chemistry Concepts	4
CHEM 1701	Chemical Technology Seminar	1
CHEM 1711	Principles of Chemistry 1	4
CHEM 1712	Principles of Chemistry 2	4
CHEM 1760	Chemical Technology Lab Skills	3
CHEM 1761	Chemical Technology Lab Safety	3
CHEM 1770	Chemical Technology Internship	3
CHEM 2711	Organic Chemistry 1	4
CHEM 2712	Organic Chemistry 2	4

\* Traditional and on-line sections available.

## Chemical Technology AS Degree\*

### Program Overview

The *new* Chemical Technology AS Degree is designed for students planning to complete chemistry courses and general education requirements for transfer to a four-year program and/or for employment as a chemical laboratory assistant.

### Program Requirements

Course		Cr
CHEM 1701	Chemical Technology Seminar	1
CHEM 1711	Principles of Chemistry 1	4
CHEM 1712	Principles of Chemistry 2	4
CHEM 2711	Organic Chemistry 1	4
CHEM 2712	Organic Chemistry 2	4
PHYS 2700	General Physics 1 with Calculus	5
PHYS 2710	General Physics 2 with Calculus	5
	<b>General Electives</b>	<b>3</b>
	<b>Subtotal</b>	<b>30</b>
	<b>General Education Requirements</b>	<b>30</b>
	<b>Total Program Credits</b>	<b>60</b>

\* pending approval

# Chemical Technology Certificate\*

## Program Overview

The *new* Chemical Technology Certificate prepares students to assist scientists in laboratories on the research and development of chemical processes and materials to meet society's changing needs. Working in experimental laboratories or in manufacturing and industrial plants, technicians perform a number of important duties such as the operation of laboratory equipment, evaluating product quality and consistency, and testing for environmental acceptability. Employment is available in a number of settings including Agriculture and Food Science, Forensics, Pharmaceutical, Industrial, and environmental laboratories.

## Program Requirements

Course		Cr
CHEM 1701	Chemical Technology Seminar	1
CHEM 1711	Principles of Chemistry 1	4
CHEM 1712	Principles of Chemistry 2	4
CHEM 1760	Chemical Technology Laboratory Skills and Instrumentation	3
CHEM 1761	Chemical Technology Lab Safety, Environmental Rules and Regulations	3
CHEM 1770	Chemical Technology Laboratory Internship and Advanced Seminar	3
CHEM 2711	Organic Chemistry 1	4
CHEM 2712	Organic Chemistry 2	4
	<b>Total Program Credits</b>	<b>26</b>

\* pending approval

# Economics

## Program Overview

The Economics Department offers courses to help students learn and apply the economic principles necessary to become better informed citizens. The coursework provides preparation for degrees in Business, Accounting and other Pre-professional and Liberal Arts areas.

Course		Cr
ECON 1710	Introduction to the American Economy	3
ECON 1720	Macroeconomics	3
ECON 1730	Microeconomics	3

## English

### Program Overview

The English and Communications faculty are dedicated to helping students apply the knowledge and skills gained through the study of writing and literature to successfully communicate in work and life roles. Two levels of developmental writing courses are available. The department offers a wide selection of transferable general education courses including Composition 1 and 2 and literature courses including the Survey of American Literature, The English Novel, Native American and African American Literature and an Introduction to Poetry. Students planning to transfer to a four-year degree generally enroll in Composition courses and one or two related electives as they fulfill requirements for the Associate in Arts, Associate in Science and Associate in Applied Science degrees.

Course		Cr
COMM 1410	Fundamentals of Writing 1	4
COMM 1415	Fundamentals of Writing 2	4
COMM 1460	Applied Interpersonal Communications	3
COMM 1510	Customer & Occupational Relations	3
ENGL 1711*	Composition 1	4
ENGL 1712*	Composition 2	2
ENGL 1780*	Recently Arrived—Contemporary Immigrant Literature	3
ENGL 1790*	Contemporary Writers of Color	3
ENGL 2721	Survey of American Literature 1	3
ENGL 2722	Survey of American Literature 2	3
ENGL 2730	Post-Civil War American Novel	3
ENGL 2740*	Native American Literature	3
ENGL 2750*	African American Literature	3
ENGL 2760	English Novel	3
ENGL 2770*	Introduction to Poetry	3
ENGL 2775*	Science Fiction or Fantasy	3
ENGL 2778*	Urban Literature—Lost in the City	3

\* Traditional and on-line sections available.

## Geography

### Program Overview

The College offers Geography courses to fulfill the Minnesota Transfer Curriculum requirements and graduation requirements. The department will be expanding and adding new courses to the curriculum.

Course		Cr
GEOG 1700	Physical Geography	3
GEOG 1720	Human/Cultural Geography	3
GEOG 1730	Global Economic Geography	3

## History

### Program Overview

The History Department promotes the study, teaching and analysis of historical developments which have created our present world. The historical past is studied so that students can better fulfill their work and life roles.

The department offers basic survey courses in American history and the history of world civilizations, although students are not required to take these courses in chronological order. In addition to survey courses, a course in Minnesota history is offered emphasizing the social, political, cultural and economic history of the state as well as a course on immigration and the ethnic history of the United States. The department has recently introduced a new course on the history of women in the United States.

Students who plan on majoring in History at a four-year institution are encouraged to take both the American and world history survey courses in order to be well-prepared for upper division coursework. History courses fulfill a number of requirements for the Minnesota Transfer Curriculum, as well as for graduation requirements.

Course		Cr
HIST 1730*	Contemporary World History	3
HIST 1741*	U.S. History to 1865	3
HIST 1742*	U.S. History since 1865	3
HIST 1750*	Minnesota History	3
HIST 1760	History of World Civilizations to 1500	3
HIST 1761	History of World Civilizations since 1500	3
HIST 1770	History of Women in the United States	3
HIST 2740	Immigration and Ethnic History of the United States	3

\* Traditional and on-line sections available.

# Humanities

## Program Overview

Humanities courses promote the study of cultural developments. Students gain an increased understanding of the world they live in, how it came to be as it is, and what their place is in it. Students will be asked to consider how they can apply what they have learned about what has come before to what might occur in the future. Humanities is an interdisciplinary subject in that it is an exploration of the influence particular fields have on each other; for example, the influence of political movements on visual art, or the influence of religion on poetry of the same period. The fields included in the Humanities are: art, history, literature, philosophy, religion, politics, law, music, drama and language. Students are encouraged to make comparisons between different fields and different time periods and to consider the significance of similarities and differences.

Humanities courses fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
HUMA 1710	The Art of Being Human: An introduction to the Humanities	4
HUMA 1720	The Ancient & Medieval World	4
HUMA 1730	The Modern World	4
HUMA 1750	Culture and Civilization: Spanish Speaking Cultures	3
HUMA 1770	The Art of Film	3
HUMA 1780	American Film	3
HUMA 1790	International Film	3

# Interdisciplinary Women and Gender Studies

## Program Overview

The Interdisciplinary Women and Gender Studies course and related coursework provide students with the opportunity for interdisciplinary study in the Liberal Arts and Sciences. The coursework emphasizes collaborative learning across academic disciplines with a focus on women and gender relationships. Several courses in the Liberal Arts and Sciences include an emphasis on gender analysis that links the content. Students are encouraged to contact the Transfer Center Specialists for information on four-year colleges and universities that offer a major or minor in Women and Gender Studies.

Course		Cr
INTS 1785	Foundations of Women's Studies	3
Select 9 credits from the following courses:		9
BIOL 1785	Biology of Women	3
HIST 1770	History of Women in U. S.	3
SPCH 1780*	Gender Communication across Cultures	3
SOCI 1730*	Sociology of Family and Relationships	3

\*Traditional and on-line sections are available.

# Mathematics

## Program Overview

The study of mathematics provides foundational knowledge for understanding other disciplines, as well as logical reasoning and problem solving skills for work and life roles. The department offers a full curriculum to meet the educational needs of our students such as developmental offerings, mathematics courses specific to majors and a range of general education courses including Statistics, Liberal Arts Math, College Algebra, Pre-Calculus, Calculus 1 and 2. Courses fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
MATH 0741	Math Fundamental 1	3
MATH 0742	Math Fundamentals 2	3
MATH 1411	Applied Mathematics	3
MATH 1420	Trade Algebra and Trigonometry	3
MATH 1510*	Introductory Algebra	3
MATH 1520	Intermediate Algebra	3
MATH 1710*	Liberal Arts Mathematics	3
MATH 1730	College Algebra	3
MATH 1740*	Introduction to Statistics	4
MATH 1760	Pre-Calculus	4
MATH 2751	Calculus 1	5
MATH 2752	Calculus 2	5

\* Traditional and on-line sections available.

# Music

The College offers a Music courses to fulfill the Minnesota Transfer Curriculum requirements and graduation requirements. The department will be expanding and adding new courses to the curriculum.

## Program Requirements

Course		Cr
MUSC 1740	Music Appreciation	3
MUSC 1750	Jazz History	3

## Natural Sciences

### Program Overview

The Natural Sciences department offers courses across the curriculum in the areas of earth science, physical geology, oceanography, meteorology, natural disasters, descriptive astronomy, introduction to energy and the environment and contemporary issues in science. Natural Science courses fulfill Goals 3, 9 & 10 of the Minnesota Transfer Curriculum, as well as for graduation requirements in a number of program majors.

Course		Cr
NSCI 1710	Earth Science	4
NSCI 1720	Physical Geology	3
NSCI 1730	Introduction to Oceanography	3
NSCI 1740	Introduction to Meteorology	3
NSCI 1750*	Natural Disasters	3
NSCI 1760	Descriptive Astronomy	
NSCI 1770	Introduction to Energy and the Environment	3
NSCI 1780*	Contemporary Issues in Science	3

\* Traditional and on-line sections available.

## Philosophy

### Program Overview

Philosophy, literally, is the love of wisdom. It is the search for truth and the asking of fundamental questions about our existence, and relationship with the world and interaction with others. Philosophy includes the study of arguments, and the providing of evidence and reasons for making particular claims. The practice of philosophy teaches critical thinking and careful reflection; all courses encourage students to formulate pertinent questions and examine and create arguments. It is hoped that students will continue to use careful reasoning skills honed in philosophy classes as they continue in their education and in life. Areas of concentration within philosophy include logic, ethics, religion and the theory of knowledge.

Philosophy is helpful for careers in law, teaching, business, medicine and many other fields. Philosophy courses fulfill a number of requirements for the Minnesota Transfer Curriculum and graduation requirements.

Course		Cr
PHIL 1700	Introduction to Philosophy	3
PHIL 1710*	Logic	3
PHIL 1720*	Ethics	3
PHIL 1722	Health Care Ethics	3
PHIL 1750	Eastern Philosophy	3
PHIL 1760	World Religions	3

\* Traditional and on-line sections available.

## Physics

### Program Overview

The department offers an introductory level physics course as well as General Physics 1 and 2 with a calculus base. Students enroll in physics courses to fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
PHYS 1720	Introductory Physics	4
PHYS 2700	General Physics 1 (with Calculus)	5
PHYS 2710	General Physics 2 (with Calculus)	5

## Political Science

### Program Overview

The Political Science faculty prepare students for involved citizenry and an understanding of the fundamentals of political systems. Students enroll in political science courses to fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
POLS 1720	Introduction to American Government	3
POLS 1740	Introduction to World Politics	3
POLS 1750	Introduction to Political Science	3
POLS 1760	Introduction to Political Thought	3

\* Traditional and on-line sections available.

## Psychology

### Program Overview

Psychology is the scientific inquiry into human behavior and mental processes explaining the complexity of issues from both an environmental and biological perspective. Courses are offered that provide a foundation in core psychological areas. Students enroll in psychology to obtain a better understanding of human behavior in a variety of settings as well as for relevant preparation for nursing, business and other fields. Psychology courses fulfill the Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
PSYC 1710*	General Psychology	4
PSYC 1720*	Psychology Throughout the Lifespan	3
PSYC 1730	Introduction to Child Psychology	3
PSYC 1740*	Abnormal Psychology	4
PSYC 1750	Introduction to Health Psychology	3
PSYC 1760	Social Psychology	4

\* Traditional and on-line sections available.



# Sociology

## Program Overview

The Sociology faculty strive to promote social awareness, active citizenry and critical thinking within and beyond our own culture. Courses are designed to emphasize the importance of the sociological perspective in work and life roles in a global world. Many students take Sociology courses to develop personal skills and to learn about other cultures and societies.

Students enroll in Sociology courses to fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
SOCI 1710*	Introduction to Sociology	4
SOCI 1720*	Social Problems	3
SOCI 1730*	Sociology of Families and Relationships	3
SOCI 1740*	Making a Living in a Global Era: Sociology of Work	3
SOCI 1760	Mass Media and Society	4
SOCI 1765	Sociology of Deviance	3
SOCI 1780*	Social Psychology	4
SOCI 1790	Special Topics in Sociology	3
SOCI 2760	Sociology Through Film and Music	3

\* Traditional and on-line sections available.

# Spanish

## Program Overview

The main objective of the Spanish Department is two fold: to effectively build up crucial speaking, listening, reading and writing skills to achieve proficiency in Spanish and to gain the indispensable cultural knowledge and perspective for successful interactions. Applying a communicative approach to classroom situations and virtual trips, students acquire in a holistic way the grammatical and cultural tools they need to thrive with confidence in a multicultural environment.

The Spanish Department offers beginning and intermediate courses. Students with two years of high school Spanish are generally prepared for beginning courses while students with three or four years usually are ready to enter intermediate courses.

SPAN 1710 and SPAN 1720 (Beginning Spanish 1 & 2) may count as part of the 24 credit Pre-major electives for an AA degree. SPAN 1730 and SPAN 1740 (Intermediate Spanish 1 & 2) may be counted towards the 40 Minnesota Transfer Curriculum credits. Each program at Saint Paul College has different requirements. Talk to your advisor or a Transfer specialist in order to know if Spanish could be a possible general education elective option for you.

Spanish credits are also transferable to most two-and four-year institutions. Consult a Transfer Specialist for transfer information and Transfer Agreements to decide which Spanish courses to take at Saint Paul College.

Course		Cr
SPAN 1710	Beginning Spanish 1	5
SPAN 1720	Beginning Spanish 2	5
SPAN 1730	Intermediate Spanish	5
SPAN 1740	Intermediate Spanish 2	5
SPAN 1790	Spanish for the Workplace	3

# Speech

## Program Overview

Rhetoric is where the study of Speech Communication began. As its definition, rhetoric refers to oratory or persuasive speaking. The Speech faculty promotes the study and application of human communication and mass communication concepts and skills for work and life roles. Students enroll in Speech courses to fulfill Minnesota Transfer Curriculum requirements and graduation requirements.

Course		Cr
SPCH 1700	Introduction to Speech Communications	3
SPCH 1710	Fundamentals of Public Speaking	3
SPCH 1720*	Interpersonal Communication	3
SPCH 1730	Intercultural Communication	3
SPCH 1740*	Mass Media and Communications	3
SPCH 1745	Mass Media Production Theories and Techniques	3
SPCH 1750	Small Group Communication	3
SPCH 1770*	Family Communication	3
SPCH 1780*	Gender Communication Across Cultures	3
SPCH 1782	Workplace Interpersonal Communication	3

\* Traditional and on-line sections available.

# Theatre

## Program Overview

The College offers several theatre courses to fulfill general education requirements. The department's course offerings cover both the theoretical and performance aspects of theatre.

Course		Cr
THTR 1710*	Introduction to Theatre	3
THTR 1720*	Exploring the Theatre Arts	3
THTR 1730	Theater Stagecraft and Performance	3

\* Traditional and on-line sections available.

# Engineering and Technology Programs

<b>Biomedical Technology</b>	<b>113</b>
	Biomedical Engineering Technology AS Degree
<b>Chemical Technology</b>	<b>114</b>
	Chemical Technology AS Degree Chemical Technology Certificate
<b>Electronic Nanotechnology</b>	<b>114</b>
	Electronic Nanotechnology AAS Degree
<b>Electronic Technology</b>	<b>115</b>
	Electronic Technology AAS Degree Electronic Technology Diploma
<b>Energy Process Technology</b>	<b>117</b>
	Energy Process Technology AAS Degree Energy Technician Advanced Technical Certificate
<b>Fuel Cell Technology</b>	<b>119</b>
	Fuel Cell Technology Certificate
<b>Geomatics and Mapping Sciences</b>	<b>120</b>
	Geomatics (Land Surveying) and Mapping Sciences AS Degree Geomatics Advanced Technical Certificate Remote Sensing Advanced Technical Certificate
<b>Engineering Technology</b>	<b>121</b>
	Engineering Technology AAS Degree CNC/Toolmaking Diploma
<b>Machine Tool Technology</b>	<b>122</b>
	Machine Operator Certificate

# Biomedical Technology

Biomedical Engineering  
Technology AS Degree . . . . . 60 Credits

## Program Overview

The *new* Biomedical Engineering Technology AS Degree provides students with functional skills in the growing field of biomedical engineering technology, which involves the design, construction, and use of electronic and mechanical devices to solve medically-relevant needs. Examples of work in this field include medical device design, fabrication and testing, physiological function monitoring, and biomedical informatics, among numerous other career paths. Math, biology, physics, and chemistry are required program components as well as the engineering technology course requirements.

The Biomedical Engineering Technology AS Degree is offered in partnership with the Saint Paul Public Schools and the University of Minnesota. Students meeting graduation requirements for the AS degree can transfer to the University of Minnesota to attain a BS degree in Biomedical Engineering, or a degree in Applied Engineering from the Manufacturing and Applied Engineering Center for Excellence at Bemidji State.

## Career Opportunities

Students will be able to find opportunities in a variety of work environments and specializations, including medical device design, device manufacturing, device testing, informatics and other fields.

## Program Outcomes

1. Graduates will have the essential math and science skills needed to enter a four-year program in biomedical engineering and progress in the industry.
2. Graduates will demonstrate familiarity with the biomedical engineering technology industry and the skills needed to succeed in it.
3. Graduates will have demonstrated skill in circuit theory and computer aided design.
4. Graduates will be ready to enter a four-year program at the University of Minnesota or Bemidji State University.

# Biomedical Engineering Technology AS Degree

## Program Requirements

Course		Cr
BIOL 1771	Medical Terminology	2
BIOL 1750	Human Body Systems	3
BMED 1701	Biomedical Engineering Seminar	1
BMED 1761	Bio Medical Lab Safety, Environmental Rules, & Regulations	3
BMED 1770	Biomedical Internship & Advanced Seminar	3
CHEM 1711	Chemistry 1	4
CHEM 1712	Chemistry 2	4
ELEC 1423	Basic Electronic Instrumentation	3
MTTP 1411	Introduction to Manufacturing Processes	4
<b>This course is offered on site and on-line</b>		
CADX XXXX	CAD/CAM/CNC Lab	3
<b>Subtotal</b>		<b>30</b>
<b>General Education Requirements</b>		<b>30</b>
<b>Total Program Credits</b>		<b>60</b>

## AS Degree General Education Requirements\*

30 Credits

Students are required to complete ENGL 1711 and SPCH 1700 from Goal 1

Goal 1: Communication	7
ENGL 1711 Composition 1 - 4 cr	
SPCH 1700 Introduction to Speech Communications - 3 cr	

Students are required to complete the following from Goal 3 and Goal 4

Goal 3: Natural Sciences	
PHYS 2700 General Physics 1 (with Calculus)	5
Goal 4: Mathematical/Logical Reasoning	
MATH 2751: Calculus 1 - 5cr	5

Select a minimum of 4 credits from Goal 5:

Goal 5 History, Social Sciences, and Behavioral Sciences	4
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Select a minimum of 3 credits from Goal 6:

Goal 6: Humanities and Fine Arts	3
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Select a minimum of 6 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum

MATH 2752 Calculus 2 - 5 cr	
PHYS 2710 General Physics 2 - 5 cr (recommended)	6

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Chemical Technology

Chemical Technology AS Degree . . . . . 60 Credits  
 Chemical Technology Certificate . . . . . 27 Credits

### Chemical Technology AS Degree\*

#### Program Overview

The *new* Chemical Technology AS Degree is designed for students to complete chemistry courses and general education requirements for transfer to a four-year program and/or for employment as a chemical laboratory assistant.

### Chemical Technology AS Degree\*

#### Program Requirements

Course		Cr
CHEM 1701	Chemical Technology Seminar	1
CHEM 1711	Principles of Chemistry 1	4
CHEM 1712	Principles of Chemistry 2	4
CHEM 2711	Organic Chemistry 1	4
CHEM 2712	Organic Chemistry 2	4
PHYS 2700	General Physics 1 with Calculus	5
PHYS 2710	General Physics 2 with Calculus	5
	<b>General Electives</b>	<b>3</b>
	<b>Subtotal</b>	<b>30</b>
	<b>General Education Requirements</b>	<b>30</b>
	<b>Total Program Credits</b>	<b>60</b>

\* pending approval

### Chemical Technology Certificate\*

#### Program Overview

The *new* Chemical Technology Certificate prepares students to assist scientists in laboratories to research and develop chemical processes and materials to meet society's changing needs. Working in experimental laboratories or in manufacturing and industrial plants, technicians perform a number of important duties such as the operation of laboratory equipment, evaluating product quality and consistency, and testing for environmental acceptability. Employment is available in a number of settings including Agriculture and Food Science, Forensics, Pharmaceutical, Industrial, and environmental laboratories.

## Chemical Technology Certificate\*

#### Program Requirements

Course		Cr
CHEM 1701	Chemical Technology Seminar	2
CHEM 1711	Principles of Chemistry 1	4
CHEM 1712	Principles of Chemistry 2	4
CHEM 1760	Chemical Technology Laboratory Skills and Instrumentation	3
CHEM 1761	Chemical Technology Lab Safety, Environmental Rules and Regulations	3
CHEM 1770	Chemical Technology Laboratory Internship and Advanced Seminar	3
CHEM 2711	Organic Chemistry 1	4
CHEM 2712	Organic Chemistry 2	4
	<b>Total Program Credits</b>	<b>27</b>

\* pending approval

## Electronic Nanotechnology

Electronic Nanotechnology AAS Degree . . . . . 71 Credits

#### Program Overview

The Electronic Nanotechnology AAS degree works in cooperation with the University of Minnesota. Students complete the first year curriculum of the Electronics Program, identified math and science courses, and then enter the capstone experience of 16 credits at the University of Minnesota. University of Minnesota instructors teach the capstone courses and students use of the Fabrication and Characterization laboratories. The University of Minnesota courses transferred into the Saint Paul College program.

#### Career Opportunities

Nanotechnology is the manipulation and characterization of materials at the atomic level. This level is 10,000 times smaller than a human hair and is thought to be the lowest level at which matter can be manipulated. Electronics has been the major impetus in the development of Nanotechnology advancements and Nanotechnology will be the driving force in the future of semiconductors.

Nanotechnology is an exciting growth industry with many expanding opportunities for years to come. This technology can be used in a number of fields including electronics, biology, medicine and manufacturing. The National Science Foundation estimates that the Nanotechnology industry could grow to \$1 trillion worldwide in the span of 15 years. Career opportunities will be initially found in Government and Corporate research facilities as well as startup companies. Jobs will entail assisting scientists and engineers in development and characterization of devices and procedures at the

nano scale. A work force will also be needed by companies designing and manufacturing equipment and facilities that support the nanotech industry.

### Program Outcomes

1. Graduates will have a thorough understanding of DC & AC theory and operating concepts.
2. Graduates will have knowledge and skills of Solid State circuitry.
3. Graduates will have an understanding of digital components and their applications.
4. Graduates will demonstrate the use and application of test equipment.
5. Graduates will demonstrate appropriate clean room procedures and safety.
6. Graduates will demonstrate Nanofabrication methods and techniques.
7. Graduates will have knowledge and skills of Nanostructure measurement and characterization.

## Electronic Nanotechnology AAS Degree

### Program Requirements

Course		Cr
ELEC 1410	DC Circuits	4
ELEC 1422	AC Circuits	4
ELEC 1430	Solid State Circuits	5
ELEC 1530	Advanced Solid State Circuits	5
ELEC 1510	Digital Logic Fundamentals	4
ELEC 1512	Digital Logic Applications	4
<b>Subtotal</b>		<b>26</b>
<b>General Education Requirements</b>		<b>29</b>
<b>Total Saint Paul College Credits</b>		<b>55</b>

### AAS Degree General Education Requirements\* 29 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	16
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	

\* Refer to the Minnesota Transfer Curriculum Course List for Specific course options.

### The following General Education Courses are required for the Electronic Nanotechnology AAS:

MATH 1730	College Algebra	3
CHEM 1700	Chemistry Concepts	4
PHYS 1720	Introductory Physics	4
BIOL 1740	General Biology 1	5

### Capstone at the University of Minnesota

MT 3111	Elements of Microelectronic Manufacturing	3
MT 3112	Elements of Micro and Nano Manufacturing Lab	1
MT 3121	Thin Film Deposition	4
MT 3131	Intro to Materials Characterization	3
MT 3132	Materials Characterization Lab	1
MT 3141	Principles/Apps. of Bionanotechnology	3
MT 3142	Nanoparticles and Biotechnology Lab	1
<b>Subtotal</b>		<b>16</b>
<b>Total Program Credits</b>		<b>71</b>

Computer Literacy Skills – the student must be able to send and receive e-mails, search the Internet, create spreadsheets and use word processing software.

## Electronic Technology

Electronic Technology AAS Degree . . . . . 72 Credits  
Electronic Technology Diploma . . . . . 66 Credits

### Program Overview

The jobs performed by an Electronic Technician cover a wide spectrum of challenging analog and digital tasks. The work consists of preventative maintenance, servicing, troubleshooting and repairing computers, electronic office equipment, networks, communications equipment and consumer electronics equipment. Technicians will also be expected to write repair reports, manage parts inventory, implement customer billing and develop a good business relationship with customers.

Students must be highly motivated and have the desire to solve problems. Normal color vision, manual dexterity and the ability to relate printed diagrams to physical components are helpful.

Students enrolled in an AAS degree will be expected to have or obtain knowledge in the following areas: Boolean algebra, right angle trigonometry, computer operating systems (DOS/Windows) and computer applications (word processing, spreadsheet, and database).

### Career Opportunities

Technical careers have been identified as the fastest growing segment of the job market and electronic technicians will be in demand. The number of job opportunities in Electronic Technology will continue to expand well into the 21st century. Current electronic equipment and the introduction of state-of-the-art equipment in the areas of business, industry and consumer electronics will ensure an increasing demand for qualified Electronic Technicians.

Technicians will be hired by companies to repair the company's own equipment or hired by companies as field service technicians. Companies that employ Electronic Technicians typically offer good salaries and benefits as well opportunities to advance.

**Articulation Agreements:**  
 University of Wisconsin, Stout  
 BS in Industrial Management  
 Metropolitan State University,  
 BAS in Industrial Management  
 Minnesota State University, Mankato,  
 BS in Electronic Engineering Technology

### Program Outcomes

1. Graduates will have a thorough understanding of DC & AC theory and operating concepts.
2. Graduates will have knowledge and skills of Solid State circuitry.
3. Graduates will have understanding of digital components and their applications.
4. Graduates will have understanding of and the skills for microprocessor operation and application.
5. Graduates will have the understanding of and the skills for service, testing and repair of personal computer systems and computer peripherals.
6. Graduates will have the understanding of and the skills in linear devices and associated circuitry.
7. Graduates will have the understanding of and the skills in interface circuitry and systems.

The Electronic Technology AAS degree and Diploma programs at Saint Paul College have been approved and certified by the Federal Aviation Administration (FAA). This partnership allows qualified students the possibility of part-time work while pursuing their studies as well as full-time employment.

## Electronic Technology AAS Degree

### Program Requirements

Course		Cr
ELEC 1410	DC Circuits—AAS/Diploma	4
ELEC 1422	AC Circuits—AAS	4
ELEC 1430	Solid State Circuits—AAS/Diploma	5
ELEC 1530	Advanced Solid State Circuits— AAS/Diploma	5
ELEC 1510	Digital Logic Fundamentals—AAS/Diploma	4
ELEC 1514	Digital Logic Applications—AAS	4
ELEC 2530	Microprocessor Theory	3
ELEC 2532	Microprocessor Lab/AAS	3
ELEC 2410	Personal Computer Service and Repair Theory	3
ELEC 2412	Personal Computer Service and Repair Lab/AAS	3
ELEC 2510	Linear Devices Theory	3
ELEC 2511	Linear Devices Lab	4
ELEC 2520	Interfacing Theory	3
ELEC 2521	Interfacing Lab	4
<b>Subtotal</b>		<b>52</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)		<b>20</b>
<b>Total Program Credits</b>		<b>72</b>

### Electronic Technology AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711  
and any Speech course from Goal 1

Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	7
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List  
for specific course options.

## Electronic Technology Diploma

### Program Requirements

Course		Cr
ELEC 1410	DC Circuits-AAS/Diploma	4
ELEC 1420	AC Circuits-Diploma	5
ELEC 1430	Solid State Circuits-AAS/Diploma	5
ELEC 1530	Advanced Solid State Circuits-AAS/Diploma	5
ELEC 1510	Digital Logic Fundamentals-AAS/Diploma	4
ELEC 1512	Digital Logic Applications-Diploma	5
ELEC 2530	Microprocessor Theory	3
ELEC 2532	Microprocessor Lab-AAS	2
ELEC 2410	Personal Computer Service & Repair Theory	3
ELEC 2411	Personal Computer Service & Repair Lab	4
ELEC 2430	Computer Operating Systems & Programming	2
ELEC 2510	Linear Devices Theory	3
ELEC 2511	Linear Devices Lab	4
ELEC 2520	Interfacing Theory	3
ELEC 2521	Interfacing Lab	4
ELEC 2530	Microprocessor Theory	3
ELEC 2531	Microprocessor Lab	4
	<b>Subtotal</b>	<b>63</b>
	<b>General Education Requirements</b>	<b>3</b>
	<b>Total Program Credits</b>	<b>66</b>

## Energy Process Technology

Energy Process Technology AAS Degree . . . . . 65 Credits

Energy Process Technology Certificate . . . . . 19 Credits

### Program Overview

The Energy Process Technology Program is designed to develop the student's knowledge and skills in the process and power industry. The program identifies the processes, equipment, systems and information needed to obtain employment in a power generating facility.

### Career Opportunities

Graduates may be employed as General Plant Helpers, Plant Technicians, Plant Specialists and Boiler Operators in electric generating plants, large manufacturing companies and other plants or institutions that operate large boilers. Minnesota industries, such as Xcel Energy, Great River Energy, District Energy and other power generating companies anticipate a severe shortage of qualified technicians, as current technicians retire.

### Program Outcomes

1. Describe the operation of pumps, compressors, turbines, piping and tubing in terms of fluid flow principles, design, construction and prime movers.
2. Demonstrate the use of measuring tools associated with mechanical repair, including personal computers and instrumentation.
3. Describe the principles of fluid power, pump inlet factors, hydraulic fluid and ANSI/ISO symbols.
4. Demonstrate the safe use of a variety of hand tools commonly associated with mechanical repair, metallurgy, shop machines and system diagrams.
5. Recognize the basic purpose, structure and operation of a plant system, including boiler and auxiliary equipment, combustion, condensers and circulating water.
6. Demonstrate knowledge of the systems that make up a power plant through hands-on experience at a fossil simulator.
7. Demonstrate knowledge of what OSHA, EPA and other regulations are and how they impact the industry.
8. Identify various types of valves, gaskets, lubrication, bearings, couplings, gears, chains, v-belts and rigging and explain their functions.
9. Apply mathematics, including basic math, geometry and elementary algebra to solve real-life problems.
10. Understand the theories and concepts necessary for basic oxy-acetylene welding, cutting and brazing processes.
11. Understand how automatic systems control plant processes.
12. Demonstrate basic knowledge of the operation and use of Gas Turbines and Diesels and how voltage is produced, used and manipulated to do work in the refining industry.
13. Understand natural gas processing, chemistry and distillation principles and applications as related to the process industry.

## Energy Process Technology AAS Degree

### Program Requirements

Course		Cr
ENGY 1410	Pumps, Compressors and Turbines	3
ENGY 1510	Piping, Tubing and Steam Traps	3
ENGY 1530	Equipment Repair	4
ENGY 2410	Energy Systems and Components	3
ENGY 2420	Energy Production	3
ENGY 2430	Boiler Engineer Licensing	2
ENGY 2510	Regulatory Compliance	3
ENGY 2520	Valves and Gaskets	2
ENGY 2530	Power Plant Industrial Maintenance	4
MATH 1411	Applied Mathematics	3
ENGY 1520	Hydraulics	3
WELD 1410	Oxy-Acetylene, Welding Cutting and Brazing	3
ENGY 1420	Instrumentation and Measurement	3
<b>Subtotal</b>		<b>39</b>
<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)		<b>20</b>
<b>Other Education Requirements</b> Electives (General Ed or Occupational)		<b>6</b>
<b>Total Program Credits</b>		<b>65</b>
<b>Process Plant Technology Emphasis**</b>		
PROP 231	Process Turbines and Diesels	1
PROP 233	Electrical Principles	2
PROP 235	Hydrocarbon Chemistry	3
PROP 237	Distillation and Refinery Operations	4
PROP 239	Gas Conversions	3
PROP 241	Process Plant Instrumentation	2
PROP 243	Process Instrumentation and Control	2

\*\* Courses in the Process Plant Technology Emphasis can be taken online and transferred from Bismarck Community College (North Dakota).

## AAS Degree General Education Requirements\*

20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science, & Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Energy Process Technology Certificate

### Program Requirements

Course		Cr
ENGY 1520	Hydraulics	3
ENGY 1530	Equipment Repair	4
ENGY 2420	Energy Production	3
INMM 1510	Lubrication, Bearings and Couplings	3
WELD 1410	Oxy-Acetylene Welding, Cutting and Brazing	3
WELD 1420	SMAW E6013	3
<b>Total Program Credits</b>		<b>19</b>



# Fuel Cell Technology

Fuel Cell Technician Certificate . . . . . 16 Credits

## Program Overview

This certification program is to prepare employees as fuel cell technicians in the fuel cell technology industry. The certificate is for technicians who already have a foundation in related fields such as electronics, electricity, energy production, energy systems, chemical laboratory technicians or comparable programs. This certificate will provide skills and training to work with an emerging technology industry that will generate the much needed power and electricity for small electronic devices such as laptops, transportation vehicles, and utility scale electric power systems. Small businesses, major manufacturers, and nations are investing billions of dollars into fuel cell technologies.

The Fuel Cell Technician Certificate program will introduce the fuel cell system, the equipment involved, safe working practices for installing /operating this technology, and the diagnostic/analytical skills necessary to optimize/maintain this technology.

## Program Outcomes

1. Students will have an understanding of and will be able to discuss and demonstrate safety procedures and personal protection equipment requirements.
2. Graduates will be able to demonstrate the proper use of tools and test equipment.
3. Students will be able to demonstrate caution and safety procedures with the various fuel resources used in fuel cell systems.
4. Students will know the hazards associated with hydrogen, methane, propane, and methanol fuel resources.
5. Students will know the electrical safety hazards associated with a fuel cell system and will be able to apply mechanical and electrical safety procedures to a fuel cell system.
6. Students will be able to communicate the procedures completed for the preparation of installation and /or repair of a fuel cell system.
7. Students will be able to identify and understand the material safety sheets for the use and handling of products used in the installation, commissioning, and operation of a fuel cell system.

## Career Opportunities

Job opportunities for equipment installers, fuel cell operators and maintenance will require varying levels or combinations of technical knowledge and skills which include:

- A basic understanding of how a fuel cell operates, how it generates electricity, and how it is constructed.
- An understanding of energy resources for electrical production.
- Installation and operation of electrical and mechanical devices in fuel cells.
- Understanding of safety practices when installing, operating or maintaining fuel cells.
- Knowledge of fuel cell design to disassemble and reassemble fuel cells for trouble shooting, maintenance, and improvements.
- Microsoft Office word processing and EXCEL spreadsheets for data recording, analysis and diagnostics.
- Effective communication of technical information to manufacturers and to customers.
- Basic understanding of scientific concepts in fuel cells.

Job titles for this industry include but are not limited to, Fuel Cell Field Service Technicians, Fuel Cell Operator, Fuel Cell Installers, Fuel Cell Manufacturer Technical Representatives, Fuel Cell Manufacturing Technicians, Fuel Cell Technical Support, Energy Technicians, Energy Production System Technicians, or Plant Operators.

## Program Admission Requirements:

Completion of one of the following programs:

- Chemical Laboratory Technician AAS
- Electronic Technology AAS
- Electronic Nanotechnology AAS
- Energy Process Technology AAS
- Electrical Maintenance Certificate
- Construction Electricity Diploma
- Pipefitting Diploma
- Appliance Field Service Technician Certificate

Comparable program based upon Dean's review.

MATH 1420 Trade Algebra Trigonometry **OR**  
equivalent math course with trigonometry.

## Recommended but not Required:

CHEM 1700 Chemistry Concepts **OR**  
CHEM 1711 Principles of Chemistry

## Fuel Cell Technician Certificate

### Program Requirements

Course		Cr
FUEL 1400	Introduction to Fuel Cell Technology	4
FUEL 1410	Fuel Cell Installation and Operation	4
FUEL 1420	Fuel Data Acquisition and Analysis	4
FUEL 1430	Fuel Cell Product Design and Manufacturing	4
<b>Total Program Credits</b>		<b>16</b>

## Geomatics (Land Surveying) and Mapping Sciences

Geomatics (Land Surveying) and Mapping Sciences  
 AS Degree . . . . . 60 Credits  
 Geomatics Advanced Technical Certificate . . . 30 Credits  
 Remote Sensing Advanced Tech. Certificate . . 10 Credits

### Program Overview

Land Surveying (Geomatics or Geomatics Engineering) is the science, art and technology of locating relative positions on, above or below the surface of the earth.

First year students use surveying instruments such as levels and total stations and Global Positioning Systems (GPS) in the field and transfer data to CAD systems. Students work as technicians with engineers, geologists, land surveyors, geographer-cartographers and geographical information professionals on a variety of projects.

The Geomatics (Land Surveying) and Mapping Sciences Associate Degree program is fully articulated with the Bachelor of Science Degree in Land Surveying and Mapping Sciences at St. Cloud State University (SCSU). All the credits transfer to SCSU. Graduates from the BS degree may be qualified to take the Fundamentals of Land Surveying Examination after a minimum of three years in the field. Graduates of the AS degree program, having a bachelors degree also may qualify.

### Career Opportunities

After the first year of study students can expect summer employment with city, county, state or federal government or with consulting engineering and surveying firms, contractors or cartographers. Often the summer experience continues as part-time employment during the second year of study and may result in permanent employment upon graduation. Others can expect a part-time career position while pursuing the Bachelor's Degree.

Historically, demand for graduates from this program far exceeds the number of graduates available.

### Program Outcomes

1. Graduates will work with engineers, geologists, land surveyors, cartographers and geographic information systems professionals.
2. Graduates will have the skills and knowledge to work with civil engineers on design and construction projects.
3. Graduates will have knowledge and skills in Mapping (Cartography) and Geographical Information Systems (GIS).
4. Graduates may transfer all credits to the Land Surveying and Mapping Sciences Bachelor of Science Degree at St. Cloud State University.
5. Graduates from the BS degree, with additional experience, may qualify to take the Minnesota Licensed Land Surveyors examination.

## Geomatics (Land Surveying) and Mapping Sciences AS Degree

### Program Requirements

Course		Cr
CTEC 1415	Surveying Fundamentals	4
CTEC 1441*	Computer Aided Design 1	3
CTEC 1442	Computer Aided Design 2	3
CTEC 1515	Intermediate Surveying	4
CTEC 1535	Coordinate Geometry, Control Surveys, Boundary Surveys	3
CTEC 1591	Occupational Internship	3
CTEC 2520	Introduction to GPS/GIS	4
CTEC 2530	Hydrology and Hydraulics	3
CTEC 2550	Site Design	3
<b>Subtotal</b>		<b>30</b>
<b>General Education Requirements</b> (Select at least 30 credits of General Education according to the requirements listed below)		<b>30</b>
<b>Total Program Credits</b>		<b>60</b>

\*To be successful in CTEC 1441, students who have not had experience with AutoCAD are encouraged to take CTEC 1390 AutoCAD for Geomatics before or concurrent with CTEC 1441 Computer Aided Design 1.

## AS Degree General Education Requirements\*

30 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning (MATH 1730 College Algebra is recommended during the first semester of the program)	
Select a minimum of 4 credits from Goal 5	4
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 13 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	13
Students must select courses from at least six (6) Goal Areas of the Minnesota Transfer Curriculum.	

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Geomatics Advanced Technical Certificate

### Program Requirements

Course		Cr
CTEC 1415	Surveying Fundamentals*	4
CTEC 1441	Computer Aided Design 1	3
CTEC 1442	Computer Aided Design 2	3
CTEC 1515	Intermediate Surveying	4
CTEC 1535	Coordinate Geometry, Control Surveys, Boundary Surveys	3
CTEC 1591	Occupational Internship	3
CTEC 2520	Introduction to GPS/GIS	4
CTEC 2530	Hydrology and Hydraulics	3
CTEC 2550	Site Design	3

\*Math is a prerequisite

**Total Program Credits 30**

## Remote Sensing Advanced Technical Certificate

### Program Requirements

Course		Cr
CTEC 2520	Introduction to GPS/GIS	4
CTEC 2545	Remote Sensing 1	3
CTEC 2546	Remote Sensing 2	3
<b>Total Program Credits</b>		<b>10</b>

## Engineering Technology

Engineering Technology AAS . . . . . 72 Credits  
CNC/Toolmaking Diploma . . . . . 62 Credits

### Program Overview

This area produces skilled craftspeople who make the precision metal parts that are highly specialized and not mass produced. Machinists produce parts from metal castings, forgings, stampings or from solid metal stock. They make parts to exact specifications by removing excess metal with the aid of machine tools, numerically controlled machines, computer assisted machinery and precise measuring and gauging equipment.

### Career Opportunities

As the economy expands so will the demand for manufactured goods that need machined metal parts. Engineering Technology and Machine Tool Technology graduates are hired by industries that manufacture automobiles, industrial machinery, military equipment and other metal products. At many places of employment, graduates can apply training received at the College towards the completion of apprenticeship requirements.

### Program Outcomes

1. Graduates will have the knowledge and skills to make precision machined parts and tooling.
2. Graduates will have the knowledge and skills to program and operate CNC equipment using CAD/CAM.
3. Graduates will have the knowledge and skills to operate and set-up inspection and gauging equipment.
4. Graduates will have the knowledge and skills to meet national entry-level skills standards.
5. Graduates will have acquired shop communication skills such as blueprint reading, practical geometric dimensioning and shop CAD/CAM skills.
6. Graduates will have successfully mastered the general education program requirements for work and life skills.
7. Graduates will use solidworks, design parts and collaborate with engineers.

## Engineering Technology AAS Degree

### Program Requirements

Course		Cr
MTTP 1411	Introduction to Manufacturing Processes	4
MTTP 1413	Interpreting Geometric Dimensioning & Tolerancing	2
MTTP 1421	Engineering Drawing/CAD	5
MTTP 1431	Materials Processing	5
MTTP 1432	Mechanical Applications 1	5
MTTP 1511	CNC 1	2
MTTP 1512	CNC 2	2
MTTP 1513	CNC 3	2
MTTP 2410	Computer Aided Manufacturing 1	2
MTTP 2412	Computer Aided Manufacturing 2	2
MTTP 2510	Tool Design	4
MTTP 2511	Molding/Plastic Technology	5
MTTP 2512	Manufacturing Applications	5
MTTP 2513	Mechanical Systems	5
MTTP 2530	Fixture Design	2
	<b>Subtotal</b>	<b>52</b>
	<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)	<b>20</b>
	<b>Total Program Credits</b>	<b>72</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences PHYS 1720 Intro to Physics – 4 cr	
Goal 4: Mathematical/Logical Reasoning MATH 1730, MATH 1760 OR MATH 2751	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## CNC/Toolmaking Diploma

### Program Requirements

Course		Cr
MATH 1411	Applied Mathematics	3
MTTP 1411	Introduction to Manufacturing Processes	4
MTTP 1413	Interpreting Geometric Dimensioning & Tolerancing	2
MTTP 1421	Engineering Drawings/CAD	5
MTTP 1424	Shop Calculations and Applications	2
MTTP 1431	Materials Processing	5
MTTP 1432	Mechanical Applications 1	5
MTTP 1433	Mechanical Applications 2	5
MTTP 1511	CNC 1	2
MTTP 1512	CNC 2	2
MTTP 1513	CNC 3	2
MTTP 2410	Computer Aided Manufacturing 1	2
MTTP 2412	Computer Aided Manufacturing 2	2
MTTP 2510	Tool Design	4
MTTP 2511	Moldmaking/Plastic Technology	5
MTTP 2512	Manufacturing Applications	5
MTTP 2513	Mechanical Systems/EDM	5
MTTP 2530	Fixture Design	2
	<b>Total Program Credits</b>	<b>62</b>

## Machine Tool Technology

Machine Operator Certificate . . . . . 30 Credits

### Machine Operator Certificate

#### Program Requirements

Course		Cr
MATH 1411	Applied Mathematics 3	3
MTTP 1411	Introduction to Manufacturing Processes	4
MTTP 1421	Engineering Drawings/CAD	5
MTTP 1431	Materials Processing	5
MTTP 1432	Mechanical Applications 1	5
MTTP 1511	CNC 1 (or Internship)	2
MTTP 1512	CNC 2 (or Internship)	2
MTTP 1513	CNC 3 (or Internship)	2
MTTP 2410	Computer Aided Manufacturing 1 (or Internship)	2
	<b>Total Program Credits</b>	<b>30</b>

# Transportation, Construction and Building Programs

<b>Auto Body Repair</b>	<b>124</b>
	Auto Body Repair AAS Degree Auto Body Repair Diploma
<b>Automotive Service</b>	<b>125</b>
	Automotive Service Technician Diploma Automotive Service Technician AAS Degree
<b>Cabinetmaking</b>	<b>127</b>
	Cabinetmaking Diploma
<b>Carpentry</b>	<b>127</b>
	Carpentry Diploma
<b>Construction Supervisor</b>	<b>128</b>
	Construction Supervisor AAS Degree
<b>Construction Electricity</b>	<b>129</b>
	Construction Electricity Diploma
<b>Electrical Maintenance</b>	<b>130</b>
	Electrical Maintenance Certificate
<b>Painting and Decorating</b>	<b>130</b>
	Painting and Decorating Certificate
<b>Pipefitting Construction</b>	<b>131</b>
	Pipefitting Construction Certificate Pipefitting Diploma <b>NEW!</b> Certified Pipe Welding Certificate
<b>Plumbing</b>	<b>132</b>
	Plumbing Diploma
<b>Sheet Metal</b>	<b>132</b>
	Sheet Metal Diploma
<b>Truck Technician</b>	<b>133</b>
	Truck Technician Diploma
<b>Welding</b>	<b>133</b>
	Welding Fabrication Diploma Welding Certificate Welding Metal Fabrication Certificate

# Auto Body Repair

Auto Body Repair Diploma . . . . .	49 Credits
Auto Body Repair AAS . . . . .	66 Credits

## Program Overview

Auto body workers repair or replace automotive body and frame components. The job involves many skills including frame repair, welding and cutting, metal straightening, application of up-to-date body materials, metal finishings and painting and alignment of body components. Auto body repair workers also estimate damage and compute labor and material costs.

Students must read well enough to follow written instructions and comprehend technical information. They should know basic arithmetic in order to prepare paint and body material estimates and paint formulas. Physical requirements include good mechanical coordination, good eyesight (including color vision), average strength, good sense of feel and an ability to withstand dust, paint fumes and noise.

## Career Opportunities

As the population increases so does the use of automobiles and the number of automobile accidents. The U.S. Department of Labor predicts that employment of auto body repair workers will continue to increase.

Employment is steady throughout the year. Graduates often enter an apprenticeship training program and work under an experienced journeyman for a period of at least three years. The usual four-year apprenticeship term is shortened by vocational school experience. There are opportunities for advancement to estimator, adjuster, service manager, parts manager, or shop owner.

## Program Outcomes

1. Graduates will have knowledge and skills in operating hand and power tools necessary in Auto Body Repair.
2. Graduates will have knowledge and skills in welding, cutting, straightening and replacement of parts on an automobile.
3. Graduates will have knowledge and skills in correct use and application of up to date materials used in auto body repairs.
4. Graduates will have knowledge and skills in assessing damage, writing a repair plan and ordering parts and materials.
5. Graduates will have supervised hands-on experience working on customer vehicles and doing real-world repairs.
6. Graduates will be prepared for entry-level employment in the auto body industry.

# Auto Body Repair Diploma

## Program Requirements

Course		Cr
ABDY 1400	Introduction to Auto Body Repair	3
ABDY 1410	Auto Body Sheet Metal Repair	3
ABDY 1420	Auto Body Repair Techniques	3
ABDY 1430	Introduction to Paint Prep	4
ABDY 1440	Advanced Body & Frame Repair Theory	2
ABDY 1450	Collision Repair, Estimating & Shop Management	2
ABDY 1510	Advanced Body & Frame Repair	3
ABDY 1520	Paint & Color Matching Techniques	4
ABDY 1530	Paint Finishing & Detailing	4
ABDY 1540	Auto Body Specialization Finishes	4
ABDY 1550	General Auto Body Detailing	4
ABDY 1560	Alignment & Brakes for Auto Body	2
ABDY 1570	Air Conditioning & Electric	3
ABDY 1581	Welding – Auto Body 1	2
ABDY 1582	Welding – Auto Body 2	3
<b>Subtotal</b>		<b>46</b>
<b>General Education Requirement</b>		<b>3</b>
<b>Total Program Credits</b>		<b>49</b>

# Auto Body Repair AAS Degree

## Program Requirements

Course		Cr
ABDY 1400	Introduction to Auto Body Repair	3
ABDY 1410	Auto Body Sheet Metal Repair	3
ABDY 1420	Auto Body Repair Techniques	3
ABDY 1430	Introduction to Paint Prep	4
ABDY 1440	Advanced Auto Body & Frame Repair Theory	2
ABDY 1450	Collision Repair, Estimating & Shop Management	2
ABDY 1510	Advanced Body & Frame Repair	3
ABDY 1520	Paint & Color Matching Techniques	4
ABDY 1530	Paint Finishing & Detailing	4
ABDY 1540	Auto Body Specialization Finishes	4
ABDY 1550	General Auto Body Detailing	4
ABDY 1560	Alignment & Brakes for Auto Body	2
ABDY 1570	Air Conditioning & Electric	3
ABDY 1581	Welding – Auto Body 1	2
ABDY 1582	Welding – Auto Body 2	3
<b>Subtotal</b>		<b>46</b>
<b>General Education Requirements</b>		<b>20</b>
(Select at least 20 credits of General Education according to the Requirements listed below)		
<b>Total Program Credits</b>		<b>66</b>

**AAS Degree General Education Requirements\*** **20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences	
Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Automotive Service

Automotive Service Technician Diploma . . . . . 64 Credits  
Automotive Service Technician AAS . . . . . 60 Credits

### Program Overview

Automotive repair requires trained technicians skilled in the use of testing equipment, special tools and the latest information and specifications to service the many types of automobiles. Technicians diagnose trouble in any one of thousands of automotive components. They work with many new systems each year that require new service techniques and training. Some of these include air conditioning units, emission control devices, alternators, electronic ignition and electronic fuel injection.

Students are prepared to take the ASE certification tests when they have completed the program. ASE certifies technicians nation wide.

**This program is NATEF (National Automotive Technical Education Foundation) certified.**

Students should have good mechanical aptitude, be in good physical condition and have the ability to get along with others. To profit from the training offered, the students must read well enough to understand the technical information presented.

### Career Opportunities

Opportunities are expected to be plentiful for automotive technicians with technical training according to the U.S. Department of Labor. The department also states that the growing complexity of automotive technology, such as the use of electronic and emissions control equipment increasingly necessitates that cars be serviced by professionals.

Many graduates are employed as indentured apprentices upon the satisfactory completion of the 18 month pre-apprenticeship course. The auto technician may work in a dealership garage, an independent garage, or as a specialist. Opportunities exist for a technician to advance into shop service sales person, new car dealership service manager, or shop owner.

### Program Outcomes

1. Graduates will have knowledge and skills in use of testing equipment, special tools, and specifications for servicing automobiles.
2. Graduates will have the knowledge and skills to diagnose problems in automotive systems.
3. Graduates will have knowledge and skills to service automobile brakes, alignment, and suspension, manual transmission, four wheel drive and differentials, heating and air conditioning, starting and charging systems, electrical accessories, fuel systems and automatic transmissions.
4. Graduates will have acquired supervised hands-on experience working on customer vehicles.
5. Graduates will be prepared for employment as Automotive Service Technicians.

## Automotive Service Technician Diploma

### Program Overview

This program prepares technicians to perform automotive repairs on complex automobiles at the Master Technician level. Upon completion of the program students should qualify for the Master Technician designation by passing all 8 of the Automotive Service Excellence (ASE) tests. Program admission requirement is passage of 4 ASE tests. The program includes courses that ensure individuals have the necessary oral, written, and critical thinking skills to help them with supervisory and management responsibilities.

### Program Outcomes

1. Graduates will be prepared to pass all 8 ASE tests (successful passage of 4 tests required for admission).
2. Graduates will have the skills to perform repairs on automobiles at a master technician level.
3. Graduates will have proficient communication skills for customer service.
4. Graduates will have business and management skills.

### Program Requirements

Course		Cr
AUTO 1410	Trade Knowledge	3
AUTO 1420	General Auto Service	3
AUTO 1430	Brakes	4
AUTO 1440	Alignment & Suspension	5
AUTO 1510	Clutch/Driveline Manual Transmission	3
AUTO 1520	Four Wheel Drive & Differential	2
AUTO 1530	Basic Electrical & Battery	3
AUTO 1540	Basic Tune-Up	3
AUTO 1550	Heating & Air Conditioning	4
AUTO 2410	Starting/Charging Systems	3
AUTO 2420	Electrical Accessories	3
AUTO 2430	Engine Theory & Repair	4
AUTO 2440	Engine Installation	2
AUTO 2450	Introduction to Auto Computers	2
AUTO 2510	Fuel Systems	5
AUTO 2520	Engine Driveability	3
AUTO 2530	Automatic Transmission Theory	2
AUTO 2540	Automatic Trans. Diagnosis & Repair	3
AUTO 2550	Specialized Lab	2
MATH 1411	Applied Math	3
RWLD 1440	Introduction to Gas, Arc, & Mig Welding	2
<b>Total Program Credits</b>		<b>64</b>

## Automotive Service Technician AAS Degree\*

### Program Requirements

Course		Cr
AUTO 2410	Starting & Charging Systems	3
AUTO 2420	Electrical Accessories	3
AUTO 2430	Engine Theory & Repair	4
AUTO 2440	Engine Installation	2
AUTO 2450	Intro to Auto Computers	2
AUTO 2510	Fuel Systems	5
AUTO 2520	Engine Driveability	3
AUTO 2530	Automatic Transmission Theory	2
AUTO 2540	Automatic Transmission Diagnosis & Repair	3
ACCT 1411	Principles of Accounting	4
BTEC 1421	Business Information Applications 1	3
BUSN 1410	Intro to Business	3
HMRS 2410	Employee/Labor Relations	3
<b>Subtotal</b>		<b>40</b>
<b>General Education Requirements</b>		<b>20</b>
<b>Total Program Credits</b>		<b>60</b>

\* Admission requires completion of the Auto Technician Diploma, or concurrent enrollment in the second year Auto Technician program. Also required is completion of 4 ASE tests.

### AAS Degree General Education Requirements\*

**20 Credits**

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum	4

\* Refer to the Minnesota Transfer Curriculum Course List for Specific course options.



# Cabinetmaking

Cabinetmaking Diploma . . . . . 35 Credits

## Program Overview

Cabinetmakers are skilled in the phases of cabinet construction from the initial drafting and layout, to material cutting, assembly, finishing and installation. The principles used in building kitchen cabinets are also used in building store fixtures, furniture and all other types of woodworking. The program prepares students to work for cabinet manufacturers and custom cabinet shops.

Mathematics and drawing skills are helpful. Students need to be alert, physically fit and have good vision. Students are expected to attend all classes and be prompt. It is necessary to have good hand and eye coordination. Safety will be a major factor in operating all equipment. Safety is taught and students must pass all safety tests before operating equipment.

## Career Opportunities

New construction in housing and industry and the renovation and modernization of existing structures are expected to increase the demand for cabinetmakers.

Cabinetmaking graduates find positions in kitchen cabinet shops, lumber companies, sash and door factories, store fixture manufacturers, display shops, wood specialty shops and furniture repair shops. Some graduates operate their own business.

## Program Outcomes

1. Graduates will have acquired supervised hands-on experience building framed and manufactured cabinetry.
2. Graduates will have knowledge, skill and hands-on experience in the use of CAD/CAM software and CNC equipment.
3. Graduates will have knowledge, skill and hands-on experience with wood stains, finishes and finishing equipment.
4. Graduates will have knowledge, skill and hands-on experience in plastic laminate technology and fabrication.
5. Graduates will have acquired supervised hands-on experience in raised panel door layout, machinery set up and production.
6. Graduates will have the knowledge, skills and hands-on experience on the safe operation of woodworking equipment.

# Cabinetmaking Diploma

## Program Requirements

Course		Cr
CABT 1410	Blueprint Reading for Cabinetmaking	3
CABT 1415	Wood Technology	3
CABT 1420	Cabinet Shop Safety	3
CABT 1430	Framed Cabinetry	4
CABT 1511	Shaper Technology	3
CABT 2410	Laminates and Countertops	4
CABT 2430	Edgebanding and Boring Machines	4
CABT 2440	Frameless Cabinetry	4
CABT 2510	CAD/CAM/CNC	4
MATH 1411	Applied Mathematics	3
<b>Total Program Credits</b>		<b>35</b>
<b>Strongly recommended</b>		
CABT 2550	AutoCAD 1 for Cabinetmaking	3

# Carpentry

Carpentry Diploma . . . . . 42 Credits

## Program Overview

Construction is the largest industry in terms of investment and manpower expended. Carpenters make up the largest trade group in the construction industry. They erect the wood framework in buildings; they install wood paneling, cabinets, door and window frames and hardware; and they build stairs and frame roofs. Carpenters work under a wide variety of conditions, indoors and out, in all types of weather. They use many different hand and power tools working with wood, concrete, metals, plastics and other construction materials.

Good work habits, mechanical aptitude and strong communication and math skills are necessary to become a successful carpenter. Carpenters must be able to climb, lift, carry, measure, calculate and plan their work. They often work at considerable heights.

## Career Opportunities

Construction activity continues to be strong. Demand for quality carpenters exists in residential, commercial and heavy construction. Increased activity in infrastructure and building renovation has provided additional opportunities for carpenters.

Carpenters can be involved in the many different phases of a building project or choose to specialize in areas such as framing, drywall, acoustic ceilings, concrete form building, hardware and millwork. Many graduates continue their training by entering a formal apprentice program. Carpenter apprentices advance

to journeyperson by working on the job and attending classes related to their work. Advancement can continue to lead carpenter, carpenter foreman and job superintendent. Carpenters are employed by a wide variety of construction contractors, or they may choose to become self-employed in their own business.

**Program Outcomes**

1. Graduates will have the knowledge and skills to safely use hand and portable power tools used by carpenters in the construction industry.
2. Graduates will be able to work with wood, plastics, concrete, metals, gypsum and various fiber composite products used by carpenters in the construction industry.
3. Graduates will have practiced procedures used by carpenters in framing layout, stair construction, wood and steel framing and installation of doors, windows and cabinets.
4. Graduates will be familiar with forming systems and types of scaffold used in concrete construction.
5. Graduates will be familiar with and have practiced job site safety requirements.
6. Graduates will be able to operate instruments and demonstrate procedures used in building layout.
7. Graduates will display effective work habits deemed necessary by employers.
8. Graduates will be prepared for entry level employment as carpenters and admission to the Carpenters Apprentice Training Program.

**Carpentry Diploma**

**Program Requirements**

Course		Cr
CARP 1410	Project Estimating	3
CARP 1420	Construction Blueprint Reading	2
CARP 1430	Intro to Carpentry & Hand Tools	3
CARP 1510	Intermediate Carpentry	5
CARP 1521	Building Technology	5
CARP 1522	Power Tool and Shop Procedures	5
CARP 2410	Advanced Carpentry	6
CARP 2421	Fieldwork and Carpentry Procedures	5
CARP 2422	Carpentry Concrete Technology and Installation	5
MATH 1411	Applied Mathematics	3
<b>Total Program Credits</b>		<b>42</b>

**Construction Supervisor**

Construction Supervisor AAS Degree . . . . . 72 Credits

**Program Overview**

This program is designed to provide educational opportunity for Building Trades Apprentices and Journeymen to become construction supervisors. The program will accept up to 20 credits from a Department of Labor approved Building Trades apprenticeship program. Core courses will cover knowledge and experience in key areas for supervisors. An internship is required of all students to experience the demands and complexities of the construction supervisor. There are capstone options to integrate the learning through simulations of supervisory work responsibilities, communication challenges and decision-making skills. One capstone is focused on the responsibilities of a supervisor working for a subcontractor and the other for a supervisor for a General Contractor.

Graduates from this program will have the opportunity to move from journey-level craft person to a construction supervisor. Saint Paul Building and Construction Trades Council estimates that there will be 3,000 new supervisor positions over the next 5 years. These would be either sub contractors or general contractors.

**Program Outcomes**

1. Graduates will have knowledge and hands-on experience with components of the construction industry: methods, materials and sequences of the construction process.
2. Graduates will be able to examine building codes and standards applicable to the building construction and inspection process and implement OSHA regulations, recognize hazards.
3. Graduates will understand building specifications, the range of contract documents and specifications of change process and interpret contracts and legal documents and the relationship between documents that apply to the construction project.
4. Graduates will be able to schedule a construction project by quantifying work, take-off plans and specifications, using conventional scheduling methods--critical path methods, Gantt charts, monthly reports and crashing time schedules and the option to perform advanced scheduling using computer applications and resource leveling.
5. Graduates will be familiar with how to estimate a construction project and implement cost controls using blueprints and building specifications.
6. Graduates will have performed a capstone course in the role of a construction supervisor either of a sub contractor or a general contractor, integrating the skills and knowledge learned and experienced in the program.

## Construction Supervisor AAS Degree

### Program Requirements

Course		Cr
BTEC 1445	Business Communication <b>OR</b>	3
CNSP 2491	Advanced Estimating	3
CNSP 2410	Construction Methods, Materials and Their Applications	3
CNSP 2412	Construction Codes and Inspection	3
CNSP 2413	Construction Safety and Loss Control	3
CNSP 2414	Building Specifications, Contract Documents and Specification Change Process	3
CNSP 2420	Project Scheduling	3
CNSP 2450	Construction Estimating and Cost Control	3
CNSP 2460	Contracts and Legal Aspects of Construction Industry	3
CNSP 2490	Internship in Supervising	2
CNSP 2481	Advanced Scheduling	3
CNSP 2500	Construction Superintendent 1: Project Management for Subcontractors <b>OR</b>	3
CNSP 2501	Capstone 2: Project Management for General Contractors	3
	<b>Subtotal</b>	<b>32</b>
	<b>Dept. of Labor approved Building Trades apprenticeship program</b>	<b>20</b>
	<b>General Education Requirements</b> (Select at least 20 credits of General Education according to the requirements listed below)	<b>20</b>
	<b>Total Program Credits</b>	<b>72</b>

### AAS Degree General Education Requirements\* 20 Credits

Students are required to complete ENGL 1711 and any Speech course from Goal 1	7
Goal 1: Communication ENGL 1711 Composition 1 – 4 cr SPCH XXXX – 3 cr	
Select a minimum of 3 credits from Goal 3 or Goal 4	3
Goal 3: Natural Sciences Goal 4: Mathematical/Logical Reasoning	
Select a minimum of 3 credits from Goal 5	3
Goal 5: History, Social Science and Behavioral Sciences	
Select a minimum of 3 credits from Goal 6	3
Goal 6: Humanities and Fine Arts	
Select a minimum of 4 additional credits from Goals 1-10 of the Minnesota Transfer Curriculum.	4

\* Refer to the Minnesota Transfer Curriculum Course List for specific course options.

## Construction Electricity

Construction Electricity Diploma . . . . . 67 Credits

### Program Overview

A construction electrician is employed to install electrical wiring and equipment for lighting, heating, cooling and other power requirements in residential, commercial and industrial buildings. Using blueprints, diagrams and specifications, students perform installations in accordance with national, state and local safety codes. Considerable physical exertion is often required and the work may be performed outdoors or under such hazardous conditions as heights, unfinished construction or high voltages.

Construction Electricity requires high school graduation or equivalent. Students should have an interest and aptitude in applied higher algebra, trigonometry, drawing and science. Good eyesight and color vision are important.

### Career Opportunities

According to the U.S. Department of Labor, “As the population and the economy grow...more electricians will be needed to maintain the electrical systems used by industry and to install electrical devices and wiring in new homes, factories, offices and other structures.”

Graduates are employed as apprentices by electrical construction firms. Upon completion of apprenticeship and the obtaining of a journeyperson’s license, students are open to opportunities as master electricians, inspectors, contractors, estimators and repair persons.

### Program Outcomes

1. Graduates will have the ability to communicate and conduct themselves in a professional manner with the customers and co-workers.
2. Graduates will have the skills for performing entry level tasks required of an apprentice electrician in residential, commercial and industrial construction.
3. Graduates will have knowledge of the National Electrical Code, enabling them to legally and safely install electrical services with supervision.
4. Graduates will have the ability to apply electrical theory to practical applications.

# Construction Electricity Diploma

## Program Requirements

Course		Cr
CNEL 1410	Direct Current Circuit Analysis	3
CNEL 1420	Alternating Current Circuit Analysis	4
CNEL 1435	Intro to the National Electrical Code	1
CNEL 1440	Alternating Current Motors	3
CNEL 1450	Electrical Trade Calculations	3
CNEL 1460	Blueprint Reading for Electricians	1
CNEL 1511	Test Equipment & Power Supplies	3
CNEL 1520	Transistors & Amplifiers	2
CNEL 1530	Thyristors & Optical Devices	2
CNEL 1541	Job Site Safety	2
CNEL 1560	Three Phase Systems	2
CNEL 1570	Three Phase Motors	3
CNEL 1585	Energy Management Systems	2
CNEL 1590	Direct Current Motor & Generators	2
CNEL 2410	Transformers	3
CNEL 2420	Motor Controls	4
CNEL 2430	Heating & Cooling Systems	2
CNEL 2445	Residential Wiring Methods	2
CNEL 2450	National Electrical Code 1	3
CNEL 2460	Electromechanics	1
CNEL 2510	Wiring Systems	2
CNEL 2520	Wiring Methods	2
CNEL 2540	Commercial Wiring Methods	3
CNEL 2550	Industrial Wiring Methods & Service Entrances	2
CNEL 2560	National Electrical Code 2	3
CNEL 2575	Alarm, Data and Communication Systems	2
MATH 1420	Trade Algebra and Trigonometry	3
RWLD 1430	Welding for Construction Electricity	2
<b>Total Program Credits</b>		<b>67</b>

## Electrical Maintenance

Electrical Maintenance Certificate . . . . . 16 Credits

### Program Overview

This program helps current employees to update their classification from general maintenance to electrical maintenance. Graduates are able to increase the range of services provided their employer, which is often accompanied by an increase in salary.

This part-time program is offered in the evenings from 5:00-9:00pm.

### Program Outcomes

1. Graduates will have the ability to communicate and conduct themselves in a professional manner with the customers and co-workers.
2. Graduates will have the skills for performing entry level tasks required to troubleshoot, repair and maintain electrical work.

3. Graduates will have knowledge of the National Electrical Code.
4. Graduates will have the ability to apply electrical theory to practical applications.

## Electrical Maintenance Certificate

### Program Requirements

Course		Cr
CNEL 1111	Electrical Maintenance 1	4
CNEL 1112	Electrical Maintenance 2	4
CNEL 1113	Electrical Maintenance 3	4
CNEL 1114	Electrical Maintenance 4	4
<b>Total Program Credits</b>		<b>16</b>

## Painting and Decorating

Painting and Decorating Certificate . . . . . 18 Credits

### Program Overview

Painters apply paint, varnish, and other finishes to wood, plastic, various metals, sheetrock, plastered surfaces, and masonry. Painters are familiar with the process of preparing surfaces to receive a protective covering of oil paint, latex paint, epoxy paint, or various wall coverings such as vinyl, paper, or fabric. Painters are knowledgeable of paint composition, surface preparation, paint selection and harmony. They are also knowledgeable of the effects climate and chemical exposure has on painted surfaces. Painters also install wall coverings such as vinyl, papers, and fabrics.

The ability to lift ladders and paint containers in excess of 50 to 75 pounds is required by the painting trade.

### Career Opportunities

Employment of painters will grow as the level of new construction activity increases and as old structures require maintenance and repair.

### Program Outcomes

1. Graduates will demonstrate knowledge of the fundamentals of painting and decorating and blueprint reading.
2. Graduates will have the knowledge and skills in the use of solvents, stains, and application techniques.
3. Graduates will demonstrate proper use of painting tools and equipment such as compressors, air regulators, spray guns, and respirators.
4. Graduates will demonstrate knowledge of safety practices.
5. Graduates will demonstrate estimating the amount of paint and wall covering needed for a project.

6. Upon completion, graduates are prepared to work as painters and work with wall covering, and wood finishings.
7. Graduates will have employability skills to create resumes, portfolios, and do recordkeeping.
8. Graduates may choose to apply for continued training in an apprenticeship program.

## Painting and Decorating Certificate

### Program Requirements

Course		Cr
BUSN 1480	Career Resources	1
PDEC 1405	Small Hand Tools	3
PDEC 1425	Finishing	4
PDEC 1480	Spray Painting	3
PDEC 1500	Refinishing	4
PDEC 1515	Wall Covering	3
<b>Total Program Credits</b>		<b>18</b>

## Pipefitting Construction

Pipefitting Construction Certificate . . . . .	20 Credits
Pipefitting Diploma . . . . .	40 Credits
Certified Pipe Welding Certificate . . . . .	20 Credits

### Program Overview

The Construction Pipefitting Certificate trains pre-apprentice Pipefitters for construction of operations such as refineries and gasification plants.

### Program Outcomes

1. Graduates will have the science and math skills needed in the piping systems.
2. Graduates will have the knowledge and skills to install piping systems in commercial and industrial buildings.
3. Upon completion, graduates will be prepared for an apprenticeship in pipefitting.

## Pipefitting Construction Certificate

### Program Requirements

Course		Cr
PIPE 1410	Pipe Science/Math	5
PIPE 1420	Pipe Blueprint Reading	3
PIPE 1430	Pipe Welding 1	5
PIPE 1441	Basic Heating 1	3
PIPE 1451	Pipe Shop 1	4
<b>Total Program Credits</b>		<b>20</b>

## Pipefitting Diploma

### Program Requirements

Course		Cr
PIPE 1410	Pipe Science/Math	5
PIPE 1420	Pipe Blueprint Reading	3
PIPE 1430	Pipe Welding 1	5
PIPE 1441	Basic Heating 1	3
PIPE 1442	Basic Heating 2	3
PIPE 1451	Pipe Shop 1	4
PIPE 1452	Pipe Shop 2	4
PIPE 1521	Basic Air Conditioning and Refrigeration	5
PIPE 1531	Pipe Welding 2	2
PIPE 1540	Electric Controls	3
PIPE 1550	Basic Gas	3
<b>Total Program Credits</b>		<b>40</b>

## Certified Pipe Welding Certificate

### Program Overview

The Certified Pipe Welding Certificate prepares apprentice pipefitters to enter the pipefitting industry as a certified pipe welder.

### Program Outcomes

1. Graduates will have the knowledge and skills to prepare pipe joints for welding.
2. Graduates will have the knowledge and skills to use the shielded metal arc welding and gas tungsten arc welding processes to weld carbon steel and stainless steel pipe.
3. Upon graduation, graduates will be certified in welding of carbon steel and stainless steel pipe.

## Certified Pipe Welding Certificate

### Program Requirements

Course		Cr
PIPE 1720	Certified Pipe Welding 1	2
PIPE 1715	Certified Pipe Welding Layout	3
PIPE 1721	Certified Pipe Welding 2	2
PIPE 1722	Certified Pipe Welding 3	5
PIPE 1723	Certified Pipe Welding 4	5
<b>Total Program Credits</b>		<b>20</b>
Electives (PIPE 1730 Open Lab)		1-5

# Plumbing

Plumbing Diploma . . . . . 44 Credits

## Program Overview

The Plumbing program trains apprentices in commercial, residential and industrial plumbing.

## Program Outcomes

1. Graduates will demonstrate safe and proper use of tools used in the plumbing field.
2. Graduates will have knowledge and skills to install piping in commercial, residential and industrial buildings.
3. Graduates will demonstrate knowledge in blueprint reading.
4. Graduates will demonstrate knowledge in code and proper installation practices.
5. Graduates will demonstrate science and math skills needed in the plumbing field.

## Plumbing Diploma

### Program Requirements

Course		Cr
PLMB 2610	PreApprentice Plumbing	2
PLMB 2612	Job Safety, Health & Heritage of UA	2
PLMB 2621	Plumbing 1	4
PLMB 2614	Applied Math for Plumbers	4
PLMB 2616	Plumbing Welding	4
PLMB 2622	Plumbing 2	4
PLMB 2624	Plumbing 4 Commercial & Res. Service	4
PLMB 2618	Basic Drawing	4
PLMB 2640	Advanced Plan Reading & Rigging	4
PLMB 2623	Plumbing 3 Gas Installations & Gas Controls <b>OR</b>	4
PLMB 2650	Industrial Plumbing	
PLMB 2631	Plumbing Code 1	2
PLMB 2632	Plumbing Code 2	2
PLMB 2633	Plumbing Code 3	2
PLMB 2634	Plumbing Code 4	2
	Total Program Credits	44

# Sheet Metal

Sheet Metal Diploma . . . . . 40 Credits

## Program Overview

The sheet metal worker reads blueprints, prepares layouts and operates fabricating devices such as special hand tools, power shears, nibbler, brake, bar folder, turning machines, spot and arc welders, soldering equipment and plasma cutting systems. The skilled sheet metal worker gathers general information and specifications from blueprints for the fabrication and installation of ducts for heating, cooling, filtering and humidifying air. Also, sheet metal workers fabricate and install metal roofing and siding, stainless steel equipment for homes and industry, chutes for material transfer, signs and rain dispersal equipment.

Satisfactory preparation for the sheet metal program may include high school courses in algebra and geometry. Other helpful courses are mechanical drafting and metal shop. Much of the sheet metal work starts with two-dimensional objects and ends with a three-dimensional product. Sheet metal work requires good spatial perception.

## Career Opportunities

According to the U.S. Department of Labor, employment of sheet metal workers in construction is expected to increase about as fast as the average for all occupations through the year 2004-2005.

Graduates may go to work for firms that fabricate sheet metal products and become skilled production, precision, or construction sheet metal workers.

## Program Outcomes

1. Graduates will have the knowledge and skills to layout, fabricate and assemble all types of sheet metal products.
1. Graduates will have the ability to safely operate all types of sheet metal fabricating equipment.
3. Graduates will have the knowledge and skills to complete sheet metal welding and soldering processes.
4. Graduates will have the knowledge and skills to use computer aided drafting for the design and fabrication of sheet metal products.
5. Graduates will have the knowledge and skills to use Drafting and Blueprint Reading to design HVAC duct systems.

## Sheet Metal Diploma

### Program Requirements

Course		Cr
COMM 1510	Customer & Occupational Relations	3
SMET 1410	Sheet Metal Fitting Layout and Design	4
SMET 1420	Sheet Metal Fitting Fabrication	4
SMET 1430	Sheet Metal Drafting & Blueprint Reading	2
SMET 1440	Sheet Metal Welding	5
SMET 1450	Sheet Metal Practical Problem Solving	2
SMET 1510	Duct System Layout & Design	4
SMET 1520	Duct System Fabrication	4
SMET 1530	Architectural Sheet Metal	4
SMET 1540	Power Machine Operation	3
SMET 1550	Sheet Metal CAD/CAM Systems	3
SMET 2700	OSHA 30 HR Training	2
<b>Total Program Credits</b>		<b>40</b>

## Truck Technician

Truck Technician Diploma . . . . . 67 Credits

### Program Overview

Technicians diagnose trouble accurately with the use of modern testing equipment. They repair and service the entire truck and trailer including gas and diesel engines. They also work on air brakes, multi-speed transmissions, differentials, electrical systems, chassis and engine electronics, cooling systems, air conditioning and refrigeration, the chassis and many more components of today's modern truck.

The student should be capable of passing a rigid physical examination with emphasis on eyesight, color vision, hearing, back condition and motor coordination. Applicants should be high school graduates or equivalent with good reading ability and an understanding of basic mathematics in order to understand and apply technical information.

### Career Opportunities

Maintenance departments, which have the responsibility for the repair and the maintenance of the entire truck, need skilled graduates to fill truck technician positions. Many technicians find employment with companies that own a fleet of vehicles such as truck lines, bus lines and construction companies. Other technicians work for small repair shops, truck dealerships, heavy equipment dealers and the government.

Employment of truck technicians is expected to increase faster than average according to the U.S. Department of Labor.

### Program Outcomes

1. Graduates will have the knowledge and skills to service and repair medium and heavy duty trucks and trailers.
2. Graduates will have acquired supervised work experience servicing and repairing medium and heavy duty trucks and trailers.
3. Graduates will be prepared for employment as truck technicians and truck preventative maintenance technicians.
4. Graduates will have mastered the general education program requirements for work and life roles.

## Truck Technician Diploma

### Program Requirements

Course		Cr
RWLD 1440	Introduction to Gas, Arc, & Mig Welding	2
RWLD 1450	Advanced Mig & Tig Welding	2
TRKM 1400	Introduction and Safety	1
TRKM 1521	Electrical 1	5
TRKM 1522	Electrical 2	5
TRKM 1551	Clutch and Transmission	5
TRKM 1552	Driveshafts and Differentials	4
TRKM 1553	Automatic and Automated Transmissions	4
TRKM 1560	Truck Brake Systems	6
TRKM 2401	Steering and Suspension Systems	6
TRKM 2425	Truck Cab Climate Control Systems	3
TRKM 2440	Gasoline Engines	6
TRKM 2511	Diesel Engines 1	6
TRKM 2512	Diesel Engines 2	6
TRKM 2540	Preventive Maintenance	3
<b>General Education Requirement</b>		<b>3</b>
<b>Total Program Credits</b>		<b>67</b>

## Welding

Welding Fabrication Diploma . . . . . 62 Credits  
 Welding Metal Fabrication Certificate . . . . . 32 Credits  
 Welding Certificate . . . . . 30 Credits

### Program Overview

Welding, brazing, cutting and fabrication operations require skilled workers who are well-trained in the use of oxyacetylene, arc, wirefeed, heliarc, flux core, submerged arc welding process, layout, turret punch, CNC/NC plasma cutting, press break and robotics. Skilled welding fabricators are thoroughly familiar with breakdown and setup procedures, test standards and all types of metals.

Physical requirements include good eyesight, good hand and eye coordination and the ability to perform heavy, physical work.

## Career Opportunities

According to the U.S. Department of Labor, 7 out of 10 welding-related jobs were held by skilled welders. Skilled welders who are familiar with up-to-date techniques should have good job prospects.

Welders and fabricators work in manufacturing plants as production welders, maintenance welders, specialist welders, layout, press brake operators, turret punch operators, NC/CNC plasma cutting operators and robotic welding operators in structural and non-structural settings. Welding/fabricating is widely used in the aircraft, automobile, trucking, shipbuilding, pipefitting, plumbing, sheetmetal, ironworking and other trades that use metals. With experience and additional education through day or evening classes, they can become layout specialists, technicians, supervisors or private shop owners.

## Program Outcomes

1. Graduates will have the knowledge and skills in set-up and break-down procedures, test standards and different types of metals.
2. Graduates will have knowledge and skills in OAW (oxyacetylene welding), OAC (oxyacetylene cutting), SMAW (shielded metal arc welding), GMAW (gas metal arc welding), GTAW (gas tungsten arc welding), PAW (plasma arc welding), PAC (plasma arc cutting), FCAW (flux core arc welding) and SAW (submerged arc welding).
3. Graduates will have acquired supervised hands-on experience in using welding processes.
4. Graduates will have the knowledge and skills in plasma cutting, turret punch, pressbreak and CNC/NC operations.
5. Graduates will have the knowledge and skills in set-up and break-down procedures in the fabrication and welding industry.
6. Graduates will be prepared for employment in the welding industry and related fields.
7. Graduates will have successfully mastered the general education program requirements for work and life roles.

## Welding Fabrication Diploma

### Program Requirements

Course	Cr
COMM 1480 Job Seeking Resources	1
MATH 1411 Applied Math	3
WELD 1410 Oxy Acetylene Welding, Cutting & Brazing	3
WELD 1420 SMAW E6013	3
WELD 1431 Blueprint Reading 1	2
WELD 1432 Blueprint Reading 2	2
WELD 1440 Basic SMAW E6010	3

WELD 1450 E7018 Advanced SMAW	3
WELD 1465 Metallurgy and Welding Theory	2
WELD 1510 Area's Layout	2
WELD 1520 GMAW Short Arc	3
WELD 1530 Inspection, Qualification and Carbon Arc	3
WELD 1540 GMAW Spray and Pulse Spray	3
WELD 1550 GMAW Aluminum & Stainless Steel	3
WELD 1560 Grinding & Finishing	2
WELD 1561 Radan Drafting Solutions	2
WELD 2410 GTAW for Mild Steel	3
WELD 2420 GTAW Aluminum and Stainless Steel	3
WELD 2430 Volumes Layout	2
WELD 2440 FCAW and SAW Process	3
WELD 2460 Introduction to Layout	3
WELD 2510 Fabrication Shop Hand Equipment	3
WELD 2511 Fabrication Shop/Equipment 1	3
WELD 2520 Robotics	2
<b>Total Program Credits</b>	<b>62</b>

## Welding Metal Fabrication Certificate

### Program Requirements

Course	Cr
COMM 1480 Job Seeking Resources	1
MATH 1411 Applied Math	3
WELD 1410 Oxy-Acetylene Welding Cutting & Brazing	3
WELD 1431 Blue Print Reading 1	2
WELD 1470 Measuring Devices	1
WELD 1520 GMAW Short Arc	3
WELD 1550 GMAW Aluminum & Stainless Steel	3
WELD 1561 Radan Drafting Solutions	2
WELD 2410 GTAW for Mild Steel	3
WELD 2460 Introduction to Layout	3
WELD 2510 Fabrication Shop Hand Equipment	3
WELD 2511 Fabrication Shop/Equipment 1	3
WELD 2520 Robotics	2
<b>Total Program Credits</b>	<b>32</b>

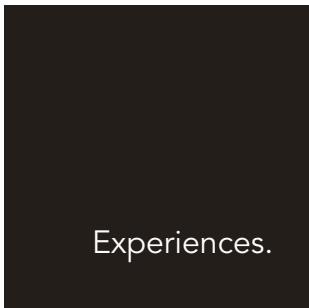
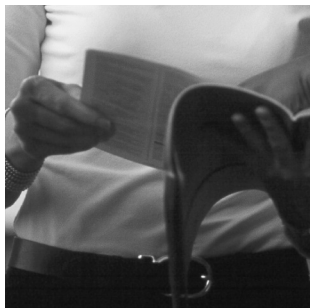
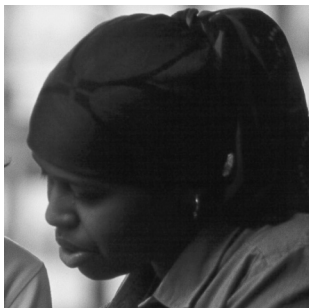
## Welding Certificate

### Program Requirements

Course	Cr
COMM 1480 Job Seeking Resources	1
MATH 1411 Applied Math	3
WELD 1410 Oxy-Acetylene Welding Cutting and Brazing	3
WELD 1431 Blueprint Reading 1	2
WELD 1432 Blueprint Reading 2	2
WELD 1450 E7018 Advanced SMAW	3
WELD 1470 Measuring Devices	1
WELD 1520 GMAW Short Arc	3
WELD 1540 GMAW Spray and Pulse Spray	3
WELD 2410 GTAW for Mild Steel	3
WELD 2420 GTAW Aluminum & Stainless Steel	3
WELD 2440 FCAW and SAW Process	3
<b>Total Program Credits</b>	<b>30</b>



# Course Descriptions



# Course Descriptions

The following Course Descriptions are alphabetized by program area. Each course description includes a course number and title, description of the course, a listing of any required prerequisites and the number of credits. The credit listing includes the lecture, lab and/or on-the-job breakdown. For example, 4C/3/1/0 shows that the course is 4 credits with 3 credits of lecture, 1 credit of lab and 0 credits of on-the-job training.

## ■ Accounting

### ACCT 1411 Principles of Accounting 1

Introduces students to the fundamental accounting concepts and principles used to analyze and record business transactions. 4C/4/0/0

### ACCT 1412 Principles of Accounting 2

An introduction to principles of accounting for the partnership entity, the corporate entity and additional topics in financial accounting. (Prerequisite(s): ACCT 1411) 4C/4/0/0

### ACCT 1511 Federal Taxation 1

Introduces students to the basic issues and concepts of taxation principles. Students observe federal tax laws as applied to the preparation of the Form 1040 and related schedules. Tax preparation software is utilized for case projects. (Prerequisite(s): ACCT 1411) 4C/4/0/0

### ACCT 1512 Federal Taxation 2

Introduces students to the fundamentals of tax law regarding business federal income taxation. Planning issues of estates and gift taxation are part of this course. Tax preparation software is utilized for case projects. (Prerequisite(s): ACCT 1511) 4C/4/0/0

### ACCT 1521 Accounting Computer Applications

Combines the theory of financial accounting principles and software applications. Two types of software, spreadsheet and general ledger, are included in the course. (Prerequisite(s): ACCT 2540) 4C/4/0/0

### ACCT 2411 Intermediate Accounting

Covers financial reporting using generally accepted accounting principles and concepts relating to income determination, revenue recognition and asset valuation. (Prerequisite(s): ACCT 1412) 4C/4/0/0

### ACCT 2420 Managerial Accounting

Introduces students to costing concepts and methods of analysis. Students analyze the management decision-making process via problem solving and case analysis. Projects include non-profit and profit entities. (Prerequisite(s): ACCT 1412) 4C/4/0/0

### ACCT 2520 Auditing

Covers auditing and assurance services reporting using generally accepted auditing standards and concepts. An integrated computerized audit case is part of the audit course. (Prerequisite(s): ACCT 1412) 4C/4/0/0

### ACCT 2530 Fundamentals of Non-Profit Accounting

This course addresses the entity which is not concerned with a profit objective. About one-third of entities in the United States are non-profit. The course covers objectives and principles of reporting for the non-profit entity. (Prerequisite(s): ACCT 1412) 4C/4/0/0

### ACCT 2540 Spreadsheet Math Formulas and Functions for Accounting

This course introduces students to the issues of spreadsheet financial mathematics. The course covers the study of Financial Functions, Math and Logic Functions and Statistical Functions as they apply to Financial and Managerial Accounting. 4C/4/0/0

### ACCT 2591 Accounting Internship

A cooperative work-student program between Saint Paul College Accounting Program and a business facility to allow the student an employment-like experience. (Prerequisite(s): Instructor approval) Variable 2-8 credits.

## ■ American Sign Language

### ASLS 1411 American Sign Language 1

Introduction to American Sign Language (ASL), a visual/gestural language used by the Deaf Community. Course covers sign vocabulary, sentence structures, dialogue formats through facial expressions and body movements used in signing. 3C/3/0/0

### ASLS 1412 American Sign Language 2

A continuation of ASLS 1411, designed to expand students' conversational range from talking about themselves to talking about other people and activities, giving directions, describing people and making requests. (Prerequisite(s): ASLS 1411 with a grade of "C" or better) 3C/3/0/0

### ASLS 1413 American Sign Language 3

A continuation of ASLS 1412, designed to expand students' comprehension and sign language production skills. Through meaningful communication contexts, students will use communicative functions which include locating things, asking for solutions, discussing life events and describing objects. Using appropriate cultural behaviors and strategies for conversational management is stressed. Receptive and expressive fingerspelling and information about the deaf community will further enhance the learning process. (Prerequisite(s): ASLS 1412 with a grade of "C" or better) (MnTC: Goal 8) 3C/3/0/0

### ASLS 1414 American Sign Language 4

A continuation of ASLS 1413 provides more complex ASL grammatical features, communicative functions and receptive fingerspelling and numbers. Cultural features will be stressed to develop competency and fluency in the language. (Prerequisite(s): ASLS 1413 with a grade of "C" or better) (MnTC: Goal 8) 3C/3/0/0

### ASLS 1415 American Sign Language 5

This course is an ongoing instruction of American Sign Language covering communicative functions, sign vocabulary, fingerspelling, grammar and cultural aspects of the Deaf Community. At the completion of ASL 5, each student shall be able to use these language functions and conversational behaviors appropriately in ASL. (Prerequisite(s): ASLS 1414 with a grade of "C" or better) 3C/3/0/0

### **ASLS 1420 ASL Linguistics**

Introduces students to the linguistics of American Sign Language (ASL). Students study the major features of language structures and the underlying knowledge for the social uses of American Sign Language. Content includes an examination of the structure of the physical signals of ASL, the customary patterns for combining them and the influence of signs on one another in connected discourse. (Prerequisite(s): ASLS 1414 with a grade of “C” or better) 4C/4/0/0

### **ASLS 1430 Classifiers**

Introduces students to the fundamentals of American Sign Language (ASL) classifiers. Students will enhance and expand the use of classifiers in their expressive skills and in the recognition of classifiers in their receptive skills. (Prerequisite(s): ASLS 1420 with a grade of “C” or better) 3C/3/0/0

### **ASLS 1435 Deaf Studies/Culture**

This course is designed to help students understand and appreciate Deaf Culture and the Deaf Community. Deaf history, historical and modern-day perspectives, deafness and its impact, Deaf Culture/Community characteristics, education, communication modes/languages used by D/deaf people and the ramifications and impact of American Sign Language and Deaf Culture upon the lives of D/deaf people and other populations will be introduced. (MnTC: Goal 7) 3C/3/0/0

### **ASLS 1443 ASL Fingerspelling and Numbers – ASLS**

Introduces the students to the fundamentals of fingerspelling/lexicalized fingerspelling and the complex rules & patterns of ASL numbers systems. This course develops expressive and receptive fingerspelling and number skills. Receptive skills focus on whole-word recognition, distinction among different number systems, phrase recognition, and identifying fingerspelled words and numbers in context. Expressive skills focus on the development of speed, clarity, and fluency. (Prerequisite(s): ASLS 1414 American Sign Language 4 with a grade of “C” or better.) 3C/3/0/0

### **ASLS 1444 ASL Sign Reading**

This course is designed to improve receptive communication skills. Students acquire strategies to enhance their understanding of deaf signers. (Prerequisite(s): ASLS 1420 with a grade of “C” or better) 2C/2/0/0

### **ASLS 1446 ASL Non-Manual Markers**

This course covers the non-manual aspect of the language. The use of the face, eyes and head to convey grammatical information will be covered. Students will analyze specific features. Other topics include ASL ‘mouthing’, showing emotion and inappropriate facial behaviors. (Prerequisite(s): ASLS 1420 with grade of “C” or better) 2C/2/0/0

### **ASLS 1448 American Sign Language Semantics**

This course is designed to expand students’ sign vocabulary by analyzing multiple-meaning words and various sign equivalents. Language learning activities will focus on nouns-verbs, sentence types, classifiers, inflection of verbs with temporal aspect and distributional aspect. (Prerequisite(s): ASLS 1414 with grade of “C” or better) 2C/2/0/0

### **ASLS 1455 Contrastive Text Analysis**

This course introduces the definition of a language, its components that apply to any language and comparison among the languages. The various elements of both languages, American Sign Language and English are compared, contrasted and applied. (Prerequisite(s): ASLS 1420 with a grade of “C” or better) 2C/2/0/0

### **ASLS 1469 Deaf Heritage of Minnesota**

Covers the history of deaf people in Minnesota and its impact upon deaf and non-deaf Minnesotans. (Prerequisite(s): ASLS 1420 with a grade of “C” or better or instructor approval) 2C/2/0/0

### **ASLS 1470 ASL Discourse**

Introduces students to the discourse level of American Sign Language (ASL). Students will research and analyze ASL discourse and discover the variety of devices or techniques to convey information in visually clear and effective ways. (Prerequisite(s): ASLS 1420 with grade of “C” or better) 2C/2/0/0

### **ASLS 1497 Special Topics in ASL**

A variable credit granting course that focuses on special topics in the area of American Sign Language and Deaf Culture. Courses are designed to accommodate the learning needs and interests of students. Each course syllabus focuses on specific content areas which may not be presented or presented in-depth in other ASLS courses. Variable 1-5 credits

## **■ Anthropology**

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### **ANTH 1710 Introduction to Cultural Anthropology**

This course introduces students to the concept of culture, the human past and present and the unity and diversity that characterizes the human species. The course covers the history and development of theories of functionalism, structuralism, cultural ecology, cultural evolution and related topics. There is a focus on current issues and problems and the relationship to societal and global matters. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 7) 4C/4/0/0

### **ANTH 1720 Introduction to Physical Anthropology**

This course presents the bio-cultural evolution of people over time including major ecological revolutions in human history, theories of cultural evolution, methods of excavation and artifact discovery and analysis. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 10) 4C/4/0/0

### **ANTH 1790 Special Topics in Anthropology**

This course provides learning experiences that meet the needs of students and pre-major course requirements in anthropology. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goal 5) 3C/3/0/0

## **■ Appliance Field Service Technology**

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### **MAJR 1400 Major Appliance EPA Certification Preparation**

This course covers recovery, recycling and reclamation of refrigerants as well as laws governing the use of refrigerants. Students are given the opportunity to take the EPA refrigeration certification exam after taking the course. 1C/1/0/0

### **MAJR 1430 Refrigeration Introduction**

Covers the theory and laws governing refrigeration, the operation of refrigeration systems, components, tools and test equipment. 4C/2/2/0

**MAJR 1441 Refrigeration Lab**

Covers domestic refrigerators, freezers and air conditioners. Components will be removed, tested and replaced. Machines will be diagnosed, repair estimates given and repairs made. (Prerequisite(s): MAJR 1430 or concurrent enrollment) 6C/0/6/0

**MAJR 1450 Refrigeration Systems Service & Containment**

Covers the different soldering and brazing methods and materials used in refrigeration service. Emphasis will be on the recovery, recycling and charging methods used. 3C/1/2/0

**MAJR 1451 Introduction to Electricity Theory and Practice**

This course covers basic electrical theory and laws including the use of Ohm's Law in series, parallel and series-parallel circuits. Students will build electrical circuits, calculate and measure resistance, voltage and amperage using proper meters. 4C/2/2/0

**MAJR 1541 Major Appliance Electricity and Electronics**

Covers basic electricity theory and laws including the use of Ohm's Law in series, parallel and series-parallel circuits. Involves building electrical circuits (series, parallel and series parallel), calculating and measuring resistance, voltage and amperage using proper meters. 4C/2/2/0

**MAJR 1542 Washing Machine Systems, Diagnosis and Repair**

Covers laundry equipment repair. Components will be removed, tested, and repaired. Machines will be diagnosed, repair estimates written and repairs made. 3C/1/2/0

**MAJR 1545 Dryer Systems Diagnosis and Repair**

Covers dishwasher equipment. Components will be removed, tested, and repaired. Machines will be diagnosed, repair estimates written and repairs made. 3C/1/2/0

**MAJR 1550 Cooking Equipment Systems, Gas, Steam and Electrical Diagnosis and Repair**

Components will be removed, tested, and repaired. Equipment will be diagnosed, repair estimates written and repair invoices made. 4C/1/3/0

**MAJR 1555 Dishwashers Systems Diagnosis and Repair**

Components will be removed, tested, and repaired. Equipment will be diagnosed, repair estimates written and repair invoices made. 2C/1/1/0

**MAJR 1560 Field Service Communication Skills and Customer Relations**

Covers how to document a service call and use communication technology to: describe the problem, take corrective action, complaint communication back to the customer and use communication technology such as cell phones, laptop access to software, and GPS systems to locate a residence or a business. 3C/3/0/0

## ■ Art

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**ARTS 1710 Fundamentals of Photography 1**

This course is an introduction to the camera and will explore techniques that engage personal creativity and culminate in artistic photographs. We will establish the beginnings of a personal style and discuss the development of conceptual and aesthetic issues in the field. The course will explore metering, aperture, shutter speed controls, film, sensors, and optics which will lay the groundwork for making creative photographs. In

addition to the more technical aspects of photography, the course will also address conceptual issues of photography in its depiction of light and shadow, elements of time, motion, space, portraiture, personal exploration and metaphor. Students will develop a vocabulary for personal expression by combining the technical and conceptual issues into a final photographic portfolio of their own design. (MnTC: Goal 6) 3C/2/1/0

**ARTS 1711 Fundamentals of Photography 2**

Fundamentals of Photography 2 builds on the foundational skills of photography as an art form learned in ARTS 1710 Fundamentals of Photography 1. Composition, exposure, processing and camera fundamentals are covered. Students are introduced to techniques that will further enhance the capability of personal expression available in the medium. Students will develop skills to produce high-quality color and black and white photographs. (MnTC: Goal 6) 3C/2/1/0

**ARTS 1712 Advanced Photography**

Students in Advanced Photography will continue to explore composition, exposure, camera work and image processing techniques which will further enhance the capability of personal expression available in the medium. Ultimately, the student will recognize their own creative style and be able to set goals to achieve their photographic aspirations. We will discuss professional presentation of artwork, explore professional practices in photography, experiment with advanced imaging techniques, and produce a portfolio of high quality color and black and white photographs. (Prerequisite(s): ARTS 1710 and ARTS 1711 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

**ARTS 1720 Art Appreciation**

Pyramids to Picasso – a survey of great works of art of Western Civilization. This is an introductory "learning to look" course with the objective of developing students' ability to see, understand and enjoy the visual arts. Examples of painting, sculpture and architecture, many of which will already be familiar to students, will be viewed, discussed and analyzed in class. We will then go out and take a look at the real thing by taking a walking tour of downtown Saint Paul and visiting the Minneapolis Institute of Arts. (MnTC: Goal 6 & 8) 3C/3/0/0

**ARTS 1730 Drawing 1**

This course will focus on techniques and strategies for improving observational drawing abilities. Through hands-on drawing exercises, students will learn to depict the world around them and the human form with greater accuracy. Specifically, we will focus on the five basic skills of drawing: perception of edges, perception of spaces, perception of relationships, perception of lights and shadows, and perception of the whole, or gestalt. (MnTC: Goal 6) 3C/2/1/0

**ARTS 1731 Drawing 2**

This course continues the development of skills and techniques learned in Drawing 1. This course emphasizes observing relationships, line and value to enhance experimental and personal expression; introduces techniques for drawing in color, incorporates figure drawing, and includes the study of influential artists throughout the history of art, concentrating on contemporary means of expression. Students design art projects and complete a portfolio. (Prerequisite(s): ARTS 1730 Drawing 1 with a grade of "C" or better) (MnTC: Goal 6) 3C/2/1/0

### **ARTS 1740 Introduction to Painting**

This course will introduce students to the materials and techniques of oil painting. Assignments will be geared towards improving one's ability to paint from direct observation and depicting the natural world and the human form with greater accuracy. The course will have strong emphasis on the development of color in painting and a fair amount of time will be spent discussing "color theory" as it pertains to art. The instructor will introduce all techniques with hands-on demonstrations. (MnTC: Goal 6) 3C/2/1/0

### **ARTS 1742 Intermediate Painting**

This course will incorporate and further develop skills and techniques learned in Introduction to Painting, but will be more independent in nature. Each student will write a proposal for a cohesive body of work to be completed over the course of the semester, and will work towards developing a personal "style" of painting. Through a series of in-class group critiques, students will learn to analyze and critique works of art. (Prerequisite(s): ARTS 1740 Introduction to Painting with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

### **ARTS 1760 World Art**

What would you see if you suddenly found yourself in China, Nigeria, India or Mexico? How would the world look to you? For many of us, it would probably look very strange. One of the many ways to make our world familiar to us, whether we travel or not, is to try to understand a culture's visual expression in architecture, sculpture, painting and other media. This class will view slides of artwork in a lecture/discussion format. We will then visit the Minneapolis Institute of Arts, twice, where we will be able to immerse ourselves in the cultures studied by examining the original artworks produced by these cultures. (MnTC: Goals 6 & 8) 3C/3/0/0

### **ARTS 1770 American Art**

Art and architecture in America reflects the visual experiences of the many groups of people who, over time, have left a rich artistic heritage. As a part of the course, students analyze works of art representing diverse perspectives and ideas within an historical framework. Among subject areas to be considered are the following: Native American art, American landscape painting, the evolution of the skyscraper, the influence of American painters on modern art and the contributions to art made by recent immigrants to the Twin Cities. Art and architecture field projects are required. (MnTC: Goal 6) 3C/3/0/0

### **ARTS 1790 History of Photography**

This survey course will focus on the art of still photography from the 19th century to the present. There is an emphasis on the work of artists, their processes, and the accompanying aesthetic movements occurring between the announcement of the Daguerreotype in 1839 and the beginning of the twenty-first century. As witnesses of popular culture, students will examine the interaction of art photography with other disciplines, including sociology, documentary photography, and photojournalism. The photographic print, as a means of artistic expression, will be discussed including historic, social, and artistic movements. (MnTC: Goal 6) 3C/3/0/0

### **ARTS 2710 Advanced Studio Arts**

In the Advanced Studio Arts course students will build upon what they learned in Drawing 1, Introduction to Painting, or Fundamentals of Photography courses. The course will be independent in nature with students focused on developing their own personal artistic "style" in either drawing, painting or photography. Students will propose an idea for a body of work

and will spend the semester creating a cohesive portfolio of images and writing an artist's statement. Class time will be devoted to independent work, individual and group critiques, and a field trip. The semester will culminate with a public exhibition of student work. (MnTC: Goal 6) 3-4C/0/0/3-4

## **Auto Body**

### **ABDY 1400 Introduction to Auto Body Repair**

Personal safety, tool use and maintenance as well as basic body shop procedures are covered. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

### **ABDY 1410 Auto Body Sheet Metal Repair**

Covers basic sheet metal repair on automobiles, as well as tools and equipment used in the repair process. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

### **ABDY 1420 Auto Body Repair Techniques**

Covers the use of basic hand and power tools and preparation of an auto before painting. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

### **ABDY 1430 Introduction to Paint Prep**

Focuses on refinishing safety, preparation, tools and equipment used in the application of materials. (Prerequisite(s): Enrollment in Auto Body Program) 4C/0/4/0

### **ABDY 1440 Advanced Auto Body & Frame Repair Theory**

Topics include advanced body and frame theory, use of frame rack and safe use of power equipment as it applies to major collision damage. (Prerequisite(s): Enrollment in Auto Body Program) 2C/1/1/0

### **ABDY 1450 Collision Repair, Estimating & Shop Management**

The focus of this course will be identification and calculation of vehicle damage from a collision. (Prerequisite(s): Enrollment in Auto Body Program) 2C/1/1/0

### **ABDY 1460 Auto Body Open Lab**

Flexible lab hours are available for various auto body repair projects. One to four credits as elective for AUTO 2440 Auto Body Detailing. (Prerequisite(s): Enrollment in Auto Body Program) 4C/4/0/0

### **ABDY 1510 Advanced Body & Frame Repair**

Covers the repair of major collision damage. The course will focus on using measuring and strengthening equipment. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

### **ABDY 1520 Paint & Color Matching Techniques**

Emphasizes overall refinishing, including color matching and all types of paint problems. (Prerequisite(s): Enrollment in Auto Body Program) 4C/2/2/0

### **ABDY 1530 Paint Finish & Detailing**

Covers automotive finishes and how to detail them. (Prerequisite(s): Enrollment in Auto Body Program) 4C/2/2/0

### **ABDY 1540 Auto Body Specialization Finishes**

Application of special automotive finishes used on today's automobile is emphasized in this course. (Prerequisite(s): Enrollment in Auto Body Program) 4C/2/2/0

**ABDY 1550 General Auto Body Detailing**

Detailing of automobiles after they leave the paint shop is the focus of this course. (Prerequisite(s): Enrollment in Auto Body Program) 4C/2/2/0

**ABDY 1560 Alignment & Brakes for Auto Body**

Covers alignment and brakes, how that applies to auto body collision damage and how repairs are made. (Prerequisite(s): Enrollment in Auto Body Program) 2C/1/1/0

**ABDY 1570 Air Conditioning & Auto Electric for Auto Body**

Covers the repair of air conditioning and electrical components as it applies to auto collision damage. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

**ABDY 1581 Welding—Auto Body 1**

Covers welding equipment used in auto body repair and its safe and correct use. (Prerequisite(s): Enrollment in Auto Body Program) 2C/1/1/0

**ABDY 1582 Welding—Auto Body 2**

Emphasizes the types of welding used on automobiles and the type of basic welding joints. (Prerequisite(s): Enrollment in Auto Body Program) 3C/1/2/0

## ■ Auto Service

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**AUTO 1410 Trade Knowledge**

Covers the examination and use of safety equipment in an automotive shop. Communication skills and general knowledge of the trade and procedures used in operating an automotive shop are also covered. (Prerequisite(s): Admission to the Auto Service Program) 3C/0/3/0

**AUTO 1420 General Auto Service**

Covers correct procedures for servicing vehicles, shop safety and the use of service manuals and bulletins. Automotive tools and equipment and minor service will be emphasized. (Prerequisite(s): AUTO 1410) 3C/0/3/0

**AUTO 1430 Brakes**

Covers the basic principles of the brake system. Emphasis will be placed on operation, diagnosis and repair of common types of braking systems. (Prerequisite(s): AUTO 1420) 4C/0/4/0

**AUTO 1440 Alignment & Suspension**

Covers the study of suspension and steering systems. The student will inspect, repair and adjust the suspension and steering systems on today's cars and light trucks. (Prerequisite(s): AUTO 1430) 5C/0/5/0

**AUTO 1510 Clutch/Driveline Manual Transmission**

Standard automotive and light truck clutches are covered. Content includes design, adjustment, overhaul, diagnosis and repair on mechanical and hydraulic clutch systems. This course also covers operation and proper repair procedures of current manual transmissions used in late model vehicles. (Prerequisite(s): AUTO 1430) 3C/0/3/0

**AUTO 1520 Four Wheel Drive Differential**

Emphasizes the operation and proper repair procedures of current transfer cases, hubs and differentials in four wheel drive vehicles. (Prerequisite(s): AUTO 1510) 2C/0/2/0

**AUTO 1530 Basic Electrical & Battery**

Covers basic fundamentals of electricity and electronics, circuits, magnetism, resistance, coils, instruments, diodes and solid-state devices. Battery charging and testing is included. 3C/0/3/0

**AUTO 1540 Basic Tune-Up**

Covers instruction on operation of the ignition system and maintenance of the ignition and fuel systems. This course focuses on the replacement of maintenance items such as spark plugs, distributor cap and ignition wire and air, fuel and emission filters. (Prerequisite(s): AUTO 1530) 3C/0/3/0

**AUTO 1550 Heating & Air Conditioning**

Focuses on the principles of heating and air conditioning. Topics including various A/C types, the diagnoses of malfunctions and tests/repairs are studied. Lab work is on actual systems. During the lab, the student will test and repair: vacuum and electrical controls, air flow distribution and heater system controls. (Prerequisite(s): AUTO 1530) 4C/0/4/0

**AUTO 2410 Starting & Charging Systems**

Covers overhaul of components such as starters and alternators. Complete system diagnoses and repair are also included. (Prerequisite(s): AUTO 1530) 3C/0/3/0

**AUTO 2420 Electrical Accessories**

Covers the operation and servicing techniques of chassis wiring, lights, instruments and headlight aiming. How to read and interpret wiring diagrams will also be included. (Prerequisite(s): AUTO 1530) 3C/0/3/0

**AUTO 2430 Engine Theory & Repair**

Covers disassembly, inspection, repair and reassembly of the internal combustion engine. Repair procedures such as the replacement of piston ring, engine bearings and valve grinding are covered. (Prerequisite(s): AUTO 1540) 4C/0/4/0

**AUTO 2440 Engine Installation**

Covers the removal and installation of complete engine assemblies, transfer of parts and removal and installation of accessories. 2C/0/2/0

**AUTO 2450 Introduction to Auto Computers**

Covers the operation of computer systems of engines using feedback carburetors and fuel injection. Sensors and actuators that operate in the system will be studied and tested. (Prerequisite(s): AUTO 1530) 2C/0/2/0

**AUTO 2510 Fuel Systems**

This course covers the fundamentals of carburetor and intake systems, maintenance and repair of the fuel system and emission controls. It also covers the use of 4 gas and 5 gas analyzers, scanners and other test equipment to troubleshoot and repair problems in computerized fuel systems. (Prerequisite(s): AUTO 1540) 5C/0/5/0

**AUTO 2520 Engine Driveability**

Covers application of knowledge and skills gained when studying engine, fuel, ignition and computer systems. (Prerequisite(s): AUTO 1540, AUTO 2511 and AUTO 2512) 3C/0/3/0

**AUTO 2530 Automatic Transmission Theory**

Covers the basics of torque converters, planetary gear sets, clutches, bands and hydraulics. 2C/0/2/0

### **AUTO 2540 Automatic Transmission Diagnosis & Repair**

Covers automatic transmission and transaxle diagnoses and service. Trouble shooting and repair procedures will also be covered. (Prerequisite(s): AUTO 2530) 3C/0/3/0

### **AUTO 2550 Specialized Lab 1**

Covers the content goals listed or any other goals that the student and the instructor agree upon. The purpose of the course is for students to specialize in an area they prefer. (Prerequisite(s): Completion of all other listed courses) 2C/0/2/0

## **Biology**

### **BIOL 1725 Environmental Science**

This course covers basic scientific and ecological principles, including an understanding of how the earth functions, how humans are affecting the earth, and proposed solutions to many of the environmental problems we face. Specific topics include: basic ecological principles, human population growth, biotechnology, and human impacts on climate, energy resources, and waste management. Students will be required to take positions on environmental issues and alternative future scenarios. In-class activities will include group discussions, presentations by guest speakers, and video and internet-based resources. Two hours of lab per week are required and include group experiments, computer simulations, outdoor lab activities, and field trips. Traditional and online sections are available. (MnTC: Goals 3 & 10) 4C/3/1/0

### **BIOL 1730 Human Body Systems**

This course covers body organization and the basic anatomy and physiology of cells, tissues, special senses, and the 11 organ systems of the body. Although rigorous, the course is not as in-depth as Human Anatomy and Physiology 1 and 2 (BIOL 2721 and BIOL 2722). Laboratory activities, including the dissection of a preserved animal and animal organs, are part of the course. This course is required for the MLT Program, but does not fulfill requirements for the LPN or RN Programs. Traditional and web-enhanced sections are available. (MnTC: Goal 3) 3C/2/1/0

### **BIOL 1735 Exploring Biology**

This course examines basic principles of chemistry, organizations of cells, and properties and functions of biological macromolecules. The production and utilization of biological energy is explored at the cellular level and the similarity found in all organisms is emphasized. Principles of inheritance and cellular reproduction are explored at the molecular and cellular levels. This course also examines plant and animal kingdoms and general principles of ecology. It is intended for non-science majors and fulfills the lab science requirement. Two hours of lab per week are required. (MnTC: Goal 3) 4C/3/1/0

### **BIOL 1740 General Biology: The Living Cell**

This course is a study of biological processes including cell chemistry, metabolism, reproduction, genetics, and complex cell physiology. Two hours of lab per week are required and the lab component covers the application of concepts through observation, experimentation, and problem analysis. This course is intended for biology majors and students requiring a strong biological background for selected majors, including nursing and other allied health fields, and interested non-majors. BIOL 1740 is a prerequisite for BIOL 2721 Human Anatomy and Physiology 1, BIOL 1750 General Microbiology,

and recommended for BIOL 1745 General Biology: The Living World. Traditional and web-enhanced sections are available. (Prerequisite(s): COMM 0722 with a grade of "C" or better, or concurrent enrollment, or appropriate assessment score.) (MnTC: Goal 3) 5C/4/1/0

### **BIOL 1745 General Biology: The Living World**

This course covers biological processes, including a survey of life forms (viruses, bacteria, protists, fungi, plants and animals), their evolution, and ecology. The laboratory focuses on organism taxonomy, classification, and mammalian systems, including comparative anatomy, organism dissections, ecological interrelationships of organisms and their environment, and independent biome research projects. Two hours of lab per week are required and some activities include the dissection of preserved animals, including a rat. The course is offered during Spring Semester only. (Prerequisite(s): BIOL 1740 General Biology: The Living Cell with a grade of "C" or better, or Instructor permission) (MnTC: Goal 3) 5C/4/1/0

### **BIOL 1750 General Microbiology**

General Microbiology is an introductory course covering bacteria, fungi, protozoa, algae, and viruses. Structure, metabolism, growth requirements, genetics, and replication of these microbes will be compared. Emphasis will be placed on the role of microbes in human disease and the function of the immune system in microbial control and balance. Environment and industrial microbiology will also be discussed. Two hours of lab per week are required and sessions will be structured to provide a hands-on introduction to common laboratory techniques related to topics covered in lecture. Safety and infection control will also be stressed. (Prerequisite(s): BIOL 1740 General Biology: The Living Cell with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

### **BIOL 1760 Nutrition**

This course explores the ever-changing topic of nutritional science beginning with the fundamentals of a healthy diet and the role that carbohydrates, proteins, fats, and minerals play in maintaining health and fitness. Students will explore topics such as media quackery, digestive demands of the daily food choices for compliance with dietary guidelines as well as determining risk factors for diabetes, cardiovascular disease and osteoporosis. The course will also cover the issue of hunger and the global environment including the impact of personal choice, organic farming, and bioengineering on sustaining the planet and its people. Traditional and online sections are available. (MnTC: Goal 3) 3C/3/0/0

### **BIOL 1771 Medical Terminology**

This online course covers how bio/medical words are constructed from Greek and Latin word elements (roots, combining forms, prefixes and suffixes). Definitions, spelling, pronunciation, and applications of these terms will be stressed. Diseases and treatments specific to the body's organ systems will also be covered. This course is ideal for students interested in a health career. (MnTC: Goal 3) 2C/2/0/0

### **BIOL 1782 Introduction to Forensic Science**

This course provides an introduction to Forensic Science. General biological concepts and their applications to various scientific principles and techniques used in Forensic Biology will be covered. It is intended for students interested in Forensic Science and can be used to fulfill the lab science requirement. Two hours of lab per week are required. (MnTC: Goal 3) 4C/3/1/0

**BIOL 1785 Biology of Women**

This course explores the biology of women and is designed to provide a critical review of perspectives that pertain to both men and women. Topics include the study of reproductive anatomy and physiology, pregnancy and fetal development, and issues related to women's physical health such as contraception, cancer, and menopause. In addition, the course will examine the role of women as both consumers and providers of healthcare as well as promote an understanding of women's achievements, contributions, and experiences in medical professions. Traditional and online sections are available. (MnTC: Goals 3 & 9) 3C/3/0/0

**BIOL 2721 Human Anatomy and Physiology 1**

This course covers body organization, tissues and some of the human body systems (integumentary, skeletal, muscular and nervous), plus the special senses, integrating both the anatomy and physiology of each organ system. Dysfunctions may be included, but the body in homeostasis is stressed. Two hours of lab per week are required. Some lab activities involve the dissection of preserved animal organs. (Prerequisite(s): BIOL 1740 General Biology: The Living Cell with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

**BIOL 2722 Human Anatomy and Physiology 2**

This course covers those body systems not included in Human Anatomy & Physiology 1: cardiovascular, respiratory, endocrine, lymphatic/immune, digestive, urinary & reproductive systems. The anatomy and physiology of each organ system is integrated. Dysfunctions may be included, but the body in homeostasis is stressed. Two hours of lab per week are required. Many lab activities involve dissection of a preserved animal and animal organs. (Prerequisite(s): BIOL 2721 Human Anatomy and Physiology 1 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

## ■ Business

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**BUSN 1410 Introduction to Business**

Offers an introduction to the United States business system. Students will explore economic principles, international business, business ethics, marketing and financial principles. 3C/3/0/0

**BUSN 1440 Marketing Principles**

Students will develop an understanding of the basic principles of marketing. Students will examine core marketing concepts (needs, wants and demands) and the elements used in developing a marketing plan, including consumer behavior principles, product development, pricing strategies, advertising, sales promotion, public relations, personal selling and product distribution. Current marketing trends will be discussed. 3C/3/0/0

**BUSN 1442 Marketing Research and Analysis**

Marketing Research can be defined as the process of gathering, analyzing and reporting information in order to make marketing decisions. This class will cover various qualitative and quantitative techniques and methods of research. Other topics include statistic analysis, software programs and preparing results and findings reports. 3C/3/0/0

**BUSN 1444 Advertising and Promotional Strategies**

This course explores the world of advertising and other mass communications practices. It will examine advertising theory, functions and principles. All types of media will be explored

including television, radio, magazine, newspaper, outdoor and the internet. Various careers in advertising will be examined. 3C/3/0/0

**BUSN 1446 Sales and Sales Management**

In this course we will examine the personal selling process. We will explore the practical and tactical process of how to sell products and services in a complex market. We will also examine sales force training, compensation, territory assignment and quotas. 3C/3/0/0

**BUSN 1448 Retailing Principles**

An introduction to retailing and retailing practices. Topics include store location, merchandise buying and display, store layout, image and design. 3C/3/0/0

**BUSN 1480 Career Resources**

This course provides information and guidance in the development of professional job seeking skills. Topics will include: the application, the resume, the cover letter, using the Internet in a job search, locating job opportunities, marketing yourself and company research. 1C/1/0/0

**BUSN 1482 Business Career Resources**

This course provides information and guidance in the development of professional job seeking skills. Topics will include: the application, the resume, the cover letter, using the internet in a job search, locating job opportunities, marketing yourself, and company research. This course may include work on portfolios, electronic portfolios, and interviewing skills. 2C/2/0/0

**BUSN 2450 Management Fundamentals**

The course includes the history of management theory with emphasis on forces of change that have resulted in a changing view of the business world for managers. Principal management functions covered are planning, organizing, leading and the process of control as an information feedback function for increasing productivity. Emphasis is on the integration of all management functions into one effort for visionary, effective and efficient operations. 3C/3/0/0

**BUSN 2455 Essentials of Entrepreneurship and Small Business Management**

In this course the student will learn the essential skills needed to start and manage a successful new business venture. Topics include: the challenge of entrepreneurship, building a business plan, marketing and financial issues with a start up company and how to gain the competitive advantage. 3C/3/0/0

**BUSN 2460 Entrepreneurship Resources**

In this course the student will learn the essential resources needed to start and manage a successful new business venture. Topics include: how to work with the small business administration; free federal and state resources and how to choose which resources are most valuable when starting a new business. 2C/2/0/0

**BUSN 2465 Business Ethics**

This course introduces students to ethical issues and concepts as they relate to business and as they impact society, the economy and the environment. Students will analyze various approaches to making ethical decisions through case studies. Topics range from the role of the government to corporate global businesses. Both national and international ethics will be discussed. 3C/3/0/0



### **BUSN 2470 Legal Environment of Business**

This course covers basic information about the various classifications of the law and the rights and responsibilities imposed on the business community by our legal system. The course introduces students to the legal system and its impact on the individual, the business environment and upon society as a whole. Areas of study include basic laws, contracts, negligence, product liability, employment law, alternative dispute resolution and business entities. 3C/3/0/0

### **BUSN 2472 Business Negotiation Skills**

Covers the techniques and unique circumstances needed for the negotiation of prices for the business environment. The course will guide students through the areas of risk negotiations, bargaining concepts, strategy and tactics for successful contract negotiations. 3C/3/0/0

### **BUSN 2475 Business Decisions and Project Management**

This course builds upon the foundations of project management and analyzes project management business decisions. Students evaluate the strategic role of projects in organizations and how project portfolio management can be used to guide an organization's project success. The course is designed to allow the student to use tools and techniques to study business processes, financial analysis and risk models in developing and executing projects in a business. The purpose of the course is to understand the underlying principles of project management from a business perspective. 4C/4/0/0

### **BUSN 2480 Business Management Internship**

A cooperative work-study program between Saint Paul College-A Community & Technical College Business Management degree program and a business facility. This elective course allows the student to experience a closely supervised job situation that is related to the program. (Prerequisite(s): Instructor approval) 1-3C/0/0/1-3

## ■ Business Logistics Management

### **BSLM 1410 Transportation Management**

Introduction to basic transportation concepts and the relevance of transportation in our economy. Characteristics of each mode of transportation including rail, highway, carrier pricing, pipelines, air and water will be discussed and evaluated. 3C/3/0/0

### **BSLM 1510 Distribution Management**

Designed to clarify and define the primary role of warehousing and logistics in today's economy. This course includes inventory control, materials handling equipment, just-in-time productivity and quality control. 3C/3/0/0

### **BSLM 2420 Supply Chain Management**

Supply chain management provides training in the areas of efficient administration and control of logistical components: transportation, inventory, packaging, warehousing and materials handling as well as customer service and their eventual integration into a logistics system. 4C/4/0/0

### **BSLM 2450 Purchasing Principles and Applications**

The course covers the broad overview of the objectives of purchasing, its authority, responsibility, management function and its expectations. Students learn how and why the purchasing function has far reaching effects on a company's profit or loss. Purchasing is a dynamic business function and

is important in controlling costs in large dollar expenditures. The Purchasing department deals with Production, Engineering, Marketing, Sales, Logistics, Stores, Inventory Control, Transportation, Quality Assurance and Finance. The primary objective of purchasing is to buy the right materials, of the right quality, in the right quantity, at the right time, at the right price, from the right source. 3C/3/0/0

### **BSLM 2491 Business Logistics Management Internship**

Students who participate in an internship gain first-hand knowledge in the industry under the guidance of a faculty member and a worksite supervisor. Students must state their goals and planned outcomes to participate in an internship. (Prerequisite(s): Instructor approval) Variable 1–3 credits

### **BSLM 2497 Business Logistics Management Special Topics**

The intent of this course is to allow flexibility in providing learning experiences to meet a special need of the student, the major program and the College. (Prerequisite(s): Instructor approval) Variable 1–3 credits

## ■ Business Technology

### **BTEC 1400 Keyboarding**

Covers "Touch Keyboarding" skill development on a computer keyboard. A variety of drills will be used to develop speed and accuracy of keyboarding skills. 2C/1/1/0

### **BTEC 1401 Keyboarding/Skillbuilding Applications**

Designed to increase keyboarding speed and improve keyboarding accuracy through personal goal setting, error analysis and intensive corrective practice work. Students must know how to key using the "touch" method. 2C/1/1/0

### **BTEC 1410 Advanced Keyboarding Applications**

Covers continued development of keyboarding speed and accuracy and proofreading skills. Students will develop skill in formatting and production of the following documents, memos, letters, envelopes, tables, and reports. Students will be tested on the first day of class to determine two requirements: 1. Accurate keyboarding speed of 30 wpm, and 2. Using the touch method. 3C/1/2/0

### **BTEC 1418 Computer Fundamentals**

This course covers introductory information about computer hardware and software, disk maintenance that includes working with folders and files and the use of the microcomputer as a productivity tool. Students will be given introductory training in Microsoft Windows, Microsoft Office (word processing, spreadsheets, graphs, database and presentation applications) and Internet usage. 3C/3/0/0

### **BTEC 1421 Business Information Applications 1**

This is the first course in a series that teaches students how to use Microsoft Office software applications. Software used includes Word, Excel, Access, and Power Point. By the end of this course, students will be skilled in the basic features of Microsoft Office. Students will create common business documents including letters, reports, tables, newsletters, Excel worksheets, Access databases, and PowerPoint graphic presentations. This course and BTEC 1423 Business Information Applications 2 prepare the for student the Microsoft Office Specialist (MOS) Certification Exams. 3C/3/0/0

**BTEC 1423 Business Information Applications 2**

This is the second course in a series that teaches students how to use Microsoft Office software applications. Software used includes Word, Excel, Access, and PowerPoint. By the end of this course, students will be skilled in the advanced features of Microsoft Office. Students will create advanced business documents including Word form letters, merged documents, and newsletters; Excel financial worksheets, amortization schedules, and data tables; advanced Access queries, multi-table forms, customized reports and switchboards; and advanced PowerPoint presentations. This course and BTEC 1421 Business Information Applications 1 prepare the student for the Microsoft Office Specialist (MOS) Certification Exams. 4C/4/0/0

**BTEC 1430 Computer 10-Key**

Designed to teach the numeric ten-key by using the touch method. Ten-key production timings will be used to help the students develop the speed and accuracy necessary to skillfully apply this knowledge to a variety of data entry situations. Training is offered on a microcomputer ten-key keypad. Ergonomic issues for computer users are addressed. 2C/1/2/0

**BTEC 1435 Business Proofreading**

This course is designed to develop skills in proofreading and editing business documents. Students will be able to develop the skills needed for identifying and correcting errors in business documents. 3C/3/0/0

**BTEC 1445 Business Communications**

This course takes a practical and analytical approach to developing written and oral business communication skills. Students learn to analyze the audience and purpose of the communication, research and organize ideas, format and design written documents, and create oral presentations based on the subject matter and content. Students will learn to work cooperatively in groups and meetings. Applying the rules for proper grammar and punctuation will be incorporated throughout all projects. 3C/3/0/0

**BTEC 1530 Communication Technology**

This course offers instruction in business communication technology. The students will learn how to use various communication devices and systems found in the business environment. Communication technology such as Microsoft Outlook e-mail, the Internet, reprographics, voice mail, scanning, multimedia, the telephone, voice recognition, and fax transmission will be used in this course. Students entering the course are expected to have knowledge of Windows and mouse skills. 4C/4/0/0

**BTEC 2410 Business Procedures**

Covers topics that develop skill in performing typical office tasks: telephoning, mailing, filing, calendaring, meeting arrangements, travel arrangements, office equipment care, time management, document production, reprographics and creating reports and financial records. Through the use of interactive software and projects, the student will experience daily routines, make decisions, set priorities, deal with work pressures, develop interpersonal relationships and become aware of work quality and quantity requirements. 4C/4/0/0

**BTEC 2506 Business Information Applications 3**

This is the third course in a sequence that will explore additional applications using Microsoft Office software. These applications will include: Microsoft FrontPage, Microsoft Publisher, and InfoPath. Students in this course will create

attractive business documents from templates/wizards to use as web pages; create publications such as newsletters and brochures for print, and create user-friendly form templates using Info-Path. Basic features of project management software will be discussed. Students will also explore wikis, YouTube, and other business web-based tools. (Prerequisite(s): BTEC 1421 Business Software Applications 1 and BTEC 1423 Business Software Applications 2 or instructor consent) 4C/1/3/0

**BTEC 2550 Emerging Business Technologies**

This course provides students with the opportunities to explore emerging technologies. Emphasis is placed on the connection between technology and its practical use in business. Students will look at business processes and associated technologies available for customer service and support in the business environment. 4C/4/0/0

**BTEC 2590 Business Technology Internship**

A cooperative work-study program between Saint Paul College Business Technology programs and a business facility. This course allows the student to experience a closely supervised job situation that is related to the program. (Prerequisite(s): Instructor approval) Variable 2-8 credits 2-8/0/0/0

## ■ Cabinetmaking

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**CABT 1410 Blueprint Reading for Cabinetmaking**

Introduces the student to: blueprint reading, building trade drawings, architectural graphics, and symbols used in the trade, as well as an understanding of what a drafting person does. 3C/2/1/0

**CABT 1415 Wood Technology**

This course will introduce students to the materials and finishes used in cabinetmaking. Students will learn to identify hardwoods and softwoods along with manufactured panel products, and the grading of these products. Students will also learn about abrasives, adhesives, fasteners, and clamping devices. The second half of this course will cover the types of finishes used in cabinetmaking and how they are applied. 3C/1/2/0

**CABT 1420 Cabinet Shop Safety**

This course will introduce the students to shop safety, identification, care and use of hand tool, and portable power tools. The course offers safety demonstrations on all power equipment and safety tests are performed on each machine. Basic knowledge of power tools and hand tools is required. 3C/1/2/0

**CABT 1430 Framed Cabinetry**

This course introduces the student to faceframe base and upper cabinetry. Students will learn the design, planning, and construction processes of building faceframe cabinets. The student will then apply these techniques by building a project. 4C/1/3/0

**CABT 1511 Shaper Technology**

This course will instruct the student how to safely set up and operate a shaper. Different operations, techniques, and types of cutters are covered. Students will learn to calculate and machine parts for raised panel doors, and also how to make moldings on the shaper. Projects will include making raised panel doors and moldings. 3C/1/2/0

**CABT 2410 Laminates and Countertops**

This course introduces students to laminates/veneers and the tools used for laminating, then covers laminate countertops. Students will learn to measure, order material, layout, and fabricate laminate countertops. Solid surface, stone products, and other types of countertops are also covered. Various projects will give the students hands-on experience. 4C/1/3/0

**CABT 2430 Edgebanding and Boring Machines**

This course covers the theory and operations of edgebanders and boring machines. The student will learn how to safely set up and operate the machines for various applications. Machine maintenance and tooling is covered. A series of projects will give the students hands-on experience. 4C/1/3/0

**CABT 2440 Frameless Cabinetry**

This course introduces the students to frameless cabinetry which is also known as European cabinetry, or 32mm cabinetry. Hardware used in frameless cabinets will be covered and then students will learn design, layout, and build frameless cabinets using the boring machines and edgebanders. Commercial fixtures used in retail will also be covered in this course. The students will build both a base and an upper utility cabinet using the techniques learned. 4C/1/3/0

**CABT 2510 CAD/CAM/CNC**

This course will introduce the students to computer operated machinery. The student will learn to layout and draw projects using the computers, apply tool paths for various operations, and set up a CNC router to perform operations. 4C/2/2/0

**CABT 2550 AutoCad 1 for Cabinetmaking**

This course introduces students to the basic tools of AutoCad. Students will create scaled drawings, modify existing drawings, learn print layouts, apply text, and dimension drawings using AutoCad 2007 in a computer lab setting. 3C/2/1/0

**CABT 2700 Cabinetmaking - Open Lab**

This course is for students with prior experience with woodworking terminology and shop safety; students wanting to upgrade their skills and knowledge to help them in the Cabinetmaking industry. The student must be able to demonstrate the use of hand tools and portable power equipment. The student must meet with the instructor to see whether the student has the correct criteria in the Cabinetmaking area. New students must meet with the instructor prior to registering for the class. Variable 1-2 Credits

## ■ Carpentry

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**CARP 1410 Project Estimating**

Review basic arithmetic, algebra and geometry as it relates to carpentry. Students will learn construction terminology and estimate building costs. 3C/3/0/0

**CARP 1420 Construction Blueprint Reading**

Covers reading and interpreting blueprints used in the construction industry. Lines, abbreviations, symbols, parts of the blueprints, specifications and isometric drawings will be included in this class. 2C/2/0/0

**CARP 1430 Introduction to Carpentry & Hand Tools**

Learn to make drawings and sketches used in construction and learn to use basic carpentry hand tools. (Prerequisite(s): Concurrent enrollment in CARP 1420) 3C/1/2/0

**CARP 1510 Intermediate Carpentry**

Safety, job site working conditions and trade requirements, construction materials, building codes and residential construction concepts are included in this class. (Prerequisite(s): CARP 1410, CARP 1420, & CARP 1430) 5C/4/1/0

**CARP 1521 Building Technology**

Covers practice on the safe use of portable power tools and stationary shop equipment. Students gain familiarity with materials used in the construction industry and procedures used in the erection of residential and light commercial buildings. (Prerequisite(s): Concurrent enrollment in CARP 1510) 5C/0/5/0

**CARP 1522 Power Tool & Shop Procedures**

Continuation of CARP 1521. Includes practice on the safe use of portable power tools and stationary shop equipment. Students gain familiarity with materials used in the construction industry and procedures used in the erection of residential and light commercial buildings. (Prerequisite(s): Concurrent enrollment in CARP 1510) 5C/1/4/0

**CARP 2410 Advanced Carpentry**

Covers the methods and features of the instruments used by carpenters in laying out buildings. Cabinet installation, job seeking, soil types and excavations, properties of concrete and equipment and procedures used in the erection of commercial construction projects are included in this class. (Prerequisite(s): CARP 1510, CARP 1521, CARP 1522) 6C/4/2/0

**CARP 2421 Fieldwork and Carpentry Procedures**

Provides hands-on experience with the optic and electronic instruments used in laying out buildings. Erect scaffold systems and concrete forming systems used on commercial building projects. (Prerequisite(s): Concurrent enrollment in CARP 2410) 5C/1/4/0

**CARP 2422 Carpentry Concrete Technology and Installation**

Continuation of CARP 2421. Get hands-on experience with the optic and electronic instruments used in laying out buildings. Erect scaffold systems and concrete forming systems used on commercial building projects. (Prerequisite(s): Concurrent enrollment in CARP 2410) 5C/1/4/0

## ■ Chemistry

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**CHEM 1700 Chemistry Concepts**

This laboratory science course covers the basic concepts of chemistry. Topics include measurements and calculations used in chemistry; the general properties of chemicals; physical characteristics of matter, atoms and elements; basics of chemical bonding; chemical equations and their uses; gases, liquids and solids, solutions and acids and bases. The course relates chemistry concepts to applications in everyday life. The course is intended for students who have not had a high school chemistry course. (Prerequisite(s): MATH 1510 Introductory Algebra with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 4C/3/1/0

**CHEM 1701 Chemical Technology Seminar**

This course introduces students to the field of Chemical Technology and the role of the Chemical Laboratory Technicians. The course includes a description of the program of study, expectations, and responsibilities. As part of the course, students explore Chemistry Technology job opportunities and visit chemical laboratories. Students will also evaluate their own aptitudes and interests relevant to career opportunities and outline the career pathway to becoming a Chemical Laboratory Technician. 1C/1/0/0

**CHEM 1711 Principles of Chemistry 1**

This course uses the scientific method to study matter, what matter is comprised of and how matter changes. Basic chemical theory and applications are covered with an emphasis on the principles and theories of atomic and molecular structure, periodic properties of elements; thermochemistry, reaction stoichiometry; behavior of gases, liquids and solids; molecular and ionic structure and bonding; organic chemistry and polymers; energy sources and environmental issues related to energy use. The lab component includes the application of chemical concepts through observation, data collection, quantitative measurement and problem analysis. Approved safety goggles and a lab apron are required. (Prerequisite(s): MATH 1520 Intermediate Algebra with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 4C/3/1/0

**CHEM 1712 Principles of Chemistry 2**

This course is a continuation of CHEM 1711 Principles of Chemistry 1 with an emphasis on chemical kinetics; radioactive decay; chemical equilibrium; solutions; acids and bases; solubility; second law of thermodynamics; electrochemistry and corrosion; descriptive chemistry of the elements; coordination chemistry; biochemistry; and applications of chemical principles to environmental problems. The lab component of this course provides students with the opportunity to apply chemical concepts through observation, data collection, quantitative measurement and problem analysis. Approved safety goggles and a lab apron are required. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

**CHEM 1760 Chemical Technology Laboratory Skills and Instrumentation**

This course covers basic operating principles of laboratory instrumentation and the techniques and documentation required for troubleshooting analytical instrumentation in an industrial setting. It covers the systematic approach to the diagnosis of instrument failure, repair, maintenance procedures, hands-on practice servicing instruments, and documentation of maintenance and repair of laboratory equipment. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) 3C/3/0/0

**CHEM 1761 Chemical Technology Lab Safety, Environmental Rules and Regulations**

This course covers policies, procedures, laboratory equipment, personal protective equipment and work practices that protect laboratory personnel in chemical laboratories. Emergency procedures, use of material safety data sheets, chemical hazards, chemical handling, and safe personal work practices are also reviewed. The course presents an overview of federal and state environmental regulations and agency rules that regulate chemical laboratory operations and the storage and disposal of chemicals according to the Environmental Protection Agency. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) 3C/3/0/0

**CHEM 1770 Chemical Technology Laboratory Internship and Advanced Seminar**

This course provides students with an opportunity to design and carry out a science research project under the supervision of a faculty advisor. The research project will be prepared using literature review, problem identification, procedural documentation, data collection, data analysis, findings, conclusions, and recommendations. Evaluation will be carried out by faculty teams and experts in the field. The course will also provide an opportunity for field study in an approved internship setting. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) 3C/3/0/0

**CHEM 2711 Organic Chemistry 1**

This course is an introduction to organic chemistry. Topics include an overview of covalent bonding, acid-base chemistry, and reaction energetics. The course also covers an introduction to organic functional groups, stereochemistry, and substitution reactions. The laboratory activities include an introduction to laboratory techniques used in organic chemistry synthesis, and the use of chromatography and spectroscopy in the analysis of organic compounds. Two hours of lab per week are required. (Prerequisite(s): CHEM 1712 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

**CHEM 2712 Organic Chemistry 2**

This course is a continuation of CHEM 2711 Organic Chemistry 1, and while the focus of CHEM 2711 was in structure, the focus of CHEM 2712 is reactivity. Topics include the reactivity of alkenes, alkynes, alcohols, amines, ketones, aldehydes, carboxylic acids, and their derivatives based on their structures. Reaction types studied includes electrophilic aromatic substitution, nucleophilic aromatic substitution, nucleophilic addition and substitution at carbonyl groups, and reactions at the alpha carbon of carbonyl compounds. The course also includes application of organic chemistry related to polymers, natural products, and photochemistry. The laboratory activities cover reactions and the chemical and instructional identification of organic compounds. Two hours of lab per week are required. (Prerequisite(s): CHEM 2711 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

## ■ Child Development

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**CHDV 1200 Professional Relations in Early Childhood Careers**

Explores career opportunities for working with children and investigates a variety of child development programs. This course also examines job requirements, duties, regulations and issues, skills and personal characteristics for becoming successful professionals in early childhood settings. 3C/3/0/0

**CHDV 1210 Foundations of Child Development**

Provides an overview of typical and atypical child development across cultures, from prenatal through school age including physical, social, emotional, language, cognitive, aesthetic and identity/individual development. It integrates developmental theory with appropriate practices in a variety of early childhood care and education settings. 3C/2/1/0

**CHDV 1220 Child Safety, Health & Nutrition**

Guides the student in obtaining skills needed to establish and maintain a physically and psychologically safe and healthy learning environment for young children. Topics include preventing illness and accidents, handling emergencies, providing health, safety and nutritional educational experiences,

meeting children's basic nutritional needs, child abuse and current health-related issues. THIS COURSE DOES NOT INCLUDE CPR OR FIRST AID CERTIFICATION. 4C/3/1/0

#### **CHDV 1230 Guidance in the Early Childhood Environment**

Provides an exploration of the physical and social environments that promote learning and development for young children. It includes an introduction to basic child guidance techniques for individual and group situations. Emphasis is on problem-prevention and positive guidance strategies: recognition, communication, limit setting, problem solving and behavior modification. Students apply their knowledge of the environment's role in an actual work setting. 4C/3/1/0

#### **CHDV 1310 Infant & Toddler Development & Learning**

Provides an overview of infant and toddler theory and development in home or center-based settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective caregiving, teaching strategies and observation methods. (Prerequisite(s): CHDV 1210 and must be accepted as CHDV major.) 4C/3/1/0

#### **CHDV 1312 Preschool Development & Learning**

Provides an overview of pre-school theory and development in home or center-based settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective caregiving, teaching strategies and observation methods. (Prerequisite(s): CHDV 1210 and must be accepted as CHDV major.) 4C/3/1/0

#### **CHDV 1314 School Age Development & Learning**

Provides an overview of school-age theory and development in home or center-based settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective caregiving, teaching strategies and observation methods. (Prerequisite(s): CHDV 1210 and must be accepted as CHDV major.) 4C/3/1/0

#### **CHDV 1316 Mixed Age Development & Learning**

Provides an overview of mixed-age theory and development in home or center-based settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective caregiving, teaching strategies and observation methods. (Prerequisite(s): CHDV 1210 and must be accepted as CHDV major.) 4C/3/1/0

#### **CHDV 1340 Planning & Implementing Curriculum**

Examines the role of the teacher in early childhood settings. It applies the knowledge of child development as it relates to individual children, communities, curriculum and communication activities. (Prerequisite(s): CHDV 1210, CHDV 1230 and must be accepted as CHDV major.) 3C/3/0/0

#### **CHDV 1910 Internship 1**

Provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children's behavior; facilitate free play; implement adult-directed learning experiences; and maintain professional relationships. (Prerequisite(s): Instructor approval and must be accepted as CHDV major.) 4C/1/0/3

#### **CHDV 1940 Internship 2**

Provides an opportunity to review and demonstrate competence in skills required in Internship 1. Students may choose to apply knowledge and skill in a special child development setting. Students work with an instructor to identify specific course goals and to select an internship site. (Prerequisite(s): Instructor

approval and must be accepted as CHDV major.) 1-3C/0/0/1-3

#### **CHDV 2320 Profiles of the Exceptional Child**

Provides an overview of development and learning experiences for children with special needs in integrated child development settings. Students integrate knowledge of developmental needs, developmentally appropriate environments and effective teaching methods. (Prerequisite(s): CHDV 1340) 3C/2/1/0

#### **CHDV 2500 Shadow Study**

Provides an opportunity to shadow a master teacher in a child development setting. Course goals are based on individual need. Emphasis may include observation of various child development settings, adult-child interaction, or the role of a caregiver. (Prerequisite(s): Instructor approval) 1C/0/0/1

#### **CHDV 2520 Peaceful Classroom**

Provides an overview of the effects of violence on the development and the behavior of young children. Students explore elements to be incorporated into a Peaceful Classroom. Students identify behavioral intervention strategies to address challenging behaviors and create activities to foster peacemaking skills in children. 3C/3/0/0

#### **CHDV 2530 Challenging Children: Behavior Management Strategies**

Helps students understand children's behavior problems and identify intervention strategies to prevent and resolve problem behavior, use behavior modification techniques effectively and design behavior plans. (Prerequisite(s): CHDV 1230) 3C/3/0/0

#### **CHDV 2540 Sensory/Motor Learning Experiences**

Provides an overview of sensory and motor learning experiences. Students integrate knowledge of child development, learning environments and teaching methods to promote perception, sensory development, gross motor, fine motor and self care development. 3C/3/0/0

#### **CHDV 2550 Cognitive/Multimedia Learning Experiences**

Provides an overview of cognitive and multimedia learning experiences in either home or center-based settings. Students integrate knowledge of child development, learning environments and teaching methods to promote curiosity, attention, perception, memory, problem solving, logical thinking and media literacy. 3C/3/0/0

#### **CHDV 2560 Language & Literature Learning Experiences**

Provides an overview of language learning experiences in early childhood settings and a detailed study of literature experiences. Students will integrate knowledge of children's language development, learning environments and teaching strategies to select, plan, present and evaluate literature experiences to children of different abilities and diverse backgrounds. 3C/3/0/0

#### **CHDV 2570 Multi-Cultural Learning Experiences**

Provides a general overview of multi-cultural education in child development settings. Students will examine the major approaches to multi-cultural early childhood education, steps to implement multi-cultural curriculum, developmentally appropriate learning experiences, curriculum themes, holidays and celebrations and communication strategies. 3C/3/0/0

#### **CHDV 2577 Early Childhood Education – Special Settings/ASL**

This course provides exposure to Deaf Studies/Culture and common signs for the Early Childhood Educator. 2C/2/0/0

**CHDV 2580 Creative Development Learning Experiences**

Provides an overview of creative/aesthetic learning experiences in either home or center-based settings. Students integrate knowledge of child development, learning environments and teaching methods to promote children's artistic, musical, movement and dramatic abilities. 3C/3/0/0

**CHDV 2590 Social-Emotional Learning Experiences**

Provides an overview of social and emotional learning experiences. Students integrate knowledge of child development, learning environments and teaching methods to promote emotional development, self-concept, self esteem, social skills, diversity awareness and social studies. 3C/3/0/0

**CHDV 2597 Special Topics**

Intent of this course is to allow flexibility in providing learning experiences to meet a special need of the student, the major program and the College. (Prerequisite(s): Instructor approval) Variable 1–4 credits

**CHDV 2599 Internship (in a special setting)**

Provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children's behavior; facilitate free play; implement adult-directed learning experiences; and maintain professional relationships. (Prerequisite(s): Completion of all CHDV ASL courses and Instructor approval.) 4C/1/0/3

**CHDV 2600 Professional Leadership**

Prepares students to take an active/advocate role in the child development profession by examining the history, current trends and future of child care and early childhood education. (Prerequisite(s): CHDV 1200 and must be accepted as CHDV major.) 3C/3/0/0

**CHDV 2610 Practicum**

Provides an opportunity to apply knowledge and skill in an early childhood setting. Students implement a variety of learning experiences that are developmentally appropriate for and culturally sensitive to a specific age and group of children. (Prerequisite(s): Instructor approval and CHDV 2640 and must be accepted as CHDV major) 3C/0/0/3

**CHDV 2640 Program Planning**

Provides an advanced level of exploration of program management skills for teachers of young children. Emphasis is on organizing, implementing, and evaluating a quality, comprehensive early childhood program plan. (Prerequisite(s): CHDV 1340 and must be accepted as CHDV major.) 3C/3/0/0

**CHDV 2800 Child Development Administration**

A course for directors, coordinators, or lead teachers in child development programs that provides an overview of managing a child development organization with emphasis on facilities, health and safety, risk management, record keeping, marketing and administrative styles. (Prerequisite(s): Child Development Careers Diploma and instructor approval) 3C/3/0/0

**CHDV 2820 Child Development Financial Management**

Provides students interested in child development administration with an introduction to budgeting, financial management and financial record keeping in child development programs. Specific topics include: start-up costs, determining utilization rates, setting/collecting parent fees, identifying break-even points, preparing financial statements and fundraising. (Prerequisite(s): Child Development Careers Diploma and instructor approval) 3C/2/1/0

**CHDV 2840 Child Development Staffing & Supervision**

Offers students an opportunity to develop advanced level skills in hiring, training, evaluating, coordinating and supervising staff in child development settings. (Prerequisite(s): Child Development Careers Diploma and instructor approval) 3C/2/1/0

**CHDV 2860 Advanced Internship-Administration of Child Development Setting**

Provides an opportunity for advanced-level child-development professionals to apply knowledge and skill in the administration of a child development setting. (Prerequisite(s): Child Development Careers Diploma and instructor approval) 1C/0/0/1

## ■ College & Career Planning Success Strategies

**CSCR 0750 Career Planning-Looking Beyond High School**

This course provides the participant with information about technical training, 2-year colleges, 4-year colleges, financial aid, admissions and considerations to be made when choosing post-secondary training and education. The participant will become aware of program and training requirements through the use of career search systems, career resource materials, Internet use and informational interviewing. Participants will get to know themselves better through the use of aptitude and interest assessments. This course is offered through Saint Paul Connections. 1C/1/0/0

**CSCR 1401 College Success Strategies-First Year Experience**

This course focuses on skills needed to survive and thrive in the collegiate environment and beyond. Students will develop skills in academic planning; accessing college resources; maintaining physical, mental, and emotional health; personal financial planning; building relationships; and participating in community and college activities via service learning. 1C/1/0/0

**CSCR 1402 Study Skills for Success Strategies**

This course focuses on the development of effective learning strategies for college success. Students will develop skills on strategies such as time management and organization, note-taking, textbook reading, test taking, critical thinking. Students will also gain an understanding of their personal learning styles and utilize effective study strategies based on their styles. 1C/1/0/0

**CSCR 1403 Choosing Your Career Path**

This course focuses on the career planning and decision-making process. Students will acquire skills in identifying potential career areas based on personal assessments and in utilizing career decision-making and goal setting strategies to determine a career choice. Students will utilize various career resources, such as online sites, to assist in the decision-making planning process. 1C/1/0/0

**CSCR 1404 College and Information Literacy**

This course focuses on developing information and college literacy skills. Students will develop knowledge and skills in accessing, retrieving, appropriately citing, and critically evaluating information in various formats. Students will build skills in basic computer usage, efolio, and online learning. Students will prepare a preliminary research project and presentation. (Prerequisite(s): Grade of "C" or better in COMM 0720 or appropriate assessment score) 1C/1/0/0

### **CSCR 1405 College Success Strategies and Career Resources**

This course is designed to help students succeed in college and develop career planning skills. Students will learn to study more effectively. Focused topics will include time management, study strategies, note-taking, test-taking, mnemonic devices and college resources. Also, students will gain knowledge of career resources and the career planning process. 2C/2/0/0

## ■ Communication

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### **COMM 1460 Applied Interpersonal Communications**

This course provides an opportunity to improve communication with people at work or at home. The emphasis is placed on the practical and theoretical. Students develop an understanding of human needs, self-concept, perception and emotions. With respect for diversity, students study verbal and non-verbal messages, language, listening, dimensions of interpersonal relationships, relationship building and conflict resolution. 3C/3/0/0

### **COMM 1485 Employment Portfolio Development and Presentation**

In this course, students will produce an employment portfolio demonstrating their skills, knowledge and abilities. Students will compile representative documents and materials that illustrate the quality and quantity of their accomplishments and the development of global and technical skills. They will also learn how to present the portfolio and practice interview situations. 2C/1/1/0

### **COMM 1510 Customer & Occupational Relations**

The student is introduced to and given practical human relations skills. Skills in listening, improving self concept, assertiveness, sensitivity to cultural diversity and climate setting are included. The course emphasizes positive interpersonal communication strategies and styles involved in healthy interactions with customers and co-workers. 3C/3/0/0

## ■ Computer Information Systems Technology

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### **CIST 1403 Introduction to Microsoft Vista Operating System**

This course provides students with an overview of the Microsoft Operating System Vista. It provides a hands-on experience installing and configuring the operating system using a removable hard drive. It introduces and reviews the major functionality and tools within the operating system. 2C/2/0/0

### **CIST 1411 Free Computer Tools**

This course serves as an introduction to freely available computer programs and utilities available on the Internet today and is designed for students in any academic program. A variety of free tools and applications will be covered during the semester including: Internet browser add-ons, photo & image editors, music editors, movie editors, graphical web page editors, blogging utilities, office productivity suites, anti-virus and anti-spyware tools plus other fun and useful utilities. In addition, an overview of the latest Internet resources available for home, school and business productivity will be covered. Students enrolling in this course should have a basic knowledge of the Windows Operating System. Required Hardware: Portable USB drive minimum size 512 MB. 2C/1/1/0

### **CIST 1423 Windows Client Configuration**

This course provides an in-depth review of installing, configuring, administrating, optimizing and troubleshooting the Windows XP Operating System. The class material encompasses the body of knowledge as outlined for the Microsoft Certified System Administrator (MCSA) client operating system exam. 4C/4/0/0

### **CIST 1443 Dreamweaver 1**

This course explores the basics of Dreamweaver MX. Topics include file organization, the Dreamweaver MX interface, site control, images, text, linking pages, ordered, unordered and defined lists, color schemes, tables and basic layouts. The focus of this course is to introduce the student to Dreamweaver MX and develop a simple Web site using the techniques learned. 2C/2/0/0

### **CIST 1444 Dreamweaver 2**

This course explores the more advanced topics of Dreamweaver including frames, rollovers, cascading style sheets, HTML, forms, DHTML, automation, sounds, templates and libraries and troubleshooting. It is recommended that students taking this course have taken CIST 1443 or its equivalent. 2C/2/0/0

### **CIST 1446 Adobe/Macromedia Fireworks 1**

This course introduces the student to Macromedia Fireworks MX. Topics include common Fireworks tasks, the Fireworks interface, setting up, modifying, navigating Fireworks documents, creating simple graphics, working with text, working with bitmaps and building professional graphics. This is a hands-on course where the students will develop a project using the knowledge gained in class. 2C/2/0/0

### **CIST 1447 Adobe/Macromedia Fireworks 2**

This course is a continuation of CIST 1446. Topics include Fireworks artistry and special effects, masks, blending layers, using styles, working with libraries, working with URLs, creating animation and interactivity, optimizing and exporting graphics, integrating Fireworks graphics with Flash and Director, exporting Fireworks HTML and automating and extending Fireworks. This is a hands-on course where the students will develop a project using knowledge gained in class. It is recommended that students taking this course have taken CSCI 1446 or its equivalent. 2C/2/0/0

### **CIST 1448 Adobe Flash 1**

This course introduces the student to Macromedia Flash MX. Topics include common Flash tasks, the Flash interface, setting up, modifying, navigating Flash documents, creating simple graphics, working with text, working with bitmaps and building professional graphics. This is a hands-on course where the students will develop a project using the knowledge gained in class. 2C/2/0/0

### **CIST 1449 Adobe Flash 2**

This course takes you beyond the basics of CIST 1448. Topics include adding sounds to Flash MX, publishing movies, layer editing, Action Script, importing Quick Time movies into Flash MX and creating 3-D effects in Flash. This is a hands-on course where the students will develop a project using knowledge gained in class. It is recommended that students taking this course have taken CSCI 1448 or its equivalent. 2C/2/0/0

**CIST 1483 Photoshop 1**

This course introduces the student to Adobe Photoshop 7. Topics include the Photoshop interface, hardware and software requirements, file formats, pixels, vectors, resolution, color theory, Photoshop color management, masks, type and topography, painting tools and brushes, layers and layer styles, filters, extract, liquefy and the pattern maker. This is a hands-on course where the students will develop a project using the knowledge gained in class. (Prerequisite(s): CSCI 1420 or equivalent knowledge) 2C/2/0/0

**CIST 1484 Photoshop 2**

This course is a continuation of CIST 1483 Photoshop 1. Topics include image composition, retouching, compositing, ImageReady, Web design, print and prepress, actions, and automation. This is a hands-on course where the students will develop a project using knowledge gained in class. (Prerequisite(s): CIST 1483 Photoshop 1 or equivalent knowledge) 2C/2/0/0

**CIST 1485 Second Life Basics**

This course introduces students to the world of Second Life – a three dimensional virtual environment which is built and maintained by Linden Lab. Virtual environments are predicted to become a primary portal to the Internet after the year 2010. Students will work with a graphical user-interface to alter, develop, build, or submit a customized personal avatar or community, explore in-world design considerations and work with scripted objects. Second Life's implication on the marketing and branding of businesses and organizations will be explored. Programming and planning for future Second Life world development and interaction will also be studied. Students will learn to use Second Life to develop and market products, develop collaborative work environments, create animations and interact with a global community of Second Life residents. Individuals signing up for this class must be 18 or older. 2C/2/0/0

**CIST 1526 Quark Xpress**

This course introduces the student to Quark Xpress software and its use in computer graphics and page design. The student will experiment with various layout techniques using this software tool that can be applied to various digital and analog mediums. Focus on the use of color both in relation to computer displays and printed media will be explored in detail. In addition, students will learn how Quark Xpress integrates with other industry standard tools such as Adobe Acrobat. 2C/2/0/0

**CIST 2451 Microsoft Server 1**

The course provides students with an introduction to planning, installing, managing and troubleshooting a server in a domain network environment. This class encompasses the body of knowledge as outlined for the first core server exam required for the Microsoft Certified System Administrator (MCSA) certification. 4C/4/0/0

**CIST 2452 Microsoft Server 2**

The course provides students with advanced concepts in planning, installing, managing and troubleshooting a server in a domain network environment. This class encompasses the body of knowledge as outlined for the second core server exam required for the Microsoft Certified System Administrator (MCSA) certification. 4C/4/0/0

**CIST 2460 Linux Fundamentals**

The course provides an in-depth first course in Linux and Linux Systems Administration. The course assumes the student has some knowledge of using the Linux GUI, the Linux command line and understands the fundamentals of networking. The material includes the body of knowledge outlined by LPI for their Level 1, Exam 101 certification. 4C/4/0/0

**CIST 2464 Linux Administration**

The material in this course includes the body of knowledge outlined by LPI for their Level 1, Exam 102 certification. Course material includes Linux kernel configuration, printing, documentation, scripting and networking services. The course assumes that the student has the background provided by CIST 2460. 4C/4/0/0

**CIST 2466 Linux Networking**

The material in this course includes the body of knowledge outlined by LPI for their Level 2, Exam 202 certification. Course material includes system security, networking, routing, web services and network client management. The course assumes that the student has the background provided by CIST 2464. 4C/4/0/0

**CIST 2469 Advanced Linux Topics**

The material in this course includes the body of knowledge outlined by LPI for their Level 2, Exam 201 certification. Course material includes system startup routing, file systems, hardware interactions and common system maintenance issues. The course assumes that the student has the background provided by CIST 2464. 4C/4/0/0

**CIST 2475 A+ Hardware and Operating System Preparation**

The course provides an in-depth review of PC hardware, Operating Systems and the application software that they run. The material encompasses the body of knowledge outlined by CompTIA for their certification as an A+ computer technician. 4C/4/0/0

**CIST 2477 Microsoft Server Security**

This course focuses on implementing and administrating various security principles in a networked computer environment. Topics will include general security concepts, communications security, infrastructure security, basic cryptography and operational security. This class encompasses the body of knowledge as outlined for the Comptia Security+ exam, which also fulfills the elective exam requirement for the Microsoft Certified System Administrator (MCSA) certification. It is recommended that students taking this course have taken CIST 2451 Microsoft Server 1 or have equivalent knowledge/experience. 4C/4/0/0

**CIST 2478 Build Your Own PC**

The course provides practical, hands-on lab experience by assembling and customizing a PC from basic components. Upon course completion, the student will have a functional Intel-based PC running both Windows XP and Linux for their own personal use. 2C/2/0/0

**CIST 2490 Introduction to Mac OS X**

The course provides practical, hands-on experience in navigating the Mac OS X operating system, introduces many of the tools available within Mac OS X and explores basic LAN and Internet networking concepts using a Macintosh. Discussion and examples of how Macintosh applications are used in a business environment will be covered with particular



emphasis on new features of Mac OS X and how it differs from previous Macintosh Operating Systems. 2C/2/0/0

#### **CIST 2562 Illustrator**

In Illustrator, the student will work with Adobe Illustrator CS3 elements, understand the Adobe Illustrator workspace, customize the workspace, understand how to use the various help facilities provided, use the navigator panel, demonstrate selecting and aligning, use of magic wands, group items, work with shapes, drawings, and demonstrate the use of various drawing tools, demonstrate various transformation techniques including scaling, reflecting, rotating, distorting, shearing, changing perspective, make multiple transformations and how to position objects, demonstrate proficiency using the pen tool, work with color and painting, work with type, and layers. Upon completion of this course the student will complete a final project using techniques from lessons learned. 3C/3/0/0

#### **CIST 2566 InDesign**

This class introduces the student to InDesign, looks at what's new with Adobe InDesign CS3, takes the student on a tour of the InDesign including best workflow practices. Topics include document setup, working with frames, importing and editing text, typography, color and color management, and working with styles, importing and linking graphics, creating, importing, and formatting tables, working with transparency, working with long documents, output, and PDF exporting, and using XML. Upon completion, the student will demonstrate their mastery of the material by completing a final class project. 3C/3/0/0

#### **CIST 2569 Digital Portfolio Development**

This course teaches the student how to create a portfolio. In this course the students will create a digital (web based) and hard copy (paper) portfolio. Topics will include portfolio definitions, design, types, goals, content, organization, and presentation showing their creative talents to an audience of peers, instructors, and industry professional. 2C/2/0/0

#### **CIST 2570 Digital Photography 1**

This course introduces the student to digital photography and relates it to Web design advantages of digital photography, advantages of analog photography, hybrid digital photography, maximizing image definition, utilizing camera features, light, composition, on-location shooting, studio shooting, useful photo accessories, computer requirements, converting analog to digital, cataloging and managing images and choosing an image editing program. This is a hands-on course where the students will develop a project using the knowledge gained in class. 2C/2/0/0

#### **CIST 2571 Digital Photography 2**

This course is a continuation of CIST 2570. Topics include image editing, special effects, advanced image editing, photopainting, prepping images for the Web, "digital magic," making and using device profiles for predictable output and controlling output options. This is a hands-on course where the students will develop a project using knowledge gained in class. (Recommendation(s): CIST 2570 or its equivalent) 2C/2/0/0

#### **CIST 2572 Computer Animation 1**

This course introduces students to the 3-D Studio Max interface, workflow, coordinating systems, layers, setup, startup files, 2-D primitive shapes, object naming, sub-object levels, vertex tangency, modifiers, lofting, 3-D primitives, editable poly, HSDS modifiers, displacement mapping, camera types, creating and adjusting cameras, camera composition, camera movement, and lighting methods. 2C/2/0/0

#### **CIST 2573 Computer Animation 2**

This course builds on Computer Animation 1 discussing photometric lights, material editor, maps, mapping coordinates, key frame animation, controllers, constraints, hierarchical linking, reactor dynamics, practice flow and effects. As a final project, students will demonstrate their ability to use the techniques covered in class. 2C/2/0/0

#### **CIST 2586 Digital Sound**

This course teaches students how to create and edit digital sound for use in computer animation. Topics include analog and digital sound techniques and equipment, analog to digital conversion, basic sound editing, formats and sound conversion, digital to analog conversion and basic sound effect techniques for use in computer animation. 2C/2/0/0

#### **CIST 2587 Digital Video 1**

This course covers video production techniques. All phases of video production will be covered including pre-production, production and post-production with focus on creating digital video. Topics include screenwriting, photography, drawing, story concept, characters, plots, themes, digital tools, generating original ideas, incorporating plot goals, creating the final story, creating original characters, themes and visual metaphors, developing visual styles, developing digital production styles, creating visually expressive characters, developing set designs, conceptual lighting design, developing color palette, narrative sound design, production story-editing choices, digitally enhanced storytelling techniques, using modern 2D animation to expand our realities and using 3D animation to show anything imaginable. 2C/2/0/0

#### **CIST 2588 Digital Video 2**

This course covers advanced video production techniques using various video editing tools in use in the within the industry. The primary tools to be covered in class will be Premier Pro by Adobe and Final cut Pro by Apple. Topics to be explored in both tools will include storyboarding, basic editing, advanced editing, video transitions, special effects, multi-track editing and importing/exporting various video formats. In addition, various audio editing and mixing techniques will be explored using both tools. A brief overview comparing the strengths and weaknesses of these two primary tools plus other standard video editing tools used in industry will be explored. (Prerequisite(s): CIST 2587 Digital Video 1) 2C/2/0/0

#### **CIST 2591 Computer Information Systems Technology Internship**

A cooperative work-student program between Saint Paul College Computer Information Systems Technology Program and a business facility to allow the student an employment-like experience. (Prerequisite(s): Instructor approval) Variable 2–8 credits

#### **CIST 2597 Special Topics in Computer Information Systems Technology**

Provides learning experiences that meet the needs of students, major programs and the College. (Prerequisite(s): Instructor approval) Variable 1–6 credits

## ■ Computer Science

### **CSCI 1400 Introduction to Microcomputers**

This course is an introductory course intended to give beginning students an understanding of microcomputers. Microcomputer concepts and applications will be covered. The concepts presented will help a student learn how the microcomputer works. Students will learn current hardware configurations and software such as business applications through hands-on use of the computer. The course is designed to bring students up to speed quickly in the use of information technology while providing an in-depth understanding of how the technology is implemented. The course is not intended for CSCI or CIST majors. 3C/3/0/0

### **CSCI 1405 Fundamentals of Computer Programming in Java**

This course is designed for the student with no formal background in computer programming. The course is taught using the Java programming language and students are coached through a series of elementary programming problems. Various computer algorithms are taught at the introductory level and no advanced preparation in mathematics is required. The course is ideal for the student who is not a computer professional and is interested in a gradual introduction to programming. 4C/4/0/0

### **CSCI 1410 Computer Science and Information Systems**

Designed to introduce Computer Information Systems to students in the fields of computer science and information science. The course will cover the basic architecture and design of digital computers and the software that runs on them. Special emphasis will be placed on the technical aspects of the field of computer science and a significant amount of time will be spent developing a sound analytical understanding of the field. Topics such as machine architecture, binary arithmetic, algorithm development, data structures, file organization, database design, systems analysis, data communication and systems software will be covered. Students must have a sound preparation in mathematics through basic algebra. 4C/4/0/0

### **CSCI 1420 Introduction to Operating Systems**

This course is an introduction to operating systems. It addresses both the theoretical and applications aspects of operating systems, their design and function. A high-level generic map of an operating system is initially presented. Then its implementation in MS-DOS, Unix/Linux, Windows and MVS are covered in detail. Networking concepts and structures of operating systems are also reviewed. 4C/4/0/0

### **CSCI 1440 Networking Fundamentals**

The course provides an introduction to networking technologies. This course covers a wide range of material about networking, from local area networks, wide area networks, protocols, topologies, transmission media and security. It not only introduces a variety of concepts, but also discusses in-depth the most significant aspects of networking, such as the TCP/IP protocol suite. In addition to explaining concepts, the course uses a multitude of real world examples of networking issues from a professional's standpoint, making it a practical preparation for the real world. 4C/4/0/0

### **CSCI 1450 Web Fundamentals/HTML**

This course provides students with a thorough grounding in the World Wide Web, a fundamental knowledge of HTML and a basic understanding of Internet technical architectures. Students

learn about search engines, Web servers, scripting, protocols, ISPs and other Internet technologies. Technical architecture topics include the study of networks, Internet protocols, Internet servers, firewalls, security and general issues in conducting e-commerce. Students will design and program HTML Web pages, tutorials and publish a Web site project. 4C/4/0/0

### **CSCI 1470 Web Design**

This course explores the principles of Web design theory and practice. Concepts related to the look and feel of the client-side of the World Wide Web are emphasized. Topics include the design of a graphical user interface, site content, organization and navigation, with emphasis on the human interface. Also included are Web "usability" issues. Color palettes, font selection and use of animation are discussed. The use of HTML layout concepts and software such as PhotoShop and Dreamweaver are introduced. (Prerequisite(s): Students enrolling in this course will benefit from prior experience with HTML and a thorough exposure to the Internet.) 4C/4/0/0

### **CSCI 1472 Web 2.0 Digital Multimedia for Non-Majors**

This course is an introduction to digital multimedia tools for students not majoring in the computer careers area of the college. It is an overview course on the subject of digital media and covers a variety of digital media tools such as Photoshop, Audacity, MovieMaker, and other tools of this type. The course will cover the topics of interest to someone planning to use the software and hardware systems for documentary purposes in other coursework areas. 2C/2/0/0

### **CSCI 1521 Structures of Computer Programming 1**

This course offers an introduction to the fundamental principles of programming and to different programming paradigms. Programming students will develop reasoning and abstraction skills needed for designing algorithms and programs. The course is taught using Java so some previous exposure to programming would be beneficial to students. (Prerequisite(s): CSCI 1410) 4C/4/0/0

### **CSCI 1522 Structures of Computer Programming 2**

This course offers an introduction to object-oriented programming and data structures using the Java programming language. Special emphasis will be placed on object-oriented programming and design using UML. Programming students will develop reasoning and abstraction skills to support object-oriented development. (Prerequisite(s): CSCI 1521) 4C/4/0/0

### **CSCI 1531 C/C++ Programming 1**

This is a rigorous first course in C++. The course first covers some basic material like input and output in C++, the Boolean data type, default arguments, reference variables, function overloading, namespaces, type safe linkage and new and delete. The course then covers, in great detail, classes, derived classes and virtual functions. Students should expect to spend at least 8 hours per week per class session on review and homework. (Prerequisite(s): The student is assumed to have a working knowledge of C, including pointers, structures and dynamic memory allocation) 4C/4/0/0

### **CSCI 1532 C/C++ Programming 2**

This is a rigorous second course in C++. The course covers exception handling in C++, templates, the Standard Template Library (STL) and IOStreams. Students should expect to spend at least 8 hours per week per class session on review and homework. (Prerequisite(s): The student is assumed to have a knowledge of C++, including classes, derived classes and virtual functions) 4C/4/0/0

**CSCI 1541 Java Programming 1**

This course covers the syntax of the Java programming language; object-oriented programming with the Java programming language; creating graphical user interfaces (GUIs), exceptions, file input/output (I/O), threads and networking. Programmers familiar with object-oriented concepts can learn how to develop Java applications. This course is based on the Sun Certified Programmer for the Java 2 Platform 1.4. 4C/4/0/0

**CSCI 1542 Java Programming 2**

This course provides students with first-hand experience using object-oriented analysis and design and Java to create a distributed, multi-tier application. Students use graphical user interface (GUI) design principles and network-communications capabilities to code a functional Java application that interacts with a networked database server. This course is based on the Sun Certified Developer for the Java 2 platform examination. Students should have had a previous course in Java programming prior to this course. 4C/4/0/0

**CSCI 1550 Database Management Fundamentals**

This course serves as a general introduction to the field of Database Management. The course emphasizes database management fundamentals. It is organized around the database development life cycle and the subject matter of the course is presented in life cycle order. Conceptual design, logical design, physical design and the final implementation are covered in detail. The relational database model is studied in depth and other models such as the network and object models are introduced. Oracle is used as the implementation database management system. Students enrolling in this course must have knowledge of computer software and hardware. 4C/4/0/0

**CSCI 1551 Introduction to Oracle**

This course is an introductory course in Oracle Database Server. The Oracle Database Server architecture is introduced along with basic administration tasks such as starting and stopping an instance, creating and managing an instance and installing Oracle. Oracle SQL syntax is also introduced including basic statements, subqueries and controlling user access. Oracle educational materials are used and both Oracle SQL and basic Oracle administration topics are covered in the course. This course is the preparation course for students wishing to pursue further classes on Oracle Database Server Administration or Oracle Database Server Development. This course is a prerequisite for the follow-on courses. Database management fundamentals or equivalent experience is strongly recommended as a prerequisite for this course. 4C/4/0/0

**CSCI 1552 Oracle Database Development**

This course offers students an extensive introduction to Oracle development using SQL and PL/SQL programming language. Topics discussed include PL/SQL variables and data types, PL/SQL block syntax and guidelines, control structures, PL/SQL cursors, exception handling, Oracle stored procedures and functions, Oracle triggers and Oracle packages. Oracle educational materials are used and both Introduction to Oracle SQL & PL/SQL and Develop PL/SQL Program Units certification exam topics are covered in the class. It is recommended that students taking this course have taken CIST 1548 or its equivalent. 4C/4/0/0

**CSCI 1554 Oracle Database Administration**

This course is designed to prepare the student to administer the Oracle database management system. Operation and maintenance of the Oracle database management system is stressed in this course. The course is based on extensive Oracle-based exercises emphasizing a hands-on approach. The course is organized around the Oracle Corporation requirements for certification as an Oracle Certified administrator. Oracle educational materials are used and students should plan to prepare to take the first two administration examinations in the Oracle Certified Professional Track. It is recommended that students taking this course have taken CIST 1548 or its equivalent. 4C/4/0/0

**CSCI 1560 Object Oriented Analysis & Design—UML**

This course presents key concepts and methodologies required to perform object-oriented software engineering. The class focuses on the high-level front-end conceptual processes of analysis and design that lower development costs and reduce time-to-market. Students use several methods for analyzing software systems, finding and refining useful classes and relationships between objects. The Unified Modeling Language (UML) is presented in detail and is used in the exercises and case studies. Practical aspects of project management and implementation are presented from the perspective of experienced object system designers. Students will be introduced to several analysis and design tools. It is recommended that students taking this course have taken CSCI 1522 or its equivalent. 4C/4/0/0

**CSCI 1562 C#.Net Programming**

This is a course in building Windows applications for the desktop using C#.Net. Students will learn how to write, compile, debug, and deploy Windows programs using Microsoft Visual Studio-C# for the .Net Framework. Wizard techniques will be explained. Students will learn to write C# programs that respond to events with .Net event handling. This course will cover topics included on several Microsoft certification exams, such as building Windows Applications using C#. Students entering this course are expected to have taken Introduction to .Net or have equivalent exposure to the .Net Framework. 4C/4/0/0

**CSCI 1568 PHP and MySQL Programming**

This course explores the PHP server-side scripting language and the MySQL DBMS. These technologies are used in a niche Web Development market because they are open-source and license free. Students will learn why both of these free products are supported by enthusiastic communities of architects, programmers and designers. (Prerequisite(s): Students should be proficient with HTML and have experience with other Web technologies) 4C/4/0/0

**CSCI 2410 Management Information Systems**

This course provides elementary concepts to the management of information systems. The course is designed to allow the student of management information systems to evaluate, design and implement information processing systems that support the business enterprise. The purpose of the course is to understand the underlying principles of information systems from the business perspective for different management functions. 3C/3/0/0

**CSCI 2420 Computer Security**

This course is an introduction to computer security. The course covers the breadth of the field of cyber crime and security. Topics include workstation, network and Internet level security strategies, security assessment and audit, securing a system, encryption, malware, etc. The course is conducted in a lecture format with reinforcing “hands-on” laboratory experiences. It is recommended that students taking this course have taken CIST 2451 Microsoft Server 1 or have equivalent knowledge/experience. 4C/4/0/0

**CSCI 2430 Information Systems Project Management**

This course is an introduction to information systems project management. The course emphasizes the relationship of project management techniques to the software development lifecycle model. Project management processes for initiating, planning, executing and closing down information technology projects are covered. Specific techniques covered include work breakdown schedules, network diagrams, PERT estimating, resource scheduling, resource leveling, risk identification, contingency planning and other skills. Each student will conduct a series of case studies using Microsoft Project as project management tools. 4C/4/0/0

**CSCI 2438 JavaScript**

This course teaches in depth JavaScript language syntax, programming concepts and object framework. Emphasis includes “hands-on” learning through several in-class examples and student assignments. The course covers advanced Web page and Web application development, dynamic HTML, form validation and processing, cookies and servlet communication. (Prerequisite(s): Students enrolling in this course should have a knowledge of HTML 4.01 and prior experience developing Web pages) 2C/2/0/0

**CSCI 2440 Internet Programming 1 – Client Side**

This course covers the skills needed to create dynamic, client-side web pages. Beginning with a refresher of HTML 4.01 and web page design, the course examines XHTML 1.0 and the separation of style and structure, supported by CSS (Cascading Style Sheets). Students work with client-side JavaScript, Dynamic HTML (DHTML), the DOM (Document Object Model) and selected advanced topics. Class sessions include hands-on work and lectures, highlighted by the completion of a capstone project in which student teams develop a Web site for a “real-life” client. (Prerequisite(s): Students should be able to demonstrate a working knowledge of HTML 4.01 with some prior Web Development experience.) 4C/4/0/0

**CSCI 2442 Internet Programming 2 – Server Side**

This course is designed for students interested in developing the server-side skills needed to create dynamic, data-driven Internet and e-commerce sites. The course begins by examining forms and events used to collect and retain data. It then moves into writing functions to validate user-input in response to events. The focus is on server-side issues, with emphasis on using Active Server Page (ASP) technology, VBScript and ADO (ActiveX Data Objects) to render dynamic, data-driven pages. In particular, students learn how to use the ASP object model, including the Application, Session, Response and Request objects. (Prerequisite(s): Students should know HTML and have experience building Web sites prior to taking this class.) 4C/4/0/0

**CSCI 2450 Advanced OOAD with UML and Rational Unified Process**

This course is an advanced course in object oriented design and development with UML. This course assumes the student has prior exposure to UML modeling either by prior coursework or experience. The course focuses on the use of the Rational tool set with particular emphasis being given to the use of the Rational Rose product and its relation to the Rational Unified process. Both are reviewed in detail. It is recommended that students taking this course have taken CSCI 1560 or its equivalent. 4C/4/0/0

**CSCI 2460 Discrete Structures of Computer Science**

This course gives an introduction to computer implementation of standard techniques to represent and analyze computational objects. Emphasis of the course is on the application of common data structures such as bags, tuples, lists, strings, relations, graphs, tree traversal, searching and sorting. 4C/4/0/0

**CSCI 2463 XML Programming**

This course is designed to give the student both the theoretical foundation and hands-on skills required to begin using XML (eXtensible Markup Language). It begins by examining what XML is and what it can be used for. Early topics include elements and attributes, the use of namespaces, defining valid XML documents and the use of DTDs and Schemata to constrain XML, particularly as used in B2B (business-to-business) applications. Students learn about the DOM (Document Object Model), an object-oriented API for working with XML. XSLT (eXtensible Stylesheet Language for Transformations), Templates and Xpath are also covered. Advanced topics include XML and databases, SOAP (the Simple Object Access Protocol), the SAX (Simple API for XML) interface and others. (Prerequisite(s): Students should know HTML 4.01 and have prior experience building Web sites.) 4C/4/0/0

**CSCI 2464 PERL/CGI Programming**

This course covers CGI and Perl programming. Topics include CGI fundamentals and resources, HTML and CGI form generator, installing and testing forms and scripts, DNS administration, CGI-based fax viewer, Web-based calendaring and scheduling and creation of a customer quote generator. 4C/4/0/0

**CSCI 2466 J2EE-JSP and Servlets**

This course introduces the Java programmer to servlets and JSP. It covers cookies, session tracking, JSP scripting elements, JavaBeans in JSP and custom tag libraries. The course attempts to teach the material in a very “hands-on” manner and there are significant programming assignments throughout. The course will include a review session for the Sun Java Web Component certification exam, time permitting. 4C/4/0/0

**CSCI 2467 J2EE Application Development**

This course provides an overview of the latest J2EE version architecture and an in-depth examination of some of the key technologies that make up J2EE. Students will develop an understanding of the purpose and significance of J2EE architecture and its advantages for building enterprise applications. The course will begin with a discussion of limitations and challenges of current enterprise computing. This will be followed by an examination of the features and necessary characteristics of large-scale enterprise computing such as scalability, fail over, deployment tools and session

management. A review of the J2EE 1.3 specifications will be followed by an in-depth examination of Java Servlets, Java Server Pages and Enterprise JavaBeans. Java code will be examined to illustrate the techniques used to develop servlets, JSPS and EJBS. 4C/4/0/0

#### **CSCI 2555 Adobe LiveMotion 1**

This course introduces the student to LiveMotion 2.0. Topics include the work area, drawing basic shapes, text, styles, working with shapes, animation, keyframes and animating object properties. This is a hands-on course where the students will develop a project using the knowledge gained in class. 2C/2/0/0

#### **CSCI 2556 Adobe LiveMotion 2**

This course is a continuation of CIST 2555. Topics include the rollovers, movie clips, advanced rollovers, player script, sounds, dynamic data, advanced interactivity, writing automation scripts and live tabs and exporting LiveMotion compositions. This is a hands-on course where the students will develop a project using knowledge gained in class. It is recommended that students taking this course have taken CIST 2555 or its equivalent. 2C/2/0/0

#### **CSCI 2560 Introduction to Computer Games**

This course deals in an elementary and introductory manner with the design and creation of computer games. The course uses the Java language as a tool for developing relatively simple two dimensional computer games. Students will be expected to develop computer games from conception through implementation in this course. Game programming in this course will focus on “interactive” gaming rather than strategic gaming. Students are expected to have a familiarity with either C++ or Java programming or the ability to quickly master them before entering this course. The work for this course will include a variety of projects. Each project will be accompanied with an oral presentation. 4C/4/0/0

#### **CSCI 2561 Computer Games Design and Implementation 1**

This course deals with an introductory level study of the technology involved in the creation of computer games. Students will survey a variety of software technologies relevant to computer game design, including: programming languages, scripting languages, operating systems, file systems and multimedia design systems. The work for this course will include a variety of projects. All projects will require design activities and students will be expected to make use of existing programming tools. There will be 4 graded projects. Each project will be accompanied with an oral presentation. The final project will count for 40% of your grade. All projects will be done in teams. Students are expected to have proficiency with a higher level programming language such as C++ (preferred) or Java. 4C/4/0/0

#### **CSCI 2565 Computer Games Studio Workshop**

Aristotle first identified it in his Poetics, giving it the kind of halo that makes ideas unapproachable. But it's really very simple. A story must have a beginning, a middle and an end. This course is about the beginning, the middle and the end of a computer game. In this course we guide the student through the creative storytelling process of developing a framework for a computer game. Game development tools are not used in this course as it is carried out more as a workshop in creating a “technical play” than an exercise in straightforward application of previously developed technologies. In this course the student will complete several computer game projects from the

perspective of the creation of the story that the game tells. The work for this course will include a variety of projects. All projects will require design activities. The final project will require students to go through the beginning phases of system life cycle: creation, specification and design of a proposed computer game. 4C/4/0/0

#### **CSCI 2570 Machine Architecture and Organization**

This is an introductory course on computer organization and computer systems. The course covers the detailed aspects of system software such as compilers, linkers and operating systems. The course also covers material on the basic components in modern computers such as processors, hierarchical memory systems and I/O peripherals. Students will develop proficiency in language C and assembly language in order to study the behavior of programs at this level. Students are expected to have a mathematical background which includes College Algebra and preferably Calculus. (Prerequisite(s): CSCI 1410 and experience with a high-level computer language) 4C/4/0/0

#### **CSCI 2580 Introduction to Numerical Computing**

This is an introduction to numerical algorithms for computer scientists. It covers topics which review the computer programming implementation of basic numerical analysis techniques such as the effect of finite precision arithmetic and the basic numerical methods, such as root finding, the solution of linear systems of equations and the solution of ordinary differential equations. (Prerequisite(s): MATH 2752 and experience with a high-level computer language) 4C/4/0/0

#### **CSCI 2600 Computer Graphics 1**

Computer Graphics 1 introduces the student to the subject of computer graphics as a technical and creative medium. Topics include basic graphic programming, hardware, software applications, electronic storyboarding, electronic color theory, vector and raster graphics, electronic illustration, file types and formats, digital imaging and digital printing. 4C/4/0/0

#### **CSCI 2601 Computer Graphics 2**

Computer Graphics 2 is a continuation of Computer Graphics 1. The student will be introduced to 2D and 3D animation techniques along with an introduction to Maya. The student will be introduced to the project workflow required to create computer animation building on what was learned in Computer Graphics 1. The student will learn project development including writing, staging, movement, timing, key framing, editing and incorporating sound and music into computer animation. 4C/4/0/0

#### **CSCI 2605 Web 2.0 Technologies**

This course is an overview of the phenomena of Web 2.0. It reviews many of the technologies which make up Web 2.0. The course covers blogs and blogging, vlogs and vlogging, podcasting, video podcasting, internet broadcasting, wiki technology and enhanced web based multimedia are covered. The course is designed to bring those comfortable with Web 1.0 technology into participatory media rich Web 2.0 platform. 4C/4/0/0

#### **CSCI 2610 Web 2.0 Multimedia Tools**

This course familiarizes students with the tools to craft media rich web sites. The major open source and proprietary software products are reviewed and students are expected to complete a series of exercises involving the creation of animations, digital video and digital audio. (Prerequisite(s): Introductory HTML skills and knowledge of the organization of the World Wide Web) 4C/4/0/0

**CSCI 2615 Web 2.0 Open Source Software Foundations**

This course explores the open source underpinnings of the migration of the World Wide Web to Web 2.0 infrastructure. This course first explains open source licenses, such as GPL. The major open source projects which are currently leading Web 2.0 evolution such as Linux, Apache, PHP are then reviewed. Their application and general organization are thoroughly covered. (Prerequisite(s): Understanding of the organization and structure of the World Wide Web and beginning programming skills) 4C/4/0/0

**CSCI 2620 Web 2.0 Programming Paradigms and Software Tools**

This course introduces students to new approaches to programming for Web 2.0 applications. A significant amount of time will be devoted to AJAX (Asynchronous JavaScript and XML), Ruby on Rails, Php and other development tools which have been associated with Web 2.0. the course makes extensive use of relational databases management systems such as MySQL. (Prerequisite(s): Introductory HTML skills and a working knowledge of a programming language such as C, C++ or Java.) 4C/4/0/0

**CSCI 2621 Web 2.0 - Ruby on Rails**

This course is an introductory course in programming RUBY on RAILS framework for Internet applications. RUBY is considered the next generation language for developing applications for the World-Wide Web. The combination of the power of the RUBY language and the flexibility and extensibility of the RAILS framework are examined. The course assumes a familiarity with development for the World-Wide Web, specifically, applications utilizing the model-view-controller model from the presentation layer to the enterprise rear end. This is a technology which addresses database-driven websites and students enrolling in the course should have a knowledge of relational databases. This is a hands-on course designed for students to develop functioning database driven websites. 4C/4/0/0

**CSCI 2622 Web 2.0 - AJAX**

This course is an introductory course in AJAX programming for internet applications. A key Web 2.0 technology AJAX utilizes (X)HTML, JavaScript, XML and CSS technologies to enable the developer to circumvent the HTTP client-server process to produce highly interactive and intuitive web applications. The course assumes an elementary knowledge of JavaScript, XML and relational database technologies prior to enrollment on the part of incoming students. The course begins with the elementary aspects of AJAX programming and then focuses on popular AJAX toolkits and frameworks such as DOJO, Google Web Toolkit, JSF and ECHO2. The key elements of the course are hands-on exercises which utilize AJAX tools and techniques to develop interactive web sites. This course utilizes Java server side technologies and MySQL as the server side database management system. 4C/4/0/0

## ■ Construction Electricity (Electrical Maintenance)

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**CNEL 1111 Electrical Maintenance 1**

This is the first in a series of four courses. This course presents basic DC electrical concepts which provide the foundation needed to gain a solid knowledge base from which to maintain electrical distribution systems, operate and maintain electrical equipment, troubleshoot and repair electrical problems in a commercial, industrial or residential environment. 4C/4/0/0

**CNEL 1112 Electrical Maintenance 2**

This is the second of four courses. This course presents AC electrical concepts which provide the foundation needed to gain a solid knowledge base from which to maintain electrical distribution systems, operate and maintain electrical equipment, troubleshoot and repair electrical problems in a commercial, industrial or residential environment. (Prerequisite(s): CNEL 1111) 4C/4/0/0

**CNEL 1113 Electrical Maintenance 3**

This is the third of four courses. This course presents three phase AC electrical concepts which provide the foundation needed to gain a solid knowledge base from which to maintain electrical distribution systems, operate and maintain electrical equipment, troubleshoot and repair electrical problems in a commercial, industrial or residential environment. (Prerequisite(s): CNEL 1112) 4C/4/0/0

**CNEL 1114 Electrical Maintenance 4**

This is the last of four semester curriculum courses in Electrical Maintenance. The last semester presents advanced electrical concepts which provide the foundation needed to gain a solid knowledge base from which to maintain electrical distribution systems, operate and maintain electrical equipment, troubleshoot and repair electrical problems in a commercial, industrial, or residential environment. Topics include: electromagnetic starters and contactors, basic control circuits, ladder or 'one line' diagrams, harmonics and power quality, relay logic, blueprint reading, national electrical code and troubleshooting techniques. (Prerequisite(s): CNEL 1113) 4C/4/0/0

## ■ Construction Supervisor

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**CNSP 2410 Construction Methods, Materials and Their Applications**

This is a hands-on survey course of components of the construction industry: methods, materials and sequences of construction process; emphasis on design, specifications, purchase and use of concrete, masonry and wood. 3C/2/1/0

**CNSP 2412 Construction Codes and Inspection**

An examination of building codes and standards applicable to building construction and inspection process. 3C/3/0/0

**CNSP 2413 Construction Safety and Loss Control**

OSHA regulations, hazard recognition, control procedures and systems for measuring and evaluating loss control performance. 3C/3/0/0

**CNSP 2414 Building Specifications, Contract Documents and Specification Change Process**

Understanding of building specifications, knowledge of range of contract documents and specification of change process will be covered. 3C/3/0/0

### **CNSP 2420 Project Scheduling**

This course covers construction project planning with emphasis on subdivision and quantification of work; quantity take-off using plans and specifications. Use of conventional scheduling methods such as critical path methods, Gantt charts, monthly reports and crashing time schedule will also be covered. 3C/2/1/0

### **CNSP 2450 Construction Estimating and Cost Control**

Fundamentals of estimating materials and labor costs in construction will be covered. Student will use blueprints, building specifications to verify dimensions of building components and determine total costs of those components. Verification of construction procedures described in building specifications; and calculate costs for materials, labor and contractor services will also be covered. 3C/2/1/0

### **CNSP 2460 Contracts and Legal Aspects of Construction Industry**

This course covers types of contracts used in construction industry; emphasis is on understanding functions and interrelationships of documents. It includes a review of laws applied to industry; application of contracts and law to case studies. 3C/3/0/0

### **CNSP 2481 Advanced Scheduling**

Project scheduling procedures to include computer applications and resource leveling; project types, office and field planning required to initiate work; equipment and construction methods selection process and an examination of contractual mandates specified. 3C/3/0/0

### **CNSP 2490 Internship in Supervising**

Students will be required to arrange an internship experience that exposes and/or gives them experience as a supervisor with the range of responsibilities of a supervisor. Students will not be expected to have performed all duties but to have experienced the role of supervisor. Work habits, ability to perform duties, communicate in the complex environment of a supervisor and take responsibility as appropriate will be components of the internship. 2C/0/0/2

### **CNSP 2491 Advanced Estimating**

Student will be able to bid projects with work quantifications, pricing submittal for lump sum and unit price bids and for preparation of design/build proposals. 3C/2/1/0

### **CNSP 2500 Construction Superintendent I: Project Management for Subcontractors**

Students will be required to demonstrate the integration of their knowledge and experience by supervising a simulated project that includes but is not limited to contract documents, safety, planning, scheduling, production, control, relevant laws and codes, cost and work analysis and labor. The focus will be from the perspective of supervisor for a subcontractor. Presentations, preparation of relevant materials, problem solving and negotiations will be part of the simulated experience. 3C/0/0/3

### **CNSP 2501 Capstone II: Project Management for General Contractors**

Students will be required to demonstrate the integration of their knowledge and experience by supervising a simulated project that includes but is not limited to responsibility for construction safety and inspection. Focus will be on the responsibilities of a supervisor working for a General Contractor. 3C/0/0/3

## ■ Construction Electricity

### **CNEL 1410 Direct Current Circuit Analysis**

Covers basic concepts of electricity and DC circuits. Included are current and voltage, power, conductors and insulators, resistance, Ohm's Law, power sources, series, parallel and complex circuits. Experiments with Ohm's Law, power sources, wiring of series, parallel and complex circuitry and instrument applications will be conducted. 3C/0/3/0

### **CNEL 1420 Alternating Current Circuit Analysis**

Covers the basic concepts of AC circuits and includes a study of electromagnetic principles, sine wave principles and relationships, series and parallel circuits, power, circuit analysis and resonance. Hands-on application of components in AC circuits will include the wiring of circuits showing the operation of electromagnets, sine waves, series and parallel resistance combinations and reactive combinations. (Prerequisite(s): CNEL 1410) 4C/0/4/0

### **CNEL 1435 Introduction to the National Electric Code**

Introduction to the National Electric Code. Students will study the history of the code and how changes are adopted into the code. Students will become familiar with common definitions. 1C/0/1/0

### **CNEL 1440 Alternating Current Motors (Single Phase)**

Gives students the background to identify, connect, operate, troubleshoot and maintain most common types of single phase motors. Meters and specialized test equipment are used extensively. (Prerequisite(s): CNEL 1420) 3C/0/3/0

### **CNEL 1450 Electrical Trade Calculations**

Concentrates on the mathematical skills required to perform electrical circuit analysis and National Electrical Code calculations. 3C/0/3/0

### **CNEL 1460 Blueprint Reading for Electricians**

Covers an introduction to drawing and blueprint reading. Architectural, mechanical, structural and electrical print will be covered. Emphasis will be placed on the electrical print regarding lighting and receptacle layout. Branch circuit and feeder layout will also be covered. 1C/0/1/0

### **CNEL 1511 Test Equipment & Power Supplies**

Covers the use of electrical and electronic test equipment. Students study different types of diodes and connect them in typical circuits. Complete power supply circuits are connected, analyzed and tested. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 3C/1/2/0

### **CNEL 1520 Transistors & Amplifiers**

This course covers transistor amplifiers, transistor theory and operation, connection, testing and troubleshooting practices. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 2C/0/2/0

### **CNEL 1530 Thyristors & Optical Devices**

Covers the information necessary to gain a working knowledge of thyristors, light and heat sensing devices and electrical transducers. Installation and troubleshooting techniques are stressed. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 2C/0/2/0

**CNEL 1541 Job Site Safety**

Covers general safety situations found on construction job sites. Students are introduced to topics ranging from inspections for hazardous conditions to personal protective equipment. Students will become familiar with OSHA regulations. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 2C/2/0/0

**CNEL 1560 Three Phase Systems**

Covers 3-phase power systems. Areas of study include 3-phase theory, power factor, 3-phase calculations and 3-phase test instruments. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 2C/0/2/0

**CNEL 1570 Three Phase Motors**

Provides students with the background to identify, connect, operate, troubleshoot and maintain three phase motors. Meters and specialized motor test equipment are used extensively. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440 and CNEL 1450) 3C/0/3/0

**CNEL 1585 Energy Management Systems**

Introduces programmable controllers and explains how they can be used to control machines and building equipment. (Prerequisite(s): CNEL 1530 and MATH 1420) 2C/0/2/0

**CNEL 1590 Direct Current Motors/Generators**

Covers the theory, types, construction, operation, installation and maintenance of DC generators, motors and controls. Detail is afforded the student as to accepted troubleshooting procedures. Introductory level information and procedures as to rewinding motors is available to capable students. (Prerequisite(s): CNEL 1410) 2C/0/2/0

**CNEL 2410 Transformers**

Single and three phase transformer operations including transformer losses, efficiency, phase relationships and special transformers are covered. (Prerequisite(s): CNEL 1511, CNEL 1520, CNEL 1530, CNEL 1541, CNEL 1560, CNEL 1570 and MATH 1420) 3C/0/3/0

**CNEL 2420 Motor Controls**

Covers the design, wiring and troubleshooting of control and load circuits for single phase and three phase motors. Also covered is the design and sizing of the protection for these motors. (Prerequisite(s): Second semester CNEL courses) 4C/0/4/0

**CNEL 2430 Heating & Cooling Systems**

Covers the control of heating and cooling systems in residential and commercial situations. Gas, oil and electric systems are covered. (Prerequisite(s): CNEL 1511, CNEL 1520, CNEL 1530, CNEL 1541, CNEL 1560, CNEL 1570 and MATH 1420) 2C/0/2/0

**CNEL 2445 Residential Wiring Methods**

Covers the material and design aspect of residential wiring. Topics include branch circuit requirements, wiring methods and the use of blueprints. 2C/0/2/0

**CNEL 2450 National Electric Code 1**

Covers the rules of the National Electrical Code that pertain to heating equipment, motors and controllers, refrigeration and air conditioning equipment (Articles 424, 426, 427, 430, 440, 445, 450). (Prerequisite(s): CNEL 1511, CNEL 1520, CNEL 1530, CNEL 1541, CNEL 1560, CNEL 1570 and MATH 1420) 3C/0/3/0

**CNEL 2460 Electromechanics**

Covers the ratios and relationships of mechanical energy as it is used to move and support electrical equipment. The course also deals with electrical controls and sensors used in the operation of heating and air conditioning units. (Prerequisite(s): CNEL 1511, CNEL 1520, CNEL 1530, CNEL 1541, CNEL 1560, CNEL 1570 and MATH 1420) 1C/0/1/0

**CNEL 2510 Wiring Systems**

Covers conductor properties, single and three phase voltage drop and three wire circuits. (Prerequisite(s): CNEL 2410, CNEL 2420, CNEL 2430, CNEL 2440, CNEL 2450 and CNEL 2460) 2C/0/2/0

**CNEL 2520 Wiring Methods**

Basic wiring methods, pipebending, anchors, knockout methods and material identification are covered. (Prerequisite(s): CNEL 2410, CNEL 2420, CNEL 2430, CNEL 2440, CNEL 2450 and CNEL 2460) 2C/0/2/0

**CNEL 2540 Commercial Wiring Methods**

Material and design aspects of commercial wiring are covered. Topics include commercial power tools, metering, equipment and commercial wiring methods. (Prerequisite(s): CNEL 2410, CNEL 2420, CNEL 2430, CNEL 2440, CNEL 2450 and CNEL 2460) 3C/0/3/0

**CNEL 2550 Industrial Wiring Methods & Service Entrances**

Covers both the requirements and installation of service entrance equipment and the installation methods and material used in industrial wiring. (Prerequisite(s): CNEL 2410, CNEL 2420, CNEL 2430, CNEL 2440, CNEL 2450 and CNEL 2460) 2C/0/2/0

**CNEL 2560 National Electric Code 2**

Requirements of the National Electrical Code Chap. 1-5 are covered. (Prerequisite(s): CNEL 2410, CNEL 2420, CNEL 2430, CNEL 2440, CNEL 2450 and CNEL 2460) 3C/0/3/0

**CNEL 2575 Alarm Data and Communication Systems**

This course includes hands-on applications of components in fire alarm systems, alarm systems, data communication and cabling systems. (Prerequisite(s): CNEL 1420) 2C/0/2/0

**CNEL 2580 Job Site Safety**

Covers general safety situations found on construction job sites. Students are introduced to topics ranging from inspections for hazardous conditions to personal protective equipment. Students will become familiar with OSHA regulations. (Prerequisite(s): CNEL 1410, CNEL 1420, CNEL 1430, CNEL 1440, and CNEL 1450) 2C/0/2/0

## ■ Cosmetology

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**COSM 1405 Preclinic Hair Care 1**

Provides students with the opportunity to develop basic hair skills with a focus on trichology, shampoo, conditioning, cutting and finishing hair techniques. (Prerequisite(s): Completion of or concurrent enrollment in CHSN 1410 and CHSN 1420) 3C/0/3/0

**COSM 1406 Preclinic Hair Care 2**

Provides students with the opportunity to continue to develop hair service skills with a focus on shampooing, conditioning, styling, long hair, wigs and extensions. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1405) 3C/1/2/0



**COSM 1407 Preclinic Nail Care**

Provides an introduction to nail care including manicuring, pedicuring and artificial nails. (Prerequisite(s): Completion of or concurrent enrollment in CHSN 1410 and CHSN 1420) 3C/1/2/0

**COSM 1409 Preclinic Chemical Control**

Provides an introduction to cosmetology chemicals and their applications. This includes curl reformation—permanent waving, soft curl perming and chemical relaxing. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1405 and COSM 1407) 3C/1/2/0

**COSM 1413 Preclinic Hair Color**

Provides an introduction to temporary, semi-permanent, permanent and de-colorization hair color services. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1409) 3C/1/2/0

**COSM 1415 Advanced Hair Care**

Provides advanced skill training, color and chemical reformation in hair cutting and styling. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1413) 3C/0/3/0

**COSM 1451 Salon Operations 1**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology) or CHSN 1461 (Nail Technician)) 1C/0/1/0

**COSM 1452 Salon Operations 2**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology), or CHSN 1461 (Nail Technician)) 2C/0/2/0

**COSM 1453 Salon Operations 3**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology), or CHSN 1461 (Nail Technician)) 3C/0/3/0

**COSM 1454 Salon Operations 4**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology), or CHSN 1461 (Nail Technician)) 4C/0/4/0

**COSM 1455 Salon Operations 5**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology), or CHSN 1461 (Nail Technician)) 5C/0/5/0

**COSM 1456 Salon Operations 6**

Provides students with additional time to complete required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1465 (Cosmetology), or CHSN 1461 (Nail Technician)) 6C/0/6/0

**COSM 1520 40 Hour Refresher**

This 40 hour refresher course is for individuals who do not have enough hours of experience in the past 3-year licensing period and wish to renew their individual cosmetology license. Must present MN Cosmetology license to the instructor. 2C/2/0/0

**COSM 1522 Nail Technician Refresher Course**

This 35 hour refresher course is for individuals who do not have enough hours of work experience in the past 3-year license period and would like to renew their individual manicuring license. Must present nail technician license to the instructor. 2C/1/1/0

**COSM 1565 155 Hour Reactivation Course**

This course provides 155 hours of the theory and practical requirements for reactivating a cosmetology license. Must have a MN Cosmetology license that is inactive or expired by more than 3 years and must present it to the instructor. 6C/3/3/0

**COSM 2580 Cosmetology Instructor License**

This course provides 30 hours of teaching methods for Cosmetology and 8 hours of the laws that support and protect the Cosmetology industry. Must meet Board of Cosmetology Law 2105.0140 and must present a current Cosmetology license to the instructor. 2C/1/1/0

## ■ Cosmetology, Nail Care and Esthetician Core Courses

**CHSN 1410 Preclinic Introduction**

Provides an introduction to cosmetology, nail technology and skin care, including professional image, Minnesota laws and rules, safety and sanitation. (Prerequisite(s): High School Diploma or a GED) 4C/3/1/0

**CHSN 1420 Body Systems and Diseases**

This course presents cells, tissue and organs to aid in understanding histology and physiology of the skin, hair and nails and how they work together to form body systems. Major body systems will be explained along with their impact on the skin, hair and nails. Students will study skin, hair and nail diseases and disorders in order to differentiate treatable disorders from those that require referral to a physician. (Prerequisite(s): Enrollment in Cosmetology, Nail Technician or Esthetician Program and concurrent enrollment in CHSN 1410) 4C/3/1/0

**CHSN 1461 Clinic 1 – Nails**

This course provides students with an opportunity to develop the practical skills necessary in basic nail care and to complete required services and hours for licensure related to basic nail care. (Prerequisite(s): COSM 1407) 3C/0/3/0

**CHSN 1462 Clinic 2 – Skin**

This course of the skin care program is designed to provide clinical practice of previously learned skin care skills. (Prerequisite(s): CHSN 1420, ESTH 1445 and ESTH 1455 or concurrent enrollment) 4C/0/4/0

**CHSN 1463 Clinic 3 – Advanced Skin**

This course is designed to provide clinical practice of previously learned skin care skills. This course provides the necessary hours to complete skin care quotas as mandated by the State of Minnesota. (Prerequisite(s): Students must have 480 clock hours and have completed all preceding courses in the Esthetics program, CHSN 1462) 4C/0/4/0

**CHSN 1464 Clinic 4 – Hair Shaping and Styling**

Provides students with an opportunity to develop the practical skills in cutting and styling hair necessary for entry-level salon work. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1415) 4C/0/4/0

**CHSN 1465 Clinic 5 – Advanced Hair and License Prep**

Provides students with an opportunity to develop the practical skills in hair coloring and chemical reformation necessary for entry-level salon work. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1413 and 1415) 3C/0/3/0

## ■ Culinary Arts

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**CULA 1400 Culinary Basics 1**

This course is made up of two units: "Introduction to Culinary Arts" which is designed to allow the student to become familiar with the hospitality industry, our program and the foundation skills necessary to become a foodservice professional; and "Basic Baking" which is designed to allow the student to develop knowledge and skills necessary to work in a professional baking environment. 3C/1/2/0

**CULA 1420 Culinary Basics 2**

This course is made up of two units: "Basic Pantry and Cold Food Production" which is designed to allow the student to develop knowledge and skills necessary to work in the Garde Manger and pantry areas in a professional foodservice environment; and "Basic Range and Hot Food Production" which is designed to allow the student to develop knowledge and skills necessary to work in a professional foodservice environment. Foundation stocks, sauces and soups are the major component. Must be taken concurrently with Culinary Basics 1 or have instructor approval. 4C/0/4/0

**CULA 1440 Breakfast**

Covers the many types of foods usually associated with breakfast/brunch service. Most of these items will be prepared, served in the class and in a restaurant setting. (Prerequisite(s): CULA 1400 and CULA 1420 or concurrently with CULA 1400 and CULA 1420) 1C/0/1/0

**CULA 1450 Meat Fabrication**

Covers the processing of meat, fish and poultry items, etc. Issues of grading, yield, market forms and standards are discussed. Many types of meat, fish and poultry are processed in the class. (Prerequisite(s): CULA 1400 or concurrently with CULA 1400) 2C/0/2/0

**CULA 1460 Basic Menu Production**

Covers the production of the entire menu. Individual responsibility and teamwork are the cornerstones of successful foodservice and of this course. A new menu will be prepared each day by each team. (Prerequisite(s): CULA 1400 or concurrently with CULA 1400) 2C/0/2/0

**CULA 1470 Food Service Sanitation**

Develops an understanding of the basic principles of sanitation and safety in order to maintain a safe and healthy environment for the consumer. Servsafe test included. 2C/2/0/0

**CULA 1480 Nutrition**

Covers the fundamentals of nutrition theory taught from the point of view of the chef. Healthy cooking techniques and dietary requirements are emphasized. 2C/1/1/0

**CULA 1490 Food Service Math**

An assessment and review of math skills necessary for foodservice workers. Functions with whole numbers, fractions, decimals and percentages are covered and applied to food service problems. 2C/2/0/0

**CULA 1510 Commercial Bakery Production**

Allows students to develop production baking skills to a marketable level. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490) 2C/0/2/0

**CULA 1520 Commercial Pantry Production**

Allows the students to develop marketable production skills in the pantry/cold food area. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490) 2C/0/2/0

**CULA 1530 Commercial Range Production**

Allows students to develop marketable skills in many aspects of hot food preparation in a production kitchen environment. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490) 2C/0/2/0

**CULA 1535 Catering**

This course will allow students to have the opportunity to plan, prepare, serve and clean up a catered function. Another important part of the course will be the opportunity for the students to interface with the customer directly during the service time and the post service evaluation from the students' personal evaluation of the event. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490) 1C/0/1/0

**CULA 1540 Food Service Supervisory Management**

Allows students to prepare for the transition from employee to supervisor by developing human relations and personnel management skills in a foodservice environment. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490 or instructor approval) 2C/1/1/0

**CULA 1550 Grill/Short Order Cooking**

Allows the student to develop marketable production skills in the Grill/Short Order cooking area. (Prerequisite(s): CULA 1460, CULA 1470, CULA 1480, CULA 1490) 2C/0/2/0

**CULA 1560 Food/Beverage/Labor Cost Control**

Covers the principles of menu pricing and analysis, budgeting and inventory control systems in foodservice operations. (Prerequisite(s): CULA 1490 or instructor approval) 3C/3/0/0

**CULA 1570 Basic Cake Decorating**

Allows students to develop cake/pastry decorating skills to a marketable level. 2C/0/2/0

**CULA 1600 Professional Introduction to Wine**

Review the origins and history of the vine, vineyard calendar, soil and climate, natural hazards, growing regions and major grape varieties of the world. Examine considerations for harvest of grapes, techniques for making still wines (red, white and rose), techniques for making sparkling and fortified wines, processing and aging techniques and the blending process. Explore grape varieties, regulations, history, culture and traditions: USA, France, Italy, Spain/Portugal, Germany, Australia, South America and South Africa. (Prerequisite(s): Must be 21 years or older. Must be taken concurrently with CULA 1610-1640.) 2C/2/0/0

**CULA 1610 Flavor Dynamics of Wine**

Experience professional wine evaluation based on sensory (visual, organoleptic) traits. Comparison and analysis of world wine regions. Includes an emphasis on the development of a wine vocabulary and sensory description techniques. (Prerequisite(s): Must be 21 years or older. Must be taken concurrently with CULA 1600-1640.) 2C/1/1/0

**CULA 1620 Professional Wine Service**

Allows student to develop professional wine service techniques, wine etiquette, glassware/equipment options, building a relationship with the guest and elements of the guests' aesthetic experience. (Prerequisite(s): Must be 21 years or older. Must be taken concurrently with CULA 1600-1640.) 1C/1/0/0

**CULA 1630 Strategies for Pairing Wine with Food**

Allows student to analyze the rationale behind successful wine and food pairings and the impact of preparation techniques on wine choice. Learn how to enhance wine and food pairing opportunities and improve menu and wine list compatibility. (Prerequisite(s): Must be 21 years old or older. Must be taken concurrently with CULA 1600-1640.) 2C/1/1/0

**CULA 1640 Wine Marketing**

This course will allow students to review legalities, wine market cycles, wine pricing, developing a wine program, building a wine list and wine storage. An important part of the course is to develop strategies for determining your target market, wine merchandising and promotional opportunities, consumer education and building strong repeat business. (Prerequisite(s): Must be 21 years old or older. Must be taken concurrently with CULA 1600-1640.) 2C/2/0/0

**CULA 2410 Restaurant Operations Theory**

Requires students to develop marketable skills in the areas of menu planning, menu analysis, production scheduling and recipe interpretation for different menu settings and operations. Must be taken as a block with CULA 2411-2430. (Prerequisite(s): CULA 1550) 2C/2/0/0

**CULA 2411 Restaurant Operations Lab 1**

Requires students to develop marketable skills in many aspects of hot and cold food preparation in a fine dining environment Must be taken as a block with CULA 2410-2430. (Prerequisite(s): CULA 1550) 3C/0/3/0

**CULA 2412 Restaurant Operations Lab 2**

Requires students to develop marketable skills in many aspects of hot and cold food preparation in a fine dining environment. Must be taken as a block with CULA 2410-2430. (Prerequisite(s): CULA 1550) 3C/0/3/0

**CULA 2420 Service**

Covers serving techniques and dining room operations through classroom and laboratory experience in a dining room. Service styles emphasized will be American, family style and buffet. French and Russian styles will be discussed. Must be taken as a block with CULA 2410-2430. (Prerequisite(s): CULA 1550) 2C/0/2/0

**CULA 2430 Advanced Foods and Wine Appreciation**

Requires students to participate in the preparation of various items which are somewhat unusual on daily menus due to their complexity, scarcity, cost, or origin. Includes introduction to wines—theory, tasting and pairing with food. Must be taken as a block with CULA 2410-2420. (Prerequisite(s): CULA 1550 and completion of General Education requirements) 2C/0/2/0

**CULA 2440 Ice Carving**

Allows students to develop marketable skills in the art and craft of ice carving. (Prerequisite(s): CULA 1570 or instructor approval) 1C/0/1/0

**CULA 2450 Advanced Cake & Pastry**

Allows students to explore and develop skills in a variety of pastry, confectionery and other food sculpture mediums. Requirements also include the production of a tiered cake. (Prerequisite(s): CULA 1570 or instructor approval) 2C/0/2/0

**CULA 2460 Classical Buffet**

Allows students to explore concepts and practice techniques necessary to prepare a classical haute cuisine buffet. Emphasis will be placed on the design and presentation of food items. Each student will design and produce two display platters consisting of meat, fish and poultry products with all necessary accompanying items. (Prerequisite(s): CULA 1550 and completion of General Education requirements) 3C/0/3/0

**CULA 3630 Artisan Breads and Specialty Doughs**

This is an in-depth hands-on course designed to build proficiency in the preparation of a number of different types of artisan breads and specialized doughs, focusing on products used in restaurants and specialty bakeries while utilizing organic and local ingredients. Products prepared will include: standard and wild yeast sourdough, Pan au Levain, traditional French baguettes, Brittany rye, different multigrain preparations, foccacia, flavored breads and laminated dough products. Discussions will include technique and consistency issues as well as the role of local & organic ingredients in baking and the baker's responsibility in promoting sustainability. 3C/1/2/0

**CULA 3640 Fundamentals of Charcuterie**

This class is a thorough introduction into the art of Charcuterie and condiment making with an emphasis on product utilization. Students will learn various preservation techniques including brining and curing, working with smoked products, marinades, pickled products, relishes, cold sauces, mustards, forcemeats, pates, bacons, hams and cheese making within specific sanitary confines. Discussions will include technique and sanitation issues as well as the role of local & organic procurement of ingredients and the charcuterie's responsibility in promoting sustainability. 3C/1/2/0

**CULA 3650 Organic and Sustainable Foods**

This class is designed to illustrate the importance of organic and local ingredients from the harvest at the farm to the final plate presentation in the kitchen. Students will get an introduction to organics, sustainable agriculture and seasonal cooking. The class will participate in trips to local farms and markets as well as a gardening project. Students will get an in-depth look at the roles of local farms and artisan food producers, along with techniques in scratch cooking and product utilization. 3C/1/2/0

## ■ Economics

**ECON 1710 Introduction to American Economy**

This introductory course provides students with an overview of the U.S. economic system. (MnTC: Goal 5) 3C/3/0/0

**ECON 1720 Macroeconomics**

An introductory study of macroeconomics. Emphasis on the theory of demand and supply, historical and contemporary macroeconomic theories, national income, fiscal and monetary policy, money and banking, the Federal Reserve System, unemployment and inflation, business cycles and price level determinants. The impact of international economics will also be discussed. (MnTC: Goals 5 & 8) 3C/3/0/0

**ECON 1730 Microeconomics**

An introductory study of microeconomics. Emphasis is on price system, resource allocation, production costs, consumers, firms and market structures and application of theory. Monopoly, oligopoly and antitrust policy will be examined. Public good, income distribution and the economics of taxation and social choice will be discussed in light of current economic issues. The impact of international economics will also be discussed. (MnTC: Goals 5 & 8) 3C/3/0/0

## ■ Electrical Maintenance

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See **Construction Electricity (Electrical Maintenance)**

## ■ Electronic Technology

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**ELEC 1410 DC Circuits – AAS/Diploma**

This course covers the introduction to the electron theory, series, parallel and combination series/parallel resistive circuits. The course will cover the usage of test equipment associated with basic electronic circuits in a lab environment. Simulation software will be used to analyze circuit operation. 4C/1/3/0

**ELEC 1420 AC Circuits - Diploma**

This course will introduce the student to Alternating Current and its effects on Resistive (R), Inductive (L), Capacitive (C), and combined RL, RC, RLC components. The course will cover the usage of test equipment associated with Alternating Current circuits in a lab environment. Simulation software will be used to analyze circuit operation. Concepts learned in DC Circuits will be applied. 5C/2/3/0

**ELEC 1422 AC Circuits – AAS**

This course will introduce the student to Alternating Current and its effects on Resistive (R), Inductive (L), Capacitive (C), and combined RL, RC, RLC components. The course will cover the usage of test equipment associated with Alternating Current circuits in a lab environment. Simulation software will be used to analyze circuit operation. Concepts learned in DC Circuits will be applied. 4C/1/3/0

**ELEC 1423 Circuit Theory and Basic Electronics with Lab**

This course is designed to provide an overview of circuit theory and basic electronics for students interested in pre-engineering or applied engineering programs. It provides hand-on laboratory experiences for students to give them a head start in pursuing engineering-related programs and careers. 5C/2/3/0

**ELEC 1430 Solid State Circuits – AAS/Diploma**

This is a lecture course that covers the theory of bipolar semiconductors including diodes and transistor. The analysis of diodes and transistors through the study of their parameters and characteristics will be covered. AC rectification, basic transistor biasing, transistor amplifiers, and DC regulation will be studied. The student will construct and make measurements on circuits that demonstrate the practical application of diodes and transistors including AC rectification, amplification, and DC regulation. Simulation software will be used to analyze circuit operation. Concepts learned in DC and AC Circuits will be applied. 5C/2/3/0

**ELEC 1440 Electronic Circuit Analysis**

Introduces the mathematical analysis of simple and complex electronic circuits. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 2C/0/2/0

**ELEC 1510 Digital Logic Fundamentals – AAS/Diploma**

This course covers basic computer circuitry including digital number systems, basic logic gates, combination logic circuits, latches and basic flip-flops. Understanding and simplification of basic logic circuits will be taught through the use of Boolean algebra and Karnaugh mapping of combination logic circuits. TTL and CMOS IC families and their characteristics will be covered. The student will construct and make measurements on circuits that demonstrate the practical use of these devices in digital logic applications. Simulation software will be used to analyze circuit operation. 4C/1/3/0

**ELEC 1512 Digital Logic Applications – Diploma**

This course uses basic digital circuits to develop and understand control logic, timing diagrams, arithmetic circuits, counters, shift registers, shift counters, encoders, decoders, displays, multiplexing, demultiplexing, data bus architecture and memory systems. The student will construct and make measurements on circuits that demonstrate the practical use of these devices in complex digital logic applications. Simulation software will be used to analyze circuit operation. Concepts learned in Digital Logic Fundamentals will be applied. 5C/2/3/0

**ELEC 1514 Digital Logic Applications – AAS**

This course uses basic digital circuits to develop and understand control logic, timing diagrams, arithmetic circuits, counters, shift registers, shift counters, encoders, decoders, displays, multiplexing, demultiplexing, data bus architecture and memory systems. The student will construct and make measurements on circuits that demonstrate the practical use of these devices in complex digital logic applications. Simulation software will be used to analyze circuit operation. Concepts learned in Digital Logic Fundamentals will be applied. 4C/1/3/0

**ELEC 1530 Advanced Solid State Circuits – AAS/Diploma**

This course covers the theory of and application of Field Effect Transistors, four-layer devices (UJTS, SCRS, PUTS, Triacs, Diacs), opto/photo devices, basic operational amplifier circuits, and integrated timer circuits. The student will construct and make measurements on circuits that demonstrate the practical application of these devices in power control and sensing circuitry. Simulation software will be used to analyze circuit operation. Concepts learned in Solid State Circuits will be applied. 5C/1/4/0

**ELEC 1531 Advanced Solid State Lab**

Covers the application of Field Effect Transistors, four-layer devices (UJTS, SCRS, PUTS, Triacs, Triads, Diacs), light detecting devices (LDDS), operational amplifier integrated circuits and 555 timer integrated circuits. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/0/3/0

**ELEC 2400 Computer Fundamentals & Troubleshooting**

This course will provide the technician with practical experience in the use of applications related to diagnosis, service, repair and documentation to support repair of electronic equipment. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/1/2/0

**ELEC 2410 Personal Computer Service & Repair Theory**

This course covers personal computer theory, operation, service and repair including peripheral equipment. This course will use IBM and/or IBM type computers in a hands-on approach to basic computer maintenance. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/1/2/0

**ELEC 2411 Personal Computer Service & Repair Lab**

Hands-on course in assembling, maintaining, repairing and servicing IBM type computers, peripherals and associated hardware. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 4C/0/4/0

**ELEC 2412 Personal Computer Service & Repair Lab/AAS**

Hands-on course in assembling, maintaining, repairing and servicing IBM type computers, peripherals and associated hardware. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/0/3/0

**ELEC 2430 Computer Operating Systems & Programming**

Introduce the operation and use of computer operating systems and a high level language. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 2C/0/2/0

**ELEC 2510 Linear Devices Theory**

This course covers the theory of and Introductory application of Field Effect Transistors, four-layer devices (UJTS, SCRS, PUTS, Triacs, Triads, Diacs), light detecting devices (LDDS), operational amplifier Integrated circuits and 555 timer Integrated circuits. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/1/2/0

**ELEC 2511 Linear Devices Lab**

This course covers the application of Field Effect Transistors, four-layer devices (UJTS, SCRS, PUTS, Triacs, Triads, Diacs), light detecting devices (LDDS), operational amplifier Integrated circuits and 555 timer Integrated circuits. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 4C/0/4/0

**ELEC 2520 Interfacing Theory**

This course covers Interfacing circuitry used in the conditioning and modification of analog signals. This includes circuitry designed to allow computers, sensors and power control devices to communicate with each other. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/1/2/0

**ELEC 2521 Interfacing Lab**

This course provides hands-on construction and use of Interfacing circuitry used in the conditioning and modification of analog signals. This includes circuitry designed to allow computers, sensors and power control devices to communicate with each other. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 4C/0/4/0

**ELEC 2530 Microprocessor Theory**

This course covers microprocessor internal architecture, machine language programming, instruction format, addressing modes, data bus, arithmetic operations, timing diagrams, interrupts, interval timers, flow charting, peripheral interfacing, memory mapping, address decoding, program control, subroutine, stack and interrupt processing. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/1/2/0

**ELEC 2531 Microprocessor Lab**

This practical laboratory course covers mathematical and logical operations using various addressing modes. Counter, timers and input/output operations are utilized. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 4C/0/4/0

**ELEC 2532 Microprocessor Lab/AAS**

This practical laboratory course covers mathematical and logical operations using various addressing modes. Counter, timers and input/output operations are utilized. (Prerequisite(s): Enrollment in Electronic Tech Diploma/AAS) 3C/0/3/0

**Energy Process Technology****ENGY 1410 Pumps, Compressors and Turbines**

Covers the operation of several pump, compressor and turbine types, including the unique characteristics in terms of fluid flow principles, design, construction and prime movers. 3C/2/1/0

**ENGY 1420 Instrumentation & Measurement**

Students will use the measuring tools associated with mechanical repair, including the personal computer and instrumentation. 3C/2/1/0

**ENGY 1510 Piping, Tubing & Steam Traps**

Study of piping, tubing and disassembly, inspection, repair and assembly of gauge glass and steam traps. 3C/2/1/0

**ENGY 1520 Hydraulics**

Covers the principles of fluid power, pump inlet factors, actuator speed factors, hydraulic fluids and ANSI/ISO symbols. 3C/2/1/0

**ENGY 1530 Equipment Repair**

Covers the safe use of a variety of hand tools commonly associated with mechanical repair, metallurgy, shop machines and system diagrams. 4C/3/1/0

**ENGY 2410 Energy Systems & Components**

Students will understand the basic purpose, structure and operation of a power plant system, including boiler and auxiliary equipment, combustion, condensers and circulating water. 3C/3/0/0

**ENGY 2420 Energy Production**

Students will understand energy production terminology and be able to use a multimeter to measure voltage, current and resistance. Students will also demonstrate an understanding of Ohm's law by solving series, circuit and parallel circuit problems. Electrical safety hazards will also be examined. 3C/2/1/0

**ENGY 2430 Boiler Engineer Licensing**

Students will gain an understanding of the systems which make up a power plant through hands-on experience operating a fossil simulator. The experience will provide skill needed for the Boiler Engineer License. 2C/1/1/0

**ENGY 2510 Regulatory Compliance**

Provides students with a basic knowledge of OSHA, EPA regulations and industry regulations. 3C/2/1/0

**ENGY 2520 Valves & Gaskets**

Students will be able to identify various types of valves and gaskets by their ANSI/ISO symbols and explain their functions. 2C/1/1/0

**ENGY 2530 Power Plant Industrial Maintenance**

Covers basic principles of lubrication, types of bearings, methods of installation, and common types of coupling devices found in modern manufacturing and how they should be maintained. This course is an introduction to the common types of gearing used in industry, the operation, maintenance and repair of gear reducers. Types of v-belts and drive chains, their maintenance and alignment, as well as safe rigging procedures used in industrial machine repair applications will be covered. 4C/4/0/0

## English

### ENGL 1410 Fundamentals of Writing 1

This course is aimed at beginning writers who have had little instruction or experience in writing. It provides sequenced instruction in grammar use, sentence construction, and paragraph construction. Students will study models of effective sentences and paragraphs and then generate their own work. Completion of this course with a grade of “C” or better is required to continue on to ENGL 1415. (Prerequisite(s): READ 0721 or ESOL 0831, department approval or appropriate assessment score.) 4C/4/0/0

### ENGL 1415 Fundamentals of Writing 2

This course provides credits for certificate and diploma programs and is preparation for ENGL 1711. In addition to reviewing sentence mechanics, students will study a variety of writing models in both paragraph and essay formats. Students must pass the course with a “C” or better in order to move on to ENGL 1711. (Prerequisite(s): Grade of “C” or better in ENGL 1410 or appropriate assessment score.) 4C/4/0/0

### ENGL 1711 Composition 1

This course emphasizes the process of writing expository and persuasive essays using effective writing skills and a variety of research techniques. The course includes an analysis of primary and/or secondary sources with a focus on critical reading, logical reasoning and academic research writing. (Prerequisite(s): Grade of “C” or better in READ 0722 Reading 2, ENGL 1415 Fundamentals of Writing 2 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 1) 4C/4/0/0

### ENGL 1712 Composition 2

This course emphasizes critical reading and analytical writing using literature as the basis for composition. The course includes an analysis of primary and/or secondary sources with a focus on academic writing. (Prerequisite(s): Grade of “C” or better in ENGL 1711) (MnTC: Goals 1 & 2) 2C/2/0/0

### ENGL 1780 Recently Arrived—Contemporary Immigrant Literature

Some of the most compelling contemporary American literature has been written by first and second-generation immigrants to the United States. This course will cover a number of works that explore the difficult process of cultural adjustment for writers of various racial and ethnic groups. The course will cover the larger narrative of coming to America but also focus on particular literary, socio-cultural and historical issues. Students will discover how language and narrative strategies are employed by writers to create the stories of their lives: intergenerational conflicts, difficulties tied to language and the formation and re-formation of racial and ethnic identities as writers confront the demands of a new country and life. Immigration and naturalization laws at various moments in US history and how those laws have influenced contemporary literature will be discussed. (Recommendation(s): READ 0722 Reading 2 with a grade of “C” or better, ENGL 1415 Fundamentals of Writing 2 with a grade of “C” or better, or appropriate assessment score.) (MnTC: Goals 6 & 7) 3C/3/0/0

### ENGL 1790 Contemporary Writers of Color

This course examines American literature as a multi-voiced body and considers the contributions to that body by writers of color. Under consideration are writings by Native American, Asian American, African American and Latino authors. Particular attention will be given to issues of race, gender, ethnicity, class and sexuality and how these issues are reflected in the complicated construction of identity. As a means of considering how various racial identities are constructed and expressed in literature, contemporary and recently-published work by writers from these groups will be read. In order to provide appropriate context for readings and discussions, the class will consider relevant cultural and social histories of these writers as well. (Recommendation(s): READ 0722 Reading 2 with a grade of “C” or better, ENGL 1415 Fundamentals of Writing 2 with a grade of “C” or better, or appropriate assessment score.) (MnTC: Goals 6 & 7) 3C/3/0/0

### ENGL 2721 Survey of American Literature 1

A survey of American poetry, essays, novels and short stories from colonial times to the end of the Civil War. This course will help the student to discover the definitions of these distinctive genres, their unique boundaries and potential and what distinguishes them from other forms of writing. The historical, political and cultural background of the time will also be covered in this course, so that the student will find the readings to be more interesting and accessible. (Prerequisite(s): Grade of “C” or better in ENGL 1711) (MnTC: Goals 6 & 7) 3C/3/0/0

### ENGL 2722 Survey of American Literature 2

A survey of American poetry, essays, novels and short stories from the end of the Civil War to the present. A continuation of Survey of American Literature I. This course will help the student to discover the definitions of these distinctive genres, their unique boundaries and potential and what distinguishes them from other forms of writing. The historical, political and cultural background of the time will also be covered in this course, so that the student will find the readings to be more interesting and accessible. While not a requirement, the student will find this course more enjoyable if he has first taken Survey of American Literature I. (Prerequisite(s): Grade of “C” or better in ENGL 1711) (MnTC: Goals 6 & 7) 3C/3/0/0

### ENGL 2730 Post-Civil War American Novel

A study of the American novel after the Civil War. Beginning with Mark Twain’s **Huckleberry Finn**, this course seeks to discover the unique boundaries and potential of the American novel, what distinguishes it from other forms of literature and how the form changed as the American culture changed. The historical, political and cultural background of the time will also be covered in this course, so that the student will find the readings to be more interesting and accessible. (Prerequisite(s): Grade of “C” or better in ENGL 1711 Composition) (MnTC: Goals 2 & 6) 3C/3/0/0

### ENGL 2740 Native American Literature

Through an analysis of structural and thematic elements, this course seeks to discover the unique additions that Native American writers have brought to the traditional literary canon. Special attention will be given to the historical and cultural aspects of the text. This course is designed to introduce the concept of narrative voice in literature and provide critical techniques for its analysis. (Prerequisite(s): Grade of “C” or better in ENGL 1711) (MnTC: Goals 6 & 7) 3C/3/0/0

### **ENGL 2750 African American Literature**

Through an analysis of structural and thematic elements, this course seeks to discover the unique additions that African American writers have brought to the traditional literary canon. Special attention will be given to the historical and cultural periods, such as the Harlem Renaissance. Moreover, this course is designed to introduce how African American literary criticism has been instrumental in validating and placing African American works in a literary tradition. (Prerequisite(s): Grade “C” or better in ENGL 1711) (MnTC Goals: 6 & 7) 3C/3/0/0

### **ENGL 2760 English Novel**

Why did the novel as a genre emerge in England during the beginning of the 18th century? Beginning with Daniel DeFoe’s **Moll Flanders**, this course seeks to discover the unique boundaries and potential of the English novel, what distinguishes it from other forms of literature and how the form changed as the English culture changed. The historical, political and cultural background of the time will also be covered in this course, so that the student will find the readings to be more interesting and accessible. (Prerequisite(s): Grade of “C” or better in ENGL 1711 Composition)(MnTC: Goals 2 & 6) 3C/3/0/0

### **ENGL 2770 Introduction to Poetry**

This course will focus on the formal aspects of meter and prosody in order to objectify and demystify meaning in poetry. This course will help the student discover the various poetic forms and why a poet would choose one form over the other. In order to facilitate meaning, lectures and additional reading will focus on the social and political climates in which the poems were written. (Recommendation(s): READ 0722 Reading 2 with a grade of “C” or better, ENGL 1711 Composition 1 with a grade of “C” or better, or appropriate assessment score.) (MnTC: Goals 2 & 6) 3C/3/0/0

### **ENGL 2775 Science Fiction or Fantasy**

This course will explore science fiction and fantasy through close and comparative readings of various texts. Together we’ll consider how the writers of these genres respond to the various challenges of the twentieth century, including shifting gender, politics, war, and the impact of new technologies on culture. This course will largely be concerned with the twin goals of articulating the writer’s critique of present social conditions and exploring how those critiques are constructed. (Prerequisite(s): ENGL 1711 with a grade of “C” or better) (MnTC: Goals 2 & 6) 3C/3/0/0

### **ENGL 2778 Urban Literature—Lost in the City**

This course explores contemporary literature in the context of the urban landscape. Together, we’ll explore the function of the city in literature with attention to how characters both shape and are shaped by an urban existence. Also, how do various writers portray the city? As a labyrinth? A market place of cross-cultural encounters? A place of refuge? A dystopia? Through close and comparative readings, we’ll construct an informed understanding of how and why a city is portrayed by a particular writer and to what degree the city itself functions as a meaningful character in literature. (Prerequisite(s): ENGL 1711 with a grade of “C” or better) (MnTC Goals: 2 & 6) 3C/3/0/0

## **English-as-a-Second-Language (ESOL)**

### **ESOL 0806 Speaking/Listening Skills/ESL 3**

Focuses on speaking and listening at the low intermediate level. Special emphasis is on the study of listening skills including taking lecture notes and dictations. Students will practice speaking by role playing routine situations, participating in structured discussions and making short presentations. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

### **ESOL 0807 Reading/Writing Skills/ESL 3**

Focuses on reading and writing skills at the low intermediate level. Students will improve reading skills as identifying main ideas, making inferences and summarizing the story. Special emphasis is on expanding vocabulary. Students will also write paragraphs on a variety of topics. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

### **ESOL 0808 Low Intermediate Grammar**

Covers basic grammar tenses including simple, Progressive and Perfect group tenses. Grammar structures will be practiced orally in group and pair work and through completion of exercises. (Prerequisite(s): Appropriate assessment score) 3C/3/0/0

### **ESOL 0809 Speaking/Listening Skills/ESL 4**

Focuses on speaking and listening skills at the low intermediate level. Special emphasis will continue to be on improvement of oral/aural skills. Students will study in the language lab listening to audio tapes, watching videos and working with a partner. Students will expand vocabulary, learn how to take lecture notes and make oral presentations. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

### **ESOL 0810 Reading/Writing Skills/ESL 4**

Focuses on reading and writing skills at the low intermediate level. Students will practice reading skills such as anticipating, skimming and outlining. They will use the following steps in writing effective paragraphs and short stories; prewriting, composing, editing, proof-reading and evaluating the final draft. Intermediate grammar structures will also be reinforced. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

### **ESOL 0811 Speaking/Listening Skills/ESL 5**

Focuses on speaking and listening skills at the high intermediate level. Special emphasis will be on the improvement of oral/aural skills. Students work in the multimedia language laboratory. They listen to lectures, take notes, make presentations and participate in class discussions. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

### **ESOL 0812 Reading/Writing Skills/ESL 5**

Focuses on reading and writing skills at the high intermediate level. Students will strengthen reading skills such as making inferences, skimming, paraphrasing, summarizing and identifying main ideas. Focus is on improving students’ ability to write effective paragraphs and essays. The writing process is reviewed. Students will develop or reinforce computer word processing skills. Critical thinking objectives will be integrated also. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

**ESOL 0813 High Intermediate Grammar**

Covers such topics as comparisons, passive voice, adjective clauses, gerunds/infinitives and others. Students will do written and oral exercises, work in groups, participate in class discussions on the topics of concept and form of grammar structures. (Prerequisite(s): Appropriate assessment score) 3C/3/0/0

**ESOL 0814 Speaking/Listening Skills/ESL 6**

Focuses in high intermediate level oral/aural skills. Students will continue to work in the They will practice conversations and give oral presentations. They will also participate in group discussions. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

**ESOL 0815 Reading/Writing Skills/ESL 6**

Focuses on reading and writing skills at the high intermediate to advanced level. Students will be engaged in text analysis, vocabulary expansion, outlining and improving their reading speed. To improve writing abilities, students will continue to strengthen the skills needed in the essay writing process; prewriting, organizing, revising and editing. The essay writing process is reviewed. (Prerequisite(s): Appropriate assessment score.) 3C/2/1/0

**ESOL 0820 Pronunciation and Articulation**

This course is designed for ESL students who need to improve their pronunciation, articulation and intonation skills. The emphasis is on the technique of sound production, denunciation, rhythm, volume, pitch through modeling and extensive drilling. Students will soften (not eliminate) their accent and acquire more confidence when they speak. Students at any level are accepted, no prerequisites are required. 1C/0/1/0

**ESOL 0831 Advanced ESL**

This course focuses on reading and writing skills at an advanced level. Students will acquire new vocabulary, analyze text, develop critical thinking abilities, work on strategies to improve reading comprehension. In writing, the focus will be on topic development, essay structure, as well as stylistic and grammatical accuracy. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

**ESOL 0840 ESL for Working Adults**

This intermediate level ESL course is designed for working adults interested in improving their English skills. This course integrates all four skills with the emphasis on grammar and reading. Grammar concepts are introduced in context, and accuracy is developed through extensive practice of oral and written exercises. The topics of study include themes of high interest. Students will also write short stories and make brief presentations related to the topics of study. This course is not part of the Intensive English Program. (Prerequisite(s): Appropriate assessment score) 3C/2/1/0

**ESOL 1410 Advanced Grammar**

This elective course provides advanced ESL learners with an opportunity to reinforce and expand the most complex concepts of English grammar. Grammar structures are introduced in various reading passages of great interest. Students will practice grammar in multiple oral, reading, and writing exercises. The purpose of this course is to improve the practical use of grammar in an academic setting. (Prerequisite(s): Appropriate assessment score or completion of High Intermediate Grammar ESOL 0813) 3C/2/1/0

**Esthetician****ESTH 1445 Cosmetic Chemistry and Makeup Applications**

Chemistry is a science that deals with the composition, structure and properties of matter and how matter changes. This course covers the composition of product ingredients, changes produced by cosmetic products, color theory, make up application techniques and temporary hair removal (Prerequisite(s): CHSN 1410, CHSN 1420 or concurrent enrollment) 4C/2/2/0

**ESTH 1455 Skin Analysis and Massage**

Students will learn to greet customers and to consult in a professional manner. Students will learn to perform draping, skin analysis and proper massage techniques according to client's skin type. Students will learn in a supervised setting, care and proper use of esthetic equipment. Emphasis is on maintaining safety. (Prerequisite(s): CHSN 1410 and CHSN 1420 or concurrent enrollment) 4C/1/3/0

**ESTH 1465 Aromatherapy**

Aromatherapy for the spa technician. This class will prepare the esthetician or massage therapist to use aromatherapy for wellness in the spa. This course also prepares those students interested in taking the CIDESCO Aromatherapy exam. 2C/1/1/0

**ESTH 1551 Salon Operations for Estheticians 1**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 1C/0/1/0

**ESTH 1552 Salon Operations for Estheticians 2**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 2C/0/2/0

**ESTH 1553 Salon Operations for Estheticians 3**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 3C/0/3/0

**ESTH 1554 Salon Operations for Estheticians 4**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 4C/0/4/0

**ESTH 1555 Salon Operations for Estheticians 5**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 5C/0/5/0

**ESTH 1556 Salon Operations for Estheticians 6**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in CHSN 1463) 6C/0/6/0

**ESTH 1585 Esthetics Refresher**

This course offers the Minnesota Board of Barber and Cosmetology mandated refresher course for licensure requirements or to expand the cosmetologist's knowledge of the Esthetics field. Refresher students must complete 40 clock hours. Must present cosmetology or esthetician license to instructor. 2C/1/1/0



### **ESTH 1590 Esthetics Reactivation**

This course offers the Minnesota Board of Barber and Cosmetology mandated reactivation course for licensure requirements or to expand the cosmetologist's knowledge of the Esthetics field. This course includes preparation for the written law examination. Reactivation students must complete 60 clock hours. Must have a MN esthetician license that is inactive or expired by more than 3 years and must present it to the instructor. 3C/2/1/0

### **ESTH 2410 CIDESCO Exam Student Preparation**

The CIDESCO Pre exam class will prepare the CIDESCO student candidate for all aspects of the CIDESCO exam including the facial exam, the body exam, additional subjects and the written exam. (Prerequisite(s): Completion of CIDESCO curriculum) 4C/0/4/0

### **ESTH 2430 Minnesota Cosmetology Instructor Renewal**

This course will meet the licensing renewal requirement of the Minnesota Board of Barber and Cosmetology for Instructor license renewal. It consists of 15 hours of hands-on learning in program clinic, 15 hours of teaching methods in theory classrooms and 15 hours analysis and product knowledge in ESTH 1455 Skin Analysis and Massage and ESTH 1445 Cosmetic Chemistry. 2C/0/2/0

### **ESTH 2540 Introduction to Skin Histology and Professional Esthetics Skin Peels**

Introduction to the histology of the skin and the effects of Chemical Peeling. 2C/1/1/0

### **ESTH 2542 Chemical Peels and Skin Histology**

Advanced skin analysis based on genetic skin types and environmental factors and the effects of peeling the skin. 2C/1/1/0

## ■ Floor Covering

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### **FLRC 1400 Introduction to Floor Covering**

Provides a general overview of the floor covering trade and is intended only for Twin City Floor Coverers JATC. It is to be used as an entry-level course to acquaint the apprentice with all facets of the trade. 2C/2/0/0

### **FLRC 1410 Floor Covering Trade Math**

A basic math course for the beginning floor covering apprentice. The emphasis and focus of this course will be measuring, estimating and layout of floors. It will be taught in conjunction with FLRC 1421. (Prerequisite(s): Apprentice in the floor covering trade) 1C/1/0/0

### **FLRC 1421 Carpet Installation & Safety 1**

Covers beginning installation of carpeting. (Prerequisite(s): Apprentice in the floor covering trade) 2C/1/1/0

### **FLRC 1431 Vinyl Installation & Safety 1**

Covers beginning installation and techniques for vinyl floor covering. The emphasis will be on substrate identification, product identification, reasons, needs and techniques of floor prep and Roto product installation systems. Roto vinyl will be installed in the practice facilities. (Prerequisite(s): Apprentice in the floor covering trade) 2C/1/1/0

### **FLRC 1440 Floor Covering Blueprint Reading**

Provides an understanding of job description prints for the floor covering field. This course is taught in conjunction with FLRC 1431. (Prerequisite(s): Apprentice in the floor covering trade and all first year FLRC courses or the equivalent) 1C/1/0/0

### **FLRC 1510 Floor Covering Customer Relations**

Covers basic relationships between floor covering professional installers and customers. Expression of job knowledge, appearance, courtesy and self-selling will be emphasized. This course will be taught in conjunction with FLRC 1522. 1C/0/1/0

### **FLRC 1522 Carpet Installation & Safety 2**

Covers advanced carpet installation techniques. Upholstery, capping, hand sewing and insert work will be performed. (Prerequisite(s): FLRC 1421) 3C/0/3/0

### **FLRC 1532 Vinyl Installation & Safety 2**

Covers intermediate vinyl installation techniques. Sub-floor preparation will be performed. Emphasis will be placed on product identification and product installation systems. Vinyl will be installed in the practice facility with emphasis on basic safety procedures. (Prerequisite(s): FLRC 1431) 3C/0/3/0

### **FLRC 2410 Introduction to Laminates & Hardwood Floors**

Covers basic laminate installation of countertops and back splashes plus flat floor installation of pre-finished wood parquet and various types of pre-finished wood plank and laminate floors. (Prerequisite(s): FLRC 1400-1532 or equivalent) 3C/0/3/0

### **FLRC 2420 Introduction to Power Tool Safety**

Covers application of assorted power tools common to the floorcovering trade and their safe application and use. (Prerequisite(s): FLRC 1422-2410 or equivalent) 2C/0/2/0

### **FLRC 2430 Installation Specialties & Safety**

Focuses on inlaid vinyl and carpet inlaid design installation. Job site tool production and special installation methods will be covered. (Prerequisite(s): FLRC 1421, FLRC 1431, FLRC 1522, FLRC 1532) 3C/0/3/0

### **FLRC 2510 Advanced Floor Covering**

General overview of the floor covering trade and the course is used as a testing tool of apprentice trade knowledge. 3C/0/3/0

## ■ Fuel Cell Technology

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### **FUEL 1400 Introduction to Fuel Cell Technology**

This course will address the what and the why of fuel cell technology. Understanding the promises and problems of this emerging technology will give the student a realization of its world wide importance to generating electricity. Fuel cells, safety issues, components and the principles of operation of hydrogen fueled electricity production will be discussed. The student will understand the variety of fuel cell types that are being manufactured. (Prerequisite(s): MATH 1420 Trade Algebra and Trigonometry with a grade of "C" or better) 4C/3/1/0

**FUEL 1410 Fuel Cell Installation and Operation**

This course will give the student an understanding of the chemical, mechanical and electrical components that make up the fuel cell system for generating electricity. This hands-on course will present the process to introduce energy resources, such as natural gas, to be reformed into hydrogen and converted to electricity by the fuel cell stack. Operating a fuel cell system will provide the students the comprehensive skills to aid in the advancement of this technology. (Prerequisite(s): FUEL 1400 Introduction to Fuel Cell Technology and ENGL 1711 with a grade of “C” or better) 4C/2/2/0

**FUEL 1420 Fuel Data Acquisition and Analysis**

This course will introduce data acquisition systems for analysis of the fuel cell system to trouble shoot, and to communicate data to manufacturing technical support teams. Students will be learning to gather and analyze data to diagnose, repair and better operate a range of operating fuel cells. Use of Excel spreadsheets is required. Communication of technical information with the manufacturer’s technical support is a skill developed in this course. (Prerequisite(s): Use of Microsoft Office Excel spreadsheets and the Internet. BTEC 1418 or BTEC 1421 is recommended. FUEL 1410 Fuel Cell Installation and Operation with a grade of “C” or better) 4C/2/2/0

**FUEL 1430 Fuel Cell Production Design and Manufacturing**

This course is a Capstone project experience. Students working in teams, under the direction of Faculty, will identify a problem in a fuel cell design or operation and develop a solution for consideration by the manufacturer or installation contractor. Students will learn skills to provide feedback to manufacturers on improvements for developing working fuel cell systems. When possible, the technician students will be teamed with Applied Engineering students in related programs for problem solving and making recommendations. (Prerequisite(s): Completion of FUEL 1420 Fuel Cell Data Acquisition and Analysis with a grade of “C” or better) 4C/2/2/0

## ■ Geography

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**GEOG 1700 Physical Geography**

This course introduces students to the physical systems and features of the earth. It covers the distribution of and the processes influencing world patterns of climate, vegetation, and land forms. The class also focuses on the influence of human activities on environmental systems. (MnTC: Goals 5 & 10) 3C/3/0/0

**GEOG 1720 Human/Cultural Geography**

This course covers the geographic study of the world cultural areas. Topics include: world population growth, distributions, migrations, characteristics, cultural geography (patterns of language and religion, folk customs, globalization of popular culture), global economic activity and development, and political organization of the world (evolution of states, territorial conflicts). Case studies from many parts of the world will be analyzed and key geographic concepts will be reviewed. (MnTC: Goals 5 & 8) 3C/3/0/0

**GEOG 1730 Global Economic Geography**

Combining lecture and hands-on experience, this course studies how humans earn their living in different locations throughout the world and then investigates the patterns and processes reflected in this geographic variation. Through theoretical location models and empirical spatial analysis, economic geography attempts to explain the variations in economic

phenomena from place to place by focusing on the production, distribution, exchange and consumption activities. (MnTC: Goals 5 & 8) 3C/3/0/0

## ■ Geomatics (Land Surveying) and Mapping Sciences

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**CTEC 1390 AutoCAD for Geomatics**

This two-credit course is designed to provide Geomatic students with basic AutoCAD skills. Students receive hands-on computer training using Land Development Desktop and AutoCAD software. Students will become familiar with the basic commands and terminology of both Land Development Desktop and AutoCAD software. Students will be able to create, manage and edit project directories. 2C/1/1/0

**CTEC 1391 AutoCAD 2 for Geomatics**

This two-credit course is designed to provide Geomatic students with continuing AutoCAD skills. Students will receive hands-on computer training using Land Development Desktop and AutoCAD software. Students will become familiar with the advanced commands and terminology of both Land Development Desktop and AutoCAD software. Students will be able to create and manipulate paper space drawings, manage and edit project files and directories. (Prerequisite(s): CTEC 1390 or instructor approval) 2C/1/1/0

**CTEC 1415 Surveying Fundamentals**

This course covers topics in approximately the first 60% of the text noted below. This integration of field and classroom focus will introduce students to field measurements with automatic level, theodolites and hand written field notebooks, total stations with hand written field notebooks and, if time and weather permit in a fall semester course, total stations with electronic field books or data collectors. Field data will be processed via AutoCAD and Land Development Desktop computer modeling software, studied concurrently in a parallel course. Textbook topics will include probability and statistical analysis of errors, use of instruments, basic mathematics of surveying, angle and curve geometry. 4C/2/2/0

**CTEC 1441 Computer Aided Design 1**

This course is an introduction to AutoCAD basic computer drafting software and the AutoDesk software specific to land modeling surveying and civil engineering technology. It is the first semester of a two-semester sequence. This course is a companion to the Introductory Surveying course and must be taken concurrently. 3C/1/2/0

**CTEC 1442 Computer Aided Design 2**

This course is a continuation of the use of AutoDesk software specific to land modeling surveying and civil engineering technology. It is the second semester of a two-semester sequence. This course is a companion to the Intermediate Surveying course and must be taken concurrently. 3C/1/2/0

**CTEC 1515 Intermediate Surveying**

This course will cover topics on circular, vertical and spiral curves, approximately the last 40% of the textbook. It includes the study of street, storm and sewer plans. Also covered are: highway plans and profiles; cross sections; areas and volumes of earthwork. Field projects include: staking of curves, layout of alignments on the campus, using points in the data collector sent to the total station, from those generated in Land Development Desktop computer modeling and design. (Prerequisite(s): CTEC 1415, CTEC 1441) 4C/2/2/0

### **CTEC 1535 Coordinate Geometry, Control Surveys, Boundary Surveys**

This course covers selected topics from the text noted below, plus supplemental materials. This is largely a lecture and classroom laboratory course on advanced topics not covered in the introductory and intermediate courses. (Prerequisite(s): Completion of first year of program) 3C/3/0/0

### **CTEC 1590 Civil 3D and Map 3D**

This refresher course is designed to update Land Survey students with exposure to the latest software that will be replacing LDT. Students will receive hands-on computer training using Civil 3D and Map 3D. Students will become familiar with the basic commands and terminology of both the Civil 3D and Map 3D software. Students will be able to create, manage and edit projects utilizing the latest software available on the market. (Prerequisite(s): CTEC 1441 and CTEC 1442) 3C/3/0/0

### **CTEC 1591 Occupational Internship**

Student occupational internship in Surveying and Civil Technology usually takes place in the summer between the first and second year of the program. Students receive on-the-job training through full time employment (at standard wages) in one or more of the following areas: surveying, inspection, testing, computer drafting. (Prerequisite(s): Completion of one year in the program and CTEC 1515 with a grade of “C” or better.) 3C/0/0/3

### **CTEC 2520 Introduction to GPS/GIS**

This course introduces basic concepts and methods for GPS (Global Positioning Systems) and GIS (Geographical Information Systems). Students will work with GPS field equipment and computer model data from GPS and other sources while learning the ArcView by ESRI software. (Prerequisite(s): Completion of the first year of this program, specifically CTEC 1415, CTEC 1441, CTEC 1442, CTEC 1515) 4C/2/2/0

### **CTEC 2530 Hydrology & Hydraulics**

Introduces methods of calculating runoff values from watersheds. Identifies culvert, storm sewer, sanitary sewer shapes and material types. Introduces design of culverts and storm sewers. Covers basics of weir, pipe and open channel flow. (Prerequisite(s): Second year status or consent of instructor) 3C/2/1/0

### **CTEC 2545 Remote Sensing 1**

This is a survey course that covers analysis of imagery used in mapping surveys, general mapping and an overview of various systems such as imagery ground control and introduction to photogrammetry. The course will include site visits to facilities that use these systems. (Prerequisite(s): Completion of Geomatics technical courses including GPS/GIS or comparable program from an accredited institution) 3C/2/1/0

### **CTEC 2546 Remote Sensing 2**

This is a survey course that introduces students to the use of multiple remote sensing equipment and techniques: Radar, Laser, EDM, IFSAR, Photogrammetry, Airborne LiDAR, Ground Based LiDAR, Satellite Imagery and 3D Visualization. Lab experience will include site visits to state agencies and other facilities that use these processes and systems. (Prerequisite(s): Completion of Geomatics technical courses including GPS/GIS or comparable program from an accredited institution.) 3C/2/1/0

### **CTEC 2550 Site Design**

This course is an overview of site engineering and land development from both a surveying/engineering viewpoint, but also from a regulatory and site use view. This course integrates many of the concepts of the previous year of study. The course will be approached as a seminar format presentation, with each student leading a discussion of a chapter per class period. Additional projects outside the classroom may be required. (Prerequisite(s): Second year status, CTEC 2530 recommended) 3C/2/1/0

## **Health**

### **HLTH 1410 Medical Terminology**

Students recognize and build medical terms after learning the meaning of word parts. A computer lab may be utilized to review terminology and provide practice in word building. (Prerequisite(s): READ 0722 with a grade of “C” or better or appropriate assessment score) 1C/0/1/0

### **HLTH 1415 Success Strategies for Health Care Providers**

This course assists the health program student in meeting basic skills in critical thinking, problem solving, test taking and comprehension as they apply to health care. This course is designed to help the student who is seeking to improve critical thinking skills in health care or who must complete required remediation within a health program.

### **HLTH 1417 Somatic Practitioner: Business and Ethics**

In this course, students will be introduced to different types of business and ethical standards in the somatic industries of massage therapy, personal training, esthetics and wellness in the massage therapy industry and basic aspects of a business plan. Topics include scope of practice, certifications, legal requirements, equipment options, charting, time management skills and payment tracking methods. Principles of professional ethics and interactions with clients are integrated throughout the course. (Prerequisite(s): Declared major in Massage Therapy, Reflexology or Personal Trainer major) 3C/2/1/0

### **HLTH 1420 Anatomy & Physiology**

Assists the student to acquire basic knowledge of body structure and function. Emphasis is on the healthy body. The content in this course prepares the student to understand common diseases. (Prerequisite(s): HLTH 1410 concurrent enrollment recommended) 4C/4/0/0

### **HLTH 1425 Clinical Applications in Kinesiology**

This is a course in the applied study of human movement. Students will study muscles of the body, origin and insertion sites, nerve innervation, associated bones and bony landmarks and action. Students will investigate planes of movement, types of joints, discuss directions and positions of the human body and perform basic structural assessment. Adhesions and Trigger Points will be discussed and palpated. This course will also look at the theory and practice of functional muscle testing. HLTH 1420 Anatomy & Physiology or BIOL 1740 or BIOL 2721, physical ability to palpate the human body, willingness to view selected Human Cadaver videos are recommended. 3C/1/2/0

**HLTH 1430 CPR/First Aid**

Includes training in administration of cardiopulmonary resuscitation and basic first aid skills. Lecture material will include anatomy and physiology of the heart and lungs, universal blood and body fluid precautions, AIDS and common medical emergencies. Course certificates for CPR and first aid will be issued upon successful completion. 1C/1/0/0

**HLTH 1432 CPR for the Professional**

This is course “C” American Heart Association or American Red Cross CPR for the Professional. Skills are demonstrated for basic life support including 2 rescuer techniques. AED training provided. Theory is presented related to heart disease prevention. Course certificate will be issued upon successful completion. 1C/1/0/0

**HLTH 1450 Health Care Law & Ethics**

Introductory course in the ethical and legal aspects of healthcare practice. Major ethical systems are used to examine issues in the field of health care. Legal positions that have an impact on the delivery of health care are presented. (Prerequisite(s): READ 0722 with a grade of “C” or better or appropriate assessment score) 2C/2/0/0

**HLTH 1455 Yoga Postures/Asanas**

Creating a yoga practice increases mental clarity, energy and vitality in daily life. This course presents yoga principles and postures called asanas which provide a workout that enhances strength, flexibility and balance. The student will create a series of poses that massages the internal organs, improves circulation, digestive functions and other body processes. Students will study an overview of the many health benefits through yoga practice. (Prerequisite(s): Discuss health limitations with the instructor. Details provided during the first class session.) 2C/1/1/0

**HLTH 1456 Relaxation Therapy**

This course is designed as an interdisciplinary course of study to support and encourage professional collaboration within Health careers. The focus of the course is on the application of relaxation techniques and theoretical frameworks to assess and manage the impact of stress on everyday life. In this respect, this course presents new knowledge that will be applicable to the students in health studies, and massage. Inclusion of specific relaxation techniques that address stress and pain management strategies will be included in this curriculum. 2C/1/1/0

**HLTH 1457 Yoga Postures 2**

This course continues the study of yoga principles and postures. The student will refine the poses that massage the internal organs, improve circulation, digestive functions and other body processes. (Prerequisite(s): HLTH 1455 Yoga Postures/Asanas) 2C/1/1/0

**HLTH 1460 Nutrition for the Health Professions**

Helps the student develop an understanding of the fundamental principles of nutrition necessary to improve and maintain health, to prevent illness and to provide support and therapy during illness. (Grade of “C” or better in HLTH 1410 and HLTH 1420 is recommended) 2C/2/0/0

**HLTH 1465 Functional Holistic Nutrition**

This course focuses on developing knowledge of healthy nutrition for the individual, suggesting healthy nutrition for clientele, and optimizing the body’s health and performance via supplementation and a whole foods diet. This class includes an

evaluation of one’s personal nutrition status and the various therapeutic properties of whole foods and supplements. Exploration of appropriate supplementation and sources of supplements will be performed. Actual preparation of fast and simple meals that are of whole food origin will conclude this course. (Prerequisite(s): BIOL 1760 or HLTH 1460.) 4C/2/2/0

**HLTH 1469 Teaching Methodology for the Yoga Instructor**

Includes principles of demonstration, observation, assisting/correcting instruction, teaching styles, learning styles, qualities of a teacher and the business aspect of teaching yoga. Will include practicum of practice teaching, receiving feedback, observation of others and assisting while other teach. 3C/2/1/0

**HLTH 1470 Wellness Through the Lifespan**

Provides the student with concepts of wellness and the mind/body connection throughout the human lifespan. This course focuses on the promotion of wellness, stress reduction, and integrative healthcare services involved in the progressive stages of physical, emotional, intellectual and social development throughout the lifespan. 4C/3/1/0

**HLTH 1485 Therapeutic Exercise**

The focus of this course is the management of common soft-tissue injuries through inhibitory techniques, bracing, taping, advanced stretching and corrective exercise techniques. Adaptive exercise for special populations such as geriatrics and pregnancy will also be discussed. (Prerequisite(s): HLTH 1425, PTRN 1410 recommended. Must be enrolled in the Massage Therapy or Personal Trainer program.) 5C/0/5/0

**HLTH 1540 Introduction to Techniques for the Yoga Instructor**

Practice of proper techniques of asanas paranayamas, kriyas, chanting, mantra, meditation and other traditional yoga techniques. These hours must be a mix between analytical training, how to teach and practice techniques and guided practice of the techniques themselves. 3C/1/2/0

**HLTH 1542 Teaching Methodology for the Yoga Instructor**

Includes principles of demonstration, observation, assisting/correcting instruction, teaching styles, learning styles, qualities of a teacher and the business aspect of teaching yoga. Will include practicum of practice teaching, receiving feedback, observation of others and assisting while others teach. 3C/2/1/0

**HLTH 1560 Internship for the Yoga Instructor Course**

These hours are to be distributed on an individual basis among the categories as determined by the Instructor. 3C/0/0/3

**HLTH 1900 Pathology for the Somatic Practitioner**

This course is designed to teach the study of deviations from normal anatomy and physiology as well as basic pharmacology. Students will examine injury and disease related conditions most likely to be encountered in a somatic practice. Special attention is given to signs and symptoms, indications and contraindications of treatment methods, as well as instruction related to skin, neuromuscular and soft tissue conditions. Basic pharmacology will be examined along with drug/supplement interactions. (Recommendation(s): HLTH 1420) 4C/3/1/0

## ■ Health Unit Coordinator

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### **HLUC 1410 Diagnostic & Therapeutic Procedures**

Designed to acquaint the student with the patient's chart and doctor's orders for treatments, medications, diagnostic tests and medical procedures. The information presented provides knowledge essential for the processing of physician orders. 4C/4/0/0

### **HLUC 1420 Health Unit Coordinator Fundamentals**

Introduces the student to the health care facility environment and procedures. Students will become acquainted with their role in the health care setting, including ethical and legal standards, customer relations, telephone and communication techniques, problem solving, medical terminology, basic human structure, diseases and disorders. 4C/4/0/0

### **HLUC 1510 Processing Physicians' Orders 1**

Designed to develop student skills in reading and processing physicians' orders. Students will be given hands-on applications in the processing of physicians' orders. It will include procedures for processing of orders related to patient diets, supplies, treatments, activities, nursing observations and medications. Computer use in the processing of physicians' orders will be introduced. (This course must be taken in the semester immediately preceding internship.) (Prerequisite(s) or Co-Requisite(s): HLUC 1410, HLUC 1420) 3C/2/1/0

### **HLUC 1511 Processing Physicians' Orders 2**

Designed to give the students hands-on applications in the processing of physicians' orders. Students will be given sets of handwritten and routine orders which they will read, interpret and process. The student will be introduced to more difficult orders than were introduced in HLUC 1510. (This course must be taken in the same semester as HLUC 1510 and the semester immediately preceding internship.) (Prerequisite(s) or Co-Requisite(s): HLUC 1410 and HLUC 1420; Prerequisite(s): HLUC 1510) 3C/1/2/0

### **HLUC 2491 Health Unit Coordinator Internship**

This is a cooperative training program with a community health care facility. The student will complete 120 hours of experience at the internship facility. Students will be required to fill out a background study and submit a current immunization record. (Prerequisite(s): Completion of all HLUC courses with a "C" or better and instructor approval) 3C/0/0/3

## ■ History

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### **HIST 1730 Contemporary World History**

This course surveys Contemporary World History, from the end of World War II to the present with a focus on Europe, Asia, Africa, Latin America and the Middle East. Significant forces, ideas, events and people that have influenced the world since 1945 are studied while course themes highlight how and why events transpired and created change in people's lives. Historical events are studied to provide an appreciation for their influence on contemporary society and the implications they may hold for the future. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

### **HIST 1741 U.S. History to 1865**

This course surveys the political and social history of America from the seventeenth century to the end of the Civil War. The interaction of Europeans, Native Americans and Africans

through the Colonial Era, the American Revolution and the Early Republic will be discussed. Topics covered also include Jacksonian Democracy, westward expansion, the role of women in the nineteenth century, nineteenth century immigration and the controversy over slavery. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 7) 3C/3/0/0

### **HIST 1742 U.S. History Since 1865**

This course surveys the political and social history of America from the end of the Civil War to the present. Topics covered include Reconstruction and racial segregation in the South, the Gilded Age and Progressive Era, the Great Depression of the 1930s, World Wars I and II, the war in Vietnam, the Civil Rights Movement and social movements of the 1960s. Throughout the course the roles of women, immigrants and people of color will be discussed. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 7) 3C/3/0/0

### **HIST 1750 Minnesota History**

This course surveys Minnesota's historical development from the pre-Columbian period to the present. It focuses on the historic importance of Minnesota's geography and natural resources, American Indian-white relations, the development of Minnesota's unique political tradition and the emergence of Minnesota's diverse society and economy. Course readings, videos and class discussions are supplemented by visits to metro-area historic sites and the Minnesota Historical Society's History Center. In addition, students are exposed to the tools and techniques historians use to study the past as a part of completing research projects. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 10) 3C/3/0/0

### **HIST 1760 History of World Civilizations to 1500**

This course surveys world history from the first civilizations to 1500 C.E. Course themes focus on political, ideological, economic, social, cultural, religious, technological and environmental developments in Africa, Eurasia and the Americas. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

### **HIST 1761 History of World Civilizations since 1500**

This course surveys world history from 1500 C.E. to the present. Course themes focus on political, ideological, economic, social, cultural, religious, technological and environmental developments in Africa, Eurasia and the Americas. Special focus is given to global factors that allowed the West to exercise significant influence over the development of Africa, Asia and the Americas. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

### **HIST 1770 History of Women in the United States**

This course explores the history of women in the United States from the colonial period to the present. Within this chronological framework, the course examines how women understood their lives as individuals and as members of families and communities. The course also explores strategies through which women of diverse races, classes, and ethnicities struggled to control their own lives and identities. Special focus is given to how ideologies of gender, race, class and sexuality framed American society and culture. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

**HIST 2740 Immigration and Ethnic History of the United States**

This course surveys the experiences of immigrant groups and ethnic minorities within the United States from the colonial period to the present. The experiences of American Indians and immigrant groups from Europe, Africa, Asia and Latin America are explored and their contributions to a multi-cultural America are discussed. Additional course themes include: slavery and its legacies, US government American Indian policy and US government immigration policy. (Recommendation(s): READ 0721 with a grade of "C" or better or concurrent enrollment or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

## ■ Hospitality, Sports and Entertainment Management

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**HSPM 1410 Introduction to Hospitality Management**

This course provides an orientation to the hospitality industry. This includes an introduction to the structure of lodging, food service and tourism organizations, the role of lodging departments, the future of the industry and career opportunities. Course structure includes lecture, projects, discussion and guest speakers to learn about opportunities and trends. 3C/3/0/0

**HSPM 1420 Introduction to Tourism**

This course explores the travel and tourism industry. Students will examine growth trends that includes best travel options and working with foreign cultures and currencies. 3C/3/0/0

**HSPM 1430 Introduction to Sports Management**

This introductory course will provide an overview of the business of sports. Topics include sponsorships, game administration, and stadium and arena operations. Emphasis will be placed on the principles of management and marketing and exploration of career opportunities. 3C/3/0/0

**HSPM 1440 Event Management and Planning**

This course will provide an overview of Event Management. Topics include identifying the purpose of special events, planning timelines, organization, managing volunteers, evaluation, invitations and logistics. Emphasis will be placed on the principles of management and marketing and how they apply in event planning. Career opportunities in event planning will also be explored. 3C/3/0/0

**HSPM 2420 Hotel and Lodging Operations**

This course provides students the key principles in the lodging industry, focusing on strategic planning as the foundation for operation effectiveness. 3C/3/0/0

**HSPM 2440 Hospitality Marketing & Sales**

This course provides principles and practices of marketing the services of the hospitality industry. Emphasis includes the marketing concept with applications leading to customer satisfaction. Review methods of external and internal stimulation of sales. 3C/3/0/0

**HSPM 2472 Management of Youth Sports, Recreation and Fitness**

This course utilizes and applies the functions of management (organize, plan, lead and measure) to youth sports, programs, recreation and fitness centers. Topics include youth sports programming, camps, and coaching, scheduling, recreation and fitness center operations. 3C/3/0/0

**HSPM 2476 Sports Marketing and Promotions**

This course examines the application of the principles of marketing to the sports and entertainment fields. This includes the marketing of sports organizations as well as how corporations and other organizations utilize the sports and entertainment industry to market and build customer relationships. Topics include sponsorship packages, ticket sales, media relations, luxury box and suite sales and special promotions. 3C/3/0/0

**HSPM 2478 Sports Facilities Management**

This course applies the functions of management to operating sports and recreation facilities. A variety of venues will be explored including arenas, stadiums, fitness centers, playing fields and golf courses. Topics include facility design, maintenance, security, budget and financial management. 3C/3/0/0

**HSPM 2591 Hospitality, Sports and Entertainment Management Internship**

This course provides students the hands-on opportunity to work in the hospitality industry. 1-3C/0/0/1-3

## ■ Human Resources

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**HMRS 1400 Human Resource Management**

Covers an introduction to the basic principles of Human Resource functions and services. It will provide background and understanding for further Human Resources courses in the Human Resource Program. 3C/3/0/0

**HMRS 1490 Talent Management**

This course provides students with a basic understanding of the employment and staffing functions in an organization. Attention will be devoted to the recruitment process, effective interviewing, applicant evaluation techniques, legal requirements, reference checking, and new employee orientation. This course also covers basic information about the training and development functions in an organization and its role in building an effective workforce. Students study effective training techniques including needs assessments, transfer of training, training evaluation, training methods, technology in training, and employee development issues. Students will be expected to develop and deliver a training session. 3C/3/0/0

**HMRS 1510 Human Resources Information Systems and Records**

Covers the basic information and understanding of types of Human Resource records, employers' information needs, and government recordkeeping/reporting needs. It also includes an introduction to various HRIS software programs, with hands-on applications. 3C/2/1/0

**HMRS 1520 Compensation and Benefits Administration**

Covers basic information about various types of benefits that are typically offered by employers. The course covers mandatory government benefits and voluntary benefits. Also included is information about employee compensation and related federal laws. 3C/3/0/0

### **HMRS 1550 Strategic Human Resources**

This course explores the strategic role that HR professionals have within an organization. Students will explore various HR functions and learn how to turn them into strategic business solutions by using critical thinking and problem solving strategies. Students will also look at how trends in HR outsourcing are used as an HR strategy. 3C/3/0/0

### **HMRS 2410 Employee/Labor Relations**

This course focuses on employee relations techniques such as: coaching, mentoring, performance management, employee discipline, workplace violence prevention, employee crisis management and effective communication including gender and generational communication in the workplace. Also covered are the labor relations issues that supervisors need to deal with on a daily basis when working in a union environment. 3C/3/0/0

### **HMRS 2420 Employment Law & HR Policies**

Provides students with an understanding of EEO legislation and other federal laws relating to employment and the impact of these laws on an organization. Students will also study the emerging legal issues facing today's Human Resource Departments. The course will also define the needs for HR policies and the development of a variety of policies. 3C/3/0/0

### **HMRS 2591 Human Resource Internship**

Designed to provide the student with a purposeful occupational experience in the Human Resource field. Each internship is an individualized experience. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the program. (Prerequisite(s): Advisor approval) Variable 3–6 credits 3-6C/0/0/3-6

## ■ Humanities

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### **HUMA 1710 The Art of Being Human: An Introduction to Humanities**

This course introduces themes central to human existence, from ancient times to the present. The themes are interpreted through art, music, literature, drama, film and philosophy. This course serves as an introduction to writing, art and ideas conceived throughout history. (MnTC: Goals 6 & 8) 4C/4/0/0

### **HUMA 1720 The Ancient and Medieval World**

This course introduces students to the global humanities and shows the relationship between the culture of the past and life in the present. The course includes an examination of written works, art, architecture and music from Greece, Rome, the Middle Ages and the Renaissance. Texts, materials and interdisciplinary assignments will examine the arts and ideas of the West in relation to those of the other world cultures, including India, East Asia, Africa and Native America. (MnTC: Goals 6 & 8) 4C/4/0/0

### **HUMA 1730 The Modern World**

This course introduces students to the global humanities and shows the relationship between the culture of the past and life in the present. The course includes an examination of written works, art, architecture and music from the Modern World (roughly the 16th Century to the Present). Texts, materials and interdisciplinary assignments will examine the arts and ideas of the West in relation to those of the other world cultures, including India, East Asia, Africa and Native America. (MnTC: Goals 6 & 8) 4C/4/0/0

### **HUMA 1750 Culture and Civilization: Spanish-Speaking Cultures**

Taught in English, this course introduces students to the mosaic of qualities that make up the culture and civilization of Spanish-speaking people of the Americas, Spain and elsewhere across the globe. To provide students with an awareness of the cultural, social, religious and linguistic values of Spanish-speaking cultures, multi-media resources (Internet, music, video) will be used to illustrate course topics including the arts, literature and history. This course may include guest speakers and visits to local Latino/Hispanic cultural centers. (MnTC: Goals 6 & 8) 3C/3/0/0

### **HUMA 1770 The Art of Film**

This course is an introduction to film as an art form and as a medium for portraying ideas, myths, human concerns and aesthetic principles. The course includes an examination of film techniques, film theories and artistic styles of films such as formalism, surrealism, expressionism and neorealism. (MnTC: Goals 6 & 7) 3C/3/0/0

### **HUMA 1780 American Film**

A study of American film both as an art form and as a medium of cultural communication and expression. The course is designed to improve “visual literacy” and to cultivate an ability to deal with film in an intelligent and critical way. The works of Edison, Porter, Griffith, Keaton, Chaplin, Ford, Capra, Welles, Hitchcock are examples of works to be studied. The course will offer representative examples of the major film genres and styles: the Western, Film Noir, Comedy, independent films and others. The film work of African American and female directors will be integrated into the course. (MnTC: Goals 6 & 7) 3C/3/0/0

### **HUMA 1790 International Film**

A study of film as an art form and as a means of cultural communication from an international perspective. The course is designed to cultivate an ability to deal with film in a critical way, as well as broaden understanding of film and culture in a global context. Each semester a variety of national cinematic traditions will be examined including film works from Europe, Eastern Europe, Japan, Australia, New Zealand, China, Latin America and Canada. (MnTC: Goals 6 & 8) 3C/3/0/0

## ■ Industrial Machine Maintenance

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### **INMM 1510 Lubrication/Bearings/Couplings**

Covers basic principles of lubrication, types of bearings, methods of installation, common types of coupling devices found in modern manufacturing and how they should be maintained. 3C/1/2/0

### **INMM 2520 Gears/Chains/V Belts/Rigging**

This course is an introduction to the common types of gearing used in industry, the operation, maintenance and repair of gear reducers. Types of v-belts and drive chains, their maintenance and alignment, as well as safe rigging procedures used in industrial machine repair applications. 3C/1/2/0

## ■ Interdisciplinary Women and Gender Studies

### INTS 1785 Foundations in Women Studies

This course serves as an introduction to the field of women's and gender studies. Using an interdisciplinary approach, the course examines the conditions and circumstances affecting the lives of (primarily) women in the United States. The course explores the roles that women play in society, with careful attention to the ideas and factors that shape those roles. Students will examine how ideas about gender (as well as race, ethnicity, social class, sexual orientation, physical ability and age) are informed by institutions, by cultural beliefs, and by social practices. Throughout the course, emphasis is placed on the diversity of women's experience in the contemporary United States and the connections to women worldwide. (MnTC Goals: 5 & 9) 3C/3/0/0

## ■ International Trade

### INTL 1400 Introduction to International Business

Introduces the student to the general field of international business. Study will cover foreign investments, cultural differences, impact of trade agreements, international payments, logistics, taxation and personnel issues. This course provides the foundation for other International Trade courses. 3C/3/0/0

### INTL 1410 International Communications and Cultural Awareness

Covers potential problems in the international transaction due to language, and cultural differences. Both written and oral issues will be discussed. In addition, the areas of social and business habits that are different from one country to another will be covered. An understanding of these various needs will help ease the international transaction. 3C/3/0/0

### INTL 1510 Export Shipping and Documentation

Introduces students to the flow of merchandise in an international trade transaction using various modes of transportation, routing, paperwork, regulations and incoterms. The principle documents that must be prepared for shipments will be analyzed and created. Information will include the purpose of each document, its function, common problems in preparing and processing this type of document. Discussion will include reviewing documents from the banker, freight forwarder and shipper perspective. Students will prepare and examine these documents. 4C/4/0/0

### INTL 2420 US Customs and Importing

Provides students with the basic knowledge needed for customs clearance. This includes classification of products using the harmonized system, understanding import regulations, marking rules, preparing entry documentation, learning various types of entries and special provisions. This course will help prepare the student to take the U.S. Customs Broker exam. 3C/3/0/0

### INTL 2491 International Trade Internship

Cooperative work study program between the Saint Paul College International Trade Program and a business facility to allow the student an employment-like experience. Job duties must reflect program goals. (Prerequisite(s): Instructor approval) Variable 1–3 lab credits

### INTL 2497 International Trade Special Projects

The intent of this course is to allow flexibility in providing learning experiences to meet a special need of the student, the major program and the College. (Prerequisite(s): Instructor approval) Variable 1–3 lab credits

### INTL 2520 International Business Law

Designed to be a basic course covering the law and practice of international trade, licensing and investment. The student will be introduced to the risks of international business and examine how those risks differ from doing business domestically. The student will study the function and importance of international public law, the role of international organizations and private dispute settlement procedures. Emphasis will be placed on the legal changes taking place, which affect the European market. Students will examine the constitutional division of authority between the Congress and the President with regard to the regulation of foreign trade. The course also covers the regulation of the international marketplace, including the law of foreign licensing and investment. 3C/3/0/0

### INTL 2530 International Marketing

Study marketing from the international point of view. Topics include how and where to find new international customers, evaluating the needs of international customers, and keeping these customers happy while bringing a profit to the company. Also included are the fundamentals of selling, advertising, the effect of cultural differences on selling and advertising procedures, and techniques of closing the sale. 3C/3/0/0

## ■ Interpreter/Transliterators Sign Language

### INTP 1440 Orientation to Interpreting

This course introduces students to the profession of sign language interpreting. It covers the history of interpreting as a field of professional practice, the required professional ethical and performance standards, the impact of legislation on the field, the phenomena of cross cultural dynamics, oppression of minority groups and the role of an interpreter as a cultural mediator. (Prerequisite(s): Acceptance into ITP) 3C/3/0/0

### INTP 1465 Special Topics

A variable credit granting course in the area of interpreting/transliterating, American Sign Language, specific sign forms, linguistic skills, Deaf Culture or a related area, which is designed to meet the needs of specific groups of students. Each course is designed and accepted based on a written syllabus outlining the objectives and procedures for delivery. Variable 1–5 credits

### INTP 1511 Interpreting Process

This course introduces students to the theory and application of the interpreting process. Application of interpreting process skills occurs through consecutive interpretation. The goal of the course is to develop cognitive processing skills involved in the interpreting process. (Prerequisite(s): Acceptance into the Sign Language Interpreter/Transliterators Program and ASLS 1420 with a grade of "C" or better or taken concurrently with ASLS 1420) 3C/3/0/0

### INTP 1512 Consecutive Interpreting 1

This course develops consecutive interpreting skills introduced in INTP 1511 and prepares students for the simultaneous interpreting process. Students compare American Sign Language and English semantic/syntactic structures to the consecutive interpreting process. Focus in this course will be on text



translation, vocabulary expansion and interpreting process skill development. (Prerequisite(s): Grade of “C” or better in ASLS 1420 and INTP 1511) 4C/2/2/0

#### **INTP 1513 Consecutive Interpreting 2**

This course builds upon Consecutive Interpreting skills to prepare students for the simultaneous interpreting process. Students will analyze and compare more complex American Sign Language and English texts in order to prepare for the simultaneous interpreting task. (Prerequisite(s): Grade of “C” or better in ASLS 1430 and INTP 1512) 2C/2/0/0

#### **INTP 2411 Sign to Voice Interpreting 1**

Focuses on the process of interpretation, provides practice of requisite skills and process tasks and applies skills and theory to the translation process. The course of study focuses on lexical development, syntactical language comparisons, voice production techniques, text/discourse/interpreting process analysis, semantic mapping and diagnostic assessment. (Prerequisite(s): INTP 1513 with a “C” or better) 4C/1/3/0

#### **INTP 2412 Sign to Voice Interpreting 2**

Provides students with additional practice in specific skill areas related to sign-to-voice interpretation. Text/discourse/process analysis, lexical and syntactic development, voice production techniques for simultaneous sign-to-voice interpretation will be the focus. Course content is at an intermediate to advanced level of speed and complexity. Students will work primarily from videotaped language models. (Prerequisite(s): INTP 2411 with a grade of “C” or better) 2C/1/1/0

#### **INTP 2421 Voice to Sign Interpreting 1**

Provides students techniques for translating the source language English to the target language American Sign Language (ASL) in simultaneous manner. (Prerequisite(s): Grade of “C” or better in INTP 1513) 4C/1/3/0

#### **INTP 2422 Voice to Sign Interpreting 2**

This course allows students to continue practicing rendering the target language (ASL) from the source language (English) simultaneously. It also provides preparation for Internship. Continued emphasis and focus is on appropriate uses of lexical and syntactic principles and non-manual behaviors of ASL. (Prerequisite(s): Completion of INTP 2421 with grade of “C” or better) 2C/1/1/0

#### **INTP 2431 Transliterating 1**

This course covers the process of Transliteration (changing a message expressed in spoken English into a coded form of the language). The process moves along a continuum from Contact Language to a signed form of English. Specific subtasks are isolated in order to focus on transliterating skill development, enhancing component skills and incorporating ASL features. These skills are integrated into the performance of beginning to intermediate tasks. (Prerequisite(s): Grade of “C” or better in INTP 1513) 4C/1/3/0

#### **INTP 2432 Transliterating 2**

This course expands the process of visually representing English. Students will focus on the expansion and enhancement of transliterating skills at the English end of the ASL-English continuum. Students will incorporate ASL features into intermediate to advanced level texts presented in a simultaneous mode. (Prerequisite(s): Grade of “C” or better in INTP 2431) 2C/1/1/0

#### **INTP 2450 Deaf/Blind Interpreting**

Provides students with a working knowledge of the requirements, skills and communication techniques needed to interact and/or interpret with consumers who are Deaf/Blind. (Prerequisite(s): INTP 2411, INTP 2421, INTP 2431) 2C/2/0/0

#### **INTP 2510 Educational Interpreting**

This course is an overview of the field of educational interpreting. It covers educational interpreter roles, responsibilities, ethics and techniques. Students will examine language usage, communication processes and case studies. This knowledge will be applied to interpreting for consumers in pre-school through post-secondary settings. (Prerequisite(s): Grade of “C” or better in INTP 1440 and INTP 1511) 2C/2/0/0

#### **INTP 2550 Community Resources Seminar**

This course introduces students to the agencies, organizations and institutions that serve and/or are run by Deaf, Hard-of-Hearing and Deaf/Blind people throughout Minnesota and western Wisconsin. Students will familiarize themselves with these resources through research in the community. (Prerequisite(s): INTP 1511 with a grade of “C” or better) 1C/1/0/0

#### **INTP 2585 Internship Seminar**

This course introduces students to the requirements, guidelines, professional practices and types of placements for field experience. Students will discuss protocol, skills, ethics and business practices needed for specific site placements. (Prerequisite(s): Grade of “C” or better in INTP 1513) 1C/1/0/0

#### **INTP 2591 Interpreter Internship**

This course is a career-related supervised work experience that integrates classroom theory and skills with real-life experiences; further develops skills and abilities initiated in program coursework; develops mentoring relationships and skills; identifies resources; expands application of ethical decision-making and problem-solving; and prepares students for national certification and employment. (Internship Eligibility: Grade of “C” or better in INTP 2411, 2421, and 2431. Internship Placement: Grade of “C” or better in Performance skills Evaluations in INTP 2412 Sign to Voice 2, INTP 2422 Voice to Sign 2 and INTP 2432 Transliterating 2) 6C/0/0/6

## ■ Machine Tool Technology

#### **MTTP 1411 Introduction to Manufacturing Processes**

This course covers a general orientation, an overview of careers, shop safety, measurement, precision tools, band saw theory, lathe theory, drills and vertical milling machines. 4C/4/0/0

#### **MTTP 1413 Interpreting Geometric Dimensioning and Tolerancing**

Advanced applications of blueprint reading and geometric dimensioning and tolerancing, including advanced inspection procedures and metallurgy are covered. This course covers the principles, application and interpretation of geometric dimensioning and tolerancing as per ASME-Y14.5M 1994 Standards. (Prerequisite(s): MTTP 1421) 2C/0/2/0

#### **MTTP 1421 Engineering Drawings/CAD**

Fundamentals of reading drawings and the use of CAD to produce orthographic, auxiliary and assembly drawings. 5C/5/0/0

**MTTP 1424 Shop Calculations and Applications**

The subject matter progresses from the arithmetical operations through measurement systems, basic algebra for shop formula solving skills, practical geometry with shop examples and applications and trigonometry, emphasizing its valuable use in the shop and in the trades. 2C/0/2/0

**MTTP 1431 Materials Processing**

This introductory lab course covers shop safety, bench work, power saws, drills, drill presses, lathe operations, vertical milling and basic surface grinding. 5C/3/2/0

**MTTP 1432 Mechanical Applications 1**

This course covers intermediate lathe, milling machines and surface grinding operations. Work efficiency and inspection of finished work will be stressed. 5C/3/2/0

**MTTP 1433 Mechanical Applications 2**

This course covers advanced tool room machining operations using vertical mills, lathes, surface grinders, as well as part inspection. (Prerequisite(s): MTTP 1432) 5C/0/5/0

**MTTP 1511 CNC 1**

This course covers the basic operation and set up skills using G & M code format. (Prerequisite(s): MTTP 1433) 2C/0/2/0

**MTTP 1512 CNC 2**

This course covers the set-up and operation of CNC machine tools. Also includes advanced NC/CNC programming and operation on machining and turning centers with an emphasis on Fanuc controls. (Prerequisite(s): MTTP 1511) 2C/0/2/0

**MTTP 1513 CNC 3**

This course covers the set-up, operation and programming of CNC turning centers. (Prerequisite(s): CNC2 or instructor approval) 2C/0/2/0

**MTTP 2410 Computer Aided Manufacturing 1**

Covers computer-aided manufacturing using Mastercam software. Students will learn to create geometry, toolpaths and CNC tape files for a series of prints and projects. The use of PC based CAM software to generate numerical control programs is included. The software currently is Mastercam Version 6. (Prerequisite(s): MTTP 1421) 2C/0/2/0

**MTTP 2412 Computer Aided Manufacturing 2**

This course is a continuation of CAM1. Prints will be handed out and programs created for CNC machine tools. A series of projects will be assigned. 2C/0/2/0

**MTTP 2430 Electrical Discharge Machining**

This course covers the basic principles of conventional and traveling wire Electrical Discharge Machining in a laboratory setting. Topics included are safety, electrode material, set-up, machine operation, controller operation, amperage, electrode shapes, basic CNC programming, wire information, dielectric applications and work holding methods. (Prerequisite(s): Semester 1,2,3 of the Machine Tool Technology Program) 2C/0/2/0

**MTTP 2510 Tool Design**

Analysis and design fundamentals required to design and build a mold. Content includes types of molds, plastic molding characteristics, metal alloy castings, design principles and molding methods. (Prerequisite(s): MTTP 1413, MTTP 1511, MTTP 1512, MTTP 1513, MTTP 2410, MTTP 2412, MTTP 2530) 4C/4/0/0

**MTTP 2511 Mold/Plastic Technology**

Introductory course on the design and construction principles of basic molds. Mills, lathes, surface grinders, jig borers, drill presses and injection molding machines are used in a laboratory setting to produce a plastic injection mold. (Prerequisite(s): MTTP 1413, MTTP 1513, MTTP 2410, MTTP 2530) 5C/3/2/0

**MTTP 2512 Manufacturing Applications**

Product development fundamentals including design and research, cost estimating and manufacturing of a metal stamped product. This course will include additional theory and online assignments. (Prerequisite(s): MTTP 1413, MTTP 1513, MTTP 2410, MTTP 2530) 5C/3/2/0

**MTTP 2513 Mechanical Systems/EDM**

Advanced level study that covers the design and machining operations required to build a plastic injection mold. Lathes, mills, surface grinders, EDM, CNC programming and heat treat equipment are used. This course will include additional theory and online assignments. (Prerequisite(s): MTTP 1413, MTTP 1513, MTTP 2410, MTTP 2530) 3C/0/3/0

**MTTP 2514 Manufacturing Applications 2**

Advanced level course utilizing 2-axis CNC machining and programming in the development of tooling fixtures and precision manufacturing processes. (Prerequisite(s): MTTP 2512). 3C/0/3/0

**MTTP 2516 Manufacturing Capstone Project**

Course focus on manufacturing design and production. Project includes design proposal, product design and documentation of manufacturing processes necessary to produce and deliver desired product. (Prerequisite(s): MTTP 2514) 3C/0/3/0

**MTTP 2530 Fixture Design**

Introduces production machining processes and includes calculations and methods for work holding set-ups of various piece parts. (Prerequisite(s): MTTP 1421, MTTP 1450) 2C/0/2/0

**MTTP 2591 Machine Tool Technology Internship**

Provides an industry on-site opportunity for students to gain skills through experiences and practices in an actual work environment. (Prerequisite(s): Instructor approval) Variable 1–6 credits

## ■ Massage Therapy

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**MASS 1400 Introduction to Therapeutic Massage**

This course will enable the student to track the history and development of massage therapy, understand the scope of practice, body mechanics for the practitioner, contraindications for therapy and professional ethics for practitioners. Students will review massage-specific anatomy and physiology with emphasis on muscle identification, actions and insertions on the skeleton. Students will be introduced to basic massage techniques through demonstration and practice. Students will practice correct table set-up and sanitation. (Prerequisite(s): Concurrent enrollment in or previous completion of HLTH 1410 and HLTH 1420 and declared Massage Therapy major) 4C/2/2/0

**MASS 1421 Massage Spa Techniques**

This course provides application of massage techniques using knowledge of the musculoskeletal system. Students will refine previously learned techniques and body mechanics. Deep tissue massage will be introduced. Students will demonstrate Swedish and deep-tissue techniques. Students will demonstrate knowledge of contraindications for massage therapy based on client in-take information. (Prerequisite(s): MASS 1400) 2C/0/2/0

**MASS 1422 Massage Clinical Techniques**

Students will refine previously learned techniques in Swedish massage and deep-tissue massage by demonstrating mastery of massage therapy contraindications, body mechanics, muscle actions and insertions. Students will learn stretches for both client and self-care. Advanced techniques in chair massage, reflexology, myofascial release, lymph drainage and neuromuscular therapy will be introduced. (Prerequisite(s): HLTH 1425, MASS 1421 or concurrent enrollment) 4C/2/2/0

**MASS 1423 Massage Advanced Clinical Techniques**

Students will refine previously learned techniques. Students will investigate various treatment protocols utilizing scientifically proven, outcome-based techniques including Neuromuscular Therapy, Manual Lymphatic Drainage, Myofascial Release, Travel Trigger Point Therapy, Muscle Energy Technique, Proprioceptive Neuromuscular Facilitated Stretching, Active Isolative Stretching and Positional Release Technique. Students will learn to perform thorough patient assessments utilizing medical histories and objective findings through palpation, functional muscle testing, range of motion testing, postural examination and gait examination. Students will learn to create a care-plan based on evaluations; create treatment plans using carefully selected techniques for the given pathology; and learn to recommend exercises to the patient. Students will learn to give supplementary care as prescribed by a licensed Physician, Chiropractor or Physical Therapist for pathologies including multiple sclerosis, spinal cord injury, traumatic brain injury, stroke, diabetes, AIDS, cancer, burns, post-surgical scarring, chronic pain and fibromyalgia. (Prerequisite(s): Certificate in Massage Therapy or equivalent as evaluated by faculty) 5C/2/3/0

**MASS 1471 Reflexology 1**

This course will introduce the student to the core abilities of reflexology. The course includes the history and theories of reflexology and the basics of the hands-on application of reflexology as a consultative practice. The course will teach theory and skill sets necessary to build a reflexology service for the hands or feet. Modern Zone theory and the evidence of ancient reflexology practices will be explored. HLTH 1410, HLTH 1420, HLTH 1425, HLTH 1900 are recommended. 3C/2/1/0

**MASS 1472 Reflexology 2**

This course will introduce the skills needed to successfully practice reflexology on the hands and feet of the body. The anatomy and unique attributes of the feet and hands of the body will be explored. The student will learn to accept responsibility for the safe and effective practice of reflexology, appreciate theories and origins of reflexology, compare and contrast applications of reflexology, assess the rules for practice and comprehend the ethical and legal responsibilities of the clinical reflexologist. Reflexology is a consultative practice only and the student will understand the difference between consultative and prescriptive healing practices. Can be taken concurrently with MASS 1471. 3C/2/1/0

**MASS 1480 Massage Therapy Practicum**

This course meets the requirement of the performance and documentation of the minimum 50 full-body sessions. Students will demonstrate and apply all previously learned techniques including use of client intake information, knowledge of massage therapy contraindications and skills in charting for each client. (Prerequisite(s): MASS 1400 and concurrent enrollment in MASS 1422) 4C/0/4/0

**MASS 1490 Clinical Massage Internship**

Students will refine all previously learned techniques and put them into practice. Students are placed in a traditional clinical setting at Chiropractic offices, Medical Sport Institutes and Physical Therapy clinics for half of the internship. For the second half students may choose to focus on an area of choice such as oncology, pre and post natal, geriatric, AIDS, infant massage, or orthopedic settings. (Prerequisite(s): MASS 1423, Instructor approval or completion of entire clinical massage curriculum and professional membership with ABMP including liability insurance. Students must have current CPR certificate and liability insurance on file at Saint Paul College before starting internship.) 5C/1/4/0

## ■ Mathematics

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**MATH 0741 Math Fundamentals 1**

This developmental course is designed for students who need to learn the basic principles of mathematics. Topics include whole numbers, fractions, decimals, percents, applications of percent, graphs and simple statistical measures. (Placement into this course will be according to college assessment score.) 3C/2/1/0

**MATH 0742 Math Fundamentals 2**

This course is a continuation of MATH 0741. Topics include whole numbers, fractions, decimals, percents, applications of percents, plane geometry, solid figures, graphs and simple statistical measures. (Placement into this course will be according to college assessment score or completion of MATH 0741 with a grade of "C" or better.) 3C/2/1/0

**MATH 1411 Applied Mathematics**

This course is required for students in certain trade programs. This course is designed to help students develop the numerical skills needed to perform tasks in their trade. Topics in this course include whole numbers, fractions, decimals, percents, ratios and proportions, plane geometry, word problems relevant to the trades, use of the TI-36 calculator (or equivalent) and the metric system. (Placement into this course will be according to college assessment score or completion of MATH 0742 with a grade of "C" or better.) 3C/2/1/0

**MATH 1420 Trade Algebra and Trigonometry**

This course is intended for the student who needs to master the fundamentals of algebra and right triangle trigonometry as they apply to the construction trades. The content of this course includes a review of basic math, simplifying expressions involving constants and variables, solving algebraic equations, solving literal problems using spreadsheets and graphing calculators and solving construction trade problems with algebra and right triangle trigonometry. (Placement into this course will be according to college assessment score or completion of MATH 0742 with a grade of "C" or better.) 3C/3/0/0

**MATH 1510 Introductory Algebra**

Intended for the student who needs to master the fundamentals of algebra. The content includes: Review of fractions, decimals and percent properties of the Real Number System; solving equations and inequalities; exponents; polynomial operations; basic factoring; simplifying rational expressions; graphing linear equations; solutions of linear systems; roots and radicals; and solutions of quadratic equations. (Prerequisite(s): Grade of “C” or better in MATH 0742 or appropriate assessment score) 3C/3/0/0

**MATH 1520 Intermediate Algebra**

Designed for those students who have had one year of high school algebra and need a refresher before taking courses such as College Algebra and/or Pre-Calculus. The topics include: real number properties, first degree equations, graphs and functions, linear systems, polynomials, rational expressions and exponents and radicals. (Prerequisite(s): Grade of “C” or better in MATH 1510, or appropriate assessment score) 3C/3/0/0

**MATH 1710 Liberal Arts Mathematics**

This class includes selected topics from the mathematics of social choice, growth and symmetry, and probability and statistics. Real-life applications are used to illustrate mathematical concepts. Modern discoveries as well as classic problems are described using straightforward examples. A fundamental objective is to develop an appreciation for the aesthetic elements of mathematics. The development of critical thinking skills through the application of mathematics is also emphasized. This course is designed for students who are not planning to take any further mathematics courses. This course can be used to satisfy the general education requirement for math. (Prerequisite(s): MATH 1520 Intermediate Algebra with a grade of “C” or better or appropriate assessment score) (MnTC: Goal 4) 3C/3/0/0

**MATH 1730 College Algebra**

This course covers algebraic functions and their applications. Topics include linear and quadratic functions, functions and graphs, polynomial and rational functions, exponential and logarithmic functions, systems of equations and inequalities, matrix algebra, discrete algebra, the binomial theorem and probability. Graphing calculators are used to further the student’s understanding of essential mathematical concepts. (Prerequisite(s): MATH 1520 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goals 2 & 4) 3C/3/0/0

**MATH 1740 Introduction to Statistics**

This course covers concepts and applications of descriptive and inferential statistics. Measures of central tendency and variance, confidence intervals, normal distributions and central limit theorem are explored. The student learns about probability distributions and random variables. Techniques of estimation, hypothesis testing, z-scores, t-tests, F-tests, Chi-square tests, analysis of variance (ANOVA) and linear regression are covered in this course. This course can be used to fulfill the general education requirement for math, and transfer to 2 and 4 year institutions. (Prerequisite(s): MATH 1520 Intermediate Algebra with a grade of “C” or better or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

**MATH 1760 Pre-Calculus**

The course introduces algebraic and trigonometric functions and their applications. Topics include polynomial, rational, exponential and logarithmic functions. Systems of equations and inequalities, matrices, determinants and analytic geometry will also be explored. In addition, this course covers

trigonometric functions, identities and equations and the laws of sines and cosines. (Prerequisite(s): MATH 1520 Intermediate Algebra with a grade of “C” or better, or MATH 1730 College Algebra with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

**MATH 2751 Calculus 1**

This course is a beginning calculus course, which introduces the concepts of limits, derivative, differentiation and integration of functions with emphasis on applications. Topics include introduction to the derivatives and limits, tangent to a curve, properties of limits, derivative of a real function, the power rule and the algebra of derivatives, the chain rules, the mean value theorem, applications of differentiation including max-min problems and related rate problems, anti-derivatives and the definite integral. Graphing calculators are used to further the student’s understanding of essential concepts. (Prerequisite(s): MATH 1760 Pre-Calculus with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 4) 5C/5/0/0

**MATH 2752 Calculus 2**

This course is a continuation of MATH 2751 Calculus 1 and the continued development of the properties and applications of integration. Topics include applications of integral, transcendental functions, techniques of integration, L’Hopital’s rule, sequences and series and parametric equations and polar coordinates. A graphing calculator is required. (Prerequisite(s): A grade of “C” or better in MATH 2751) (MnTC: Goal 4) 5C/5/0/0

## ■ Medical Laboratory Technician

**MDLT 1400 Orientation**

This course is designed to introduce students to the field of medical laboratory science and the role of the Medical Laboratory Technician in healthcare. The history of the medical laboratory science profession, and its scope of practice including lab practice areas and personnel will be discussed. In addition, the course will cover educational requirements, employment opportunities, certification, licensure, regulation and professional and patient codes of ethics. 1C/1/0/0

**MDLT 1410 Laboratory Techniques**

Basic skills and techniques will be explained and performed including basic instrumentation. Major topics covered are: Safety and Universal Precautions, Laboratory Glassware and Pipets, Microscopy, Balances and Weighing, Specimen collection and processing, Spectrophotometry, Metric/Chemistry Math and Solutions, and laboratory information systems. (Prerequisite(s): CHEM 1711 or concurrent enrollment) 3C/2/1/0

**MDLT 1421 Hematology 1**

This course covers basic hematology procedures involving manual methods of cell counting and hemoglobin analysis. Emphasis is placed on hematopoiesis theory, blood cell structure, identification, cell differentiation and other manual techniques. (Prerequisite(s): MDLT 1410) 2C/1/1/0

**MDLT 1422 Hematology 2**

This course is a continuation of Hematology 1 and includes instrumentation, cell differentiation, correlation of laboratory findings and quality control. Diseases, special hematology procedures, and stains are correlated. Coagulation theory and laboratory procedures are covered in the course. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): MDLT 1421) 4C/1/3/0

**MDLT 1430 Urinalysis/Body Fluids**

This course covers basic urinalysis procedures used in clinical laboratories in the examination of a patient's urine. It includes theory in urine formation, renal physiology and the role of the kidney in health and disease. Urinalysis laboratory procedures are discussed, practiced and correlated with clinical conditions. Students will be introduced to the analysis of other body fluids used in clinical laboratory and will utilize an information system to order tests and report results. (Prerequisite(s): CHEM 1711 or concurrent enrollment and a grade of "C" or better in MDLT 1410.) 3C/2/1/0

**MDLT 1441 Clinical Chemistry 1**

This course covers the analysis of various chemical constituents of plasma, serum, urine and cerebrospinal fluid. The physiology, methodology and clinical significance of carbohydrate metabolism, non-protein nitrogen, bilirubin metabolism, renal function and liver function is addressed. Lab techniques, concepts of photometry, pipetting and safety will be reviewed and emphasized. Quality assurance, quality control procedures and manual laboratory techniques will be presented and practiced. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): CHEM 1711 or concurrent enrollment and MDLT 1410) 2C/1/1/0

**MDLT 1442 Clinical Chemistry 2**

This course covers the theory and clinical correlations of proteins, enzymes, electrolytes, lipids, acid/base balance, therapeutic drug monitoring, endocrinology, and toxicology. Students learn techniques of procedures, quality control, and normal values of chemical constituents analyzed. Concepts that are basic to the operation of automated laboratory instruments will be taught and automated instruments will be used. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): CHEM 1712 or concurrent enrollment and a grade of "C" or better in MDLT 1441 and HLTH 1410) 4C/1/3/0

**MDLT 1446 Phlebotomy**

This course provides beginning instruction in blood specimen collection skills and procedures. The course addresses safety, legal issues, customer service, the circulatory system, equipment, venipuncture, skin puncture and specimen transport/processing. Students will employ a laboratory information system to document specimen collection. (Prerequisite(s): MDLT 1410) 1C/1/0/0

**MDLT 1451 Learning Lab 1**

This course reinforces the basic skills required for gaining proficiency in performing medical laboratory techniques in hematology and basic skills. The student will participate in laboratory activities with more direct instructor contact. Students will be encouraged and recommended to enroll for more help during the laboratory sessions and review of current subject material. No new material will be introduced in this course. (Optional Elective) (Prerequisite(s): Concurrent enrollment in MDLT 1410 and MDLT 1421) 1C/0/1/0

**MDLT 1452 Learning Lab 2**

This course reinforces the basic skills required for gaining proficiency in performing medical laboratory techniques in clinical chemistry, urinalysis and blood specimen collection. The student will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. (Prerequisite(s): Concurrent enrollment in MDLT 1441, MDLT 1430 and MDLT 1446) 1C/0/1/0

**MDLT 1453 Learning Lab 3**

The course reinforces the basic skills required for gaining proficiency in performing medical laboratory techniques in hematology, immunology and phlebotomy. The student will participate in laboratory activities with more direct instructor contact. Students will be encouraged and recommended to enroll for more help during the laboratory sessions and review of current subject material. No new material will be introduced in this course. (Optional Elective) (Prerequisite(s): Concurrent enrollment in MDLT 1422 and MDLT 1510) 1C/0/1/0

**MDLT 1454 Learning Lab 4**

This course reinforces the basic skills required for attaining proficiency in performing medical laboratory techniques in phlebotomy and clinical chemistry. The student will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. (Prerequisite(s): Concurrent enrollment in MDLT 1442) 1C/0/1/0

**MDLT 1510 Immunology**

Covers basic theory in immunology, non-specific immunity and serological procedures. The reactions of antibodies and antigens are studied and performed in the laboratory. Laboratory procedures are designed to instruct the student in basic serology procedures such as serial dilutions, the use of commercial kits and interpretation of results. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): Grade of "C" or better in MDLT 1410) 2C/1/1/0

**MDLT 2400 Mycology/Parasitology**

Covers parasites and fungi of medical importance. An emphasis is placed on identification of diagnostic stages and knowledge of specimen collection, handling, processing and identification techniques. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): BIOL 1740 or concurrent enrollment and a grade of "C" or better in MDLT 1410) 2C/1/1/0

**MDLT 2410 Immunohematology**

This course covers the introduction to both the theoretical and practical aspects of Immunohematology. Areas of study include a review of immunology concepts, blood group genetics, blood typing, blood group systems, antibody screening and identification, compatibility testing, donor selection, blood component preparation and usage and HDN. (Prerequisite(s): Grade of "C" or better in MDLT 1510) 3C/1/2/0

**MDLT 2420 Clinical Microbiology**

Covers the isolation and identification of clinically significant microorganisms. Emphasis is placed on specimen sources, growth characteristics and techniques for identification, safety and quality assurance. (Prerequisite(s): BIOL 1740 and a grade of "C" or better in MDLT 1410) 4C/1/3/0

**MDLT 2430 Clinical Practice Orientation**

This course explains the clinical laboratory structure and the role of the MDLT student during the practicum phase of the program. Students review theoretical concepts and procedures of testing performed in various clinical laboratory departments. Clinical practice policies and expectations are addressed. (Prerequisite(s): Grade of "C" or better in all coursework required through the first year including summer term) 1C/1/0/0

**MDLT 2455 Learning Lab 5**

This course reinforces the basic skills required for attaining proficiency in performing medical laboratory procedures in phlebotomy and immunohematology. The student will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. (Prerequisite(s): MDLT 1446 and MDLT 2410) 1C/0/1/0

**MDLT 2456 Learning Lab 6**

The course reinforces the basic skills for gaining proficiency in performing medical laboratory techniques in phlebotomy, microbiology, mycology and parasitology. The student is encouraged and recommended to enroll for more help during the laboratory sessions and review of current subject material. No new material will be introduced in this course. (Prerequisite(s): MDLT 2420 and MDLT 2400 or concurrent enrollment) 1C/0/1/0

**MDLT 2591 Clinical Practice**

In this clinical laboratory course, the student works under supervision in a hospital/clinic laboratory. The experience allows the students to refine lab techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking and independent work skills. Students rotate through hematology, chemistry, urinalysis, microbiology, immunohematology, immunology and coagulation departments. In addition, students perform routine specimen collection and processing procedures. (Prerequisite(s): Grade of "C" or better in all MDLT program requirements) Variable 1-9 credits. 0/0/1-9

**MDLT 2593 Comprehensive Examinations**

Students will be evaluated by comprehensive examinations on their knowledge of theory and practical applications to assist them in their preparation for national certification examinations. Evaluation is exercised in all department areas of the clinical laboratory. (Prerequisite(s): Grade of "C" or better in all required courses in the Medical Laboratory AAS degree including general education courses and clinical practice) 1C/0/1/0

## ■ Medical Office Careers

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**MEDS 1420 Health Information Foundations**

This course will help the student understand health information theory at the basic level with a major emphasis on skill building to perform day-to-day operational tasks in health information management. Through development from the specific to the global, the intended audience, who will likely not have a previous background in health information management, will be able to grasp key theories from implementation to current practices. After obtaining the base knowledge and skills from this class, the student will be able to use, analyze, present, abstract, code, store and/or retrieve healthcare data for the support of healthcare related organizations. 3C/3/0/0

**MEDS 1470 Anatomy & Physiology/Medical Office**

This course provides the student with an understanding of anatomy and physiology of all systems of the human body. Common disease conditions of each body system will be highlighted. This course provides the student with a fundamental knowledge base for work in the medical office careers field. 3C/3/0/0

**MEDS 1480 Medical Terminology**

This course exposes the student to the language of healthcare known as medical terminology. The student will develop an understanding of medical terminology by studying the pronunciation and definition of word parts as well as the proper format in bringing word parts together to form medical terms. Development of this foundation is designed to provide a medical vocabulary for future healthcare staff. 3C/3/0/0

**MEDS 1551 Medical Formatting/Transcription 1**

Covers formatting and transcription of a variety of medical documents. Emphasis will be on authentic forms and material; formatting; spelling; building speed and accuracy; and proofreading and correcting errors. (Prerequisite(s): MEDS 1480 or concurrent enrollment) 3C/2/1/0

**MEDS 1552 Medical Transcription 2**

A continuation of MEDS 1551. A variety of dictated medical material will be produced using electronic equipment. Emphasis will be on authentic forms and material, building speed and accuracy, advanced editing, proofreading and correcting errors. (Prerequisite(s): MEDS 1551) 3C/2/1/0

**MEDS 1553 Medical Transcription 3**

Advanced course that continues the development of medical transcription skills using word processing equipment to produce a variety of usable medical documents. Emphasis will be on authentic material, building speed and accuracy, advanced editing, proofreading and correcting errors. Material will be from physicians from various ethnic backgrounds and will cover various medical specialty areas. (Prerequisite(s): MEDS 1552) 3C/2/1/0

**MEDS 1560 Computerized Health Information**

An introduction to the concepts of computer technology associated with healthcare and the tools and techniques for collecting, storing and retrieving health care data. This course will explain the difference between data and information as well as discuss networks, data integrity and security, document imaging and automatic identification. Health information systems including administrative, patient registration, ADT, HIM applications, clinical, point of care, lab, radiology, pharmacy and voice recognition, will also be discussed. 3C/3/0/0

**MEDS 1562 Billing and Reimbursement**

An introduction to the reimbursement systems used in the healthcare industry, including inpatient and outpatient settings. Medical claim forms preparation and processing will be covered. 2C/2/0/0

**MEDS 1570 Human Disease**

This course provides basic information about major disease conditions affecting all the major body systems. Information about diagnostic, treatment, and surgical procedures is also included. Students will do in-depth research on selected disease conditions using Merck Manual and the Internet. They will review and analyze medical reports reflecting the disease conditions that are presented in class. (Prerequisite (s): MEDS 1480) 3C/3/0/0

**MEDS 2430 Pharmacology for the Medical Office**

This course offers basic information about drug terminology, drug names (generic and brand), drug classes, and the use of drugs. Drugs frequently prescribed for common disease conditions will be reviewed by body system. Students will use electronic resources and text-based references such as the

Physician's Desk Reference (PDR) to look up detailed information about selected drugs that are being reviewed in class. 2C/2/0/0

#### **MEDS 2432 Alternative Health Record Systems**

This course focuses on managing health information in health care facilities other than acute care hospitals. An introduction to the basic components of the content, use and structure of health care data and data sets and how these components link to primary and secondary record systems. Topics to be discussed include the content of the health record, documentation requirements, health care data sets, registries and indices, forms and screen design and primary versus secondary records. An explanation of the organization, financing and delivery of healthcare services will be discussed, as well as a discussion of such topics as accreditation standards and licensure and regulatory agencies. 2C/2/0/0

#### **MEDS 2434 Legal and Ethical Aspects of Health Information**

An introduction to the legal and ethical issues that are relevant to health information. The court system and legislative process, as well as legal vocabulary will be communicated. Topics to be discussed include confidentiality, release of information, retention guidelines, patient rights and advocacy, advanced directives, and ethics. The new HIPAA guidelines will also be reviewed. 2C/2/0/0

#### **MEDS 2440 Supervision of Health Information**

An introduction to the principles of supervision and organization in order to develop effective skills in leadership, motivation and team building approaches. Topics will include basic management principles, human resource supervision, budgeting basics, ergonomics, how to market HIM services and performance or quality improvement. 2C/2/0/0

#### **MEDS 2460 ICD-9-CM Coding**

This course teaches the student to accurately code diagnoses and procedures using the ICD-9-CM coding system. This class brings the student through all of the coding conventions in order to develop a basic coding foundation. Coding of diagnoses and procedures from each body system will be covered as well as coding from operative reports and other healthcare documents. Emphasis on Principle Diagnosis and Principle procedure as well as secondary diagnoses and secondary procedures is also covered. Other topics include DRG's, compliance, over-coding and under-coding, complications and comorbidities. (Prerequisite(s): MEDS 1470 and MEDS 1480) 3C/2/1/0

#### **MEDS 2470 CPT-4 Coding**

This course teaches the student to accurately code procedures using the CPT-4 coding system. This class brings the student through all of the coding conventions in order to develop a basic coding foundation. Coding of procedures from each body system will be covered as well as coding from operative reports, emergency room reports, physician office reports and other healthcare documents. Students will also be trained in coding from all sections within the CPT-4 system as well as Evaluation and Management coding and HCPCS Level 2- National coding. (Prerequisite(s): MEDS 1470 and MEDS 1480) 3C/2/1/0

#### **MEDS 2480 Advanced Coding**

In this course, students will use their basic ICD-9-CM and CPT-4 coding skills while learning to correctly code Diagnoses and Procedures from a multitude of source documents such as Inpatient Records; Ambulatory Surgery Records; Emergency

Room Reports; Physician Office Cases and Ancillary Service Reports. Students will also become familiar with Diagnosis Related Groups and Ambulatory Payment Classifications. Through instruction in coding these cases, the students will become familiar with what will be expected of them in a real coding position in a healthcare organization. (Prerequisite(s): MEDS 2460 and MEDS 2470) 3C/2/1/0

#### **MEDS 2510 Quality Management and Health Statistics**

This course is an introduction to the principles of the quality assessment process which encompasses a framework for gaining skills in collecting and analyzing data. This course covers quality assessment and improvement including collection tools, data analysis and reporting techniques. Utilization management, risk management and case management will also be discussed. This course is also a study of the effective use, collection, arrangement, presentation and verification of health care data. Vital statistics, healthcare statistics and descriptive statistics, as well as reliability and validity of data will be discussed. Research techniques and the IRB process will also be covered. 3C/3/0/0

#### **MEDS 2590 HIT Internship**

In this course, students apply the coursework, theories, skills and ethics learned during the program to a field-based experience. Under the supervision of a qualified health information professional, the student will gain professional practice experience in a health care facility. Students will meet written goals and objectives and be evaluated by the Health Information Supervisor and the College Internship Coordinator. 3C/0/0/3

## ■ Music

#### **MUSC 1740 Music Appreciation**

A study of classical music from 1450 to the 20th Century. Developed for students interested in increasing their awareness and understanding of music. (MnTC: Goals 6 & 8) 3C/3/0/0

#### **MUSC 1750 Jazz History**

This introductory course is designed to help students become familiar with and appreciate jazz as an important American art form. The course follows the historical development of jazz style and innovations to Post-Modern developments and integration with other musical forms. Attendance at a live performance is required. (MnTC: Goals 6 & 7) 3C/3/0/0

## ■ Natural Sciences

#### **NSCI 1710 Earth Science**

This course introduces students to topics in geology, oceanography, meteorology and astronomy. The solid earth, the liquid hydrosphere and the gaseous atmosphere are studied, as well as the earth as a part of the solar system. It is intended for students interested in the natural sciences and can be used to fulfill the lab science requirement. Two hours of lab per week are required including experiments, hands-on activities, and field trips. (MnTC: Goals 3 & 10) 4C/3/1/0

#### **NSCI 1720 Physical Geology**

This course introduces students to rocks and minerals, geologic time and the processes of global tectonics as related to the changing landscape. Field simulations and exercises provide students with the framework for rock and mineral identification, mapping and model interpretations. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1730 Introduction to Oceanography**

This course introduces students to basic scientific principles of oceanography. Topics include the historical, geological, biological, chemical and physical oceanography. Contemporary issues related to marine pollution, resources and related areas will also be studied. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1740 Introduction to Meteorology**

This course introduces students to basic scientific principles of meteorology. Topics include basic properties of the atmosphere, weather instruments, weather phenomena, terminology and forecasting. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1750 Natural Disasters**

This course introduces students to the investigation of the physical processes, origins and the human and economic impacts caused by natural disasters. The course covers earthquakes, volcanoes, severe weather, climate change, wildfires, floods and other catastrophic phenomenon. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1760 Descriptive Astronomy**

This course introduces students to astronomy. It includes the observation of the planets and stars using reflecting and refracting telescopes. The earth and its motion, sun, moon, solar system, stars and the galaxies will also be studied. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1770 Introduction to Energy and the Environment**

This course introduces students to energy production, supply, efficiency and the projections of future needs. The potential of solar, biomass, photovoltaics, wind and other continuous flow sources are covered. Crude oil, natural gas, coal and nuclear sources of energy are studied. Environmental, political, economic and ethical considerations are reviewed. (MnTC: Goals 3 & 10) 3C/3/0/0

**NSCI 1780 Contemporary Issues in Science**

With the completion of the human genome project and the rapid pace of advances in modern biology and medicine, there are many important ethical and scientific issues that touch our daily lives. In this course we will focus on contemporary issues such as stem cell research, gene therapy and genetic testing, environmental toxins, climate change and energy resources, and emerging diseases. Students will learn the basic scientific concepts that are necessary to understanding each issue, and will explore many ethical dilemmas surrounding each issue. (MnTC: Goals 3 & 9) 3C/3/0/0

**■ Nursing Assistant/Home Health Aide****NAST 1111 Nursing Assistant & Home Health Aide**

This course introduces concepts of basic human needs, health illness continuum, and basic nursing assistant and home health aide skills. Skills are demonstrated in a supervised laboratory setting. (Prerequisite(s): Nursing Assistant Seminar and appropriate assessment score) 4C/3/1/0

**NAST 1112 Nursing Assistant-Clinical**

This course will give the student clinical experience in a long-term care facility. Completion of NAST 1111 and NAST 1112 will meet the state and federal criteria for employment in long-term care. The student must attend all hours of clinical. (Prerequisite(s): NAST 1111) 1C/0/1/0

**■ Painting and Decorating****PDEC 1405 Small Hand Tools**

Course covers tools and equipment used by painters. These skills include but not limited to: drive and remove nails, glue and clamp, drive screws, cut metal, layout and drill holes, razor scraper, portable disc sander, and belt sander. 3C/2/1/0

**PDEC 1425 Finishing**

Students will learn blueprint reading, preparation and application procedures, use of ladders and scaffolds, paint materials, and basic solvents and thinners. 4C/2/2/0

**PDEC 1480 Spray Painting**

Students will use airless and conventional spraying as well as advanced spraying. They will be able to use the compressor system, power washer, respirator, HVLP spray equipment and identify and use spray tips. 3C/1/2/0

**PDEC 1500 Refinishing**

Students will learn wood finishing and color mixing and matching. They will demonstrate safety rules for handling varnishes, usage of stain, color filler, recognize varnish defects, apply polyurethane, wax, and shellac. 4C/2/2/0

**PDEC 1515 Wall Covering**

Students will estimate wall covering, prepare walls for papering, set up paste table, prepare for hanging wall coverings, hang paper around openings, and hang ceiling paper. 3C/1/2/0

**PDEC 1590 Employability**

Students will learn to complete applications, write a cover letter, prepare a resume, and documentation. Participate in a mock job interview, prepare career portfolio. 1C/1/0/0

**■ Personal Trainer****PTRN 1410 Personal Training 1**

This course introduces the student to the major components of fitness analysis, basic exercise program design, and the skills necessary for teaching individual activities. Components of exercise physiology are included throughout. (Prerequisite(s): Must be enrolled in Personal Trainer program.) 5C/3/2/0

**PTRN 1420 Personal Training 2**

This course explores advanced components of fitness analysis, functional training program design, and the skills necessary for teaching group activities. Components of exercise physiology are included throughout. (Prerequisite(s): PTRN 1410 and HLTH 1420) 5C/3/2/0

**PTRN 1490 Personal Training Internship**

This course is the final component of the personal trainer curriculum that serves to integrate all materials learned in a practical setting. Students will be placed at various training facilities providing direct application of personal training techniques and methodologies. (Prerequisite(s): Instructor approval or completion of entire personal trainer curriculum and current CPR certificate) 5C/0/5/0



## ■ Philosophy

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### **PHIL 1700 Introduction to Philosophy**

The purpose of this course is to engage the student in a number of central topics in philosophy through the examination and analysis of the writings of contemporary and major Western philosophers as well as through the close study of several fundamental issues which have arisen in the course of the development of the Western philosophical tradition. Topics of study include the nature of human knowledge; perception and illusion; the nature of consciousness; personal identity; minds, brains and machines; freedom and determinism; and the meaning of life. The course will be conducted in a seminar/symposium format supplemented by lectures and student participation. (MnTC: Goal 6) 3C/3/0/0

### **PHIL 1710 Logic**

Logic is the study of arguments. In this course the student will be introduced to the principles of logic and will be able to use these principles in evaluating verbal and written communication. Students will learn both about formal logic, which includes syllogisms and truth-functional logic, as well as informal logic, which includes fallacies and looking at arguments in context. Although this course falls within the goal of mathematics, it may not apply to certain technical programs or meet certain transfer requirements for mathematics. (MnTC: Goal 4) 3C/3/0/0

### **PHIL 1720 Ethics**

The purpose of this course is to acquaint the student with the rich and varied tradition of ethical thought found in Western Civilization. Its historical focus will provide a background for perennial ethical themes. Students will examine a variety of theoretical frameworks through which to approach moral issues and will practice using the principles of each to make judgments about issues. The course will be conducted in a seminar/symposium format supplemented by lectures and student participation. Students are expected to develop a philosophical perspective on moral questions as evidenced in the ability to relate the positions of various ethical philosophers to contemporary issues both in written work and in classroom discussion. (MnTC: Goals 6 & 9) 3C/3/0/0

### **PHIL 1722 Health Care Ethics**

This course introduces basic ethical theories, principles, and decision-making guidelines used in health care ethics. It examines moral issues confronting health care practitioners, patients, and others involved in medicine. The course includes philosophical analysis of contemporary moral decision-making on topics such as disclosure, confidentiality, human cloning, medical research, abortion, transplantation, allocation of limited resources, cultural differences regarding medical practices, and euthanasia. The course is open to all students interested in health care ethics and is required for PN AAS majors. (MnTC Goals: 6 & 9) 3C/3/0/0

### **PHIL 1750 Eastern Philosophy**

The purpose of this course is to acquaint the student with the major Asian philosophies. Students will engage in study of the history and ideas of the following schools of thought: Hinduism, Taoism, Confucianism and Buddhism. This will include examination and analysis of selections from works such as the Upanishads, the Tao te Ching, the Analects of Confucius and the writings of the Dalai Lama. Topics of study will include the nature of reality and being, social philosophy and ways of attaining knowledge. We will compare the ideas of Eastern philosophers on certain fundamental issues with the

conclusions of various Western philosophies. The course will be conducted in a seminar/symposium format supplemented by instructor lectures and student participation. (MnTC: Goals 6 & 8) 3C/3/0/0

### **PHIL 1760 World Religions**

An introduction to major world religions in India, China, Japan, the Middle East and indigenous religions from around the world. The course will focus on the main practices and beliefs, scriptures, formative periods and historical development of these great religions. It will also include ways fundamental religious questions are answered and critique of religion from a secular perspective. (MnTC: Goals 6 & 8) 3C/3/0/0

## ■ Physics

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### **PHYS 1720 Introductory Physics**

This course introduces students to fundamental principles of physics and their application to familiar phenomena. Topics include motion, fluids, heat, electricity, magnetism, light and optics, waves and sound, quantum phenomena and relativity. The topics will be related to modern technology and every day phenomena. The course is intended for students who have not had a high school physics course. Lecture and Laboratory. (Prerequisite(s): MATH 1730 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

### **PHYS 2700 General Physics 1 (with Calculus)**

Calculus based course with a study of Kinematics, Dynamics, Laws of Motion, Gravitation, Kinetic and Potential Energy; Conservation of Energy; Linear and Angular momentum; Equilibrium and Thermodynamics. Designed to fulfill physics requirements for students pursuing the study of physics, chemistry, pre-engineering, mathematics or computer science. (Prerequisite(s): MATH 2751 Calculus 1 with a grade of "C" or better) (MnTC: Goal 3) 5C/2/3/0

### **PHYS 2710 General Physics 2 (with Calculus)**

Continuation of General Physics 1 (with Calculus). Topics include: Wave Phenomenon, Fluids, Electricity and Magnetism; electrical circuits, light and optics and modern physics. Designed to fulfill physics requirements for students pursuing the study of physics, chemistry, pre-engineering, mathematics or computer science. (Prerequisite(s): PHYS 2700 General Physics 1 with a grade of "C" or better) (MnTC: Goal 3) 5C/2/3/0

## ■ Pipefitting

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### **PIPE 1410 Pipe Science/Math**

Study of selected branches of physics and math applied to pipefitting. Areas covered include properties of matter, heat, math and mechanics. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 5C/2/3/0

### **PIPE 1420 Pipe Blueprint Reading**

Study of basic drafting principles as they relate to piping drawing and blueprints. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 3C/1/2/0

### **PIPE 1430 Pipe Welding 1**

Basic course in oxyacetylene welding and cutting of pipe. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 5C/1/4/0

**PIPE 1441 Basic Heating 1**

Introductory course on low pressure steam. Areas include boiler, piping and heat transfer units. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 3C/1/2/0

**PIPE 1442 Basic Heating 2**

This course is a basic study of hydronic heating systems. Areas include systems, piping layout and figuring heat loss. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 3C/1/2/0

**PIPE 1445 Apprentice Pipefitting Theory**

Introductory course on pipefitting apprenticeship programs. Areas include heating, cooling and piping procedures. (Prerequisite(s): Must be enrolled in Pipefitting apprenticeship program.) 2C/0/2/0

**PIPE 1451 Pipe Shop 1**

Care and use of tools and equipment and uses of different types of pipe fittings, hangers and the assembly of pipe and fittings are covered. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 4C/0/4/0

**PIPE 1452 Pipe Shop 2**

Course consists of tube bending, flaring, soldering, brazing and rigging. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 4C/0/4/0

**PIPE 1455 Introduction to Apprentice Pipe Welding 1**

Basic course in pipe welding and cutting of pipe. (Prerequisite(s): Must be enrolled in Pipefitting apprenticeship program.) 2C/0/2/0

**PIPE 1521 Basic Air Conditioning**

Fundamental concepts of air conditioning are presented. Areas include air treatment, moisture content, ventilation and purity. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 5C/0/5/0

**PIPE 1531 Pipe Welding 2**

Basic course in arc welding on plate and pipe. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 2C/0/2/0

**PIPE 1540 Electric Controls**

Fundamentals of electricity and electrical circuits are covered. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 3C/1/2/0

**PIPE 1550 Basic Gas**

This is an introductory course on gas used in gas fired heating systems. Areas covered include natural gas burners, LP gas, burners, pipe sizing, flue venting, electricity and safety pertaining to gas fired systems. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 3C/2/1/0

**PIPE 1715 Certified Pipe Welding Layout**

Students will learn pipe math layout for weld fittings. 3C/1/2/0

**PIPE 1720 Certified Pipe Welding 1**

Students will learn welding safety and oxyacetylene welding and cutting. 2C/1/1/0

**PIPE 1721 Certified Pipe Welding 2**

Students will be introduced to carbon steel arc welding on plate and pipe. 5C/1/4/0

**PIPE 1722 Certified Pipe Welding 3**

Students will certify on carbon steel pipe and be introduced to Gas Tungsten Arc Welding on stainless steel plate and pipe. 5C/1/4/0

**PIPE 1723 Certified Pipe Welding 4**

Students will certify on stainless steel pipe. 5C/1/4/0

**PIPE 1730 Certified Pipe Welding Open Lab**

Provides an opportunity for additional certification tests practice as needed. 5C/1/4/0

**PIPE 2615 Pipe Layout and Installation**

This courses covers the care and use of tools and equipment used by the pipefitter, the identification and uses of different types of pipe, pipefittings, hangers and pipe supports. Assigned pipe projects will include calculating, measuring, cutting and assembling pipe and fittings in both straight runs and offsets. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2622 Rigging, Industrial Safety and OSHA**

This course is designed to cover a broad range of OSHA safety standards in the construction industry. The second half of the course will concentrate on industrial rigging of pipe and equipment. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2642 Piping Design**

This course will introduce the fundamentals in the design of ASNE B31.1 Power Piping, material selection, and supports. The course will provide the UA Apprentice examples of applications of power piping codes, and proper piping material selection and installation. Classroom examples will be demonstrated on the fundamentals of ordering materials, calculating pipe hanger loads, flexibility analysis, design of expansion loops, cold springing, hanger selection and installation, hanger spacing and inspection, and reaction forces on piping systems. The course will provide hands-on experience in the installation of constant and variable spring hangers and proper piping installation practices. 2C/0/2/0

## ■ Plumbing

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**PLMB 2610 PreApprentice Plumbing**

This is an introductory course on the use of tools, materials and fittings used in the plumbing field. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2612 Job Safety & Health**

The purpose of this course is to help the student be aware of the hazards on a jobsite and to help them work safely. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2614 Applied Math for Plumbing**

This course covers basic mathematics and practical application related to plumbing. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2616 Plumbing Welding**

This is an introductory course into welding and the principles used in welding. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2618 Basic Drawing**

This course introduces the student to basic concepts of drafting, blueprints and plan specifications used in the construction field. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2621 Plumbing 1**

This course introduces the student to basic scientific principles applied in plumbing. It will introduce the student to drainage and vent systems and the Minnesota State Plumbing Code. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2622 Plumbing 2**

This course covers proper pipe sizing and installation of piping systems, the installation of plumbing fixtures, appliances and methods used in the installation and repair of these systems. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2623 Plumbing 3 Gas Installations & Service**

This course introduces the student to fundamental principles of gas burning appliances and the service and repair of these appliances and systems. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2624 Plumbing 4 Commercial & Residential Service.**

This course introduces students to tools and methods used in servicing and repair of plumbing systems in residential and commercial buildings. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program) 4C/0/4/0

**PLMB 2631 Plumbing Code 1**

This course covers the Minnesota State Plumbing code and looks at each section in detail. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2632 Plumbing Code 2**

This course covers the Minnesota State Plumbing code and is a continuation of Plumbing Code 1. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2633 Plumbing Code 3**

This course covers the Minnesota State Plumbing code and is a continuation of Plumbing Code 2. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program) 2C/0/2/0

**PLMB 2634 Plumbing Code 4**

This course covers the Minnesota State Plumbing code and is a continuation of Plumbing Code 3. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 2C/0/2/0

**PLMB 2640 Advanced Blueprint Reading & Heavy Rigging**

Study of basic blueprint reading and layout and pipe drawings related to the plumbing field. This course also introduces the student to basic rigging. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/0/4/0

**PLMB 2650 Industrial Plumbing**

This is an introductory course to industrial plumbing work. It focuses on welding, rigging and materials used in industrial plumbing work. (Prerequisite(s): Must be enrolled in the Plumbing apprentice program.) 4C/1/3/0

## ■ Political Science

**POLS 1720 Introduction to American Government**

This course provides an overview of the American political system. The course theme focuses on the principles of the constitution; the concept and processes of federalism; the interaction between the executive, legislative and judicial branches of government; the emergence of political parties, popular opinion, political campaigns; the evolution of domestic and foreign policy; and the role of the media in US politics. Special attention will be given to current affairs and their historical roots. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

**POLS 1740 Introduction to World Politics**

This course introduces core themes, concepts, and debates in the study of world politics. Several themes will be explored through reading, discussion, and film. Possible topics include the causes of war, globalization, global ethics, and human rights. This course will stress the development of critical thinking skills necessary for the practice of responsible citizenship in a global world. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

**POLS 1750 Introduction to Political Science**

This course offers an introduction to political science through an exploration of political ideologies and the nature of democracy. Ideologies to be examined include liberalism, conservatism, socialism, communism, fascism, and environmentalism. We will seek to understand these ideologies through reading, discussion and film. Additional attention will be given to current events. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

**POLS 1760 Introduction to Political Thought**

This course offers an introduction to political theory through a careful reading of primary texts. We will seek to understand thinkers of the past in both their historical contexts and as timeless expressions of the human condition. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

## ■ Practical Nursing

### PRNS 1410 Clinical Refresher

In this clinical course, a practical nursing student will need to demonstrate skills and abilities in performing nursing procedures. The student will participate in lab activities with instructor supervision. This course is specifically designed for the student who has had their clinical progression interrupted. (Prerequisite(s): Enrollment as a major in the College's Practical Nursing Program) 2C/0/2/0

### PRNS 1420 Essentials of Clinical Pharmacology

This course covers introductory pharmacology information and dosage math including the metric, apothecary and household systems of measurement. Students will study conversions, solving for X, ratio and proportions and IV drip rate problems. Medications are studied according to classifications with emphasis on action, side effects and nursing implications. (Prerequisite(s): MATH 0742 or appropriate assessment score. HLTH 1410, HLTH 1420 or BIOL 2721, SPCH 1720 or 1730, PSYC 1720, ENGL 1711, HLTH 1450 or PHIL 1722, HLTH 1460. Must be accepted as a premajor Practical Nursing student. 3C/2/1/0

### PRNS 1430 Fundamentals of Nursing

This course introduces concepts of basic human needs, holism and the nursing theories and skills needed to meet the needs of clients. Skills are demonstrated and practiced in a supervised college laboratory setting. (Prerequisite(s): ENGL 1711, PSYC 1720, SPCH 1720 or 1730, HLTH 1450 or PHIL 1722 and HLTH 1460) 5C/1/4/0

### PRNS 1491 Clinical 1

In this course, Practical Nursing students will care for selected clients throughout the life span, with particular emphasis on care of the geriatric client. Students will implement cares and skills learned in prior theory and lab courses. Emphasis is on the basic needs of assigned clients, holistic evaluation and beginning application of the nursing process. (Prerequisite(s): Grade of "C" or better in PRNS 1420, PRNS 1430 and PRNS 1521) 4C/0/4/0

### PRNS 1492 Clinical 2

In this clinical course the Practical Nursing students care for selected clients throughout the life span. Students will implement cares and skills learned in prior Practical Nursing theory and lab courses. Students will use the nursing process and holistic evaluation to meet the basic needs of assigned clients. (Prerequisite(s): Grade of "C" or better in PRNS 1491 and PRNS 2410; and concurrent enrollment in PRNS 1522) 4C/0/4/0

### PRNS 1493 Clinical 3

In this clinical course, the Practical Nursing students will care for selected clients throughout the life span. Students will implement cares and skills learned in prior theory and lab courses. Students will continue the use of nursing process and holistic evaluation to meet the basic needs of assigned clients. (Prerequisite(s): Grade of "C" or better in PRNS 1492 and PRNS 1530) 4C/0/4/0

### PRNS 1521 Medical Surgical 1

This course assists the student to apply the concept of the health-illness continuum and holism in promoting health and preventing illness. Students will study the physiological aspects of client care, including communicable diseases. Included in this course is study of the disease process, as well as nursing management for the client with musculoskeletal, respiratory, neoplastic, reproductive and skin disorders. (Prerequisite(s): Grade of "C" or better in PRNS 1420 and PRNS 1430 or concurrent enrollment) 4C/4/0/0

### PRNS 1522 Medical Surgical 2

This course identifies illness as it affects the neurological, sensory, urinary, cardiovascular, gastrointestinal and endocrine systems. It includes commonly used preventive and therapeutic measures, as well as nursing management. Also included in this course is the study of the critically ill and dying client. (Prerequisite(s): Grade of "C" or better in PRNS 1491) 4C/4/0/0

### PRNS 1530 Maternal Child Health

This course assists the student to meet the basic health needs of the mother, the newborn infant and the family during pregnancy, labor, delivery and post partum period. This course provides the Practical Nursing student with an understanding of common pediatric disorders, recommended plans of care and the concepts of prevention and treatment. (Prerequisite(s): PRNS 1492 and PRNS 1522) 3C/3/0/0

### PRNS 2410 Psycho/Social Nursing

This course will build on the student's understanding of human behavior and assist them in developing skills in the care of clients with psychiatric and social problems. It includes the study of mental/emotional illness, substance abuse and social problems emphasizing nursing management in all health care settings. (Prerequisite(s): Grade of "C" or better in ENGL 1711, HLTH 1410, HLTH 1420 or BIOL 2721, SPCH 1720 or 1730, ADMS 1405, HLTH 1450 or PHIL 1722 and PSYC 1720. Must be accepted as a premajor Practical Nursing student.) 2C/2/0/0

### PRNS 2491 Integrated Nursing Practicum

In this course additional topics and skills are taught that relate to the professional scope of practice for the graduate practical nurse as well as professional responsibilities and opportunities. Students will work in a clinical setting demonstrating correlation of theory and skills expected of new Practical Nursing graduates. (Prerequisite(s): Grade of "C" or better in all Nursing Program course requirements) 2C/0/2/0

## ■ Psychology

### PSYC 1710 General Psychology

This course introduces psychological theory, experimental findings and applications of human behavior. Topics include research methodology, the nervous system, perception, cognition and memory, learning theory, human development, personality, emotions, attitudes, motivation, socialization and psychological disorders and related treatments. The course will explore current research and issues in psychology including the influence of heredity and the environment on behavior. (Prerequisite(s): READ 0721 with a grade of "C" or better, or concurrent enrollment, or appropriate assessment score.) (MnTC: Goals 2 & 5) 4C/4/0/0

### **PSYC 1720 Psychology throughout the Lifespan**

The focus of this course is on human development throughout the lifespan. The course includes research methodology, theoretical perspectives and the physical, cognitive and psychosocial changes that influence people throughout their development. An application of research and theory to current issues will be addressed. (Prerequisite(s): READ 0721 with a grade of “C” or better, or concurrent enrollment, or appropriate assessment score.) (MnTC: Goals 5 & 9) 3C/3/0/0

### **PSYC 1730 Introduction to Child Psychology**

This course covers child development from the prenatal period through middle childhood. The course will emphasize research methods, theories of child development and an exploration of the genetic and environmental factors that influence children’s social and cognitive development. (Prerequisite(s): PSYC 1710 General Psychology) (MnTC: Goal 5) 3C/3/0/0

### **PSYC 1740 Abnormal Psychology**

This course offers an integrated and multidimensional perspective of the study of psychopathology. Students learn about research methods, clinical assessment and diagnosis of psychological disorders using DSM-IV codes as a reference. Students also explore the ways in which mental illness affects peoples’ lives. (Prerequisite(s): PSYC 1710 General Psychology) (MnTC: Goals 5 & 7) 4C/4/0/0

### **PSYC 1750 Introduction to Health Psychology**

This course examines how psychological, social and biological factors interact with and affect individuals’ efforts to promote their own health and prevent or cope with illness. Topics include individual responses by gender, age and ethnicity, variations in health-related behaviors, stress and illness; whether and what kind of treatment individuals seek for health problems and whether they adhere to treatment recommendations; and the theories and methods used by psychologists to understand these issues. (MnTC: Goals 5 & 7) 3C/3/0/0

### **PSYC 1760 Social Psychology**

This course focuses on social psychological theories and research to analyze how an individual’s thoughts, feelings, and actions influence other people, social settings, and institutions. Specific emphasis will be placed on the ways in which an individual’s cognitive processes affect their emotions and behaviors as well as their interpretation of social interactions. Topics include perception, attribution, socialization, attitudes, conflict, altruism, groups, power, conformity, prejudice, collective behaviors, and social movements. (MnTC: Goal 5) 4C/4/0/0

## **■ Reading**

### **READ 0720 Developmental Reading Skills for College**

This course emphasizes the development of vocabulary and reading skills necessary for college texts, readings and assignments. The course focuses on increasing vocabulary, using vocabulary contextually and developing independent learning strategies for reading. (Placement into this course will be according to college assessment scores.) 3C/3/0/0

### **READ 0721 Reading 1**

This course emphasizes comprehension and learning strategies necessary to respond effectively to a variety of college texts, readings and assignments. The course focuses on identifying main ideas, supporting details, organizational patterns typically found in college texts, summarizing and developing college

level vocabulary. (Placement into this course will be according to college assessment score or successful completion of READ 0720 with grade of “C” or better.) 3C/3/0/0

### **READ 0722 Reading 2**

This course emphasizes critical reading strategies and college-level vocabulary. It presents college reading as information processing and focuses on strategies for improving comprehension, selection, organization and recall. Materials represent a variety of academic disciplines and occupational areas. (Placement into this course will be according to assessment score or successful completion of READ 0721 with a grade of “C” or better.) 3C/3/0/0

## **■ Related Welding**

### **RWLD 1410 Welding for Carpenters**

Carpentry students become acquainted and familiar with basic welding and oxyacetylene cutting processes while learning proper safety techniques associated with welding. 3C/0/3/0.

### **RWLD 1430 Welding for Construction Electricity**

Beginning course that includes a combination of oxyacetylene welding, cutting, arc and GMAW welding conducted in a limited time. Basic shop procedures will be conducted by lecture, demonstration and shop practice. Practice on three basic positions is provided. 2C/0/2/0

### **RWLD 1440 Introduction to Gas, Arc & Mig Welding**

Beginning course includes a combination of oxyacetylene welding, cutting, arc and mig welding in a limited time. Basic shop procedures and safety are emphasized as is proper care of tools and equipment. Instruction will be conducted by lecture-demonstrations and shop practice. Practice on four basic joints in three basic positions is provided. Building an understanding and skill in the use of welding and manual cutting equipment is developed. 2C/0/2/0

### **RWLD 1441 Bricklayer Welding 1**

This course will include basic Oxygen Acetylene Cutting and Shielded Metal Arc Welding (SMAW) using E7018 1/8th inch electrodes in the flat and horizontal positions. (Prerequisite(s): Must be enrolled in the Bricklayers apprenticeship program) 1C/0/1/0

### **RWLD 1445 Basic Welding for Auto Mechanics**

Basic course in welding that includes Oxy-Fuel welding, cutting and brazing, GMAW (wirefeed) in all positions and introduction to SMAW (stick). Instruction will be conducted by lecture, demonstrations and live shop practice. Shop safety will be emphasized at all times. 2C/0/2/0

### **RWLD 1450 Advanced Mig & Tig Welding**

Covers basic welding of light gauge metals in all positions as it relates to the Truck Mechanics field with an emphasis on safety. 2C/0/2/0

### **RWLD 2624 Apprenticeship Pipe Welding 4**

Introduction to heliarc welding. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### **RWLD 2627 Apprenticeship Pipe Welding 7**

Includes Orbital welding for clean room pharmaceutical and food grade and biomedical application. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

## ■ Respiratory Therapist/Respiratory Care Practitioner

### RESP 1410 Respiratory Care Essentials

This course introduces the basic sciences and concepts required for the study of respiratory care. This includes fundamentals of chemistry, cardiopulmonary anatomy, physiology, mathematics and physics. Also included is an introduction to the equipment used in basic respiratory care. Emphasis will be placed on physical gas laws and metabolic respiration. An introduction to the hospital and the patient's medical record will be completed. (Prerequisite(s): Acceptance into the program major, high school chemistry, college level math course with a grade of "C" or better, English Comp or equivalent with a grade of "C" or better) 3C/1/1/1

### RESP 1510 Cardiopulmonary Pathophysiology 1

This course is an introduction to the assessment and pathophysiology of the patient with cardio-pulmonary disease. Emphasis is on assessment of oxygenation, ventilation and acid/base balance. Students are introduced to pulmonary pathophysiology emphasizing differences in obstructive and restrictive lung disease. (Prerequisite(s): CHEM 1711, HLTH 1410, HLTH 1420) 3C/1/2/0

### RESP 1520 Respiratory Care Therapeutics

This course introduces the student to basic respiratory care therapeutics including: oxygen administration, aerosol delivery devices, bronchial hygiene methods and lung hyperinflation techniques. Specific equipment, indications, contraindications, adverse reactions and procedures associated with each therapeutic procedure are covered. (Prerequisite(s): CHEM 1711, RESP 1410, HLTH 1420; Co-Requisite(s): RESP 1540) 5C/3/2/0

### RESP 1540 Respiratory Care Pharmacology

This is an in-depth course in cardiopulmonary pharmacology emphasizing drug classification, basic chemistry and action on tissue receptors. Describes indications, actions and dosages of drugs used in cardiopulmonary care. (Prerequisite(s): CHEM 1711, RESP 1410, HLTH 1410 & HLTH 1420; Co-Requisite(s): RESP 1520) 2C/1/1/0

### RESP 1591 Respiratory Care Clinical 1

Student will have direct patient contact and provide basic patient care procedures as directed by the clinical instructor. Emphasis is on data collection, application of oxygen, aerosol/humidification devices, bronchial hygiene and lung hyperinflation techniques. Students will also collect vital signs, practice physical assessment and auscultation techniques. Student will record appropriate information in patient's chart. (Prerequisite(s): RESP 1410, HLTH 1420; Completion of American Heart Association CPR Course "C." Co-Requisite(s): RESP 1520, RESP 1540) 2C/0/0/2

### RESP 1592 Respiratory Care Clinical 2

A continuation of clinical practice procedures for administration of routine patient care therapy. Emphasis is on bedside patient assessment and introduction to the critically ill patient. (Prerequisite(s): RESP 1591, RESP 1520, RESP 1540, RESP 1510, Co-Requisite(s): RESP 2410) 3C/0/0/3

### RESP 1593 Respiratory Care Clinical 3

A continuation in clinical practice with emphasis given to acute care therapy. Mechanical ventilation and critical care skills are practiced and evaluated. (Prerequisite(s): RESP 1592, RESP 2410, RESP 2420) 4C/0/0/4

### RESP 1594 Respiratory Care Clinical 4

Continuation of clinical practice skills with emphasis on critical care monitoring and procedures. Students will rotate through pediatrics, long-term care and adult critical care. A cystic fibrosis rotation will also occur during this semester. (Prerequisite(s): RESP 1593, RESP 2470) 6C/0/0/6

### RESP 1595 Respiratory Care Clinical 5

Continuation of clinical practice skills in ICU. Students will rotate through neonatal/pediatric ICU, hemodynamic rotation and adult critical care. Medical Director rounds in the hospital and clinic are completed during this semester. ACLS certification is obtained this session. (Prerequisite(s): RESP 1594) 6C/0/0/6

### RESP 2410 Mechanical Ventilation

This is an introductory course in the use of mechanical ventilation. Positive and negative pressure machines are discussed as well as other equipment and procedures related to mechanical ventilation. Methods of monitoring ventilator-patient response to therapy are also described. Emphasis is on clinical application and safety. (Prerequisite(s): RESP 1510, RESP 1520, RESP 1540, RESP 1591; Co-Requisite(s): RESP 1592) 4C/1/3/0

### RESP 2420 Cardiopulmonary Pathophysiology 2

This course continues the study of cardiopulmonary pathophysiology. Emphasis is placed on specific obstructive, restrictive and hemodynamic abnormalities. (Prerequisite(s): RESP 1510; Co-Requisite(s): RESP 1592) 1C/0/1/0

### RESP 2430 Neonatal/Pediatric Respiratory Care

This course introduces the student to principles of neonatal and pediatric respiratory care. (Prerequisite(s): RESP 2420) 2C/1/1/0

### RESP 2440 Management of the Critically Ill Patient

This is an advanced course in mechanical ventilation and medical management of the critically ill patient. (Prerequisite(s): RESP 2410, RESP 2420; Co-Requisite(s): RESP 1593) 4C/1/3/0

### RESP 2450 Cardiopulmonary Diagnostics

This course will examine cardiopulmonary function studies, the techniques used and the significance of the individual tests with regard to pulmonary disease. (Prerequisite(s): RESP 2420) 1C/0/1/0

### RESP 2470 Registry Review

Advanced study in respiratory care procedures and preparation for the required NBRC entry-level examination. Each student must purchase and successfully complete the NBRC self-assessment entry-level examination. (Prerequisite(s): RESP 2410, RESP 1593) 3C/1/2/0

### RESP 2510 Survey of Human Disease

This is a course in human pathology in which all body systems will be studied in relation to common diseases. This course is designed to assist the respiratory care student to acquire a basic knowledge of pathology required for the practice of respiratory care. (Prerequisite(s): RESP 2420) 2C/1/1/0

**RESP 2520 Respiratory Care in Alternate Sites**

This course provides the student with an introduction to the role of the RCP in alternative care sites such as rehabilitation facilities or care of the patient at home. 2C/1/1/0

**RESP 2590 Polysomnographic Technology 1**

This course is designed to provide both theory and laboratory training for entry level personnel in the basics of polysomnographic technology. Students will become familiar with medical terminology, instrumentation setup and calibration, recording and monitoring techniques, documentation, professional issues, and patient-technologist interactions related to polysomnographic technology. Laboratory sessions will provide practical experience in the skills required of an entry-level polysomnographic technologist. (Prerequisite(s): Respiratory Therapist/Respiratory Care Practitioner AAS) 4C/3/1/0

**RESP 2591 Polysomnographic Technology 1 - Clinic 1**

This course provides the student with patient contact in a sleep lab. The student will have the opportunity to observe, perform under supervision and evaluate sleep studies. (Prerequisite(s): Concurrent with RESP 2590) 3C/0/3/0

**RESP 2595 Polysomnographic Technology 2**

This course is designed to provide both theory and laboratory training in more advanced aspects of polysomnographic technology. This course expands upon the topics covered in Polysomnographic Technology 1. Students will become familiar with the skills and knowledge needed to obtain and evaluate high quality sleep recordings. It covers all the aspects of sleep scoring and event recognition, instrumentation setup and calibration, recording and monitoring techniques, documentation, professional issues, therapeutic interventions and patient-technologist interactions related to polysomnographic technology. Laboratory sessions will provide practical experience in the skills required to obtain and evaluate high quality sleep recordings. (Prerequisite(s): RESP 2590, RESP 2591) 3C/2/1/0

**RESP 2596 Polysomnographic Technology 2 - Clinic 2**

This course provides the student with a clinic experience in sleep lab expanding on the skills performed in Polysomnographic Technology Clinic 1. Students will develop proficiency in observing the patient and performing sleep studies under supervision. (Prerequisite(s): RESP 2590, RESP 2591 and concurrent with RESP 2595) 6C/0/6/0

## ■ Sheet Metal

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**SMET 1410 Sheet Metal Fitting Layout & Design**

Covers sheet metal layout using parallel line development, radial line development and triangulation. Duct design and sizing will be included. 4C/2/2/0

**SMET 1420 Sheet Metal Fitting Fabrication**

Covers the procedures used to fabricate sheet metal fittings. Common seams and fasteners will be described. 4C/1/3/0

**SMET 1430 Sheet Metal Drafting & Blueprint Reading**

Covers principles of mechanical drawing. Students will interpret sheet metal blueprints. 2C/1/1/0

**SMET 1440 Sheet Metal Welding**

Covers the four processes used to weld sheet metal: Oxyacetylene, Shielded Metal Arc Welding, Gas Metal Arc Welding (Wirefeed) and Gas Tungsten Arc Welding (Tig or Heliarc). 5C/1/4/0

**SMET 1450 Sheet Metal Practical Problem Solving**

This course covers math used in the sheet metal trade. 2C/1/1/0

**SMET 1510 Duct System Layout & Design**

Covers the layout and design of duct systems used for HVAC and industrial ventilation systems. 4C/0/4/0

**SMET 1520 Duct System Fabrication**

Covers the fabrication and assembly of various types of duct systems. 4C/0/4/0

**SMET 1530 Architectural Sheet Metal**

Covers the fabrication and assembly of various types of Architectural Sheet Metal systems. Installation techniques will also be described. 4C/0/4/0

**SMET 1540 Power Machine Operation**

Covers the fabrication of sheet metal items using the power shear, press brake, power rolls, punch press and spotwelder. 3C/0/3/0

**SMET 1550 Sheet Metal CAD/CAM Systems**

Covers the setup and operation of plasma cutting systems and computer aided drafting systems. 3C/1/2/0

**SMET 2700 OSHA 30 HR Training**

Students will be given information in the fields of fire, ladders, scaffolding, electrical, cranes and many aspects of personal protective equipment. Students will be trained in welding shop, sheet metal shop and field safety practices. 2C/2/0/0

## ■ Sociology

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**SOCI 1710 Introduction to Sociology**

This course introduces students to sociology: the systematic study of human interaction and society. Major theoretical perspectives and research methods of sociology will be examined. The primary goal is to create an awareness of and appreciation for the range of social and cultural variations throughout the United States and worldwide, stressing characteristics shared by all people. Readings and social science examples will be drawn from cultures around the world, including the pluralistic culture of the United States. Another focus of the class is to dispel common myths and stereotypes surrounding society and human behavior. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 7) 4C/4/0/0

**SOCI 1720 Social Problems**

This course introduces students to modern issues of societal concern, including social problems that have endured over time and those that have emerged as societies modernize and cultures change. The influence of globalization on cultures around the world will be discussed. Specific topics include: inequalities of race, class, gender, age, and sexual orientation, modern family issues, crime and violence, drugs, war and terrorism, global health, environmental factors affecting society and culture, poverty, and population growth. Critical thinking skills will be developed through class discussions, debates, and course assignments. (Recommendation(s): READ 0721 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

**SOCI 1730 Sociology of Families and Relationships**

This course introduces students to the central ideas, challenges, theoretical perspectives and the diversity of human relationships, marriages and families. Global perspectives regarding families and the diversity of intimate relationships in contemporary societies will be discussed. Topics in this course could include the origins of marriage and diverse patterns of love, conflict, sexuality, parenting, singlehood, interpersonal violence, divorce, extended families and gender roles. Reading and examples will be drawn from societies around the world. Common myths and challenges related to stereotypes of the “typical” family and “functional” relationships will be explored. Critical thinking skills will be developed through class discussions, debates and course assignments.

(Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 7) 3C/3/0/0.

**SOCI 1740 Making a Living in a Global Era: Sociology of Work**

Sociology of Work introduces students to theories, issues and perspectives about work and workplaces in a global economy. The course explores occupations and professions in historical and contemporary settings. The interdependence of economic, social and political factors that shape and change the nature of work are covered within a global context. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 8) 3C/3/0/0

**SOCI 1760 Mass Media and Society**

This course provides students with a general understanding of how mass media operate in society and the influence of media messages in the areas of print media, recordings, radio, cinema, advertising, public relations, digital media and the Web. The course will emphasize basic definitions and the functions of mass media forms and practices; general socio-cultural theories as they apply to human interaction; national and global communications; social theories of the mass media; and the impact of mass media on society. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goal 5) 4C/4/0/0

**SOCI 1765 Sociology of Deviance**

Sociology of Deviance introduces students to the nature and meaning of deviance in society as well as how individuals become deviant. Materials, lecture and exercises will challenge students to see the diversity in and pervasiveness of deviance in society by discussing a wide variety of deviant acts and examining the construction of deviance in terms of differential social power, whereby some members of society have the power to define other whole groups as “deviant.” A mixture of classic and contemporary readings that cover a wide range of issues in the United States and other parts of the world will be introduced, discussed and openly debated.

(Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 7) 3C/3/0/0

**SOCI 1780 Social Psychology**

This course focuses on social psychological theories and research to analyze how an individual’s thoughts, feelings and actions influence other people, social settings and institutions. Topics include perception, attribution, socialization, attitudes, conflict, altruism, groups, power, conformity, prejudice, collective behaviors and social movements.

(Recommendation(s): READ 0721 with a grade of “C” or

better or appropriate assessment score.) (MnTC: Goal 5) 4C/4/0/0

**SOCI 1790 Special Topics in Sociology**

This course provides learning experiences that meet the needs of students and pre-major course requirements in sociology. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goal 5) Variable credits. 1-3C/1-3/0/0

**SOCI 2760 Sociology Through Film and Music**

This course will explore the connection between music and film and the social context in which they are created. Students will learn how to view a film and listen to music critically so as to identify the social issues depicted in each format. Topics explored in this course may include racism, sexism, heterosexism, ageism, stereotypes, discrimination, violence, and crime. Major theoretical perspectives and research methods of society will be used in the analysis of films and songs. (Recommendation(s): READ 0721 with a grade of “C” or better or appropriate assessment score.) (MnTC: Goals 5 & 7) 3C/3/0/0

## ■ Spanish

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**SPAN 1710 Beginning Spanish 1**

An introduction to Spanish based on real-life situations, as well as an introduction to various aspects of Hispanic societies. Comprehension and basic speaking skills are emphasized. Some reading and writing is required. The overall goal of this course is to provide students with the linguistic foundation necessary to later achieve proficiency in the Spanish language. No previous knowledge of Spanish is necessary. 5C/4/1/0

**SPAN 1720 Beginning Spanish 2**

A continuation of SPAN 1710. Emphasis is on extending skills in everyday spoken Spanish. (Prerequisite(s): SPAN 1710 with a grade of “C” or better or equivalent) 5C/4/1/0

**SPAN 1730 Intermediate Spanish 1**

This course provides a continued development of communication in reading, writing, listening and speaking. There is an emphasis on communicating ideas in writing and conversation. As a part of the course, students will be exposed to the cultures of Spanish-speaking people through art, literature and history. (Prerequisite(s): SPAN 1720 with a grade of “C” or better or Placement Exam or permission of Instructor) (MnTC: Goal 8) 5C/4/1/0

**SPAN 1740 Intermediate Spanish 2**

This course is a continuation of SPAN 1730. The course provides a continued development of communication in reading, writing, listening and speaking. There is an emphasis on communicating ideas in writing and conversation. As a part of the course, students will be exposed to the cultures of Spanish speaking people through art, literature and history. (Prerequisite(s): SPAN 1730 with a grade of “C” or better, or placement exam or permission of Instructor) (MnTC: Goal 8) 5C/4/1/0

**SPAN 1790 Spanish for the Workplace**

An introduction to basic Spanish conversational communication focusing on the specific context and situations of the workplace. The aim of this course is to achieve a basic level of proficiency in conversational Spanish to exchange information and perform basic everyday tasks. 3C/3/0/0



## ■ Speech

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### **SPCH 1700 Introduction to Speech Communications**

This course introduces the various principles of spoken human communication. Students will explore and practice the principles of effective oral communication within contexts of 21st Century life. Students will first practice development of the basic skills of this discipline and then demonstrate how to adapt these abilities to practical applications in both personal and business environments within various situations. (MnTC: Goals 1 & 8) 3C/3/0/0

### **SPCH 1710 Fundamentals of Public Speaking**

This course covers the basic principles of preparing, researching and delivering informative, persuasive, impromptu and extemporaneous speeches. In addition, this course will include audience analysis and suggestions for overcoming speech anxiety. Students will analyze and evaluate the arguments and rhetorical methods used in public communication. (MnTC: Goals 1 & 8) 3C/3/0/0

### **SPCH 1720 Interpersonal Communication**

This course focuses on the practical and theoretical concepts of human communications and the styles used in personal, social and professional environments. Students will also acquire skills in critical thinking, perception, listening, verbal and non-verbal expressions and conflict resolution. Students will evaluate their individual strengths and weaknesses in depth and develop techniques to improve interpersonal relations. (MnTC: Goals 1 & 7) 3C/3/0/0

### **SPCH 1730 Intercultural Communication**

This course will study the influence of cultural differences on communication from both the sender and receiver of information. The course views the human communication process as it is influenced by nationality, ethnicity, linguistic development and gender. The course will explore the ways in which culture can shape the view of “reality” held by its members and influence communication patterns and cross-cultural relationships. Specifically the United States cultural orientations will be compared to those in other regions of the world. (MnTC: Goals 1 & 8) 3C/3/0/0

### **SPCH 1740 Mass Media and Communications**

The influence of mass media communications on today’s culture is an important issue in the United States and throughout many parts of the world. Students will research the influence of mass media on society. Topics include: advertising, propaganda, ethics, First Amendment issues, the role of government, literacy requirements of a digital world and problems and criticisms of media. (MnTC: Goals 5 & 9) 3C/3/0/0

### **SPCH 1745 Mass Media Production Theories and Techniques**

This course introduces students to the study and exploration of art, science, techniques and performance within today’s broadcast mass media. Students will view, study, and then place into practical application the production techniques within major media while exploring the methods and styles of creative professionals. (MnTC: Goals 5 & 9) 3C/3/0/0

### **SPCH 1750 Small Group Communication**

In this course students will study communication in small groups. Topics include effective group communication theory and skills; group leadership, cohesion and roles; conflict-

resolution and decision-making; planning and conducting meetings; and parliamentary procedure. The course explores group functioning in a variety of settings, including the workplace. There is an emphasis on the practical application of the content and the practice of oral communication skills. (MnTC: Goals 1 & 9) 3C/3/0/0

### **SPCH 1770 Family Communication**

This course centers upon the human communication process from within the contextual dimensions of diverse family units. Elements of study include family patterns and functions, which drive communication, relationship development and its barriers, and family role definitions and functions. The course is designed to provide a sense of understanding of how a family communicates, and the forces which influence the family unit, from both the inside and outside of various family configurations. (MnTC: Goals 1 & 5) 3C/3/0/0

### **SPCH 1780 Gender Communication Across Cultures**

This course explores the many interconnected aspects of gender communication, enabling students to experience how gender, within communication and culture, creates, maintains, and changes interpersonal relationships. Various communication contexts covered in the course will include family, friendships, education, the media, the workplace, and other markers of identity. (MnTC: Goals 1 & 7) 3C/3/0/0

### **SPCH 1782 Workplace Interpersonal Communication**

This course provides a balance between theory and practical information about communicating for results in the workplace. Students will apply interpersonal communication skills they have learned to the world of work. Topics include: communication process, organizational communication, effective listening, nonverbal communication, overcoming obstacles to organizational communication, employment interview, small group communication and problem-solving, and researching and delivering presentations in the workplace. (MnTC: Goals 5 & 7) 3C/3/0/0

## ■ Theatre

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### **THTR 1710 Introduction to Theatre**

This course introduces students to the study and exploration of theatre. Students will study the diversity of drama and explore the methods and styles of actors, directors, playwrights and designers. (MnTC: Goal 6) 3C/3/0/0

### **THTR 1720 Exploring the Theatre Arts**

This course provides an introduction to the study of the various forms of theatrical arts and sciences. Students will participate in dramatic readings, acting, improvisation, stagecraft, costuming, stage management, scenic design, dramatic analysis and related practicum of the business of theatre. Students will visit local productions to assist in their understanding of the activities of theatrical professionals. (MnTC: Goal 6) 3C/3/0/0

### **THTR 1730 Theatre Stagecraft and Production**

This course provides an introduction to Theatre Stagecraft and Production with units on acting, stage movement, set construction, painting, lighting, special effects, and scenic design, among other topics. Participation in current theatre production is required. (MnTC: Goal 6) 3C/3/0/0

## ■ Truck Technician

### TRKM 1400 Introduction and Safety

This course will introduce the student to the trucking industry and the role of the student as a truck technician within this industry. Personal, shop, tool and environmental safety will be emphasized. 1C/0/1/0

### TRKM 1521 Electrical 1

This course covers the design, theory of operation, repair procedures and diagnosis of batteries, lighting systems, instruments and accessories used in commercial trucks. 5C/1/4/0

### TRKM 1522 Electrical 2

This course covers the design, theory of operation, repair procedures and diagnosis of starting systems, charging systems and an introduction to electronic systems used in commercial trucks. 5C/1/4/0

### TRKM 1551 Clutch and Transmission

This course covers the design, theory of operation, repair procedures and diagnosis of clutches and manual transmissions used in commercial trucks. 5C/1/4/0

### TRKM 1552 Driveshafts and Differentials

This course covers the design, theory of operation, repair procedures and diagnosis of drive shafts and differentials used in commercial trucks. 4C/1/3/0

### TRKM 1553 Automatic and Automated Transmission

This course covers the design, theory of operation, repair procedures and diagnosis of automated manual transmissions and automatic transmissions used in commercial trucks. 4C/1/3/0

### TRKM 1560 Truck Brake Systems

This course covers the design, theory of operation, repair procedures and diagnosis of hydraulic and air brake systems used in commercial trucks. 6C/1/5/0

### TRKM 2401 Steering and Suspension Systems

This course covers the design, theory of operation, repair procedures and diagnosis of steering, suspension and chassis components used in commercial trucks. 6C/1/5/0

### TRKM 2425 Truck Cab Climate Control Systems

This course covers the design, theory of operation, repair procedures and diagnosis of the heating, ventilation and air conditioning systems used in commercial trucks. 3C/1/2/0

### TRKM 2440 Gasoline Engines

This course covers the design, theory of operation, repair procedures and diagnosis of gasoline engine fuel and ignition systems used in commercial trucks. Engine overhaul procedures will also be covered. 6C/1/5/0

### TRKM 2511 Diesel Engines 1

This course covers the design, theory of operation, repair procedures and diagnosis of diesel engines used in commercial trucks. 6C/1/5/0

### TRKM 2512 Diesel Engines 2

This course covers the design, theory of operation, repair procedures and diagnosis of mechanical and electronic fuel systems used on diesel engines in commercial trucks. 6C/1/5/0

### TRKM 2540 Preventive Maintenance

This course covers the preventive maintenance practices used to keep commercial trucks and trailers in proper and safe working order. Shop procedures, record keeping, computer usage and job seeking skills will also be covered. 3C/1/2/0

## ■ Watchmaking/Clockmaking

### WMCM 1200 Micro Mechanics - Filing 1

In this course students will learn the fundamentals of the micro mechanical processes by acquiring skills and knowledge through the use of hand tools such as hand files, jeweler's saw and various vices and clamps. Students will make many tools required in later courses while starting to build the dexterity needed for this field of study. The proper use of measuring instruments, the reading of technical diagrams and metallurgy will be introduced. (Prerequisite(s): Must be accepted into the micromechanical major program.) 5C/2/3/0

### WMCM 1201 Micro Mechanics - Filing 2

In this course students will learn to utilize the tools they made in the previous course to hand file precision flats and spheres. Emphasis will be placed on the production of pieces to close tolerance specifications. The use and function of optical magnification for inspection will be taught and used to assess the student's capabilities. Can be taken concurrently with WMCM 1200. 5C/2/3/0

### WMCM 1202 Micro Mechanics - Turning 1

In this course students will learn the proper use and function of a watchmaker's lathe and turns to make cylindrical shapes to precise measurements. The students will learn to shape, sharpen and use hand gravers to cut brass and steel wire. The cutting of right angles and radii will be introduced. Can be taken concurrently with WMCM 1200. 5C/2/3/0

### WMCM 1203 Micro Mechanics - Turning 2

In this course students will build on the skills, knowledge and dexterity acquired in previous courses by turning wire to smaller dimensions and to closer tolerances. The burnishing of metals for appearance and strength will be introduced. Emphasis will be placed on the finish of work pieces produced. An assessment of student learning to date will be given and graded by Swiss industry professionals. Can be taken concurrently with WMCM 1200. 5C/2/3/0

### WMCM 1204 Micro Mechanics - Tool Making 1

In this course, students will learn the basics of mechanical interaction through the use of a tap and die to form internal as well as external threads and the hand fitting of components to extremely close tolerances. Students will also learn hardening techniques to make springs of various shapes, sizes and uses. The decorative finishing of metals will be introduced. (Prerequisite(s): WMCM 1203) 5C/2/3/0

### WMCM 1205 Micro Mechanics - Tool Making 2

In this course students will put to use all the skills and knowledge acquired in the filing, turning and tool making courses to manufacture precision and complex tools and devices. The student will also learn connection techniques such as soldering and gluing. The polishing and plating of metals will be introduced and an electronic portfolio of work will be created. Can be taken concurrently with WMCM 1204. 5C/2/3/0

**WMCM 1206 Micro Mechanics - Mainsprings**

In this course students will learn through theory and practical exercises the use of mainsprings as a power source for micro mechanical mechanisms. The students will also learn to fit arbors for proper end-shake and side-shake. Bearing surfaces and lubrication will be introduced. (Prerequisite (s): WMCM 1205) 5C/2/3/0

**WMCM 1207 Micro Mechanics - Gear Train**

In this course students will learn the theory of wheel and pinion ratios through the use of algebraic calculations as well as the practical application of power transmission through the gear train. Students will also learn to set jeweled bearings and precision oiling. Wheel truing and pivot straightening will be introduced. Can be taken concurrently with WMCM 1206. 5C/2/3/0

**WMCM 1208 Micro Mechanics - Escapement**

In this course students will learn the theory of escapements from a historical and modern point of view. Students will also apply this theory by making adjustments to several modern and antique escapements. Can be taken concurrently with WMCM 1206. 5C/2/3/0

**WMCM 1209 Micro Mechanics - Balance Wheel**

In this course students will learn the theory of balance wheel development throughout history and its relationship to precision timekeeping. In practical application students will perform balance staff replacements, truing and poising manipulations to modern and antique balance wheels. Roller jewel replacement will be introduced. Can be taken concurrently with WMCM 1206. 5C/2/3/0

**WMCM 1210 Micro Mechanics - Hairspring 1**

In this course students will learn the fundamentals of hairspring manipulation by straightening hairsprings in the flat and round as well as forming and correcting over-coils. (Prerequisite(s): WMCM 1209) 5C/2/3/0

**WMCM 1211 Micro Mechanics - Hairspring 2**

In this course students will learn to collect, vibrate and stud hairsprings for several modern movements. Students will also learn the formation of terminal curves in relation to the regulating pins. Can be taken concurrently with WMCM 1209. 5C/2/3/0

**WMCM 1212 Micro Mechanics - Timing**

In this course students will learn to use the timing machine and amplimeter as a diagnostic tool and a means of assessing beat and timing errors. Can be taken concurrently with WMCM 1209. 5C/2/3/0

**WMCM 1213 Micro Mechanics - External Parts and Capstone**

In this course students will learn to replace dials, hands, crowns, crystals and gaskets. Students will also learn waterproof testing, case refinishing and band sizing. Students will also complete their college watch and electronic portfolio. Can be taken concurrently with WMCM 1209. 4C/0/4/0

**WMCM 1480 Horological Lab 1**

This horological lab is designed to allow completion of hands-on skill activities and enhance the practical aspects of courses related to WMCM courses. 3C/0/3/0

**WMCM 1580 Horological Lab 2**

This horological lab is designed to allow completion of hands-on skill activities and enhance the practical aspects of courses related to WMCM courses. 3C/0/3/0

**WMCM 2300 Watchmaking - Calendar**

In this course students will learn the theory of historical and modern watch calendar mechanisms. Practical skills will be taught on several modern calendar movements. Instantaneous, non-instantaneous and quick-set mechanisms will be covered. Must be accepted into the Watchmaking Certificate Program. 5C/2/3/0

**WMCM 2301 Watchmaking - Automatic**

In this course students will learn the theory of historical and modern automatic winding watch mechanisms. Practical skills will be taught on several modern automatic movements. Can be taken concurrently with WMCM 2300. 5C/2/3/0

**WMCM 2302 Watchmaking - Quartz**

In this course students will learn to diagnose and repair quartz watch movements. The proper use of electronic diagnostic equipment to determine resistance, low voltage working limit and consumption will be covered. (Prerequisite(s) : WMCM 2301) 5C/2/3/0

**WMCM 2303 Watchmaking - Precision Timing**

In this course students will learn the theory of dynamic poising, Isochronism and chronometric standards. The students will apply this knowledge by precisely timing several timepieces of suitable quality. Can be taken concurrently with WMCM 2302. 5C/2/3/0

**WMCM 2304 Watchmaking - Chronograph**

In this course students will learn to diagnose, disassemble, reassemble and adjust chronograph movements. Cam, pillar wheel and other chronograph movements will be covered in detail. Can be taken concurrently with WMCM 2302. 5C/2/3/0

**WMCM 2305 Watchmaking - Capstone/Career Preparation**

This course will serve as final preparation for capstone assessment such as the AWI Certified Watchmaker examination, the Saint Paul College Certified Watchmaker examination and the WOSTEP final examination. The students will also receive training in workshop organization, resume writing, interviewing skills and job searching options. Can be taken concurrently with WMCM 2302 through 2304. 5C/2/3/0

**WMCM 2480 Horological Lab 3**

This horological lab is designed to allow completion of hands-on skill activities and enhance the practical aspects of courses related to WMCM courses. 3C/0/3/0

**WMCM 2510 Basic Clock Repair**

This course will cover the assessment of needed repairs, basic repair techniques, needed tools and their application, some specialized bench techniques and estimating costs to repair an hour/half hour striking American clock. Basic lathe skills are included. Skills needed for class are average mechanical ability, normal eyesight with or without glasses and a basic set of clock tools that cost about \$200. 4C/3/1/0

**WMCM 2511 Basic Clock Benchwork**

This course will include repair of lantern pinions, replacement of lantern pinion trundels, replacement of broken wheel and barrel teeth, fitting new strip pallets, refinishing pallet pads, making large and special bushings, using “soft” solder, straightening arbors and pivots, straightening escape wheel teeth and making escape wheel round and concentric. 3C/2/1/0

**WMCM 2512 Introduction to Clock Escapements**

This course will introduce students to a variety of clock escapements including recoil, Graham Dead Beat, Brocott, Pin Lever, Floating Balance, Verge and Pinwheel. Students will be able to identify each escapement and to make basic adjustments to make escapements functional. (Prerequisite(s): WMCM 2510) 3C/2/1/0

**WMCM 2518 Horological Micro-Lathe**

This course allows students to develop clock repair skills using the Lathe. This is a hands-on course. Students will be required to perform techniques and procedures demonstrated by the instructor. Individual projects include making tools and parts with a clockmaker’s lathe used in the trade. 3C/2/1/0

**WMCM 2530 Westminster Chime Clock Repair**

This course will cover the identification, disassembly, repair, reassembly, adjustment and coordination of a modern Westminster Chime clock movement. (Prerequisite(s): WMCM 2510, or one year of experience in clock repair) 3C/2/1/0

**WMCM 2531 Antique & European Clock Repair**

Covers the identification, disassembly, repair, reassembly, adjustment and coordination of selected Antique and European Clocks. There will be an emphasis on unique escapements. (Prerequisite(s): WMCM 2510) 4C/3/1/0

**WMCM 2532 Cuckoo Clock Repair**

This course will present the assessment of needed repairs, basic repair techniques, needed tools, specialized bench techniques and estimating costs of repair of Cuckoo Clocks. (Prerequisite(s): WMCM 2510) 3C/2/1/0

**WMCM 2535 Repair of Specialty Clocks**

This course will include making basic repairs on a 400-day, quartz, electric fit up and other specialty clocks. (Prerequisite(s): WMCM 2510, or one year experience in Clock Repair) 3C/2/1/0

## ■ Welding Fabrication

**WELD 1410 Oxy-Acetylene Welding, Cutting & Brazing**

Covers the theories and concepts necessary for an understanding of basic oxy-acetylene welding, cutting and brazing processes. Emphasis will be on safe work habits and industry standards. 3C/1/2/0

**WELD 1420 SMAW E6013**

Covers the theories and concepts necessary for the introduction of the Shielded Metal Arc Welding (SMAW) process using E6013 in the flat and horizontal position, along with the use and care of SMAW equipment. Industry standard and safety practices will be emphasized. 3C/0/3/0

**WELD 1431 Blueprint Reading 1**

Designed to cover such fundamental principles of drawing interpretation as may be required by the layout welder and setup person. To accomplish this objective, basic lines and the functions are studied and projects are assigned. 2C/0/2/0

**WELD 1432 Blueprint Reading 2**

This course is part of the study beyond the core of blueprint reading skills in the development of a full knowledge of welding symbols as specified by the American Welding Society. Each type of weld and its related joint preparation is represented by a specific weld symbol. Size, shape, length, type of process and joint configuration are part of the symbols. (Prerequisite(s): WELD 1431 or instructor approval) 2C/1/1/0

**WELD 1440 Basic SMAW E6010**

Covers basic concepts and theory in the SMAW process using the E6010 electrode in the flat, vertical and overhead positions and the AWS terms used for parts of a weld. Safety and industry standards will be emphasized. 3C/0/3/0

**WELD 1450 E7018 Advanced SMAW**

Covers the manipulative skills and procedures necessary for the completion of E7018 Shielded Metal Arc welds in all positions. Weld testing procedures will be stressed. 3C/0/3/0

**WELD 1465 Metallurgy and Welding Theory**

This course introduces the practices and procedures necessary for completion of single and multi-pass welding. The course also covers basic knowledge of metallurgy and testing equipment used in the welding field. Quality control will be emphasized. 2C/1/1/0

**WELD 1470 Measuring Devices**

Covers the use of different measuring devices used in the metal and welding trades. 1C/0/1/0

**WELD 1510 Areas Layout**

Covers the calculation of the area of geometric figures for use in layout and cutting operations. This knowledge and hands-on activities are essential for the success in the field for welders and metal fabricators. 2C/0/2/0

**WELD 1520 GMAW Short Arc**

Provides students with the opportunity to build proficiency in the GMAW (Gas Metal Arc Welding) process using the short arc transfer with mild steel. All positions will be covered. Student will be expected to work to industry standards for apprentice welders in the area of quality and efficiency. 3C/1/2/0

**WELD 1530 Inspection, Qualification and Carbon Arc**

Provides students with the opportunity to build proficiency in E7018 Shielded Metal Arc Welding for MNDOT and AWS standards. The use of carbon arc cutting will also be covered. Students will be expected to work within industry standards for apprentice welders in the areas of quality and efficiency. 3C/0/3/0

**WELD 1540 GMAW Spray & Pulse Spray**

Provides students with the opportunity to build proficiency in the GMAW process using the spray and pulse spray transfers with mild steel. All positions will be covered. Students will be expected to work to industry standards for apprentice welders in the area of quality and efficiency. 3C/0/3/0

**WELD 1550 GMAW Aluminum & Stainless Steel**

Provides students with the opportunity to build proficiency in the GMAW process using Aluminum and Stainless Steel. The introduction of the Aluminum and Stainless numbering system will be covered. Students will be expected to work to industry standards for apprentice welders. 3C/0/3/0

**WELD 1560 Grinding and Finishing**

This course is designed to build proficiency in the grinding, finishing and preparation of welds and other products used in the industry. The student will be expected to work within industry standards for apprentice welders and grinders. Live projects will be supplemented with assigned projects. 2C/2/0/0

**WELD 1561 Radan Drafting Solutions**

This course introduces the practices and procedures for the use of Radan software in the Fabrication field. Students will be required to work within industry standards for metal layout. 2C/2/0/0

**WELD 1562 Introduction to Ornamental Welding**

This course introduces the practices and procedures necessary for ornamental iron and the basic layout and designs that are used in this field. Previous Welding and Cutting class recommended. 1C/1/0/0

**WELD 2410 GTAW for Mild Steel**

Provides students with the opportunity to build proficiency in the GTAW process with mild steel in all positions. The student will be expected to work to industry standards for apprentice welders in the areas of quality and efficiency. 3C/1/2/0

**WELD 2420 GTAW Aluminum & Stainless Steel**

Provides the student with the opportunity to build proficiency in the GTAW process using Aluminum and Stainless steel in all positions. The student will be expected to work to industry standards for apprentice welders in the areas of quality and efficiency. 3C/0/3/0

**WELD 2430 Volumes Layout**

Covers the volumes of geometric figures used in the layout and shearing operations. This knowledge and hands-on application is essential to welding and metal fabrication. (Prerequisite(s): WELD 1510 or instructor approval) 2C/0/2/0

**WELD 2440 FCAW & SAW Process**

Designed to build proficiency in FCAW and SAW processes. The student will be expected to work within industry standards for apprentice welders. Live projects will be supplemented with assigned projects. 3C/0/3/0

**WELD 2460 Introduction to Layout**

Designed to build proficiency in welding skills taught in previous classes and introduce the student to Metal Fabrication. The student will be expected to work within industry standards for apprentice welders/fabricators. Live work projects will be supplemented with assigned projects. Related skills not previously introduced, which are encountered in live work situations, will be taught as needed. 3C/1/2/0

**WELD 2510 Fabrication Shop Hand Equipment**

Designed to build proficiency in the metal fabricating field. The student will be expected to work within industry standards for apprentice welders/fabricators. Live work projects will be supplemented with assigned projects. Related skills not previously introduced, which are encountered in live work situations, will be taught as needed. (Prerequisite(s): Instructor approval) 3C/0/3/0

**WELD 2511 Fabrication Shop/Equipment 1**

Designed to build proficiency in fabrication skills taught in previous classes. The student will be expected to work within industry standards for apprentice fabricators. Live work projects will be supplemented. Introduction to Plasma Cutting (CNC), Turret Punch (CNC) and Press Break (CNC) operations will be covered. (Prerequisite(s): WELD 2510) 3C/0/3/0

**WELD 2520 Robotics**

Designed to build proficiency in the robotic welding field. The student will be expected to work within industry standards for apprentice welders. Live work projects will be supplemented with assigned projects. Related skills not previously introduced, which are encountered in live work situations, will be taught as needed. (Prerequisite(s): WELD 1520) 2C/0/2/0

# College Administration, Faculty and Academic Support

## Administration

### **Schwichtenberg, Donovan**

President  
BS, Mankato State University  
MA, University of Minnesota  
EdS, University of St. Thomas  
PhD, Walden University

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MA, University of Minnesota  
EdD, University of Minnesota

### **Anderson, Craig**

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MS, University of Wisconsin, Stout  
EdS, University of Wisconsin, Stout

### **Mahoney, Jan**

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MA, St. Cloud State University

### **Schmidt, Rachelle**

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### **Krasowski, Marilyn**

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BA, Hamline University  
MSN, New York Medical College—  
Graduate School of Nursing  
EdD, University of Minnesota

### **Saeed, Najam**

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BS, University of Punjab  
MS, Quaid-I-Azam University  
MAT, Wayne State University  
MS, University of Texas, Dallas

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PhD, University of Minnesota

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MBA, University of Nebraska – Omaha

### **Hertel, Gary**

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MED, University of Nebraska – Lincoln  
EdD, University of Nebraska – Lincoln

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MA, Stanford University

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EdS, Nova Southeastern University

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### **Yep, Katie**

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## Academic/Student Support

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**Yang, Mee**  
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## Faculty

**Ambe, Patience**  
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Political Science  
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MA, Minnesota State University, Mankato

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Medical Office Careers  
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MA, College of St Scholastica

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MS, University of Illinois – Urbana-Champaign

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Construction Electricity  
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AA, University of Central Florida  
BA, Baker College

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Diploma, Control Data Institute  
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MFA, New York Academy of Art

**Juaire, Joseph**

Watch, Clock and Jewelry Repair  
Diploma, Saint Paul College—A Community  
& Technical College  
Certificate, WOSTEP, Switzerland

**Kalkes, Jean**

Cosmetology  
Diploma, Saint Paul College—A Community  
& Technical College

**Kirby, Colleen**

Cosmetology  
Diploma, Saint Paul College—A Community  
& Technical College

**Klava, Skippy**

Practical Nursing  
Diploma, St. Luke's Hospital, North Dakota

**Kohls, Char**

Cosmetology  
Diploma, Model Beauty School

**Kortenhof, Kurt**

History  
BA, University of Wisconsin-Eau Claire  
MA, University of Wisconsin-Eau Claire

**Kpanaku, Zubah**

Chemistry  
BS, Cuttingham University College-Liberia  
MS, Purdue University  
MS, Ohio University

**Krug, Manfred**

Culinary Arts  
Diploma, Saint Paul College—A Community  
& Technical College  
BS, University of Wisconsin-Stout  
AOS, Culinary Institute of America

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Electronic Technology  
Diploma, Brown Institute

**Leggs, Michael**

English  
BA, Kansas State University  
MA, Kansas State University

**Loewen, Kendal**

Computer Careers  
BS, University of Minnesota  
Master of MIS, Metropolitan State University

**Lundin, Jeff**

Business Technology Careers  
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MEd, University of Minnesota

**Massa, Janet**

Child Development Careers  
BS, University of Wisconsin, Stout  
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Hospitality Management  
AA, North Hennepin Community College  
BA, Minnesota State University-Mankato  
MBA, University of St. Thomas

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Practical Nursing  
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Practical Nursing  
RN, Lutheran Deaconess Hospital

**McDonald, Perpetua**

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**McGuire, Ron**

Sheet Metal  
Diploma, Saint Paul College—A Community  
& Technical College  
BA, National Labor College

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Child Development  
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MS, University of Wisconsin, Stout

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MS, Osmania University  
PhD, Osmania University, India

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BA, Concordia University

**Murray, Terry**

Machine Tool Processes  
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Mathematics  
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MEd, University of LaVerne

**Nordstrom, Robert**

Pipefitting  
Diploma, Saint Paul College—A Community  
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**O'Connell, Patricia**

Interpreter Training Program  
BS, University of Wisconsin, Madison

**Olson, Mary**

Practical Nursing  
AS, Century College  
BSN, Bethel University

**Olson, Kelly**

Human Resource Management  
AS, Saint Paul College  
BA, St. Mary's University  
MBA, University of Phoenix

**Olson-Sartain, Jennie**

Reading  
BS, University of Minnesota  
MA, College of St. Catherine

**Paulnock, Daniel**

Speech  
BS, Emerson College  
MS, Emerson College

**Pearson, Darren**

Computer Careers  
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MS, University of Minnesota

**Pelton, Jerry**

Culinary Arts  
Diploma, Madison Area Technical College

**Poth, Lynn**

Medical Laboratory Technician  
BS, University of Texas, El Paso  
MS, University of North Dakota

**Pyzik, Linda**

Business Technology Careers  
BS, University of Minnesota  
MEd, University of Minnesota

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Truck Technician  
Diploma, Saint Paul College—A Community  
& Technical College

**Rasmussen, Greg**

Electronic Technology  
Diploma, Saint Paul College—A Community  
& Technical College

**Reasoner, David**

Construction Electricity  
Diploma, Saint Paul College—A Community  
& Technical College  
AES, Normandale Community College  
BS, University of Wisconsin, Stout

**Reigstad, Shelby**

Speech  
BS, St. Cloud State University  
MA, Bethel College

**Richman, Ilene**

Cosmetology  
Diploma, Johnson Beauty Academy

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English  
BA, St. Cloud State University  
BA, South Dakota State University  
MA, Saint Cloud State University

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Respiratory Care  
AAS, Pima College, Arizona

**Russell, Judy**

Respiratory Care Practitioner  
AAS, Saint Paul College—A Community  
& Technical College

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Massage Therapy  
BA, University of Minnesota, Duluth

**Saucedo, Dominic**

English  
BA, Carleton College  
MA, University of St. Thomas

**Schaus, George**

Construction Electricity  
Diploma, Saint Paul College—A Community  
& Technical College

**Schmitz, Lisa**

Mathematics  
Psychology  
BS, University of Wisconsin, River Falls  
MS, University of Minnesota  
MA, University of St. Thomas

**Schones, Edward**

Construction Electricity  
BA, Macalester College  
MA, University of Minnesota

**Selton, Julie**

Construction Electricity  
AA, Anoka-Hennepin Technical College

**Senger, Susan**

International Trade Careers  
BA, College of St. Scholastica  
MA, College of St. Scholastica

**Setley, Keith**

Construction Electricity  
AA, Saint Paul College—A Community  
& Technical College  
BS, University of Wisconsin-Stout

**Shariff, Ayesha**

History  
BA, University of Wisconsin, Madison  
PhD, University of Wisconsin, Madison

**Sheaffer, Warren**

Computer Careers  
BS, University of Pittsburgh  
MBA, University of Pittsburgh  
MST, Massachusetts Institute of Technology

**Skally, Sharon**

Practical Nursing  
BS, Augustana College

**Starkey, Penny**

Chemistry  
BS, University of St. Thomas  
PhD, University of Minnesota

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Biology  
BA, Wellesley College  
MBA, University of Minnesota  
MHA, University of Minnesota  
MPH, University of Minnesota  
MA, St. Mary's University of Minnesota  
PhD, Utah State University

**Stewart, Ruben**

Floor Covering

**Strand, Timothy**

Carpentry  
Diploma, Saint Paul College—A Community  
& Technical College  
AAS, Inver Hills Community College

**Su, Ba**

Mathematics  
BS, University of Wisconsin, River Falls  
MS, Iowa State University

**Sundlie, Jolene**

Sociology  
BA, Moorhead State University  
MS, North Dakota State University

**Thompson, Douglas**

Watch, Clock & Jewelry Repair  
Diploma, Saint Paul College—A Community  
& Technical College

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BA, St. Thomas University  
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Masters of Public & Non-Public Administration,  
Metropolitan State University

**Tsegaw, Yewondwossen**

Practical Nursing  
AS, Minneapolis Community & Technical College  
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Accounting  
BA, Mankato State College  
MBA, Mankato State College

**Virnig, Carole**

Sign Language Interpreter/Transliterater

**Virnig, Heather**

Sign Language Interpreter/Transliterater  
BA, Gallaudet University  
MS, McDaniel College

**Wesley, Kathryn**

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BS, University of Wisconsin, Stevens Point  
MS, University of Wisconsin, Stout

**Wheeler, Jodi**

English  
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BA, Bemidji State University  
MA, St. Cloud State University

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Machine Tool Processes  
Diploma, Saint Paul College—A Community  
& Technical College  
BS, University of Wisconsin-Stout

**Wold, Richard**

Machine Tool Processes  
Diploma, Saint Paul College—A Community  
& Technical College  
ALA, University of Minnesota  
BS, University of Minnesota  
MEd, University of Minnesota

**Wolfson, Inna**

Occupational ESL  
BA, Simferopol State University

**Zitzer, Carl**

Sheet Metal  
Diploma, Saint Paul College—A Community  
& Technical College  
BA, National Labor College

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# Directions & Parking

## Easy to Find. Easy to Get To.

Saint Paul College is centrally located and convenient to get to, whether you're driving or coming by bus. Our campus is located in the heart of Saint Paul's Cathedral Hill on the corner of John Ireland Boulevard and Kellogg Avenue. We are just blocks from the State Capitol, History Center, downtown Saint Paul and numerous coffee shops, great restaurants and the Xcel Energy Center, home of the Minnesota Wild.

## Directions

### From the South (35E)

Take the Kellogg Boulevard Exit, turn left. Continue to John Ireland Boulevard, turn left at the traffic light. Continue to Marshall Avenue, turn right.

### From the North (35E)

### From the East (I-94W)

Take the Marion Street Exit, turn left passing over the freeway. Continue on Kellogg Boulevard to John Ireland Boulevard, turn right at the traffic light. Continue to Marshall Avenue, turn right.

### From the West (I-94E)

Take the Marion Street Exit, at the top of the exit ramp take a right onto Kellogg Boulevard. Turn right at traffic light onto John Ireland Boulevard. Continue to Marshall Avenue, turn right.

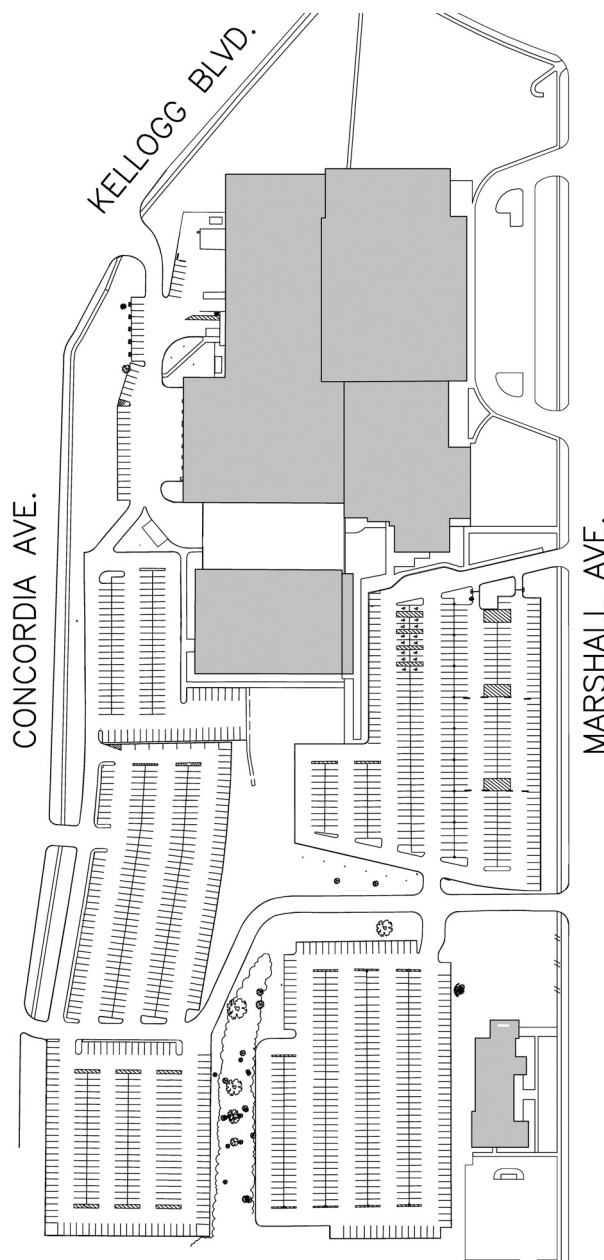
## Bus Information

Saint Paul College is also easy to reach by bus. Routes 12, 21, 65, 94B and 94L service the College directly.

Other routes such as 5, 9, 10, 14, 15 and 31 drop off passengers within walking distance of the College.

## Visitor Parking

The short-term/daily lot (pay upon exit) is located in the lot west of the building.





# Parking Information

## Parking Lots/Designated Parking Areas

### Parking Hours:

Monday - Friday, 6:00am - 10:00pm  
 Saturday, 7:00am - 3:00pm

### Visitor Parking / Short Term Parking

- Metered Visitors and Handicap Parking is located in front of the main building. These metered spaces are for short-term visitors and handicapped parking only. (Limit 2 hours)
- Additional long term Handicap parking is available in the lot west of the College (Lot B).
- Additional long term VISITOR PARKING is available in the DAILY/VISITOR PARKING LOT, west of the College.

### LOTS B, C, D, E:

- Student Parking – Must have current permit.

### LOT F:

- Staff Parking – Must have current permit.
- Overflow parking from Lots D & E.

### SERVICE & COLLEGE VEHICLE Lot:

- Service Lot is designated for Services Vehicle parking only. All vehicles in this area must be marked (Company Name and Working at the College) or they will be ticketed.

### Reserved Motorcycle Parking:

- Located at the east end of Lot B along the guard rail and at the east end of Lot F. No permit required but motorcycle must be registered with the school.

### NO PARKING ZONES:

- Any space marked 24 Hour without a proper sticker.
- Any handicapped space without a legally displayed sticker or license plate.
- Fire lanes. To include leaving room for a minimum of two vehicles to pass at the end of each row.
- Front of any garage doors.
- Any Right of Way areas. This includes the area north of the Truck and Fabrication Shops to allow for oversized vehicle maneuvering.
- Any areas not paved or designated for parking. This includes sidewalks, curbs, and lawns.

### PERMIT RATES

#### STUDENTS LOTS: **B, C, D & E**

(subject to change)

PERMITS	1 DAY per week	2 DAYS per week	3-5 DAYS per week
FALL SEMESTER \$1.50/credit plus	\$17.00	\$33.50	\$50.00
SPRING SEMESTER \$1.50/credit plus	\$17.00	\$33.50	\$50.00
SUMMER SEMESTER \$1.50/credit plus	\$8.50	\$17.00	\$25.00

### If You Receive a Citation for a Parking Violation

If you receive a citation for a parking violation, payment is to be directed to the Tuition Office and requires a copy of the citation. Payment is due fifteen (15) business days from the date the citation was issued. Checks are to be made payable to Saint Paul College. If the citation is not paid within fifteen (15) business days, a \$25.00 late fee will be added to the fine. You may appeal your citation within fifteen (15) business days from the date the citation was issued. Appeal forms are available at the **SECURITY OFFICE**. The form must be filled out completely to be considered. If you fail to pay your parking citation(s), the fine(s) will be placed on your student record and you will be unable to get a copy of your transcript until the fine is paid. The debt will be submitted to **Minnesota Collection Enterprise** for collection.

**It is mandatory that all motor vehicles parked on Saint Paul College campus have a registered parking permit. Registration is considered complete when the permit is properly affixed to the vehicle being registered. A vehicle registration from the State of Minnesota will be obtained on vehicles not registered, that are ticketed and the fine is not paid. A \$5.00 service charge will be added to the ticket.**

# Notes

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# Saint Paul College

A Community & Technical College

235 Marshall Avenue  
Saint Paul, MN 55102

## For more information

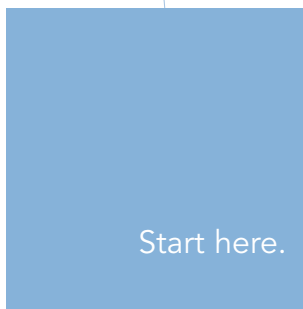
If you need more information, contact us. We will be glad to answer your questions.

Visit our Web site: [www.saintpaul.edu](http://www.saintpaul.edu)

General information: [651.846.1600](tel:651.846.1600)

Enrollment Services: [651.846.1555](tel:651.846.1555)

Schedule a "Start Here" information session:  
[651.846.1555](tel:651.846.1555)



A MEMBER OF THE MINNESOTA STATE COLLEGES  
AND UNIVERSITIES SYSTEM

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