

# SAINT PAUL COLLEGE

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## 2022–2023 Course Descriptions



**SAINT PAUL COLLEGE**  
A Community & Technical College

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# Course Descriptions

Course descriptions are alphabetized by program area:

Accounting . . . . .	220	Individualized Studies . . . . .	253
American Sign Language . . . . .	220	Interpreter/Transliterators Sign Language . . . . .	253
Anthropology . . . . .	221	Massage Therapy . . . . .	255
Arabic . . . . .	221	Mathematics . . . . .	255
Art . . . . .	222	Medical Laboratory Technician . . . . .	257
Automotive Service . . . . .	224	Medical Office . . . . .	259
		Music . . . . .	260
Biochemistry . . . . .	224		
Biology . . . . .	225	Natural Sciences . . . . .	262
Business . . . . .	226	Nursing Assistant/Home Health Aide . . . . .	263
Business Technology . . . . .	228		
		Ojibwe . . . . .	263
Cabinetmaking . . . . .	229	Pharmacy Technology . . . . .	263
Carpentry . . . . .	229	Philosophy . . . . .	264
Center for Manufacturing and Applied Engineering . . . . .	230	Phlebotomy . . . . .	265
Chemistry . . . . .	230	Physics . . . . .	265
Child Development . . . . .	231	Pipefitting . . . . .	266
Chinese Language . . . . .	232	Plumbing . . . . .	268
CNC Toolmaking . . . . .	232	Political Science . . . . .	268
Communication . . . . .	233	Practical Nursing . . . . .	268
Computer Science . . . . .	234	Psychology . . . . .	269
Cosmetology, Nail Care and Esthetician Core Courses . . . . .	236	Public Health . . . . .	270
Culinary Arts . . . . .	238		
Culinary Arts - Wine . . . . .	240	Reading . . . . .	271
		Respiratory Therapist . . . . .	271
Digital Graphics and Interactive Multimedia . . . . .	240		
		Sheet Metal . . . . .	273
Economics . . . . .	241	Somali . . . . .	273
Electrical Technology . . . . .	242	Sociology . . . . .	273
Electromechanical Systems . . . . .	243	Spanish . . . . .	274
Engineering (Pre) . . . . .	244	Study Skills and Success Strategies . . . . .	275
English . . . . .	245	Supply Chain Logistics . . . . .	275
English for Academic Purposes (EAP) . . . . .	247	Surgical Technology . . . . .	275
Geographical Information Science . . . . .	248	Theatre and Drama . . . . .	276
Geography . . . . .	249	Truck Technician . . . . .	277
Global Studies . . . . .	249		
Global Trade . . . . .	249	Welding Technology . . . . .	277
		Women's and Gender Studies . . . . .	279
Health . . . . .	249		
History . . . . .	251		
Hospitality Management . . . . .	252		
Human Resources . . . . .	252		
Humanities . . . . .	253		

Course descriptions are subject to change. The most current course descriptions are available at: [saintpaul.edu/CourseSchedule](http://saintpaul.edu/CourseSchedule).

The following course descriptions are alphabetized by academic 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. Minnesota Transfer Goals are indicated by (MnTC: Goal(s) “goal number”).

## Accounting

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### ACCT 1410 Introduction to Accounting

Introduces the fundamental accounting concepts and principles used to analyze and record business transactions. Topics include transaction analysis, double-entry accounting, and the accounting cycle process. Examples are drawn from service and merchandising organizations. 2C/2/0/0

### 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 or ACCT 2410) 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 1515 Payroll Processing

This course covers Federal and State laws related to compensation calculations, payment of salaries and wages, and related taxes. Also, included are hiring and termination laws. Topics include employment recordkeeping requirements, preparation of the payroll register, individual earnings records, and payroll related forms and reports. 3C/3/0/0

### ACCT 1523 Accounting Computer Applications

Designed to combine the theory of financial accounting principles with accounting software applications. The course will cover the basic design of accounting software and students will develop an analytical understanding of its properties. Special emphasis will be placed on applying the theory of accounting to the practice of using an accounting software package. 3C/3/0/0

### ACCT 2410 Financial Accounting

This course in financial accounting acquaints students with the concepts and practices of accounting to be able to interpret and analyze the financial accounting reports of economic entities. Topics include: economic context of accounting; introduction to basic financial statements, measurement fundamentals; analysis of financial statements; cash; receivables; inventories; investments in equity and debt securities; long-lived assets; current and long-term liabilities; stockholders' equity; and financial performance measurement. 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 2420 or ACCT 1515) 4C/4/0/0

### ACCT 2420 Managerial Accounting

This course provides an introduction to the role of financial and managerial information in planning and control decisions, and the role of the management accountant in the organization. It emphasizes the concepts and practices of management accounting including cost behaviors, contribution margins, job, and process costing, budgeting, standard costs and variance analysis, and other managerial accounting best practices. Students analyze the management decision-making

process via problem solving and case analysis. Understand the differences between managerial and financial accounting. (Prerequisite(s): ACCT 2410) 4C/4/0/0

### ACCT 2540 Financial Modeling for Spreadsheets

Designed to unify financial accounting theory with financial functions and formulas. This course covers elements of financial modeling with the time value of money. Present value and future value concepts are defined and utilized in this course. (Prerequisite(s): ACCT 1410 or ACCT 2410) 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 credits 2-8

## American Sign Language

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### 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. (MnTC: Goal 8) 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) (MnTC: Goal 8) 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. Use of 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 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 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**

This course introduces the students to the fundamentals of fingerspelling/lexicalized fingerspelling and the complex rules and 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 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 1450 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) 3C/3/0/0

#### **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 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 are presented in-depth in other ASLS courses. Variable credits 1-5

## **Anthropology**

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#### **ANTH 1710 Introduction to Cultural Anthropology**

This course introduces students to the concept of culture, anthropological methods and theories, and the unity and diversity of the human species. Culture is the means by which human beings adapt to their environment, structure their societies, and give meaning to life. The course surveys the similarities and differences of the complex whole of human culture, including: subsistence strategies; economics; marriage, family and kinship; gender; political organization; inequality;

religion; colonialism; and globalization. There is a focus on current issues and problems, and their relationship to societal and global matters. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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 examines human biological evolution and variation from the perspective of morphological and cultural adaptation. Discussion addresses the basis of human biology, including genetics, physiology, population dynamics, and adaptive mechanisms. Primates and human ancestors are explored as a comparative model of contemporary human behavior and social organization. The frameworks and arguments of fossil and archaeological evidence are investigated. Modern human biological diversity and adaptations are analyzed, with attention to disease environments and misconceptions of "race." (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 10) 4C/4/0/0

#### **ANTH 1730 Gender and Culture in Global Perspective**

This course examines how sex, gender, and sexuality are culturally constructed through social structures, and how these influence the biological distinctions of male, female, and intersex individuals. Through a comparative approach, we will survey gender roles, values, and relative rank in various socioeconomic levels, including hunter-gatherer, horticultural, pastoral, agricultural, and industrial. Other material to explore will include the intersection between gender, race, class, and sexuality; the origins and consequences of patriarchy; the impact of the global economy on gender identities and self-perceptions; gender, politics, and social change; and the status of women and men in different kinship systems and families, and the power that accrues to them. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

#### **ANTH 1790 Special Topics in Anthropology**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) Variable credits 1-6

## **Arabic**

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#### **ARAB 1310 Beginning Arabic 1**

Beginning Arabic introduces students to the classic, contemporary Arabic language, including the written alphabet and sound system. In this course you will develop basic listening, speaking, reading and writing skills necessary to communicate about self, family and daily life. You will also explore cultural aspects of the Arabic-speaking world, as well as various dialectical variations in the Arabic-speaking world. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 8) 5C/5/0/0

#### **ARAB 1320 Beginning Arabic 2**

This course is a continuation of Arabic 1. You will learn the use of past tense structures and pronoun usage. You will continue to develop listening, speaking, reading, and writing skills necessary to communicate about self, family, and daily life, as well as on abstract concepts such as feelings and emotions: You will continue exploring cultural aspects of the Arabic-speaking world. (Prerequisite(s): ARAB 1310 Beginning Arabic 1 with grade of "C" or better) (MnTC: Goal 8) 5C/5/0/0

**ARTS 1713 Photography 1**

This is a course devoted to introducing photography as a medium of creative expression and visual communication. Students are introduced to 35mm film cameras and the techniques used in the darkroom to create black and white photographs. Initial assignments address technical proficiency and then the emphasis transitions towards creative exploration, aesthetics, and meaning. Classroom discussion will also establish a fundamental relationship between digital and film photography. A \$200 camera deposit will be collected from students who borrow a film SLR camera. The deposit will be refunded at the end of the semester provided the camera is returned undamaged and in suitable working condition. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) 3C/1/2/0

**ARTS 1714 Photography 2**

This is a course devoted to fostering the skills and proficiency established in Photography 1 and allows students to experience a more meaningful amount of time to produce a body of creative work concentrating on one topic or thematic element. The intention of this course is for each student to produce a unique, high-quality, photographic portfolio that showcases technical and conceptual understanding of the photographic medium with the artwork produced. The accompanying lab section will dictate whether the student continues working in a darkroom or transitions into the digital photography lab. A \$200 camera deposit will be collected from students who borrow a camera. The deposit will be refunded at the end of the semester provided the camera is returned undamaged and in suitable working condition. (Prerequisite(s): ARTS 1713 Photography 1 with a grade of "C" or better) (MnTC: Goal 6) 3C/1/2/0

**ARTS 1717 Photography 3**

Photography 3 will build on the foundational skills of photography as an art form learned in the first two semesters of Photography coursework. We will continue to emphasize composition, exposure, camera work and advanced printing techniques to further enhance the capability of personal expression available in the medium. The class will explore professional practices in photography, complete a collaborative assignment, explore advanced printing techniques and opportunities, and develop skills to produce a portfolio of high quality black and white or color photographs. (Prerequisite(s): ARTS 1714 Photography 2 with a grade of "C" or better) (MnTC: Goal 6) 3C/1/2/0

**ARTS 1720 Art Appreciation**

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 from around the world will be viewed, discussed and analyzed in class. Students will also learn about the materials and processes of art making. Course includes visits to local art museum(s). (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6 & 8) 3C/3/0/0

**ARTS 1722 American Animation**

This course looks at animation as an art form and cultural product. We will consider animation within the contexts of American popular culture, media history and socio-political history. We will explore technical and aesthetic advancements from the early animation devices of the nineteenth century to the current and emerging digital technologies of today. Our studies will take us through the classic cartoons of Winsor McCay, Max Fleischer, The Walt Disney Company and Warner Bros. to the latest creations of Pixar and South Park Studios. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

**ARTS 1724 The Design of Everyday Life**

Design is a powerful cultural force that surrounds us wherever we go. This course provides students with the basic historical and analytical

tools to understand the impact of design on our day-to-day lives, objects, communication materials and environments. Lessons will cover the main movements, trends and issues in design, from the end of the nineteenth century through today. Visual examples will range from furniture to advertisements, industrial design to digital media. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

**ARTS 1726 Art in the Cities**

This course takes an experiential approach to learning about the visual arts. Through visits to museums, galleries, studios and historic sites, students will become familiar with some of the cultural resources available in Minneapolis and Saint Paul. We will study art representing various media, artistic philosophies, historical contexts and the multiculturalism of the Twin Cities. Weekly readings, papers and a final project emphasize the development of critical thinking, visual analysis, and writing skills. Students will be responsible for their own transportation. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 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. (MnTC: Goal 6) 3C/1/2/0

**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/1/2/0

**ARTS 1732 Two-Dimensional Design**

Learn the foundational principles of two-dimensional design so you can make dynamic visual compositions and communicate ideas through images. Discuss how artists and designers arrange the elements of design to affect how viewers think and feel. Engage in the design process: generate multiple possibilities and then bring the best idea to life. Explore techniques in a variety of hands-on media. (MnTC: Goal 6) 3C/2/1/0

**ARTS 1733 Three-Dimensional Design**

This course is a foundation level study of the principles and elements of three-dimensional design. Students will use a variety of media and art techniques to explore three-dimensional design, form, line, plane, volume, mass, space, texture, light, and time. Projects emphasize a working creative method for problem solving in three-dimensions as well as a general knowledge of historical and contemporary design issues. (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, depicting the natural world and the human form with greater accuracy, and integrating "color theory" into oil paintings. (MnTC: Goal 6) 3C/1/2/0

**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/1/2/0

**ARTS 1744 Introduction to Watercolor Painting**

This course will introduce students to the practice of watercolor painting. Students will become familiar with the materials and terminology of the medium. They will learn to synthesize a variety of painting techniques into watercolor paintings of varying genres and styles. Students will develop an understanding of color theory, as it applies to watercolor painting, and will come to understand historical and contemporary issues pertaining to the medium. (MnTC: Goal 6) 3C/1/2/0

**ARTS 1746 Introduction to Digital Art**

In Introduction to Digital Art students will combine traditional Art media practices with both Raster and Vector based computer graphics software programs. Students will learn to conceptualize, interpret, and develop works of Art for the digital realm. (Prerequisite(s): Appropriate assessment scores) (MnTC: Goal 6) 3C/1/2/0

**ARTS 1750 Introduction to Ceramics**

This hands-on studio arts course will introduce students to the fundamentals of Ceramic Art. The primary emphasis will be the creation of functional ceramic pottery. Students will learn to make hand-built pottery and learn to “throw” pots on the pottery wheel. In addition to this, students will learn about trimming, glazing, kiln firing, and a variety of decorative techniques. (MnTC: Goal 6) 3C/1/2/0

**ARTS 1752 Intermediate Ceramics**

This hands-on studio arts course will continue to introduce students to the fundamentals of Ceramic Art. The course will also introduce contemporary practices in ceramic arts and investigate sculptural aspects of the medium. Half of the semester will include advanced wheel techniques and a continued concentration on throwing functional pots. In addition to this, students will continue learning about trimming, glazing, kiln firing, and become more proficient in decorative techniques. (Prerequisite(s): ARTS 1750 Introduction to Ceramics with a grade of “C” or better) (MnTC: Goal 6) 3C/1/2/0

**ARTS 1756 Metal Arts**

This course is an introduction to aesthetics, tools, and techniques of creating 3-d works of art through Tungsten Inert Gas (TIG) welding and other assembly techniques. This course covers: safety concerns while working in a metal shop, TIG weld welding, the correct use of filler rod, preparing, cutting, bending, finishing, and the significant properties of different metals. We will explore the creative uses of welding to convey meaning, composition, space, implied motion, creativity, metaphor, personal exploration, the organic elements of nature and the hard edges of human made objects while building a community of respectful artists. (MnTC: Goal 6) 3C/1/2/0

**ARTS 1757 Metal Art 2**

This course builds on the skills and techniques developed in Metal Arts 1. Students will use continue to master their use of tungsten inert gas (TIG) welding as well as be introduced to other assemble techniques. Students will be expected to be role models for good shop safety and etiquette as well as act a mentor for novice artist while continuing to explore their own personal meaning. Students will work as self-directed artist exploring composition, space, implied motion, creativity, metaphor, personal exploration, the organic elements of nature and the hard edges of human made objects. (Prerequisites: ARTS 1756 with a grade of “C” or better.) (MnTC: Goal 6) 3C/1/2/0

**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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

**ARTS 1770 Art in America**

This course is an introduction to art and architecture in North America from the Colonial period to the present. Art in America is united by common historical events and includes Native American culture and influences outside of America. We will explore patterns of cultural interchange with particular emphasis on colonialism, revolution, and the search for national identities. We will also examine the impact of historic and current social movements and politics on art in America. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

**ARTS 1780 Beginning Printmaking**

For centuries artists have used printmaking processes to create beautiful images on paper. This course is an introduction to the fundamentals of fine art printmaking. Students will be instructed in the following printmaking areas: monotype, collograph, dry point linocut, and woodcut. In-class projects will focus on hands-on learning and experimentation as students progress toward assembling a fine art print folio of their work. (MnTC: Goal 6) 3C/1/2/0

**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 photography with other visual art forms. The photographic print, as a means of artistic expression, will be discussed, including historic, social, and artistic movements. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

**ARTS 1795 Special Topics in Art**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 6) Variable credits 1-6

**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. The semester will culminate with a public exhibition of student work. (MnTC: Goal 6) Variable credits 3-4

**ARTS 2754 Advanced Ceramics**

This hands-on studio arts course will build on the proficiency that students have achieved in Introductory and Intermediate Ceramics. The Advanced Ceramics course will require a familiarity with the wheel and hand-building techniques with an emphasis placed on a semester-long ceramics project resulting in a sculptural, conceptual, or functional body of ceramic art work. The course will also expand on contemporary practices in ceramic arts and further investigate sculptural aspects of the medium. Students will become familiar with local ceramics artists and the greater Twin Cities ceramics community. (Prerequisite(s): ARTS 1752 Intermediate Ceramics with a grade of “C” or better) (MnTC: Goal 6) 3C/1/2/0

## Automotive Service

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### **AUTO 1415 Introduction to Automotive Technology**

This course covers industry safety practices, service manuals and technical bulletins, communication skills, and the use of measuring instruments. Also covers automotive terminology and introductory automotive maintenance procedures. (Prerequisite(s): Admission to the Automotive Service Program – Co-requisite(s): AUTO 1430, AUTO 1510, AUTO 1530) 4C/0/4/0

### **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 1415) 4C/0/4/0

### **AUTO 1441 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 1415 & AUTO 1530) 4C/0/4/0

### **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 1415) 3C/0/3/0

### **AUTO 1523 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 1415 & AUTO 1530) 3C/0/3/0

### **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. (Prerequisite(s): AUTO 1415) 3C/1/2/0

### **AUTO 1540 Basic Engine Management**

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, ignition wire and air, fuel and emission filters. (Prerequisite(s): AUTO 1415 & AUTO 1530) 3C/1/2/0

### **AUTO 1550 Heating & Air Conditioning**

Focuses on the principles of heating and air conditioning. Topics include A/C types, the diagnoses of malfunctions and tests/repairs. Lab work is done 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 1415 & AUTO 1530) 4C/0/4/0

### **AUTO 2310 Industry Internship**

This industry internship will expose students to the equipment and tools needed to service automobiles. Students will work in a shop to learn in and experience an actual shop environment. (Prerequisite(s): AUTO 2410, AUTO 2420, AUTO 2430, AUTO 2440, and AUTO 2450 with a grade of "C" or better) 1C/0/1/0

### **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 1550) 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. 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 1550) 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. 2C/1/1/0

### **AUTO 2513 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 2450) 3C/0/3/0

### **AUTO 2520 Engine Drivability**

Covers application of knowledge and skills gained when studying engine, fuel, ignition and computer systems. 3C/0/3/0

### **AUTO 2530 Automatic Transmission Theory**

Covers the basics of torque converters, planetary gear sets, clutches, bands and hydraulics. (Prerequisite(s): AUTO 2450) 2C/1/1/0

### **AUTO 2542 Automatic Transmission Diagnosis & Repair**

Covers automatic transmission and transaxle diagnoses and service. Trouble shooting and repair procedures will also be covered. 4C/0/4/0

### **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

## Biochemistry

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### **BIOC 1790 Special Topics in Biochemistry**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 3) Variable credits 1-6

### **BIOC 2700 Biochemistry**

This course includes structure and function of proteins, carbohydrates, nucleic acids, and lipids. Action and regulation of major metabolic pathways. Synthesis and degradation of biomolecules. Enzyme energetics, kinetics, and chemical basis for transmission of genetic information will also be discussed. Lab work will utilize applied biochemical techniques to reinforce topics covered in the lecture. This includes protein and lipid assays, examinations of metabolism, and analysis of sugars. Lab work will be designed to give the student experience using modern biochemical techniques and equipment. Responsible record keeping and conduct will also be emphasized. (Prerequisite(s): CHEM 2720 and BIOL 1740 with a grade of "C" or better or instructor permission) (MnTC: Goal 3) 4C/3/1/0

### **BIOC 2790 Biochemistry Internship/Research Project**

This course provides students with an opportunity to design and carry out a research project under the supervision of a faculty advisor utilizing biochemistry in a lab setting. The research project will be prepared using literature review, problem identification, procedural documentation, data collection, data analysis, findings, conclusions, and recommendations for future research. The course will also provide an opportunity for field study in an approved internship setting. Evaluation will be carried out by faculty teams and experts in the field. (Prerequisite(s): Instructor approval) (MnTC: Goal 3) Variable credits 1-4

## Biology

### **BIOL 1471 Medical Terminology**

This online course covers how bio/medical terms are constructed from Greek and Latin word elements including 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 useful for anyone who desires a better understanding of medical language. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) 2C/2/0/0

### **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: ecology, human population growth, biotechnology, pollution, 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 and video and the use of internet-based resources. Two hours of lab per week are required and include group experiments, computer simulations, outdoor lab activities, and field trips. Traditional, hybrid, and online sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 4C/3/1/0

### **BIOL 1730 Human Body Systems**

This course begins with a study of the structural organization of the human body and then proceeds with the study of cell structure, types of tissues and basic anatomy and physiology of major organ systems of the human body. The central theme will focus on how the body systems work together to maintain homeostasis and good health. Laboratory activities include the dissection of a preserved animal and animal organs. The course is intended for all interested students and required for programs like Medical Laboratory Technician, Practical Nursing, Respiratory Therapy Technician, and Pharmacy Technician. Traditional and hybrid sections are available. Two hours of lab per week are required. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 3C/2/1/0

### **BIOL 1735 Understanding Biology**

This course is designed for non-science majors or as a preparation for BIOL 1740. A basic introduction to the principles of cell biology and genetics will be covered. The course will also examine the plant and animal kingdoms and general principles of ecology and evolution. One main goal of this course is to provide students with an understanding of biology that will allow them to evaluate and make informed opinions about related current events. Two hours of lab per week are required. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 4C/3/1/0

### **BIOL 1740 General Biology 1: The Living Cell**

This course is a study of biological processes including cell chemistry, metabolism, reproduction, genetics, and complex cell physiology. Three hours of lab per week are required; 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. 3 hours of lab required in a 16-week semester. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 3) 5C/4/1/0

### **BIOL 1745 General Biology 2: 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. Three hours of lab per week are required and some activities involve the dissection of preserved animals and animal organs. Traditional, hybrid and online sections are available. (Prerequisite(s): BIOL 1740 General Biology 1: The Living Cell with a grade of "C" or better) (MnTC: Goals 3 & 10) 5C/4/1/0

### **BIOL 1755 Research Fundamentals**

This course introduces students to procedures and guidelines relating to chemical, biological, physical, and engineering research. Students will conduct a project in three of these areas. Students will utilize literature searches, good laboratory practices, standard operating procedures, clinical research practices, and lab safety related to research. Students will also learn to communicate in a scientific manner. The lab component of the course will provide hands-on experience with the laboratory environment, clean room environment, and instrumentation used in scientific laboratories. 3C/1/2/0

### **BIOL 1760 Nutrition**

This course explores the science of nutrition, including healthy diet fundamentals and the roles of carbohydrates, proteins, fats, vitamins, and minerals in health and fitness. Topics such as dietary guidelines, risk factors for illnesses linked to nutrition, and how the media influences personal diet choices will be covered. Hunger and the global environment as it relates to nutrition will also be covered. This course includes hands-on, lab-like activities related to nutrition and health. Traditional, hybrid, and online sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 3C/3/0/0

### **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. Specific topics include chromatography, hair and fiber analysis, fingerprinting, blood spatter and typing, DNA typing, and forensic entomology. This course is intended for students in liberal arts and sciences, other related science fields, and interested non-science majors and can be used to fulfill the science lab requirement. Two hours of lab per week are required. Traditional, hybrid and online sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) 4C/3/1/0

### **BIOL 1785 Biology of Women**

This course is designed to allow students to explore significant facets of woman from many different angles across her life span from conception, through puberty, pregnancy, birthing and aging including specific health concerns ranging from osteoporosis, breast cancer, heart disease mental disorders and other chronic illnesses. Topics that will be covered include reproductive anatomy and physiology of sexes, sexual development and response, genetics, pregnancy, childbirth, reproductive issues & advances in assisted reproductive technologies which include contraceptive methods, infertility, impotency and sexually-transmitted diseases. Open to both male and female students, meant for non-science majors. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 9) 3C/3/0/0

### **BIOL 1790 Special Topics in Biology**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 3) Variable credits 1-6

### **BIOL 2721 Human Anatomy and Physiology 1**

This course covers body organization, tissues, human body systems (integumentary, skeletal, muscular and nervous), and the special senses, integrating both the anatomy and physiology of each organ system. Dysfunctions may be included, but the body in homeostasis is emphasized. Two hours of lab per week are required. Some lab



activities involve the dissection of preserved animal organs. Traditional and hybrid sections are available. (Prerequisite(s): BIOL 1740 General Biology 1: 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, reproductive, urinary, endocrine, digestive, and lymphatic/immune systems. The anatomy and physiology of each organ system is integrated. Dysfunctions may be included, but the body in homeostasis is emphasized. Two hours of lab per week are required. Many lab activities involve dissection of a preserved animal and animal organs. Human cadavers are also studied for two hours. (Prerequisite(s): BIOL 2721 Human Anatomy and Physiology 1 with a grade of "C" or better) Traditional and hybrid sections are available. (MnTC: Goal 3) 4C/3/1/0

### **BIOL 2750 General Microbiology**

General Microbiology covers 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. Three 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 1: The Living Cell with a grade of "C" or better) Traditional and hybrid sections are available. (MnTC: Goal 3) 4C/3/1/0

### **BIOL 2755 Genetics**

Traditional and modern principles of genetics will be investigated through problem solving, molecular modeling and group discussion. The course will include exploration of genetics at the cellular and organismal level with special emphasis on human genetics. Three hours of lab per week are required to learn techniques and perform experiments. As part of the lab, students will have the opportunity to design, conduct, and present research using genetics laboratory techniques. 3 hours of lab required in a 16-week semester. (Prerequisite(s): BIOL 1740 General Biology 1: The Living Cell with a grade of "C" or better) 4C/3/1/0

### **BIOL 2760 Cell and Molecular Biology**

This course is designed for Saint Paul College students interested in Biomedical or Biotechnology sciences as part of their core curriculum. It is also open to any student interested in the fields of cell biology and molecular genetics. Through laboratory investigations, students will learn the current concepts and techniques in molecular biology for a better understanding of the cell. Students will also learn the use of National Center for Biotechnology Information (NCBI) website for the analysis of genetic sequence and applying their findings to the treatments and cure of human disease, agricultural improvement, forensic science and a better understanding of evolution. Ethical and moral issues posed by molecular biotechnology will be explored and discussed. (Prerequisite(s): BIOL 2750 General Microbiology with a grade of "C" or better) (MnTC: Goal 3) 5C/4/1/0

### **BIOL 2770 Biology Internship**

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 report 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): Instructor approval) (MnTC: Goal 3) Variable credits 1-4

### **BIOL 2790 Research Project for Science and Engineering Technology**

This course provides students with an opportunity to design and carry out a science research project under the supervision of a faculty advisor and/or industry 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 industry experts. The course will also provide an opportunity for field study in an internship setting. (Prerequisite(s): BIOL 1755 Research Fundamentals or CHEM 1755 Research Fundamentals; Instructor approval) (MnTC: Goal 3) Variable credits 1-4

## **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 1441 Consumer Behavior**

This course will explore the behavior of consumers as it relates to products and services. The role of the consumer in the marketplace will be examined including the analysis of needs, motivation, attitudes, perceptions, decisions, and behavior. 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 Account 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 1449 Business Communications**

Business communication provides an introduction to the study of verbal and non-verbal communications in a business setting. The course introduces techniques for business communication including tone, format, inclusion, and delivery and addresses barriers to communication and how to respond to those challenges. Resume and cover letter skills are presented and practiced to prepare students for job search. 3C/3/0/0

### **BUSN 1475 Project Management 1**

This course will further explore project management, moving beyond the introduction of many topics. The course will investigate the concepts of Lean, Six Sigma, Predictive and Adaptive styles of running projects. Microsoft Project will be explored in this course as well. 3C/3/0/0

### **BUSN 1480 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. 1C/1/0/0

### **BUSN 1490 E-Marketing**

The Internet and other technologies have created many opportunities for businesses and organizations to communicate and create value for their customers. This course is designed to give students an understanding of E-Marketing strategies and how they fit into an overall integrated marketing and communications plan. Topics include direct marketing, internet advertising, performance analytics, search engine optimization and career opportunities in E-Marketing. 3C/3/0/0

**BUSN 1492 Social Media Marketing**

In this course students will learn successful marketing strategies using social media as an essential part of an integrated marketing strategy. Social media provides both a listening and outreach tool for promoting business, products and ideas. Social media ethics, legal issues and best practices will be covered. Various social media platforms such as Facebook, Twitter, YouTube and LinkedIn will be explored, as well as careers and jobs in Social Media Marketing. Students will analyze contemporary social media cases and strategies and develop a comprehensive social media marketing plan. Other topics include target marketing on the social web and rules of engagement. 3C/3/0/0

**BUSN 1520 Customer Service**

This course will present effective functioning in a service economy. Students will define and describe the nature, characteristics, and ways services need to be presented using basic customer service terminology. Students will learn skills to create positive customer relations. 3C/3/0/0

**BUSN 1760 Principles of Finance**

Principles and practices of business finance to help decision makers in a dynamic economy. Focus is placed on reviewing and analyzing financial statements, the time value of money, cash flow management, and risk and return. 4C/4/0/0

**BUSN 1762 Money and Banking**

This course provides an introduction to money and banking and presents a fundamental treatment of how money functions in the United States and world economies. It introduces the concept of money supply and the role of banks as money creators and as participants in the nation's payments mechanism. The course explores the working of fiscal and monetary policy, the functions and powers of the Federal Reserve System, and various monetary theories. Also highlighted are major trends and issues in banking and international banking. 4C/4/0/0

**BUSN 1782 Investments**

This course provides a study of the core concepts of investments for Finance majors. It broadly covers financial instruments, such as equity, fixed income, and derivative securities, as well as key concepts studied in Principles of Finance. (Prerequisite(s): BUSN 1760 Principles of Finance) 3C/3/0/0

**BUSN 1784 Principles of Risk Management and Insurance**

This course examines the nature of risk and how it can be managed. Insurance is one of the tools used to respond to risk. It will be examined along with a multitude of other options that are available for risk management. (Prerequisite(s): BUSN 1760 Principles of Finance) 3C/3/0/0

**BUSN 2110 Principles of Marketing**

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, direct and online marketing, pricing strategies, advertising, sales promotion, public relations, personal selling and product distribution. Current marketing trends will be discussed. 3C/3/0/0

**BUSN 2410 Critical Thinking for Business Decision Making**

This course will cover theory and application of critical thinking. Students explore the various elements of the critical thinking process and understand the importance of effective critical thinking skills in the 21st century workplace. Emphasis is placed on learning how to use critical thinking to challenge assumptions and expand perceptions about situations, as well as applying improved skills to the day-to-day operations of a business. 2C/2/0/0

**BUSN 2440 Fundamentals of Nonprofit Management**

This course explains the foundation of the nonprofit sector. Students will be introduced to the fundamentals of effective organization mission and vision statements, strategic planning, operations management, board development and budgeting. Students will gain understanding of different aspects of the nonprofit organization. 3C/3/0/0

**BUSN 2441 Fundraising Techniques**

Learn the role of the board and staff in fundraising, setting fundraising goals, and the cultivation and recognition of donors. This course also covers other components of fundraising for successful generation of revenue. 1C/1/0/0

**BUSN 2442 Grant Writing and Research**

Learn the tactics of researching and writing effective proposals. Discover the best ways to develop documentation, write compelling inquiry letters and set goals that can be achieved. 1C/1/0/0

**BUSN 2443 Dynamics of Board Relations**

Develop a better board of directors or become a better board member. Boards of directors of nonprofits are often unclear about their role and relationship with staff and the executive director. This course defines the role of the board and strengthens the working relationship between staff members and board members. 1C/1/0/0

**BUSN 2444 Volunteer Program Management**

Volunteers make it happen! Successful management of this important asset is critical to an organization. Learn the basic principles and concepts of professional volunteer management and gain a solid foundation on which to build. 1C/1/0/0

**BUSN 2445 Nonprofit Law and Ethics**

Gain knowledge of the complexities of nonprofit organizations. Learn about the legal aspects of nonprofit and tax exempt organizations under federal and state law. Areas discussed include incorporation, exemption, reporting requirements and various IRS mandates for 501(c)(3) exemptions. Ethical issues and concepts as they relate to nonprofit business will be discussed. 1C/1/0/0

**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 a competitive advantage. 3C/3/0/0

**BUSN 2459 Family and Personal Financial Planning**

This course offers practical methods for managing individual personal and family finances. Tools, software and strategies will be explored to encourage responsible financial well-being. Students will write a financial plan consistent with individual goals and values that incorporate the areas studied in the course. 4C/4/0/0

**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 2466 Managing Change and Conflict**

This course helps students to learn and develop the unique set of skills and competencies used to initiate and sustain major organizational change. Students explore techniques for working collaboratively with others to drive organizational culture change. Emphasis is also placed on effectively managing conflict and provides opportunity to develop a list of tools and resources used in conflict management. 2C/2/0/0

**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 techniques and unique circumstances for the negotiation of prices in 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 2474 Business Analytics**

Introduces students to the fundamentals of Business Analytics. Develops students' understanding of analytics in the context of business. Provides a framework for understanding how to frame a business problem, stakeholder analysis, data visualization, descriptive statistics, exploratory data analysis, and data storytelling in business. Enables students to evaluate how data helps make better business decisions based on data analysis. (Prerequisite(s): BTEC 1421 with a grade of "C" or better, and appropriate assessment score) 3C/3/0/0

**BUSN 2475 Project Management 2**

This course will further explore project management, moving beyond the introduction of many topics. The course will investigate the concepts of Lean, Six Sigma, Predictive and Adaptive styles of running projects. Microsoft Project will be explored in this course as well. (Prerequisite(s): BUSN 1475 Project Management 1) 3C/3/0/0

**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) Variable credits 1-3

**BUSN 2482 Entrepreneurship Capstone**

Students will complete a business plan. A business plan integrates skills and elements from various disciplines. Because a business plan is a complete and professional document that establishes the viability of your business ideas, students will build both their writing and presentation skills. 3C/3/0/0

## Business Technology

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**BTEC 1121 Introduction to Microsoft Word**

This course provides an overview of the most commonly used features of Microsoft Word. Students will examine word processing concepts and use Microsoft Word to create and edit documents for professional, personal, and academic use. 1C/1/0/0

**BTEC 1131 Introduction to Microsoft Excel**

This course provides an overview of the most commonly used features of Microsoft Excel. Students will identify spreadsheet terminology and concepts, create formulas and functions, and create and edit spreadsheets, charts, and graphs for professional, personal, and academic use. 1C/1/0/0

**BTEC 1151 Introduction to Microsoft PowerPoint**

This course provides an overview of the most commonly used features of Microsoft PowerPoint. Students will identify presentation terminology and concepts. Students will create and edit presentations for professional, personal, and academic use. 1C/1/0/0

**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 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, working with drives, 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 covered includes Word, Excel, Access, and PowerPoint. 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, BTEC 1423 Business Information Applications 2 and BTEC 2506 Business Information Applications 3, prepare the student for the Microsoft Office Specialist (MOS) certification exams. (Prerequisite(s): Knowledge of computers) 3C/0/3/0

**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, BTEC 1421 Business Information Applications 1 and BTEC 2506 Business Information Applications 3, prepare the student for the Microsoft Office Specialist (MOS) certification exams. (Prerequisite(s): BTEC 1421) 4C/0/4/0

**BTEC 1530 Communication Technology**

This course offers hands-on instruction in current communication technology software. Topics in this class will cover the fundamentals of Microsoft Outlook, Microsoft Publisher, and creating web pages. In Microsoft Outlook, the students will create messages, contact lists, and manage calendars. In Microsoft Publisher, the student will create and edit a publication, design a newsletter, publish a tri-fold brochure, and create an e-mail letter. Students will also learn how to create a simple website, add text and links, and create tables. 4C/0/4/0

**BTEC 2410 Business Procedures**

This course 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 explores expert level applications using Microsoft Office software. This course assumes students are familiar with the fundamental and advanced features of Microsoft Word, Excel, Access, and PowerPoint. Students demonstrate proficiency in Microsoft Office in preparation for the Microsoft Certified Applications Specialist certification exams. Students create expert level documents, worksheets, databases, and presentations suitable for the business environment, coursework, and personal use. (Prerequisites(s): BTEC 1423) 4C/0/4/0

### **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 credits 2-8

## **Cabinetmaking**

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### **CABT 1450 Print Reading**

Introduces 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. 2C/1/1/0

### **CABT 1455 Traditional Machining Methods**

This course will introduce students to shop safety. The student will study the identification, care and use of hand tools, portable power tools, and machinery. The course offers safety demonstrations on all power equipment and safety tests will be performed on most machines. Basic knowledge of power and hand tools is required. Students will master the machinery through building various projects. 5C/2/3/0

### **CABT 1460 Wood Technology**

This course will introduce students to the materials and finishes used in cabinetmaking. Students will learn to identify hardwoods, softwoods and 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. 2C/1/1/0

### **CABT 1465 Furniture & Residential Cabinetry**

This course introduces the student to face frame base and upper cabinetry. Students will learn the design, planning, and construction processes of building face frame cabinets. The student will then apply these techniques by building a project. (Co-requisite(s): CABT 1455) 5C/2/3/0

### **CABT 1470 CAD/CNC**

In this course students will learn to use CAD software to design objects. Students will also learn to apply tool paths, choose tooling, save files, and CNC router operations. 2C/0/2/0

### **CABT 1475 Industrial Machining Methods**

This course will reinforce proper machine operation and safety on woodworking machinery. Advanced woodworking machinery will be demonstrated, along with safety tests on these machines. Machine maintenance and tooling is covered. A series of projects will give the students hands-on experience. 4C/1/3/0

### **CABT 2450 Surface Applications**

This course introduces students to laminates/veneers, the tools used for laminating, and laminate counter tops. Students will learn to measure, order material, layout, and fabricate laminate counter tops. Solid surface, stone products, and other types of counter tops are also covered. Various projects will give the students hands-on experience. 4C/1/3/0

### **CABT 2455 Casework & Millwork**

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. (Co-Requisite(s): CABT 1475) 5C/1/4/0

### **CABT 2515 CNC Cabinet Design**

In this course students will learn to lay out and design cabinets using cabinet design software. Students will learn to edit or modify within program to meet the given cabinet specifications and then convert to CAM files to be cut out on a CNC router. 3C/2/1/0

### **CABT 2690 Capstone Project/Open Lab**

This course is to be taken the last semester the student is registered for Cabinetmaking. In this course students will use all that they have learned in previous courses to design a project, estimate materials and costs, order the materials, and then fabricate the project. 2C/0/2/0

### **CABT 2695 Internship**

Students will go to work in one of our partnering wood industry shops to experience and learn in an actual shop environment. 2C/0/2/0

### **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 credits 1-2

### **CABT 2790 Cabinetmaking Special Projects**

This course is designed to create customized projects for students as needed on an individual basis. Variable credits 1-4

## **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 and 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. 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 and 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/3/2/0

### **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

#### **CARP 2495 Special Topics in Carpentry**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various program and pre-major course requirements. Please see a current Course Schedule for complete course details. Variable credits 1-6

## Center for Manufacturing and Applied Engineering

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(The following courses are restricted to the 360o Program – see an advisor for more information)

#### **CMAE 1510 Print Reading**

This course will orient the student in the basic skills and abilities required for understanding prints utilized in a manufacturing/industrial environment. Emphasis will be on interpretation of Geometric Dimensioning and Tolerancing symbols/principles; Alphabet of lines; Multi-view drawing (including Orthographic Projection, Isometric Views and Perspective Drawing); Title blocks; Revision systems; Identification of general/local notes; Dimensions and tolerances; Basic principles of math/geometry in relation to mechanical print reading; Interpretation of basic weld symbols; Techniques of basic shop sketching and interpretation of three-dimensional drawings, will be also discussed. Each student will have the opportunity to apply the knowledge acquired through a variety of in-class activities and external assignments. 2C/2/0/0

#### **CMAE 1514 Safety Awareness**

This course aligns with the Manufacturing Skill Standards Council's (MSSC) assessment and certification system for Safety. The curriculum is based upon federally endorsed national standards for production workers including Occupational Safety Health Administration (OSHA) standards relating to Personal Protective Equipment (PPE), lockout/tagout (LOTO), Hazardous Material (HAZMAT), tool safety, and confined spaces. 2C/2/0/0

#### **CMAE 1518 Manufacturing Processes and Production**

This course is designed to align with the Manufacturing Skill Standards Councils (MSSC) assessment and certification system for Manufacturing Processes. The course curriculum is based upon federally-endorsed national standards for production workers. This course emphasizes Just-In-Time (JIT) manufacturing principles, basic supply chain management, communication skills, and customer service. 2C/2/0/0

#### **CMAE 1522 Quality Practices**

This course is designed to align with the Manufacturing Skill Standards Council's (MSSC) assessment and certification system for Quality Practices. The course curriculum is based upon federally-endorsed national standards for production workers. Emphasis is placed on Continuous Improvement concepts and how they relate to a quality management system. Students will be introduced to a quality management system and its components. These include corrective actions, preventative actions, control of documents, control of quality records, internal auditing of processes, and control of nonconforming product. 2C/2/0/0

#### **CMAE 1526 Maintenance Awareness**

This course aligns with the Manufacturing Skill Standards Council's (MSSC) assessment and certification system for Maintenance

Awareness. The curriculum is based upon federally endorsed national standards for production workers. The course introduces the concepts of predictive and Total Productive Maintenance (TPM) with the fundamental principles of lubrication, electricity, hydraulics, pneumatics, and power transmission systems. 2C/2/0/0

#### **CMAE 1566 Gas Metal Arc Welding (GMAW) / Flux Cored Arc Welding (FCAW)**

Students will study and demonstrate safety practices with Gas Metal Arc Welding (GMAW) and Flux Cord Arc Welding (FCAW). The GMAW and FCAW processes will be discussed in depth including the different type of modes of transfer available, shielding gases, and the different types of materials that can be welded. The differences in the electrode types of gas-shielded wires and self-shielded wires will be discussed, along with the types of shielding gases that are used. There will be discussions on the importance of how the welding process intersects with the arc welding symbols and codes. There will also be a review of procedures used in visual inspections of welds. Time will be spent in the lab developing skills using the GMAW and FCAW processes. Welds will be made in the flat, horizontal, vertical, and overhead positions. Written and fundamental tests will be completed in accordance with the American Welding Society (AWS) codes and standards. 3C/1.5/1.5/0

#### **CMAE 1568 Gas Tungsten Arc Welding (GTAW)**

This course covers the safety hazards and applications for Gas Tungsten Arc Welding (GTAW) in the welding industry. Material covered will be power sources, setup, types of current, current selection, shielding gases and torch types. Procedures and potential problems welding different metals (Aluminum, Stainless Steel, and Mild Steel) will be addressed in this course. Applications for the process in different industries, as well as the use of back purging will be discussed. Welds will be made in the flat, horizontal, vertical and overhead positions. Written and Fundamental tests will be completed in accordance with the American Welding Society (AWS) codes and standards. 3C/1.5/1.5/0

#### **CMAE 1570 Metallurgy**

This course covers the study of metals and the effects of welding and heat treatments on them. Metallurgical terminology will be an important part of the course. Physical and mechanical properties of ferrous and nonferrous metals will be covered along with the classifications of different types of metals. The range of materials and their usefulness in particular applications will be discussed. Written tests will be completed in accordance with the American Welding Society (AWS) codes and standards. 1C/1/0/0

## 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 0910 Introductory Algebra with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 3) 4C/3/1/0

#### **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; 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. 3 hours of lab required in a 16-week semester. (Prerequisite(s): MATH 0920 Intermediate Algebra or CHEM 1700

Chemistry Concepts 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. 3 hours of lab required in a 16-week semester. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

### **CHEM 1755 Research Fundamentals**

This course introduces students to procedures and guidelines relating to chemical, biological, physical, and engineering research. Students will conduct a project in three of these areas. Students will utilize literature searches, good laboratory practices, standard operating procedures, clinical research practices, and lab safety related to research. Students will also learn to communicate in a scientific manner. The lab component of the course will provide hands-on experience with the laboratory environment, clean room environment, and instrumentation used in scientific laboratories. 3C/1/2/0

### **CHEM 2720 Organic Chemistry 1**

This course is the first semester of a two-semester sequence in organic chemistry. Topics include an overview of covalent bonding, acid-base chemistry, and reaction energetics. The course also covers nomenclature, stereochemistry, organic molecular structures, substitution and elimination reactions and reactions alkanes, alkenes, alkynes, and alcohols. The laboratory activities include an introduction to laboratory techniques used in organic chemical synthesis, and the use of chromatography and spectroscopy in the analysis of organic compounds. Three hours of lab per week are required. (Prerequisite(s): CHEM 1712 with a grade of "C" or better) (MnTC: Goal 3) 5C/4/1/0

### **CHEM 2721 Organic Chemistry 2**

This course is a continuation of CHEM 2720 Organic Chemistry 1. Topics include amines, ketones, aldehydes, carboxylic acids, and their derivatives. Reaction mechanisms studied include 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 biochemistry. The laboratory activities cover reactions, synthesis, and the chemical and instrumental identification of organic compounds. Three hours of lab per week are required. (Prerequisite(s): CHEM 2720 with a grade of "C" or better) (MnTC: Goal 3) 5C/4/1/0

### **CHEM 2730 Instrumental Analysis**

This course introduces the principles of analytical methods and instrumentation. The theories and applications of various chemical and biochemical methods of analyses will be studied. Instrumentation methods including chromatography, spectrophotometry, microscopy, and others will be applied in laboratory to a variety of chemical and biological systems. Mathematical calculations, statistical analysis of data, and quantitative chemical analysis will also be incorporated. Students will also be introduced to standards important to quality control in regulatory environments, using documentation procedures and validation principles according to regulatory standards. (Prerequisite(s): CHEM 1711 with a grade of "C" or better) (MnTC: Goal 3) 4C/2/2/0

### **CHEM 2790 Research Project for Science and Engineering Technology**

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 a faculty member and an expert in the field. The course will also provide an opportunity for field study in an approved internship setting (Prerequisite(s): Instructor approval) (MnTC: Goal 3) Variable credits 1-4

### **CHEM 2795 Special Topics in Chemistry**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 3) Variable credits 1-6

## **Child Development**

### **CDEV 1200 Introduction to Early Childhood Education**

This course provides an overview of the early childhood field, including philosophies, missions, and regulations. It examines the roles and responsibilities of professionals in a variety of career settings. Examines positive communication and relationships with families. 3C/3/0/0

### **CDEV 1210 Child Growth and Development**

Examines the major developmental milestones for children, both typical and atypical, from conception through adolescence in the areas of physical, psychosocial, and cognitive development. Emphasizes interactions between maturational processes and environmental factors. While studying developmental theory and investigative research methods, students will observe children and analyze characteristics of development at various stages. 3C/2/1/0

### **CDEV 1220 Health, Safety and Nutrition**

An introduction to the regulations, standards, policies, and procedures, prevention techniques, and early childhood curriculum related to health, safety, and nutrition. The key components that ensure physical health, mental health, and safety for both children and staff will be identified, as well as the importance of collaboration with families and health professionals. A focus will be on integrating the concepts into everyday planning and program development. 3C/2/1/0

### **CDEV 1230 Guiding Children's Behavior**

Examines positive strategies to guide children's behavior in the early childhood setting. Examines ways to establish supportive relationships with children and guide them, in order to enhance learning, development, and well-being. 3C/3/0/0

### **CDEV 1250 Learning Environments & Experiences**

The student will gain knowledge and skills related to providing age-appropriate learning experiences and learning environments for young children. The student will examine the role of the teacher in providing learning experiences to meet each child's needs, capabilities, interests, and the implementation of developmentally appropriate practice. The student will practice language, literacy, social, emotional, sensory, art, music, math and science learning experiences. 3C/2/1/0

### **CDEV 1270 Working with Diverse Children and Families**

Examines how to work with many types of families. Investigates the importance of the family/school partnership, study methods of effectively communicating with families, and identify community organizations and networks that support families. Various classroom strategies will be explored emphasizing culturally and linguistically appropriate anti-bias approaches supporting all children in becoming competent members of a diverse society. 3C/3/0/0

### **CDEV 1610 Observation and Assessment**

This course focuses on the appropriate use of assessment and observation strategies to document development, growth, play and learning to join with families and professionals in promoting children's success. Recording strategies, rating systems, multiple assessment tools and portfolios are explored. There will be a focus on increasing objectivity in observing and interpreting children's behavior, observing developmental characteristics and increasing the awareness of normal patterns of behavior. (Prerequisite(s): Completion of all certificate level coursework or instructor approval) 3C/3/0/0

**CDEV 1640 Curriculum Planning**

Provides an advanced level of curriculum planning. Emphasis is on organizing, implementing, and evaluating developmentally appropriate curricula. (Prerequisite(s): Completion of certificate level coursework and instructor approval) 3C/3/0/0

**CDEV 1910 Practicum 1**

Students demonstrate early childhood teaching competencies under guided supervision to make connections between theory and practice and developing professional behaviors. Students apply comprehensive understanding of children and families; developmentally appropriate, child-centered, play-oriented approaches to teaching and learning, and knowledge of curriculum content areas. They design, implement, and evaluate experiences that promote positive development and learning for all young children. (Prerequisite(s) Completion of all other Diploma level courses and instructor approval) 3C/0/0/3

**CDEV 2300 Introduction to Language and Literacy**

Provides an overview of language learning experiences in early childhood settings and a detailed study of literature/literacy experiences. Students will integrate knowledge of children's language and literacy development, learning environments and teaching strategies to select, plan, present, and evaluate literature experiences to children of different abilities and diverse backgrounds. 3C/2/1/0

**CDEV 2340 Working with Exceptional Learners**

This course examines the development of children with differing abilities. Students will integrate strategies that support inclusive programs for children, apply legal and ethical requirements including, but not limited to American Disabilities Act and Individuals with Disabilities Education Act. Differentiate between typical and atypical development, analyze the differing abilities of children with physical, cognitive, health/medical, communication, and/or behavioral/emotional disorders. Explore strategies to adapt curriculum to meet the needs of children with developmental differences and cultivate partnerships with families. (Prerequisite(s): Completion of all certificate level or coursework instructor approval) 3C/2/1/0

**CDEV 2570 Working with Diverse Children and Families**

Examines how to work with many types of families. Investigates the importance of the family/school partnership, study methods of effectively communicating with families, and identify community organizations and networks that support families. Various classroom strategies will be explored emphasizing culturally and linguistically appropriate anti-bias approaches supporting all children in becoming competent members of a diverse society. 3C/3/0/0

**CDEV 2620 Practicum 2**

Provides an opportunity to apply knowledge and skill in early childhood settings. Students implement a variety of learning experiences that are developmentally appropriate for and culturally sensitive to two different age groups and program settings. (Prerequisite(s): Successful completion of all other required AAS coursework and Instructor approval) 4C/0/0/4

**CDEV 2630 Practicum Special Settings/ASL**

This course 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 certificate level coursework or instructor approval) 3C/3/0/0

**CDEV 2650 Organizational Leadership & Management**

Prepares students to take an active advocacy role in the child development profession by examining the history, current trends, and future of early childhood care and education. Students will participate in professional development and advocacy activities and practice the Ethical Code of Conduct for early childhood education professionals. (Prerequisite(s): Completion of all certificate level coursework or instructor approval) 3C/3/0/0

**Chinese Language****CHIN 1710 Beginning Chinese 1**

This course introduces Mandarin Chinese language based on the knowledge of basic skills and strategies in listening, speaking, reading and writing in a general Mandarin speaking environment. Learners will acquire the language through a theme-based and function-based approach, but also by focusing on grammar whenever necessary. China's culture and history are also important components of the course. At the end of the term, students are expected to be able to communicate some basic personal information, both oral and written. They will read and write simplified Chinese characters and learn some key components of Chinese culture and general knowledge of Chinese history. The course will also prepare students for further studies in Chinese. This course consists of five hours per week of instruction and in-class discussion in addition to homework, tape assignments, and on-line practice. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 8) 5C/4/1/0

**CHIN 1720 Beginning Chinese 2**

As the second part of the Accelerated Modern Chinese course series, this course is designed for heritage speakers of Chinese or those who have completed CHIN 1710 at Saint Paul College. The purpose of this course is to help students improve their ability in listening, speaking, reading, and writing Chinese. It particularly aims to help students develop more sophisticated vocabulary and enhance reading and writing ability in Chinese. As with CHIN 1710, the course consists of five hours per week of instruction and in-class discussion, homework, tape assignments and online practice. (Prerequisite(s): CHIN 1710 with a grade of "C" or better or instructor approval) (MnTC: Goal 8) 5C/4/1/0

**CHIN 1790 Special Topics in Chinese**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 8) Variable credits 1-6

**CNC Toolmaking****CNCT 1410 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. This course will include additional theory and online assignments. (Co-requisites: CNCT 1430 Materials Process I and CNCT 1431 Materials Process 2) 4C/4/0/0

**CNCT 1420 Engineering Drawing**

This introductory course covers view orientation, section views, surface finish, dimensioning, part tolerance, and machining symbols. This course will include additional theory and online assignments. (Co-requisite: CNCT 2520 CAD) 4C/4/0/0

**CNCT 1430 Material Processes 1**

This introductory lab covers shop safety, bench work, drill presses, lathe operations, and vertical milling. (Co-requisites: CNCT 1410 Introduction to Manufacturing Processes and CNCT 1431 Materials Process 2) 4C/1/3/0

**CNCT 1431 Material Processes 2**

This intermediate lab course covers surface grinding, bench work, band saws, lathe operations, drill presses and vertical milling. (Co-requisites: CNCT 1410 Introduction to Manufacturing Processes and CNCT 1430 Materials Process I). 4C/0/4/0

**CNCT 1710 Shop Calculations**

The subject matter of this course 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 trade. (Prerequisite(s): CNCT 1431 with a grade of "C" or better and Co-requisites: CNCT 1720 Geometric Dimensioning and CNCT 1744 Metrology) 2C/2/0/0

### **CNCT 1720 Geometric Dimensioning**

This course covers the principles, application, and interpretation of geometric dimensioning and tolerance as per ASME-Y14.5M 1994 Standards. (Prerequisite(s): CNCT 1431 with a grade of "C" or better and Co-requisites: CNCT 1710 Shop Calculations and CNCT 1744 Metrology) 2C/2/0/0

### **CNCT 1730 CNC 1**

This introductory course covers view orientation, section views, surface finish, dimensioning, part tolerance, and machining symbols. This course will include additional theory and online assignments. (Co-requisite(s): CNCT 1731 CNC 2 and CNCT 2540 Computer Aided Manufacturing) 4C/2/2/0

### **CNCT 1731 CNC 2**

This course covers the setup and operation of CNC machine tools. Also includes advanced NC/CNC programming and operation on machining centers. (Co-requisite(s): CNCT 1730 CNC 1 and CNCT 2540 Computer Aided Manufacturing). 4C/2/2/0

### **CNCT 1744 Metrology**

This course covers the identification, use and care of precision measuring devices used in manufacturing. Students will learn through lecture and lab how to perform accurate measurements in a repeatable manner. Standard hand devices as well as manual and programmable coordinate measuring machines, vision systems, and optical comparators will be addressed. Theories in quality control principles will be introduced. (Co-requisite(s): CNCT 1710 Shop Calculations and CNCT 1720 Geometric Dimensioning). 4C/3/1/0

### **CNCT 2412 Tool Design**

This course covers analysis and design fundamentals required to design production tooling. The course will center around modern mold and die design principles. Content includes types of molds, plastic molding characteristics, metal alloy casting, die types, clearance, tonnage, steel types, steel classification systems, and basics of metallurgy. Course is web-enhanced with assignments, quizzes and exams completed online. (Prerequisite(s): CNCT 1731 and CNCT 1422 with a grade of "C" or better) (Co-requisite (s): CNCT 2421 Mechanical Systems/EMS, CNCT 2441 CNC Applications). 4C/3/1/0

### **CNCT 2421 Mechanical Systems/EDM**

The focus of this hybrid course will be on manufacturing design, production processes, and Electrical Discharge Machining. Also included will be production tool design projects, related theory in quality, lean manufacturing, abrasives, mechanical systems, inspection procedures, welding and CNC controls. (Prerequisite(s): CNCT 1744 with a grade of "C" or better) (Co-requisite(s): CNCT 2412 and 2441) 4C/2/2/0

### **CNCT 2431 Moldmaking/Plastic Technology**

This introductory, web enhanced course covers the design and construction principles of basic plastic injection molds. Manual mills, lathes, surface grinders, drill presses, as well as 2 and 3 Axis CNC programming and machining, and CAD and CAM are used in a laboratory setting to produce plastic injection molds. (Prerequisite(s): CNCT 1731 and CNCT 1740 and CNCT 1422 or CNCT 2520 with a grade of "C" or better) (Co-requisite(s): CNCT 2530 CNC Lathe). 4C/2/2/0

### **CNCT 2441 CNC Applications**

This course covers product development fundamentals including design and research, cost estimating and manufacturing of a metal stamped product, CNC mill and lathe machined parts, and wire and sink EDM machined components. The course will include basic machining processes such as milling, turning, precision surface grinding, form grinding, CNC milling and turning and wire and sink EDM processes. (Prerequisite(s): CNCT 1730 CNC 1 and CNC 1731 CNCT 2 with a

grade of "C" or better) (Co-requisites: CNCT 2412 Tool Design and CNCT 2421 Mechanical Systems/EDM) 4C/2/2/0

### **CNCT 2520 CAD**

This introductory course will use SolidWorks as the CAD software of instruction and application. Basic construction of solid modeling, engineering drawings, and assemblies will be covered. (Co-requisite: CNCT 1420 Engineering Drawings). 4C/4/0/0

### **CNCT 2530 CNC Lathe**

This course covers the programming, set-up, and operation CNC turning centers. This course will include additional theory and online assignments. This is a hybrid course. (Prerequisite(s): CNCT 1430, CNCT 1431 with a grade of "C" or better) (Co-requisite: CNCT 2431 Moldmaking/Plastic Technology). 4C/1/3/0

### **CNCT 2540 Computer Aided Manufacturing**

This course covers computer aided manufacturing using Mastercam software. Students will learn to create geometry, toolpaths, and CNC files for a series of projects. The use of PC based CAM software to generate numerical control programs is included. (Co-requisite(s): CNCT 1730 CNC 1 and CNCT 1731 CNC 2) 4C/2/2/0

### **CNCT 2550 Industry Internship**

This industry internship will expose the student to manufacturing, and will provide operator training and workplace safety. (Prerequisite(s): A grade of "C" or better in all program courses.) 4C/0/0/4

## **Communications**

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### **COMM 1710 Fundamentals of Public Speaking**

This course covers the basic principles of preparing, researching, and delivering informative, persuasive, impromptu, and extemporaneous speeches. Instructional methodologies instruct students on computer-mediated communication issues as well as international audience analysis and multi-cultural demands of public speaking venues. 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

### **COMM 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

### **COMM 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

### **COMM 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. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0



**COMM 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

**COMM 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 & 7) 3C/3/0/0

**COMM 1780 Gender Communication**

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. 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

## Computer Science

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**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. (Prerequisite(s): Grade of “C” or better in MATH 0910 or appropriate assessment score.) 4C/4/0/0

**CSCI 1423 Computer Networking 1 - Client**

This course introduces students in networking programs to workstation-based operating system design, implementation and administration. The primary components of workstation operating systems such as process management, memory management systems, file systems, security subsystems, I/O control subsystems, etc. are reviewed at the conceptual level. UNIX and Windows based operating systems are used as implementation case studies. Students are expected to become proficient with the ideas inherent in operating system design and how these ideas are implemented in both UNIX and Windows based workstation operating systems. Workstation-based peer-to-peer networking is reviewed in the context of both Windows and UNIX based networking. (Prerequisite(s): Grade of “C” or better in MATH 0910 or appropriate assessment score.) 4C/4/0/0

**CSCI 1440 Networking Fundamentals**

This course provides an introduction to computer networking. The material in the course follows the OSI networking model as a basis for coverage of the entire field of computer networking. Topics include the physical, data link, network, transport, session, presentation and application layers of the OSI model as they are implemented in current network technologies. Students will use a very hands-on approach learning physical networking as well as logical networking tasks. The course makes extensive use of Cisco networking hardware and software as well as Cisco learning materials. With extensive outside study and review students in this course may become prepared to

become certified as Network+ level technicians. (Prerequisite(s): Grade of “C” or better in MATH 0910 or appropriate assessment score.) 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 ecommerce. Students will design and program HTML Web pages, tutorials and publish a website project. (Prerequisite(s): Grade of “C” or better in MATH 0910 or appropriate assessment score.) 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): CSCI 1450) 4C/4/0/0

**CSCI 1475 A+ Hardware/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

**CSCI 1523 Introduction to Computing & Programming Concepts**

This course is focused on computational problem solving. Students must engage in problem-solving tasks such as clarifying any ambiguous aspects of the problem definition, decomposing the problem into subproblems, deciding which computer-related problem solving strategies (such as recursion) might be useful in solving the problem, constructing a solution, implementing the solution as a computer procedure, and verifying that the solution is correct (including modifying it when it is not). (Prerequisite(s): CSCI 1410 and MATH 0920 or appropriate assessment score) 4C/4/0/0

**CSCI 1524 Introduction to Algorithms and Data Structures**

This course is focused on the use of algorithms and data structures to solve problems. Students will solve various problems using appropriate software design methods and software tools. For example, students need to decide which problem solving strategies (such as divide and conquer) might be useful for a specific problem, construct a solution, design appropriate data types and algorithms, and verify the correctness of the solution. (Prerequisite(s): CSCI 1410, 1523, 1541, and MATH 1730) 4C/4/0/0

**CSCI 1533 ANSI C Language Programming**

This course is an intermediate introduction to Language C and the tools used to develop executable programs. The course reviews elementary C programming concepts at a rapid pace and continues with Language C development using simple data structures such as arrays and linked lists. This is followed by a detailed review of how memory is managed in Language C, pointers, referencing and dereferencing, C structures and abstract data types. Students should expect that all programming will be done at the command line using command line editors and Linux as the operating system. (Prerequisite(s): CSCI 1523) 2C/2/0/0

**CSCI 1541 Java Programming**

This course covers the syntax of the Java programming language, and object-oriented programming with the Java programming language. It includes variables, primitive data types, decision structures, loops, file I/O, methods, classes, arrays, text processing, wrapper classes, and inheritance. Students will learn how to develop Java applications using the command line interface. (Prerequisite(s): CSCI 1410 or CSCI 1523) 4C/4/0/0

**CSCI 1542 Java Programming 2**

This course provides students with first-hand experience creating graphical user interface (GUI) applications using AWT, Swing, and JavaFX classes. Students will learn how to handle exceptions and create Java applets. Students will create Java applications to create connect to, and manipulate an SQL database. Students will learn Java concurrency and a multi-thread application will be created. Students will also have exposure to JUnit testing. (Prerequisite(s): CSCI 1410 and CSCI 1541) 4C/4/0/0

**CSCI 1550 Database Management Fundamentals**

This course covers information models and systems; database query languages; object-oriented and relational database design; transaction processing; distributed databases; data modeling; normalization; and physical database design. The relational model is studied in-depth and students are expected to develop proficiencies in the design and implementation of databases using it. Students will spend a significant portion of the course studying SQL. Students are expected to become proficient in the use of SQL and the implementation database typically used for this course is MYSQL. This course is based on ACM specifications for a first course in Database Systems. (Prerequisite(s): CSCI 1410) 4C/4/0/0

**CSCI 1714 Introduction to Data Science**

This is an introductory course in the fundamental topics of data science: data architecture, data acquisition, data analysis and visualization, and data archiving. Practical techniques for working with large-scale data will be presented. Students will learn the use of analysis techniques to include summation of the data, using samples of data to make predictions about the larger context, and visualization techniques for presenting the results of data analysis. A significant portion of the course will focus on the migration of and analysis of the data using the R platform. (Prerequisite(s): MATH 1740 Introduction to Statistics) 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 for different management functions from the business perspective. (Prerequisite(s): CSCI 1410 and CSCI 1550) 3C/3/0/0

**CSCI 2420 Computer Security**

This course is a comprehensive introduction to computer security. The course is an in-depth introduction the concept of cybercrime and security in networks and the internet. It presents the conceptual frameworks of computer security assessment. Topics covered include denial of service attacks, malware, viruses, trojan horses, worms, encryption, industrial espionage, internet fraud, cyber terrorism and information warfare. The course makes extensive use of in class and Internet-based laboratories within which computer security scenarios are implemented and strategies for their design and operation are reviewed. Students taking this course should have a background in computer networking and a thorough understanding of client/server networking. With extensive outside study and review students in this course may become prepared to become certified as Security+ level technicians. (Prerequisite(s): CSCI 1475 or CSCI 1423, and CSCI 1440) 4C/4/0/0

**CSCI 2440 Client Side Programming 1**

This course introduces JavaScript programming and the skills needed to create dynamic, client-side web pages. The basics of JavaScript programming are covered, including: basic scripting, control statements, functions, arrays, and objects. Students will then explore the DOM (Document Object Model), JavaScript event handling, DHTML (Dynamic HTML) and select advanced topics. Class sessions include hands-on work and lectures. This course assumes a working knowledge of HTML and a previous introduction to CSS (Cascading Style Sheets). (Prerequisite(s): CSCI 1450) 4C/4/0/0

**CSCI 2442 Server Side Programming**

This course is designed for students interested in developing the server-side skills needed to create dynamic, data-driven websites. This course uses the popular server-side programming language PHP to interact with SQL databases. Fundamental techniques are covered, including: connecting to a database and performing basic database operations to create, read, update, and delete data. HTML form elements are reviewed and then form processing is discussed as well as writing functions for data validation. Server-side scripting is used to generate dynamic web pages. Students will learn how to authenticate users, manage user requests, and maintain user state through sessions and cookies. (Prerequisite(s): CSCI 1450) 4C/4/0/0

**CSCI 2451 Computer Networking 2 – Server**

This course is designed to give the student of networking an introduction to client/server networking. Students in this course will be expected to install and configure both the server operating system and clients connecting to the server. At the completion of the course students understand the basics specifying, designing, installing, configuring and maintaining a client/server network. Microsoft Client and Server Software is utilized as the teaching platform and students are expected to become proficient in the use to this commercial platform. Specialized topics include network security, name resolution system, (DNS, DNS&WINS), network access protection (NAP), file services, print services, Active Directory service, etc. A significant amount of time in the course is dedicated to laboratory exercises and hands-on experience. With extensive outside study and review successful students in this course may become prepared to become certified as Microsoft Systems Administrator. (Prerequisite(s): CSCI 2420) 4C/4/0/0

**CSCI 2453 Computer Virtualization**

This course introduces software and technologies used to create virtual computers. Proprietary virtualization software such as VMWare and Microsoft Virtualization are covered as well as open source projects such as Xen and virtualbox. Students will work directly with servers and install and configure each of the virtualization systems during the course. This course is conducted in a hands-on manner and class sessions typically will be dedicated to hands-on exercises. (Prerequisite(s): CSCI 2420 or CSCI 2461) 4C/4/0/0

**CSCI 2460 Discrete Structures of Computer Science**

This course addresses the foundations of discrete mathematics with application of computer science. Sets, sequences, functions, big-O, propositional/predicate logic, proof methods, counting methods, recursion/recurrences, relations, trees/ graph fundamentals are covered in detail. Credit will not be awarded for both MATH 2460 and CSCI 2460. (Prerequisite(s): CSCI 1410 and MATH 1730 or higher) 4C/4/0/0

**CSCI 2461 Computer Networking 3 – Linux**

This course provides an in-depth study of Linux based operating systems administration and networking. The installation configuration and management of Linux-based servers is covered in-depth. The course also covers the configuration of Linux-based operating systems in a network environment. Students will spend a significant amount of the classroom meeting time conducting hands-on laboratory exercises. With extensive outside study and review students in this course may become prepared to become certified as Linux systems administrators. (Prerequisite(s): CSCI 1423 or CSCI 1475) 4C/4/0/0

**CSCI 2465 Computer Networking 4 – Infrastructure**

This course introduces networking students to the core infrastructure components of local, campus and wide area networks. The design, installation and configuration of routers, switches and other networking infrastructure devices is covered in-depth. Routing protocols and concepts are a primary focus of study in the course. The course makes extensive use of Cisco materials and equipment for routing protocols and concepts. This course assumes that the students have a background through experience, or coursework, that encompasses a fundamental understanding of networking. With extensive outside study and review, students in this course may become prepared to become certified Cisco networking technicians. (Prerequisite(s): CSCI 1440) 4C/4/0/0

**CSCI 2466 J2EE-JSP and Servlets**

This is a first course in using Java technology for the development of applications deployed in a client/server environment. The course introduces the concept of a Java application server and teaches the student how to install and configure an application server for use in developing and deploying distributed Java applications. Students then are introduced to elementary servlet programming, Java server pages [JSP] development and deployment, Java standard template library [JSTL] and an introduction to Java server faces [JSF]. Students will then develop server-based applications which access data stored in a database management system via the Java database connector [JDBC]. Students in this course are expected to have a background in introductory Java programming. (Prerequisite(s): CSCI 1410 and CSCI 1450 and CSCI 1541) 4C/4/0/0

**CSCI 2469 Advanced Programming Principles**

The class is focused on principles that underlie the structure and analysis of programs. Students will learn different programming styles, such as those based on functional programming, search-based programming, and concurrent programming, and will learn to program over symbolic structures. Applications will allow students to learn about modular development and language principles to support modularity. (Prerequisite(s): CSCI 1410 and CSCI 1523 and CSCI 1524 and CSCI 1541) 4C/4/0/0

**CSCI 2480 Network Security and Penetration Prevention**

This course examines the critical defensive technologies needed to secure network perimeters. Coverage includes network security threats and goals, advanced TCP/IP concepts, router security, intrusion detection, firewall design and configuration, IPSec and virtual private network (VPN) design, and wireless design and security. (Prerequisite(s): Grade of "C" or better in CSCI 2420, 2461, and 2465) 4C/4/0/0

**CSCI 2482 Security Incident Handling, Response and Disaster Recovery**

This course provides an overview of the process of creating and implementing policies and procedures for responding to security incidents and for disaster recovery. The student will gain skills in creating policies for responding to security incidents as well as the business continuity and disaster recovery aspects of the incident response plan. (Prerequisite(s): Grade of "C" or better in CSCI 1523, 2420, and 2465) 4C/4/0/0

**CSCI 2484 Ethical Hacking and Countermeasures**

This course provides an introduction to ethical hacking and security testing. Topics include tools and techniques used to detect system vulnerabilities. Students will learn how to set up defensive systems and countermeasures. (Prerequisite(s): Grade of "C" or better in CSCI 1523 and CSCI 2420) 4C/4/0/0

**CSCI 2485 Computer Networking 5 - Cisco Enterprise Networking**

The course describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. This course covers wide area network (WAN) technologies and quality of service (QoS) mechanisms used for secure remote access. ENSA also introduces software-defined networking, virtualization, and automation concepts that support the digitalization of networks. Students gain skills to configure and troubleshoot enterprise networks, and learn to identify and protect against cybersecurity threats. (Prerequisite(s): CSCI 2465 with a grade of "C" or better) 4C/4/0/0

**CSCI 2570 Machine Architecture and Organization**

This course covers basic hardware and software structure; I/O and main memory organization; internal representation of data; addressing methods; program controls; microprocessor families; multiprocessors; concurrent programming and synchronization; and RISC architectures. Students in this course will become proficient in assembly level programming and will extend this knowledge to higher level languages such as language C. Students are expected to devote a significant amount of time in analyzing designing and implementing low-level software for this platform. The course is designed around the specifications published by the ACM and IEEE for a course on

Computer Organization and Architecture. (Prerequisite(s): CSCI 1410, CSCI 1523 and MATH 1730 with a grade of "C" or better.) 4C/4/0/0

**CSCI 2597 Special Topics in Computer Science**

This course provides learning experiences that meet the needs of students, major programs, and the College in the area of computer science. (Prerequisite(s): Instructor approval) Variable credits 1-6

**CSCI 2622 Client Side Programming 2**

This course is an advanced course in JavaScript programming for the client and the server. It covers key technologies such as AJAX, Bootstrap and Node.js. The course begins with the elementary aspects of AJAX programming with practical examples. Next, the bootstrap framework is explored, with a focus on Responsive Web Design to accommodate displays for all devices, from small mobile phones, to medium tablets to large desktop environments. Finally, an introduction to the Node.js runtime environment is explored, including server configuration and fundamental Node.js commands. In addition, advanced JavaScript topics and techniques currently used in industry will be covered. The key elements of the course are hands-on exercises utilizing tools and techniques to develop interactive websites. This course assumes a previous introduction to JavaScript. (Prerequisite(s): CSCI 1450 and CSCI 2440) 4C/4/0/0

**CSCI 2690 Computer Science Internship**

A cooperative work-student program between Saint Paul College Computer Science Program and a business facility to allow the student an employment-like experience. (Prerequisite(s): Instructor approval) Variable 1-8 credits

## Cosmetology, Nail Care and Esthetician Courses

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**COSM 1601 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 with CHSN 1698, CHSN 1699) 3C/0/3/0

**COSM 1602 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 1601) 3C/1/2/0

**COSM 1603 Preclinic Nail Care**

Provides an introduction to nail care including manicuring, pedicuring and artificial nails. (Prerequisite(s): Completion of or concurrent enrollment in CHSN 1698 and CHSN 1699) 3C/1/2/0

**COSM 1604 Preclinic Skin Care**

This course provides fundamental guidelines for maintaining and enhancing the skin through proper skin care, massage, hair removal and makeup. (Prerequisite: COSM 1601) 3C/1/2/0

**COSM 1605 Preclinic Hair Color**

Provides an introduction to temporary, demi-permanent, permanent and de-colorization hair color services. (Prerequisite(s): Completion of or concurrent enrollment in COSM 1606) 3C/1/2/0

**COSM 1606 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 1601 and COSM 1602) 3C/1/2/0

**COSM 1608 Eyelash Extensions**

This course provides fundamental guidelines in the practical application of eyelash extensions including client consultation, design, cleansing the eye area, applying eyelash extensions, and removing eyelash extensions. (Prerequisite(s): High School Diploma.) 2C/1/1/0

**COSM 1620 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 1605) 4C/1/3/0

**CHSN 1698 Body Systems and Diseases**

This course presents cells, tissue and organs as they relate to the 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 between treatable disorders and those that require referral to a physician. (Prerequisite(s): Enrollment in Cosmetology, Nail Technician or Esthetician Program) 3C/2/1/0

**CHSN 1699 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) 3C/2/1/0

**COSM 1901 Clinic 1 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1902 Clinic 2 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1903 Clinic 3 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1904 Clinic 4 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1905 Clinic 5 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1906 Clinic 6 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1907 Clinic 7 for Cosmetology Majors**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Prerequisite(s): COSM 1602) 3C/0/3/0

**COSM 1908 Clinic 1 for Nail Technicians**

This course is designed to provide clinical practice and performance of previously learned hair, skin and nail skills. This course provides the necessary hours to complete hair, skin and nail care quotas as

mandated by the State of Minnesota and to develop proficiency in hair, skin and nail services. (Co-requisite(s): COSM 1603) 3C/0/3/0

**ESTH 1651 Clinic 1 for Estheticians**

This course is designed to provide clinical practice of previously learned skin care skills. (Prerequisite(s): CHSN 1698, CHSN 1699, ESTH 1645 and ESTH 1650 or concurrent enrollment) 4C/0/4/0

**ESTH 1652 Clinic 2 for Estheticians**

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 Minnesota Laws and Rules. (Prerequisite(s): Students must have 480 clock hours and have completed all preceding courses in the Esthetics program, ESTH 1651) 4C/0/4/0

**ESTH 1645 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, lash and brow tinting and temporary hair removal. (Prerequisite(s): CHSN 1698, CHSN 1699, concurrent enrollment or within the same semester) 4C/3/1/0

**ESTH 1650 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 1698, CHSN 1699 and ESTH 1645, concurrent enrollment or within the same semester) 4C/1/3/0

**COSM 1951 Salon Operations 1 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1905 or COSM 1901 or COSM 1908) 1C/0/1/0

**COSM 1952 Salon Operations 2 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1905 or COSM 1901 or COSM 1908) 2C/0/2/0

**COSM 1953 Salon Operations 3 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1905 or COSM 1901 or COSM 1908) 3C/0/3/0

**COSM 1954 Salon Operations 4 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1905 or COSM 1901 or COSM 1908) 4C/0/4/0

**COSM 1955 Salon Operations 5 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1906, or COSM 1901 or COSM 1908) 5C/0/5/0

**COSM 1956 Salon Operations 6 for Cosmetology/  
Nail Technician Majors**

Provides students with additional time to complete required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in COSM 1905 or COSM 1901 or COSM 1908) 6C/0/6/0

**ESTH 1651 Salon Operations 1 for Estheticians**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in ESTH 1652) 1C/0/1/0

**ESTH 1652 Salon Operations 2 for Estheticians**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in ESTH 1651) 2C/0/2/0

**ESTH 1653 Salon Operations 3 for Estheticians**

This course gives students additional time to complete the required services and/or hours for licensure. (Prerequisite(s): Completion or concurrent enrollment in ESTH 1652) 3C/0/3/0

**ESTH 1671 CIDESCO Exam Preparation**

This course was created to provide the necessary skills needed to successfully complete the CIDESCO exam. (Prerequisite(s): High School Diploma/GED) 4C/1/3/0

**ESTH 1672 CIDESCO Exam**

This course was created to test the skills the candidate learned in the CIDESCO Prep class. (Prerequisite(s): ESTH 1671) 2C/0/2/0

**ESTH 1710 Risk Management for Estheticians**

This course will cover risk management, professional liability, infection control, health and safety for advanced practice estheticians. Additional topics will include OSHA, HIPAA, and general theory of common supplements, OTC medications and prescription drugs and their skin effects. (Concurrent enrollment in ESTH 1712, ESTH 1714, ESTH 1716, ESTH 1718 required) 2C/2/0/0

**ESTH 1712 Advanced Exfoliation**

This course will provide practical knowledge and practice of exfoliation using advanced chemicals and devices including but limited to: peels, dermaplaning and microdermabrasion. Students will learn to recognize and treat skin conditions within scope of practice, use proper classification systems and skin analysis, utilize advanced client consultation techniques, and understand wound healing as it relates to advanced esthetics. This class will also cover advanced training in products and ingredients and proper pre- and post- at home care. (Concurrent enrollment in ESTH 1710, ESTH 1714, ESTH 1716, ESTH 1718 required) 4C/1/3/0

**ESTH 1714 Advanced Skin Care Techniques**

This course will provide practical knowledge and training in machines and devices used in an advanced practice esthetics setting, including but not limited to: Galvanic, high frequency, skin needling, radio frequency, ultra sonic, micro current, LED. Class will also include training on lymphatic drainage, advanced histology of the skin, client consultation, electrical and light theory and best business practice. (Concurrent enrollment in ESTH 1710, ESTH 1712, ESTH 1716, ESTH 1718 Required) 5C/2/3/0

**ESTH 1716 Advanced Clinic 1 for Estheticians**

This course is designed to provide clinical practice of previously learned advanced esthetics skills. (Concurrent enrollment in ESTH 1710, ESTH 1712, ESTH 1714, ESTH 1718 required) 4C/0/4/0

**ESTH 1718 Advanced Clinic 2 for Estheticians**

This course is designed to provide clinical practice for previously learned advanced esthetics skills. (Concurrent enrollment in ESTH 1710, ESTH 1712, ESTH 1714, ESTH 1716 required) 4C/0/4/0

## Culinary Arts

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**CULA 1405 Culinary Arts Foundations 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. 2C/0/2/0

**CULA 1415 Culinary Arts Foundations 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 Arts Foundations 1 or have instructor approval. 4C/0/4/0

**CULA 1425 Fundamentals of Pastry**

This course provides a thorough exploration into the basics of the sweet kitchen. Students prepare and evaluate a number of pastry fundamentals to a marketable level. (Prerequisite(s): CULA 1405 or instructor approval) 1C/0/1/0

**CULA 1435 Butchery and Charcuterie**

Covers the processing of meat, fish and poultry items. 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 1405 or concurrently with CULA 1405) 2C/0/2/0

**CULA 1445 Food Service Practicum**

Students explore various aspects of quantity food production in a fast-paced, high-volume food service setting. Students are introduced to aspects of quantity range, bake shop, short-order and pantry operations. (Prerequisite(s): CULA 1405 and CULA 1415) 2C/0/2/0

**CULA 1455 Food Safety and Sanitation**

Develops an understanding of the basic principles of sanitation and safety in order to maintain a safe and healthy environment for the consumer. Optional ServSafe exam provided for certification. 2C/2/0/0

**CULA 1465 Culinary Nutrition Theory**

Covers the fundamentals of nutrition theory taught from the point of view of the chef. Healthy cooking techniques, dietary requirements and current nutritional research topics are explored. 2C/2/0/0

**CULA 1505 Contemporary Bake Shop Production**

Allows students to develop production baking skills to a marketable level. (Prerequisite(s): CULA 1455, CULA 1460, CULA 1465, CULA 1490) 2C/0/2/0

**CULA 1515 Contemporary Pantry Production**

Allows the students to develop marketable production skills in the pantry/cold food area. (Prerequisite(s): CULA 1455, CULA 1460, CULA 1465, CULA 1490) 2C/0/2/0

**CULA 1525 Contemporary Range Production**

Allows students to develop marketable skills in many aspects of hot food preparation in a production kitchen environment. (Prerequisite(s): CULA 1455, CULA 1460, CULA 1465, CULA 1490) 2C/0/2/0

**CULA 1545 Contemporary Quick Fare Production**

Allows the student to develop marketable production skills in the Grill/Short Order cooking area. (Prerequisite(s): CULA 1455, CULA 1460, CULA 1465, CULA 1490) 2C/0/2/0

**CULA 1555 Culinary Career Portfolio**

This course exposes students to the diverse employment opportunities in the food service industry. Students develop an electronic career portfolio and refine employment securing techniques. (Prerequisite(s): CULA 1405 or CULA 1620) 1C/1/0/0

**CULA 1565 Principles of Culinary Leadership**

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 1455, CULA 1460, CULA 1465, CULA 1490 or instructor approval) 2C/1/1/0

**CULA 1575 Artisan Baking and Pastry**

Introduces students to a variety of upscale scratch cake and pastry items and plated desserts. The course focuses on high quality ingredients, sound production and finishing techniques. (Prerequisite(s): CULA 1425 or instructor approval) 2C/0/2/0

**CULA 1585 Introduction to Dining Room Service**

The course covers serving techniques and dining room operations through classroom and laboratory experience in the City View Grille Dining Room. (Prerequisite(s): CULA 1405 and CULA 1415) 1C/0/1/0

**CULA 1590 Cafe Dining Practicum**

Students will develop skills in breakfast cookery and casual lunch fare in the student run City View Grille. (Prerequisite(s): CULA 1505, CULA 1515, CULA 1525, CULA 1545) 2C/0/2/0

**CULA 1601 Pastry Foundations**

This course is designed to allow the student to become familiar with the hospitality industry. Students will develop knowledge and skills necessary to work in a professional foodservice environment. Kitchen equipment, products identification, cooking methods and knife skills introduction are the major components of this class. 3C/0/3/0

**CULA 1611 Introduction to Baking**

This course is introducing students to basic baking in which students will get an introduction to tools, equipment, sanitation, safety, measurement and recipe conversion. The training pivots around the fundamentals of baking and the science behind it. Production will focus on the making of Cookies, Quick breads and Short Doughs. 2C/0/2/0

**CULA 1621 Pastry Basics**

This course will build on the baking and pastry skills from the previous Introduction to Baking class. Students will produce and evaluate a number of pastry fundamentals to a marketable level. Training follows the highest sanitation and safety standards during any food preparation. 2C/0/2/0

**CULA 1631 Introduction to Breads**

This course covers leavened and unleavened doughs & to lean and rich doughs. Students develop the knowledge, skills and techniques required in bread production. Recipe costing is introduced in this class. Training follows the highest sanitation and safety standards during any food preparation. 2C/0/2/0

**CULA 1641 Baking Externship 1**

This course is designed to expose students to the industry in a 32-hour externship. Students reflect on their experiences through assignments and discussions. 1C/0/0/1

**CULA 1650 Pastry Externship 1**

This course is designed to expose students to the industry in a 32-hour externship. Students reflect on their experiences through assignments and discussions. 1C/0/0/1

**CULA 1700 Culinary Externship**

This course is designed to expose students to the industry in a 96 hour externship. Students reflect on their experiences through assignments and discussions. (Prerequisite(s): CULA 1445 or instructor approval) 3C/0/0/3

**CULA 1705 Sustainable Foods Practicum**

Students get an introduction to local and sustainable food systems through working with a local farm to create and serve a farm to table dinner. (Prerequisite(s): CULA 1445) 1C/0/1/0

**CULA 2100 Menu Composition and Analysis**

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 2105-2220. (Prerequisite(s): CULA 1550) 2C/0/2/0

**CULA 2105 Applied Restaurant Operations 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 2105-2220. (Prerequisite(s): CULA 1550) 3C/0/3/0

**CULA 2110 Applied Restaurant Operations 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 2105-2220. (Prerequisite(s): CULA 1550) 3C/0/3/0

**CULA 2115 Contemporary Dining Room Service**

The course explores and refines advanced aspects of front of the house restaurant operations. Students learn and practice functions of dinner service at the City View Grille. (Prerequisite(s): CULA 1590) 1C/0/1/0

**CULA 2220 Sensory Evaluation & Wine Pairing**

The advanced culinary student will develop a palate of flavor and aroma profiles, an understanding of food and wine pairing techniques, as well as proper service and wine-making processes. Wine varieties will be professionally sampled and evaluated based upon color, aroma, body and finish in order to cultivate an appreciation for the integral relationship between food and wine. Must be taken as a block with CULA 2105-2220. (Prerequisite(s): CULA 1545 and completion of General Education requirements) 2C/2/0/0

**CULA 2225 Garde Manger**

The course explores the art of cold food preparation through various mediums. Thorough explorations into cold sauces, pates, terrines, condiments and forcemeats will be highlighted in a contemporary buffet format. (Prerequisite(s): CULA 2220) 1C/0/1/0

**CULA 2230 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 2235 Event Based Dining Capstone**

The course explores one-off dining experiences in a number of settings. Students learn the process of catering events with a diverse set of standards, expectations and clientele. Students become familiar with all facets of events from the concept and development of the menu through set-up, service and strike of the event. (Prerequisite(s): CULA 2225) 2C/0/2/0

**CULA 2300 Viennoiserie**

This course covers leavened rich doughs while reviewing laminated doughs. Students develop the knowledge, skills and techniques required in viennoiserie production. Training follows the highest sanitation and safety standards during any food preparation. 2C/0/2/0

**CULA 2310 Entremets & Specialty Cakes**

This course covers custards, mousses, Bavarians mousses and international cakes. Students will receive additional knowledge and will practice their skills and techniques during the filling, assembly and decoration of classic cakes. Training follows the highest sanitation and safety standards during any food preparation. 2C/0/2/0

**CULA 2320 Advanced Decorating and Pastry**

This course emphasizes the preparation, making, production and decoration of cakes. The student's training will focus on learning concepts, procedures and techniques needed to produce market-worthy decorations. 3C/0/3/0

**CULA 2330 Showpieces and Confiserie.**

This course emphasizes the preparation and production of bonbons, candies and confections. The student's training will focus on learning concepts, procedures and techniques related to chocolate tempering and sugar cooking. 3C/0/3/0

**CULA 2340 Baking Externship 2**

This course is designed to expose students to the industry in a 32-hour externship. Students reflect on their experiences through assignments and discussions. 1C/0/0/1

**CULA 2350 Pastry Externship 2**

This course is designed to expose students to the industry in a 32-hour externship. Students reflect on their experiences through assignments and discussions. 1C/0/0/1

## Culinary Arts - Wine

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### **WINE 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 WINE 1610-1640.) 2C/2/0/0

### **WINE 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 WINE 1600-1640.) 2C/1/1/0

### **WINE 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 WINE 1600-1640.) 1C/1/0/0

### **WINE 1630 Strategies for Pairing Food and Wine**

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 or older. Must be taken concurrently with WINE 1600-1640.) 2C/1/1/0

### **WINE 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 or older. Must be taken concurrently with WINE 1600-1640.) 2C/2/0/0

## Digital Graphics and Interactive Multimedia

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### **DGIM 1400 Introduction to Computer Graphics**

Introduction to Computer Graphics will introduce students to a wide variety of software applications used in the Visualization Technology area as well as cover the basic theories and practices regarding still image graphics, file formats, animation and color theory. In addition, the importance of an online portfolio will be discussed and a basic portfolio will be constructed. 4C/4/0/0

### **DGIM 1443 Graphical Web Design 1**

This course explores the basics of Adobe Muse 1. Topics include file organization, the Adobe Muse 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 learner to Adobe Muse and develop a simple website using the techniques learned. 2C/2/0/0

### **DGIM 1444 Graphical Web Design 2**

This course explores the more advanced topics of Adobe Muse including frames, rollovers, cascading style sheets, HTML, forms, DHTML, automation, sounds, templates and libraries and troubleshooting. It is recommended that student taking this course have taken DGIM 1443 or its equivalent. 2C/2/0/0

### **DGIM 1448 Adobe Animate 1**

This course introduces the student to Adobe Animate. Topics include

common Adobe Animate tasks, the Adobe Animate interface, setting up, modifying, navigating Adobe Animate 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

### **DGIM 1449 Adobe Animate 2**

This course takes you beyond the basics of DGIM 1448. Topics include adding sounds to Adobe Animate, publishing movies, layer editing, Action Script, importing Quick Time movies into Adobe Animate and creating 3-D effects in Adobe Animate. 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 DGIM 1448 or its equivalent. 2C/2/0/0

### **DGIM 1480 InDesign**

This course introduces students to Adobe InDesign Creative Cloud. Students will be introduced to Adobe InDesign workspace, basic selection processes and tool operations. In this course, the student will learn fundamental techniques to edit and enhance various desktop publications, both print and web based. Basic operations will include working with inserting graphics and text, typographic design, managing multi-page documents, modify content and style in their page elements and how to use with other Adobe related software. Upon completion of this course, the student will create a final project using techniques from lessons learned. 2C/2/0/0

### **DGIM 1483 Photoshop 1**

This course introduces the student to Adobe Photoshop. 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, extraction, liquefy and the pattern maker. This is a hands-on course where the students will develop a project using the knowledge gained in class. 2C/2/0/0

### **DGIM 1484 Photoshop 2**

This course is a continuation of DGIM 1483 Photoshop 1 as a Presentation Media. 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): DGIM 1483 Photoshop 1 as a Presentation Media or equivalent knowledge) 2C/2/0/0

### **DGIM 1490 3D Animation Fundamentals**

This course introduces students to the Blender 3D Animation Tool. Topics will include navigating the Blender interface, object creation and editing, Blender modifiers, material & texture application, lighting and camera setup, multi-resolution sculpting, UV texture mapping, particle tools, shape keys and render setups. Students will be expected to develop an individual animation project using techniques from the lessons learned. 4C/4/0/0

### **DGIM 1540 Blogging Applications**

This course introduces various web logging (blogging) applications currently in use today on the World Wide Web, along with common practices used by bloggers. Applications to be covered include Blogger, Tumblr, Twitter, WordPress, plus other newly developed applications. In addition to the general use of these applications, students will be introduced to techniques used for Search Engine Optimization (SEO), web traffic analytics, monetized ad placement, Real Simple Syndication (RSS) support, as well as audio and video blogging options. While there is no prerequisite for this course, students are strongly encouraged to have a basic understanding of the Hyper Text Markup Language (HTML). 2C/2/0/0

### **DGIM 2520 3D Character Animation**

This course continues to explore the features of the Blender 3D Animation Tool. Topics will include rigging and skinning fundamentals, inverse kinematic modeling, 3D sculpting tools, character modeling, re-topology body parts, material application and

character walk cycle creation. Students will be expected to develop an individual animation project using techniques from the lessons learned. (Prerequisite(s): DGIM 1490 3D Animation Fundamentals) 4C/4/0/0

#### **DGIM 2521 2D Web Animation**

This course introduces students to the fundamentals of digital animation with specific focus on two dimensional software animation tools. Topics will include the 12 basic principles of animation as applied to both hand drawn and computer animation, support for web animation on multiple platforms with emphasis on mobile devices, layer editing, audio and video support as well as integration of traditional still image graphic tools into the animation process. Software used in this class will include but not limited to Processing, Adobe Edge and Stencil, as well as other HTML5 compliant web animation software tools. This is a hands-on course where the students will develop a final project using the knowledge gained in class. 2C/2/0/0

#### **DGIM 2530 Web Based Game Design 1**

This course introduces standard techniques and strategies used in traditional two dimensional, web-based video games. Browser-based games will be constructed using HTML 5, Javascript and the Tumult Hype web development environment. Projects will include trivia games, pattern matching games, maze games, logic games and simple casino simulations. Students will develop multiple mini-games for an online, web-based portfolio. (Prerequisite or Co-Requisite: DGIM 2521 2D Web Animation or Instructor Permission) 4C/4/0/0

#### **DGIM 2531 Web Based Game Design 2**

This course continues to develop traditional two dimensional web-based video games using Javascript, HTML5 and Tumult Hype. Game projects will include spritesheet animations, side scrollers, dungeon crawlers, moving targets, space themed invasions and various pong-style clones. Students will develop multiple mini-games for an online, web-based portfolio. (Prerequisite: DGIM 2530 Web Based Game Design 1) 4C/4/0/0

#### **DGIM 2560 Illustrator**

In this course, the student will discover the capabilities of the Adobe Illustrator software tool. This begins with an overview of vector vs raster graphics fundamentals. Specific techniques will involve navigating and customizing the Adobe Illustrator workspace, demonstrating selection and alignment with various tools, using of magic wands, item grouping and working with various open and closed path objects. In addition, various transformation techniques including scaling, reflecting, rotating, distorting, shearing and perspective will be explored along with how filters and symbols are used to enhance vector graphic projects. Detailed proficiency will be acquired using the Pen, Pencil, Brush, Layer, Spraycan tools along with a greater understanding of both print and web color theory. Upon completion of this course, the student will complete a final project using techniques from lessons learned. 4C/4/0/0

#### **DGIM 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 professionals. 2C/2/0/0

#### **DGIM 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

#### **DGIM 2587 Digital Video 1**

This course focuses on digital video editing using the Premiere Pro video editing software. Techniques involving multitrack video editing

and digital audio integration will be explored, along with the creation of various title effects, fade/transition effects and other standard industry practices. In addition, the topics of video filetype and codecs, demo reel creation, use of other software tools for footage creation and basic video capture techniques will be explored. 2C/2/0/0

#### **DGIM 2588 Digital Video 2**

This course focuses on digital video editing using the Final Cut Pro video editing software. Many of the same general techniques covered in DGIM 2587 will be covered but done from the perspective of the Final Cut Pro interface. In addition, video distribution via the web, live video streaming techniques and video integration into the web using the HTML5 standards will be explored. (Prerequisite(s): DGIM 2587 Digital Video 1) 2C/2/0/0

#### **DGIM 2589 Digital Motion Graphics: After Effects**

This course introduces the Adobe tool After Effects and explores its usage in video and film post production. Students will learn to animate, alter and compose media in both 2D and 3D space. Various other non-linear editing methods will be explored. Advanced keyframing techniques will be explored in depth, along with other standard post-production techniques used in modern video editing. Various After Effects plug-in usage will be explored, along with the integration of After Effects with other tools in the Adobe suite. Finally, the features of various competing products to After Effects, such as Blender and Jahshaka will be reviewed and compared. (Prerequisite(s): DGIM 2587 Digital Video 1 or concurrent) 2C/2/0/0

#### **DGIM 2591 Computer Graphics & Digital Multimedia Internship**

A cooperative work-student program between Saint Paul College's Computer Graphics & Digital Multimedia Program and a business facility to allow the student an employment-like experience. (Prerequisite(s): Instructor approval) Variable credits 2–8

#### **DGIM 2597 Special Topics in Computer Graphics & Digital Multimedia**

Provides learning experiences that meet the needs of students, major programs and the College. (Prerequisite(s): Instructor approval) Variable credits 1–6

#### **DGIM 2704 3D Animation Capstone**

This course is meant to integrate and expand upon the various animation, video editing and image manipulation skills developed in previous classes in this area. In addition, students are expected to explore new and emerging technologies in the area of animation as part of preparing for future changes in this rapidly changing area. Students will be expected to develop both individual and group animation projects for use in their Internet based portfolio. (Prerequisite(s): DGIM 1490 3D Animation Fundamentals) 4C/4/0/0

## **Economics**

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#### **ECON 1710 Introduction to the American Economy**

This introductory course provides a basic overview of economic principles that are useful in understanding the economic system in the United States. The course explores the free market economic model, which is the basis of the American economy. The role of government and the rationale for government intervention is included in this study. The course also provides an introduction to microeconomic and macroeconomic concepts and tools which are demonstrated in discussions of current economic policies, issues, and problems. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) 3C/3/0/0

#### **ECON 1720 Macroeconomics**

Macroeconomics is a social science that studies how our society can achieve economic goals of full employment, price stability, economic growth, and stable balance of trade. International trade and the concept of comparative advantage and restrictive trade policies are explored. From this inquiry, students will be able to demonstrate the effects of trade on a country's economic performance. In



addition, economic data is used to measure growth and to compare an economy's growth rates relative to other international growth rates. The United States' fiscal and monetary policies are defined and examined in terms of the effects those policies have on economic performance. Fiscal and monetary policy is also examined in relation to the business cycle. In addition an inquiry is made of the importance and interrelated nature of social institutions in achieving economic goals. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

### **ECON 1730 Microeconomics**

Microeconomics is a social science that studies how our society can maximize its economic welfare by the efficient use of resource and product markets. In order to facilitate this study, microeconomics has developed tools such as market models that simplify the complex real world situations. These tools are abstractions of reality from which basic economic principles can be derived. These principles act as a guide to our private and society's public choices. Fundamental issues covered are supply and demand, elasticity, competitive and non-competitive markets. The text has numerous topical examples such as free trade, interest groups, agricultural policy, advertising, health care and more. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

### **ECON 1790 Special Topics in Economics**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 5) Variable credits 1-6

## **Electrical Technology**

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### **ELTN 1410 National Electric Code 1 and Trade Calculations**

This is an introductory course to comprehending the National Electrical Code and the mathematical skills that are required to perform electrical circuit calculations required in the electrical industry. Students will study the history of the code, the code making process, how changes are adopted into the code and the NEC basic structural components. Technical areas include definitions of technical terms and concepts, applied arithmetic calculations, algebraic functions, trigonometry functions and graphing as they apply to circuit analysis and code requirements. 4C/2/2/0

### **ELTN 1422 Direct Current Circuit Analysis**

This course covers the basic concepts of electricity and DC circuits. Topics included are resistance, current, voltage, power, conductors and insulators. Students will learn methods to mathematically determine electrical quantities using Ohm's law and additional electrical formulas, to determine values in series, parallel and combination circuits. The skills and techniques needed to use electrical multimeters to test and troubleshoot circuits is studied. Hands-on experiments for all DC circuit types will consist of building circuits with power supplies and electrical components, and will be evaluated with electrical multimeters. 5C/2/3/0

### **ELTN 1432 Alternating Current Circuit Analysis**

This course covers the basic concepts of AC circuits. Topics included are the study of electromagnetic principles, sine wave principles and relationships, inductance, capacitance, series and parallel circuits, power, circuit analysis and resonance. Students will learn methods to mathematically determine instantaneous electrical values. Hands-on experiments will include the construction of circuits showing the operation of electromagnets, sine waves, series and parallel resistive, inductive and capacitive circuits. (Prerequisite(s): ELTN 1410 and ELTN 1422) 5C/2/3/0

### **ELTN 1442 Single-Phase Motors and Generators**

This course starts with the basic characteristics of DC motors and DC generators, the types, construction, principles of operation, installation,

and maintenance, and formats of controls. Next the student will discover the common types of AC motors used today, the construction, principles of operation, installation and troubleshooting methods. Hands-on experiments using specialized test equipment and electrical meters will include energizing both DC motors and generators and also AC motor types under various load conditions. (Prerequisite(s): ELTN 1410 and ELTN 1422) 5C/2/3/0

### **ELTN 1470 Electrical Technology Operations**

Provides students with additional time to complete the hours for MN DOLI 95% attendance requirements for each course of the program. (Prerequisite(s): ELTN 1422 or instructor approval) 2C/0/2/0

### **ELTN 1512 Three-Phase Systems Motors and Generators**

This course covers three-phase theory, wiring system calculations, methods, and installations. Three-phase motors and generators will also be introduced so students can identify, connect, operate, troubleshoot, and maintain them. This course also covers the proper use of three-phase test equipment used to operate, troubleshoot, and maintain the systems studied in this course. 5C/3/2/0

### **ELTN 1522 Introduction to Electronics and Test Equipment**

Students are introduced to semiconductors, study different types of diodes and connect them in typical circuits. Complete power supply circuits are connected, analyzed and tested. This course covers transistor theory, operation, connection, testing, and troubleshooting practices for transistors in amplifier and switching applications. This course covers the use of electrical and electronic test equipment. 5C/2/3/0

### **ELTN 1532 Intermediate Electronics and PLC's**

This course covers transistor theory, operation, connection, testing, and troubleshooting practices for transistors in amplifier and switching applications. It covers transistor the information necessary to gain working and troubleshooting knowledge of thyristors, light, and heat sensitive devices and electrical transducers. Also introduced are programmable logic controllers (PLC's) and it explains how they can be used to control machines and building equipment. Hands-on programming of simple process control examples including system wiring to input/output devices will be fully integrated throughout the course. 5C/2/3/0

### **ELTN 1540 Low Voltage Systems and Job Site Safety**

This course will cover the basic concepts associated with fire and security alarm systems and data communications systems. Hands-on application of components include fire alarm systems, security systems, and data communication and cabling systems. This course will also cover all aspects OSHA job safety for construction electricians. It will address safety issues for awareness rather than compliance purposes. 4C/2/2/0

### **ELTN 2410 Distribution, Power and Specialty Transformers**

This course covers single-phase, Three-phase and specialty transformer operation, including transformer losses, efficiency, and phase relationships. There is extensive math and in-depth coverage of Article 450 of the National Electrical Code. 4C/2/2/0

### **ELTN 2420 Motor Controls**

This course covers design, wiring, and troubleshooting of control and load circuits for single-phase and Three-phase motors. Also covered is the sizing of conductors, circuit short circuit and ground fault protection, and the calculation and proper sizing of motor overload protection. There is also in-depth coverage of Article 430 of the National Electrical Code. 4C/2/2/0

### **ELTN 2430 Residential Wiring and Blueprint Reading**

This course covers the material and design aspect of residential wiring. Topics covered include branch circuit requirements, wiring methods, and the use of blueprints. Related articles in the National Electrical Code are also covered. 4C/1/3/0

### **ELTN 2440 Heating and Cooling System Controls**

This course covers the control of heating and cooling systems in

residential and commercial situations. Gas, oil, and electric systems are covered. Related articles in the National Electrical Code are also covered. 4C/2/2/0

#### **ELTN 2510 Wiring Methods and Systems**

This course covers the methods used to deliver power in a safe and efficient electrical installation. Conductor properties and various configurations are discussed and installed. (Prerequisite(s): ELTN 2410, ELTN 2420, ELTN 2430, ELTN 2440) 4C/2/2/0

#### **ELTN 2522 Commercial Wiring Methods**

This course covers the design, material usage and safe installation practices on commercial job sites. Power tool safety and usage is applied in a hands-on mockup setting. (Prerequisite(s): ELTN 2410, ELTN 2420, ELTN 2430, ELTN 2440) 5C/2/3/0

#### **ELTN 2532 Industrial Wiring Methods and Service Entrance**

This course covers the design, material usage and safe installation practices on industrial job sites. Requirements and safe installation of service entrance equipment and conductors are also covered. (Prerequisite(s): ELTN 2410, ELTN 2420, ELTN 2430, ELTN 2440) 5C/2/3/0

#### **ELTN 2540 National Electrical Code 2**

This course takes an in-depth look at the requirements of chapters one through 5 in the current National Electrical Code. Compliance is discussed in the classroom and reinforced in a hands-on mockup setting. (Prerequisite(s): ELTN 2410, ELTN 2420, ELTN 2430, ELTN 2440) 4C/2/2/0

#### **ELTN 2550 Introduction to Renewable Energy**

This course presents a discussion of renewable energy systems and resources such as solar, wind, hydro and geothermal. Topics will include photovoltaic cells, solar panels and arrays. In addition, students will learn about generation and effectiveness of various renewable energy systems. 2C/2/0/0

## **Electromechanical Systems**

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#### **EMEC 1511 AC/DC Fundamentals**

This course is an introduction to electrical power and relay control systems found in modern industrial machinery and automation. Topics include electricity basics, parts of an electrical circuit, use of a multimeter, understanding transformers, electrical relay control, and electro-pneumatic devices. 4C/2/2/0

#### **EMEC 1521 Electrical Motors**

This course is an introduction to electrical motors and generators found in modern industrial machinery and automation. Topics focus on the various types of AC and DC motors. 4C/2/2/0

#### **EMEC 1530 Motor Controls**

This course is an introduction to electrical motor controls found in modern industrial machinery and automation. The learning is based on practical online instruction and classroom hands-on tasks involving electronically operated devices and associated peripheral equipment. Topics include motor protection, braking, running on reduced power, and sensor controls. 4C/2/2/0

#### **EMEC 1540 Motor Drives**

This course is an introduction to electronic motor drives found in modern industrial machinery and automation. The learning is based on practical online instruction and classroom hands-on tasks involving electronically operated devices and associated peripheral equipment. Topics include variable frequency drives, inverters, position and velocity controls. 4C/2/2/0

#### **EMEC 2400 Industrial Basics**

This course is designed to align with the Manufacturing Skill Standards Councils (MSSC) assessment and certification system for manufacturing processes. The course curriculum is based upon federally-endorsed national standards for production workers. Students

will learn about Just-In-Time (JIT) manufacturing principles, basics supply chain management, communication skills, customer service, corrective actions, preventative actions, control of documents, control of quality records, internal auditing of processes, and control of nonconforming product. 4C/2/2/0

#### **EMEC 2500 Fluid System Fundamentals**

This course is an introduction to hydraulic and pneumatic systems found in modern industrial machinery and automation. Topics include basic laws of fluid mechanics, standard symbols, pumps, control valves, control assemblies, actuators, test equipment, and proper safety procedures. 4C/2/2/0

#### **EMEC 2610 Fluid System Fundamentals – Pneumatics**

This course is an introduction to pneumatic power systems found in modern industrial machinery and automation. The learning is based on practical online instruction and classroom hands-on tasks involving pneumatically operated devices and associated peripheral equipment. Topics include basic laws of fluid mechanics, standard symbols, pumps, control valves, control assemblies, actuators, maintenance procedures, test equipment, electric and pneumatic switching/control devices, and proper safety procedures. Online learning computer simulation and 3D software will be used throughout the course as well as laboratory pneumatic equipment. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS) 3C/0/3/0

#### **EMEC 2615 Fluid System Fundamentals – Hydraulics**

This course is an introduction to hydraulic fluid drive systems found in modern industrial machinery and automation. The learning is based on practical online instruction and classroom hands-on tasks involving hydraulically operated devices and associated peripheral equipment. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS or instructor approval) 3C/0/3/0

#### **EMEC 2620 Mechanical Fundamentals 1**

This course is an introduction to mechanical drive systems. Topics include the transfer of mechanical power through chain/gear/belt drive systems, alignment of drives to loads, and drive component lubrication. The class material will be delivered through online instruction and hands-on labs focusing on various types of drive systems. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS or instructor approval) 4C/2/2/0

#### **EMEC 2625 Mechanical Fundamentals 2**

This course continues the work in Mechanical Fundamentals 1 by providing a deeper understanding of mechanical drive systems and introducing the student to various pump systems. The class material will be delivered through online instruction and hands-on labs focusing on various types of bearings, gaskets, drives, and pumps. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS or instructor approval) 4C/2/2/0

#### **EMEC 2741 Electromechanical Troubleshooting and Maintenance**

This course introduces students to basic troubleshooting and maintenance techniques used in the industry. Topics include understanding the difference between troubleshooting and maintenance, common issues with basic electromechanical equipment, professional communication, team management, and conflict resolution within a team environment. 4/2/2/0 (Prerequisites: Journeyman electrician or ELTN/CNEL diploma/AAS or instructor approval). (Co-requisite(s): EMEC 2751 Automated Process Controls, EMEC 2760 Programming for Robotic Manufacturing, Advanced PLC Programming.) 4C/2/2/0

#### **EMEC 2751 Automated Process Controls**

This course will cover the essential elements of a process control system. Topics include closed and open loop processes, variable measurement, instrument calibration, and various loop controllers. The learning is based on practical online instruction and hands-on tasks involving level, flow, pressure, and temperature controlled process loops. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS) 4C/2/2/0

**EMEC 2760 Programming for Robotic Manufacturing**

This course focuses on programming robotics that specialize in manufacturing settings. Topics include robotic safety, homing, programming for automatic and manual operations, work cell coordination, and robotic quality control. The learning is based on practical online instruction and hands-on programming involving an expanding robotic platform. 4C/2/2/0

**EMEC 2770 Advanced PLC Programming**

This course builds a deep understanding of a Programmable Logic Controller (PLC), a specialized computing system used to automate various industrial settings. Topics include digital and analog input and output modules, internal registers and tables, function block usage, networking, and how to use a PLC to aid in troubleshooting. The learning is based on practical online instruction and hands-on tasks that focus on interacting with PLCs. (Prerequisite(s): Journeyman electrician or ELTN/CNEL diploma/AAS or instructor approval) 4C/2/2/0

## Engineering (Pre)

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**ENGR 1706 Principles of Engineering**

Principles of Engineering is a broad-based survey course designed to help students understand the field of engineering and engineering technology and the career pathways. Students are introduced to engineering fundamentals and the knowledge and skills necessary for success as professional engineers and engineering technologies. This course is required for students enrolled in the Science Technician AS degree program. Engineering students should register for ENGR 1707. 2C/1/1/0

**ENGR 1707 Introduction to Engineering**

Introduction to Engineering is a broad-based course designed to help students understand the field of engineering and engineering technology and the career pathways. Students are introduced to engineering fundamentals and the knowledge and skills necessary for success as professional engineers and engineering technologies. Topics include an overview of the engineering profession, engineering design, manufacturing, use of computer packages, and technical communication. Engineering graphics and solid modeling will be presented including the use of a solid modeling software. This course is required for students enrolled in the Pre-Engineering AS degree program. 3C/2/1/0

**ENGR 1709 Digital Electronics**

Digital Electronics is the study of electronic circuits that are used to process and control digital signals. Digital Electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras, high definition televisions, etc. In this course, students will be exposed to combinational and sequential logic design, microcontrollers, soldering. It is a project based course requiring use of problem solving, and teamwork, and communication skills to analyze, design, and build digital electronic circuits. 3C/1/2/0

**ENGR 1712 Computer Integrated Manufacturing**

Computer Integrated Manufacturing (CIM) describes the process of automation of a manufacturing plant with all processes functioning under computer control. In this course, students will explore how things are made, the processes that go into making different types of products, how automation changed manufacturing, and automation processes and basic programming for control systems and robots. (Prerequisite(s): Completion of or concurrent enrollment in ENGR 1706 Principles of Engineering) 2C/1/1/0

**ENGR 1714 Engineering CAD**

This course introduces students to solid modeling software used in engineering for design and analysis of parts. It includes creating models and drawings for basic extrusions, revolve features, and cuts as well as more complex blends, sweeps and assemblies. 2C/1/1/0

**ENGR 1717 Circuit Analysis**

This course is meant to develop circuit analysis skills in DC and AC

circuits. It includes circuit laws and theorem, mesh and node analysis, natural and step response of RL, RC, and RLC circuits. (Prerequisite(s): PHYS 2710 and MATH 2760 or instructor approval) 4C/3/1/0

**ENGR 1790 Special Topics in Engineering**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. Variable credits 1-6

**ENGR 2700 Introduction to Problem Solving & Engineering Design**

This class introduces the student to a multifaceted engineering problem solving and design paradigm. In this course, students will learn a systematic engineering approach to solving a problem, engineering design process, and technical presentation and analysis of data. Students will be introduced to mathematical, spreadsheet and solid modeling software for use in engineering problem solving. Open-ended activities and design projects will provide opportunities for students to apply common elements of problem solving in the solution of engineering problems in the context of a structured problem solving and design process. (Prerequisite(s): ENGR 1706) 2C/1/1/0

**ENGR 2705 Statics**

Statics is the first area of study in the science of mechanics. Statics deals with the study of rigid bodies at rest and the forces acting on them. Statics is the foundational course for many fields in engineering including civil, mechanical, biomedical, and structural. In this course, students will use Newton's three laws of motion to solve equilibrium of particles and rigid bodies on both 2D and 3D; determine centroids and moments of inertia; solve for internal and external forces in trusses, beams, and frames; and develop shear and moment diagrams. (Prerequisite(s): PHYS 2700 or instructor approval) 3C/3/0/0

**ENGR 2710 Dynamics**

This course continues the development of fundamental engineering concepts. Topics include kinematics and kinetics of particles, systems of particles and rigid bodies, work-energy, linear and angular impulse momentum. (Prerequisite(s): Grade of "C" or better in ENGR 2705) 3C/3/0/0

**ENGR 2712 Deformable Body Mechanics**

This course focuses on the application of the principles of mechanics of deformable bodies including the underlying concepts of stress and strain. The course further examines the relationships among loads on deformable bodies, the stresses and strains within those bodies and the deformations and stability of those bodies. Topics include: uniaxial loading and deformation, stress and strain at a point, combined stress states, Mohr's circle, internal forces in beams, material behavior, and torsion of circular shafts. (Prerequisite(s): ENGR 2705) 3C/3/0/0

**ENGR 2715 Thermodynamics**

This course covers basic thermal energy relationships, processes, and cycles, First and Second Law of Thermodynamics, entropy, and availability. This course is intended for engineering majors and includes open-ended design. (Prerequisite(s): Grade of "C" or better in CHEM 1711 and PHYS 2700) 3C/3/0/0

**ENGR 2790 Research Project for Science and Engineering Technology**

This course provides students with an opportunity to design and carry out a science research project under the supervision of a faculty advisor and/or industry 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 industry experts. The course will also provide an opportunity for field study in an internship setting. (Prerequisite(s): BIOL 1755 Research Fundamentals or CHEM 1755 Research Fundamentals; Instructor approval) (MnTC: Goal 3) Variable credits 1-4

### **ENGL 0921 Fundamentals of Writing 1**

This course is designed for beginning writers who need additional foundational writing instruction and experience. It provides sequenced instruction in grammar usage, sentence construction, paragraph unity and coherence, and the writing process. Students will study models of effective sentences and paragraphs and then generate their own work. Additionally, this course will focus on building vocabulary for fluency and precision in communication. Completion of this course with a grade of "C" or better is required to continue on to ENGL 0922. (Prerequisite(s): Placement into this course will be according to college assessment score.) 4C/4/0/0

### **ENGL 0922 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): ENGL 0921 or EAPP 0870 and READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, 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): READ 0722 or READ 0724 and ENGL 0922 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) 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): ENGL 1711 Composition 1 with a grade of "C" or better) (MnTC: Goal 1) 2C/2/0/0

### **ENGL 1720 Introduction to Creative Writing**

In this course, we will explore creative writing through reading, analysis, discussion and by writing in three genres: poetry, short story and creative nonfiction. Students will develop an understanding of creative writing techniques and the elements of literature through analysis of literary technique and applying knowledge of craft technique to their own work. Students will learn writing techniques through exercise and practice. Students will analyze and respond critically to poetry, fiction and creative nonfiction in the texts and works produced by peers through reading, discussion, group work, workshops and in writing in order to practice an informed response to creative literature. Students will be encouraged to investigate publication opportunities for their own original writing and to present their own original work in a public reading at the end of the semester. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better) 3C/3/0/0

### **ENGL 1725 Introduction to Fiction Writing**

This writing intensive course will explore and analyze fictional writing elements (dialogue, setting, character, cause and effect, theme, conflict, resolution etc.) through critical reading of short stories. Learners will discuss and critique literature and their own writing using workshop sessions to explore writing goals and hone creative and critical writing analysis techniques. Learners will develop an understanding of fiction by applying these techniques to our own writing and in discussion of peers' work. In this course, learners will express a new understanding of fiction writing techniques by applying informed and critical responses to classic and contemporary fictional pieces. Learners will examine the writing process by practicing writing exercises, creating short fiction pieces, examining writing elements through critical reading responses and exams, and by investigating opportunities and tendencies in writing through revision. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

### **ENGL 1730 Introduction to Technical Writing**

This course introduces students to technical communication and writing for the workplace. The course offers both a structural approach to writing clear and precise professional documents, as well as considering the rhetorical expectations of technical writing. Students will compose formal letters and resumes, researched reports, process essays, and multi-modal communications, including Internet publications. Students will learn to compose clear, concise and coherent texts while considering such factors as audience expectations, workplace ethics, and using visuals and audio to successfully convey information in a professional environment. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 1) 3C/3/0/0

### **ENGL 1735 Introduction to Non-Fiction- Memoir Writing**

In this writing intensive course, we will explore and analyze nonfiction and memoir essay-writing elements (dialogue, setting, narration, structure, theme, conflict, resolution, etc) through critical reading of creative nonfiction essays. By discussing and critiquing creative nonfiction and our own writing using workshop sessions to explore our classmates' writing goals, we will hone creative and critical writing analysis techniques. We will develop an understanding of creative nonfiction and memoir by applying these techniques to our own writing and in discussion of our peers' work. In this course, we will learn to express our new understanding of creative nonfiction writing techniques by applying informed and critical responses to diverse and contemporary nonfictional pieces. By practicing creative nonfiction writing exercises, creating our own nonfiction pieces, examining writing elements through critical reading responses and exams, and by investigating opportunities and tendencies in our own writing through revision, we will examine the writing process. We will also explore current creative nonfiction writing trends and publication possibilities. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

### **ENGL 1740 Introduction to Literary Studies: The Novel**

This course introduces the skills and approaches of literary studies through the exploration of novels written in or translated into English. Students will read works representing a variety of voices and viewpoints, analyzing novels using a range of critical frameworks. In addition, students will examine the social and cultural contexts in which assigned novels were written, developing an understanding that literature can reflect, critique, and even shape its cultural moment. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

### **ENGL 1745 Introduction to Literary Studies: The Short Story**

This course introduces the skills and approaches of literary studies through the exploration of short stories written in or translated into English. Students will consider the short stories' historical contexts, critical commentary, and cultural significance, while learning to analyze short stories in terms of meaning, structure, and style. (Prerequisite(s): ENGL 1711 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

### **ENGL 1750 Introduction to Literary Studies: Drama**

This course introduces students to dramatic literature. The course will cover the concepts of dramatic form and terminology necessary for thematic and literary analysis of the genre. Special emphasis will be given to drama in its historical, social, and cultural contexts. In order to understand this art form more fully, the class will study and discuss a sampling of plays that exemplify different kinds of dramatic structure and various time periods. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

### **ENGL 1755 Introduction to Literary Studies: Poetry**

In this introductory literature course, students will analyze poetry with a focus on the formal aspects of meter and poetic structure. This course introduces various traditional and free verse poetic forms while considering how form influences meaning or theme. Students will learn to interpret poems in relation to the social and political contexts in which they were written. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

**ENGL 1760 Introduction to Creative Nonfiction Writing**

In this writing course, students craft creative nonfiction by analyzing its elements through critical reading of creative nonfiction. Students will hone analysis techniques through discussion and critique of published creative nonfiction and students' own original work in class workshops. Students will demonstrate understanding of creative nonfiction writing techniques through analyzing classic and contemporary examples of creative nonfiction and original creative nonfiction created by students in the class. Students will explore the writing process through creation and revision of their own short creative nonfiction works. Students will respond critically to creative nonfictional works in texts and work produced by peers through reading, discussion, group work, workshops, and writing. Students will explore current creative nonfiction writing trends and publication possibilities. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

**ENGL 1770 Introduction to Poetry Writing**

In this writing intensive course, we will analyze and craft poetry by exploring its elements (tone, diction, imagery, symbolism, rhythm, metaphor, theme, etc.) through critical reading and writing of poems. By discussing and critiquing poetry and our own writing using workshop sessions to explore our classmates' writing goals, we will hone creative and critical poetry analysis techniques. We will develop an understanding of poetry by applying these techniques to our original writing and in discussion of our peers' work. In this course, we will learn to express our new understanding of poetry writing techniques by applying informed and critical responses to classic and contemporary poems and applying them to the poems we create. By practicing poetry writing exercises, creating poems, examining writing elements through critical reading responses and exams, and by investigating opportunities and tendencies in our poetry drafts through revision, we will examine the poetry writing process. We will also explore current poetry writing trends and publication possibilities. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or higher) (MnTC: Goal 6) 3C/3/0/0

**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. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better) (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. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better) (MnTC: Goals 6 & 7) 3C/3/0/0

**ENGL 1795 Literature and Film**

This course will focus on analysis of literature and film. Students will read literature and explore visual texts and then their film counterparts. Students will discuss the themes and values expressed in select literature

and films and examine how these texts and films affect them as viewers. The class will include limited discussion of film terminology and techniques that filmmakers use. (Prerequisite(s): ENGL 1711 with a grade of "C" or better) (MnTC: Goal 6) 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): ENGL 1711 Composition 1 with a grade of "C" or better) 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 1. 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 1. (Prerequisite(s): Grade of "C" or better in ENGL 1711) (MnTC: Goals 6 & 7) 3C/3/0/0

**ENGL 2726 British Literature Survey 1**

In this literature survey course, students will discover the development of a national, and, ultimately, global language and literary history while encountering texts representing diverse voices and viewpoints. This course explores British literature and its historical and cultural contexts from its beginnings in the early medieval period through the late eighteenth century. While analyzing poetry, plays, essays, and/or novels, students will have opportunities to discover that while language and writing conventions change, literature from the past can still speak to us thematically as a reflection of the human experience. (Prerequisite(s): ENGL 1711 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

**ENGL 2727 British Literature Survey 2**

This survey course will follow the development of British literature from the Industrial Revolution, through the rise of Britain as a global power, to its post-colonial present. Students will encounter literary works representing a diverse range of voices and viewpoints while exploring texts in their historical and cultural contexts. Analysis of works in a range of genres, including poetry, short stories, novels, essays, and/or plays, will allow students to encounter the economic, social, and cultural upheavals of recent times through the lens of British literature. (Prerequisite(s): ENGL 1711 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

**ENGL 2728 Global Literature**

This course introduces students to literature from cultures around the globe, from antiquity to the 21st century, in genres that may include epic poetry, drama, short stories, essays, and/or novels. Through close reading of texts, students explore ways in which literature works to both define and disrupt cultural and social discourse, and discover continuities and differences between cultures across history(ies). Structured thematically, the course may focus on such issues as globalization, identity construction, race and gender, and/or economic justice. (Prerequisite(s): ENGL 1711 with a grade of "C" or better.) (MnTC: Goal 6) 3C/3/0/0

**ENGL 2730 Contemporary American Novel**

A study of the American novel from the late nineteenth century to the present. Beginning with realistic novels that reflected vast social changes at the turn of the century, this course seeks to discover the unique boundaries and potential of the contemporary 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, exploring how issues like feminism, civil rights, workers' rights and the rise of youth culture are reflected in American literature. This course ends with the contemporary novels of the twenty-first century. (Prerequisite(s): Grade of "C" or better in ENGL 1711 Composition 1) (MnTC: Goal 6) 3C/3/0/0

#### **ENGL 2740 Native American Literature**

Through analysis of structural and thematic elements, this course explores the unique additions that Native American writers have brought to the traditional literary canon. The course emphasizes historical and cultural aspects of the texts while recognizing each individual writer's narrative or poetic style. (Prerequisite(s): ENGL 1711 with a grade of "C" or better) (MnTC: Goal 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 Composition 1) (MnTC Goals: 6 & 7) 3C/3/0/0

#### **ENGL 2755 LGBTQ Writers**

This college literature course, intended for all students, will study works written by members of the LGBTQ community and exploring their experience. We will analyze course readings with a special focus on the distinct concerns, perspectives, and challenges of lesbian, gay, bi-sexual, transgender and queer writers. We will view the works both historically, with an emphasis on the issues and challenges of LGBTQ writers within their own time frame, and from a contemporary perspective. The class will also explore the literature of various races and ethnicities within the family of LGBTQ writers. (Prerequisite: ENGL 1711 Composition 1 with a grade of C or better) (MnTC: Goals 6 and 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 1) (MnTC: Goal 6) 3C/3/0/0

#### **ENGL 2775 Introduction to Speculative Fiction and Fantasy Literature**

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 twenty-first 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 Composition 1 with a grade of "C" or better) (MnTC: Goal 6) 3C/3/0/0

#### **ENGL 2776 Women Writers**

This college literature course, intended for all students, will explore literature written in English by women. We will analyze course readings with a special focus on the distinct concerns, perspectives, and challenges of women writers. In addition, we will examine the social and cultural contexts in which these works were written, developing our understanding that literature can reflect, critique, and even shape its cultural moment. (Prerequisite(s): ENGL 1711 Composition 1 with a grade of "C" or better) (MnTC: Goals 6 & 7) 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 Composition 1 with a grade of "C" or better) (MnTC Goal: 6) 3C/3/0/0

#### **ENGL 2790 Special Topics in English**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 1) Variable credits 1-6

## **English for Academic Purposes**

#### **EAPP 0760 High Intermediate Reading & Vocabulary**

This course introduces English learners to academic reading skills at the high intermediate level. Students identify main ideas and details, use pre-reading strategies, and infer meaning in non-fiction and short stories. Students also build their vocabulary through the study of word parts, the academic word list, and dictionary skills. This is a required course. (Prerequisite(s): Appropriate assessment score) 5C/5/0/0

#### **EAPP 0770 High Intermediate Writing and Grammar**

This course introduces English learners to academic writing at the high intermediate level. Students will improve their ability to write clear, correct sentences and well-organized paragraphs. They will study parts of speech, sentence structure, and basic verb tenses. They will also become familiar with the writing process and using a computer to create, save and edit their work. This is a required course. (Prerequisite(s): Appropriate assessment score) 5C/5/0/0

#### **EAPP 0780 High Intermediate Speaking and Listening**

This course introduces English language learners to academic speaking and listening skills at the high intermediate level. Students will deliver presentations, participate in group discussions, and take lecture notes. In addition, students will improve their pronunciation, vocabulary, and grammar and apply their language skills to learn about campus resources and engage in the college community. Use of the multimedia language laboratory is part of this course. This is a required course. (Prerequisite(s): Appropriate assessment score) 5C/5/0/0

#### **EAPP 0860 Advanced Reading & Vocabulary**

This course develops academic reading and vocabulary skills at the advanced level. Students analyze main ideas and details, use a variety of reading strategies, and summarize passages from authentic non-fiction texts and novels. Students further develop their academic vocabulary through the study of the academic word list, context clues, and dictionary skills. This is a required course. (Prerequisite(s): Appropriate assessment score or completion of EAPP 0760 with a grade of "C" or better) 5C/5/0/0

#### **EAPP 0870 Advanced Writing & Grammar**

This course develops academic writing skills at the advanced level. Students will improve their ability to write clear, correct sentences and well-organized paragraphs and essays. They will also study advanced sentence and grammar structures and apply this grammar knowledge in a variety of writing situations. This course emphasizes the writing process, basic research skills, and the use of online materials. This is a required course. (Prerequisite(s): Appropriate assessment score or completion of EAPP 0770 with a "C" or better) 5C/5/0/0

#### **EAPP 0880 Advanced Speaking & Listening**

This course develops advanced speaking and listening skills for English learners. Students will summarize lectures, lead small group

discussions, and deliver presentations based on simple research. Students will also learn appropriate communication strategies for the U.S. college classroom and explore career and major programs. Use of correct grammar, clear pronunciation and academic vocabulary will be reinforced throughout the semester. Regular use of the multimedia language laboratory is part of this course. This is a required course. (Prerequisite(s): Appropriate assessment score or completion of EAPP 0780 with a grade of "C" or better) 5C/5/0/0

#### **EAPP 0900 Academic Reading & Writing**

In this course, English language learners will develop analytical reading and writing skills. They will read, analyze, and respond to a variety of texts and build academic vocabulary. Students will also study advanced sentence, grammar and rhetorical structures and apply this knowledge to produce clear and effective essays. This is a required course. (Prerequisite(s): Appropriate assessment score or completion of EAPP 0860, EAPP 0870, & EAPP 0880 with a grade of "C" or better) 5C/5/0/0

#### **EAPP 1410 English Pronunciation for Academic and Professional Purposes**

This course is designed for English learners who want to improve their English pronunciation. Students will soften, but not eliminate, their accent and improve the clarity of their speech. Students will apply rules for sound production, word stress, sentence stress, intonation, rhythm, and speech patterns through modeling, group work, role plays, and presentations. Students develop self-monitoring skills to apply pronunciation skills to academic and professional settings in their major or career area. (Prerequisite(s): Appropriate assessment score) 3C/3/0/0

#### **EAPP 1420 U.S Culture**

In this course, students will explore ways to navigate cultural differences they may experience as international students or newcomers to the United States. They will look at values such as independence and diversity and explore how these values influence behaviors in school, career, and personal relationships. Students will engage in cross-cultural dialogue through field trips, guest speakers, and multi-media sources. They will use their observations to compare and contrast their own values with American values so they can navigate U.S. culture while highlighting their own cultural background and perspectives. (Prerequisite(s): Appropriate assessment score) 3C/3/0/0

#### **EAPP 1490 Special Topics in English for Speakers of Other Languages**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): Appropriate assessment score) Variable credits 1-6

## **Geographical Information Science**

#### **GISC 1760 Introduction to GIS**

This course introduces students to fundamental and applied concepts in geographic information systems. Students will become intimately familiar with the use of rasters and vectors in a digital computer environment and learn how to use specialized GIS software (ESRI's ArcGIS suite of products) to import, display, create, manipulate, and analyze digital spatial data. The ultimate goal of this course is to teach students to become effective GIS practitioners that understand the theory related to GIS and appreciate the limitations and strengths of GIS. 4C/4/0/0

#### **GISC 1765 Cartography**

This course introduces students to the art and science of making maps. Students will examine concepts related to scale, map projections, shape, proportion, color, human cognition of space, and the spatial arrangement of information in maps. The ultimate goal of this course is to teach students how to effectively convey a message with a map that contains subjectively selected features representing a simplified version of the outside world. 3C/3/0/0

#### **GISC 1770 Spatial Thinking**

Students taking this course will receive a broad introduction to the discipline of geography and use it as a building block for learning how to conceptualize spatial information in landscape space. They will use key spatial indicators such as proximity, shape, density, position, gradient, juxtaposition, and others in evaluating landscape-scale phenomena. The diverse cultural and biophysical landscapes of Minnesota will serve as the backdrop for developing and applying these principles. 3C/3/0/0

#### **GISC 1775 Introduction to Remote Sensing**

This course introduces students to fundamental and applied concepts in remote sensing. Students will be exposed to a detailed review of the electromagnetic spectrum, atmospheric windows, passive and active sensors, digital image processing techniques (including geometric and radiometric corrections), and image classification methods, among other topics. The ultimate goal of this course is to teach students to become adept at locating and properly processing remotely sensed data so that it is useful in a GIS computing environment while developing a good understand of remote sensing theory and the limitations and strengths of remote sensing. 4C/4/0/0

#### **GISC 1780 Spatial Analysis**

This course introduces students to more rigorous GIS techniques for using customized spatial analyses to investigate and enhance digital spatial data in a GIS environment. The true power of GIS involves the ability to spatially adjust, extend, modify, and integrate digital spatial data (both rasters and vectors). The ultimate goal of this course is to teach students how to apply conceptual skills acquired in the spatial thinking course to digital spatial data in a GIS. Students will use extensions (especially 3D Analyst and Spatial Analyst) and customized toolboxes in ESRI's ArcGIS suite of software to conduct the analyses. 3C/3/0/0

#### **GISC 1785 GPS Field Techniques**

This course introduces students to GPS field techniques used to map features out in the real world with hand-held GPS devices. Students will be learn how to use Trimble GPS units to collect spatial data in the field while developing an appreciation for the theoretical underpinnings of global position systems and learning how to import and process data collected from the field. The ultimate goal of this course is to make students proficient at using hand-held GPS devices and to provide students an understanding of the strengths and weaknesses of GPS. 3C/3/0/0

#### **GISC 2720 Web-Based GIS**

This course introduces intermediate and advanced GIS students to concepts and techniques for integrating GIS with the Internet. Topics explored in the class will include various protocols, approaches, hardware, software, and programming languages utilized to serve digital spatial data via the Internet. Practical experience with Google Earth, KMUKMZ, Google Map APIs, Javascript APIs, Flex APIs, and ArcGIS Server will be used to teach and reinforce concepts. 3C/3/0/0

#### **GISC 2725 Object-Based Image Analysis**

This course introduces intermediate and advanced GIS students to the complexities of acquiring, processing, and extracting information from remotely sensed data with a high spatial resolution. Students will become familiar with applying object-based image analysis techniques on a data stack generated from LiDAR returns, QuickBird imagery, IKONOS imagery, aerial, and/or corresponding derivative data (e.g., vegetation indices, wetness indices, erosion indices, etc.). 3C/3/0/0

#### **GISC 2730 Programming and Scripting in GIS**

This course provides intermediate and advanced GIS students an introduction to the programming interface and function in ArcGIS. Fundamental concepts of computer programming are introduced from a geospatial processing perspective via the use of Python. General programming concepts will focus on object-oriented programming and scripting. Students will acquire basic programming skills and techniques necessary to search, explore, revise, manipulate, analyze, and model spatial data beyond the standard options available in the standard ArcGIS interface and extensions. 4C/4/0/0

## Geography

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### **GEOG 1700 Physical Geography**

This course introduces students to natural landscapes and the geography of the physical environment. Topics include: volcanoes, earthquakes, tornadoes, hurricanes, landslides, glaciers, soil, the water cycle, etc. The course covers how these processes work, as well as how these systems and humans impact each other. So this course also covers environmental concerns such as destruction of environments, desertification, air pollution, climate change, etc. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (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: cultural geography (patterns of language and religion, folk customs, globalization, popular culture), political geography (formation of countries, conflict over land), populations (growth, distributions, migrations, characteristics), global economic activity, and development. Case studies from many parts of the world will be analyzed and key geographic concepts will be reviewed. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

### **GEOG 1740 World Geography**

This course covers the geographic study of the world discussing U.S. and Canada, Latin America, Africa, Middle East, Europe, and various regions in Asia. Topics covered include: cultures and characteristics of regions, development, unique features around the world, movements of people around the world, the natural landscapes, economic influences, and conflict between countries. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

### **GEOG 1750 Minnesota Geography**

In this course, students will explore Minnesota's regions. Topics covered include: people (culture, settlement patterns, and migrations), physical landscapes (glacial landforms, soils, and waterways), land use (agriculture, manufacturing, urbanization, etc.), geopolitical issues, and economics. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 10) 3C/3/0/0

### **GEOG 1790 Special Topics in Geography**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) Variable credits 1-6

## Global Studies

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### **GLOS 1710 Introduction to Global Studies**

This interdisciplinary course introduces students to the concept of global studies and the processes of globalization. Students will examine the economic, political, cultural, and environmental aspects of globalization, with an emphasis on social change and conflict. Students will also discuss the effects of global cooperation, conflict, and interdependence on efforts to manage and mitigate global problems, both today and in the future. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC Goals: 5 & 8) 3C/3/0/0

## Global Trade

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### **BUSN 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

### **BUSN 1430 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

### **BUSN 1512 Export Shipping and Compliance**

This course 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. Export compliance issues will be discussed. 3C/3/0/0

### **BUSN 2420 U.S. 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. Import compliance will also be discussed. 3C/3/0/0

### **BUSN 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

### **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 lab credits 1-3

### **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 lab credits 1-3

## Health

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### **HLTH 1300 Behaviors for Success - Respecting Diversity**

This course focuses on the exploration of healthcare careers and the requirements needed by health care personnel to effectively work in a variety of health care settings. Types of health care facilities and systems, applying for employment, accountability and responsibility, standards of dress, workplace behavior, approaches needed to assist individuals, expectations of teams and team members, common healthcare facility policies and requirements are explored. This course also provides a framework for dealing with diverse clients/individuals



and staff. Included are belief systems, cultural practices, respect and sensitivity to cultural issues, gender issues and sexuality issues. Awareness and use of effective strategies to appropriately deal with client and staff diversity are emphasized. 1C/1/0/0

#### **HLTH 1310 Communication in Healthcare**

This course emphasizes the importance of effective communication between and among healthcare employees and their clients/individuals. Included are verbal and non-verbal communication, listening skills, interpersonal communication, team communication, documentation and reporting, and the use of electronic communication devices in health care facilities. Focus is on the development of effective communication skills to support quality client/individual care. 1C/1/0/0

#### **HLTH 1320 Safety Precautions and Awareness of Client Needs**

This course focuses on healthcare safety and standard precautions required of healthcare facilities as well as personal safety standards and requirements to work in healthcare settings. This course also presents challenges and issues related to awareness and sensitivity needed to understand the healthcare needs of clients/individuals. 1C/1/0/0

#### **HLTH 1410 Medical Terminology**

Students recognize and build medical terms after learning the meaning of their component parts. A computer lab may be utilized to review terminology and provide practice in word building. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) 1C/0/1/0

#### **HLTH 1418 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 or Sport and Exercise Sciences major) 2C/1/1/0

#### **HLTH 1421 Anatomy & Physiology for the Somatic Practitioner**

Assist the student to acquire basic knowledge of body structure and function with a more detailed exploration of musculo/skeletal, nervous and endocrine system. Students also recognize and build medical terms. Basic concepts of nutrition and understanding of the digestive system will be explored. A thorough understanding of the sliding filament theory and types of muscle contraction will be explored. (Prerequisite(s): Declared major in Massage Therapy, Sport and Exercise Sciences or Yoga program) 4C/2/2/0

#### **HLTH 1422 Health & Wellness Coaching**

The major focal points of this course is to coordinate knowledge of exercises, lifestyle and nutrition through thoughtful assessment and inquiry, collaborative problem-solving and goal-setting, and safe, open and honest dialogue to assist clients in obtaining future wellness results. Students will learn to help future clients by providing instruction and mentoring, assist in setting goals and help define an action plan that is holistic in nature. Emphasis will be on practical application of working with clients. (Prerequisite(s): Declared major in Massage Therapy or Personal Trainer program) 4C/2/2/0

#### **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. (Prerequisite(s): HLTH 1421 recommended or instructor permission. Physical ability to palpate the human body and willingness to view selected Human Cadaver videos are recommended.) 3C/1/2/0

#### **HLTH 1432 CPR for the Professional Rescuer and Healthcare Provider**

This American Red Cross course teaches CPR and AED use for those with a duty to respond. Course meets CPR requirements for Nurses, Nurse Assistants, and other allied health professionals. It is accepted for certification by the National Registry of Emergency Medical Technicians (NREMT). Skills are demonstrated for basic life support: solo and two-person CPR for the infant, child, and adult; the use of bad valve masks (BVM's); obstructed airway management; and training in Automatic External Defibrillators (AED's) for victims of sudden cardiac arrest. Certification is valid for two years. 1C/1/0/0

#### **HLTH 1454 Yoga Postures/Asanas**

A yoga practice can increase mental clarity, focus and support vitality in daily life. This course presents yoga principles and postures, called asanas, which develop balance, strength and flexibility. Students will learn the foundational yoga postures in each of the main categories of postures including: seated postures, standing postures, inversions, arm balances, hip openers and twists. Students will study an overview of the health benefits gained through yoga practice. Discuss health limitations with the instructor. (Prerequisite(s): Concurrent enrollment in HLTH 1459. Must have at least six months regular yoga practice experience prior to attending this training) 3C/2/1/0

#### **HLTH 1458 Relaxation and Meditation**

Learn relaxation techniques and study the many benefits of meditation. Students learn various mindfulness practices including guided relaxation, gentle yoga, breathing techniques, walking meditation, and sitting meditation. Students will develop a consistent routine and learn techniques to help cope with stress and cultivate a deeper awareness of themselves and how they relate to the world. 3C/2/1/0

#### **HLTH 1459 Yoga Asanas/Teaching Methodology**

Deepen your understanding of the yoga asanas (postures). Students will study the yoga postures in each of the main categories of postures, seated postures, standing postures, inversions, arm balances, hip openers and twists. Refine your understanding and skills of alignment within asanas. Teaching methodology includes alignment, sequencing, adjustments and effective ways to guide students in a yoga practice. Discuss the business aspects of teaching yoga. (Prerequisite(s): Concurrent enrollment in HLTH 1454. Discuss health limitations with the instructor.) 3C/2/1/0

#### **HLTH 1465 Functional Holistic Nutrition**

The focus of this class is to develop a solid awareness of nutrition; be able to utilize that awareness and make suggestions to somatic practitioner clientele in a legal and ethical fashion, as outlined by the National Association of Nutrition Professionals (NANP) associate membership. 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 recommended) 5C/3/2/0

#### **HLTH 1490 Personal Fitness 1**

The major focal points of this course is to create ground frame knowledge of personal fitness including strength, endurance and flexibility for the betterment of individual health. Functional strength training, Active Isolated and Dynamic stretching and aerobic exercise options will be examined and performed. Individuals will create their own personal fitness plan and implement that plan during open Fitness Lab hours. 1C/0/1/0

#### **HLTH 1541 Yoga History/Philosophy**

This course will provide a solid foundation in the historical and philosophical concepts of yoga. Study historical texts such as the Bhagavad Gita and Patanjali's Yoga Sutras that provide lessons and offer clear steps on the path of yoga. Learn philosophical concepts of various schools of yoga including: Tantra, Ayurveda, chakras, and more. 3C/2/1/0

### **HLTH 1570 Trained Medication Aide**

This program provides an overview of the requirements concerning medications and their administration. Other topics include legal criteria, medical abbreviations, medical math and basic dosage calculations, use of the Physician's Desk Reference (PDR) along with current medication handbooks. A basic overview of body systems and drug classifications are included. Administration of medications via oral, eye, ear, rectal, topical and inhalant routes will also be covered. Attendance of all classes is mandatory; any absence will may result in repeating the course. Students must attain 90% on all examinations to continue in the class. 2C/1/1/0

### **HLTH 1575 EKG & Telemetry**

This comprehensive 6 credit course will prepare students to be an EKG Technician and take the Certified EKG Technician (CET) exam. An EKG Technician attaches electrodes to the patient's body which then send a signal to a machine displaying the activity in a recognized pattern. The technician will recognize abnormalities in EKG tracings and report them to a physician or other authorized healthcare providers for interpretation. Students will study: cardiac anatomy and physiology, EKG equipment (attaching to patients, proper safety and operation, recognize artifacts and resolve problems), how to recognize tracings that deviate from normal and prioritize reporting of such deviations, heart rhythms and wave forms, obtain basic vitals, HIPAA compliance, use of Holter monitors, introduction to stress tests and 12-lead EKGs. 6C/4/2/0

### **HLTH 1580 Medical Office Skills for the Patient Care Technician**

The Medical Office Skills Technician course provides the student with the administrative skills necessary for being a Patient Care Technician. The course consists of topics such as electronic health records, documentation, patient records, insurance, and medical coding as they apply to inpatient and outpatient settings. (Pre-requisite(s): HLTH 1410) 3C/3/0/0

### **HLTH 1585 Job Readiness Certification Exam Preparation**

The Job Readiness/Certification Exam Preparation course prepares students for their career as a Patient Care Technician and for the certification exam. Students will develop cover letters, resumes, and interview skills. Study skills for the certification exam review will also be covered. A SAMPLE certification exam will be administered in this course as well. This course is for Patient Care Technician students in their last semester of coursework. 2C/2/0/0

### **HLTH 1600 Foundations of Fitness**

The purpose of the course is to seek improvement of the student's knowledge and understanding about the components of physical fitness, and how those components contribute to lifelong health and well-being. This course is designed to provide knowledge for the individual to assess, motivate, and maintain a lifestyle of wellness. 2C/0/2/0

### **HLTH 1610 Sport and Exercise Coaching**

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. Must earn a grade of "C" or better to proceed. (Prerequisite(s): Must be enrolled in Sport and Exercise Sciences program.) 5C/3/2/0

### **HLTH 1620 Advanced Concepts in Training**

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): HLTH 1610 with a grade of "C" or better) 5C/3/2/0

### **HLTH 1630 Functional Exercise Physiology**

The emphasis of this class is to prepare Personal Trainers to be Metabolic Testing Specialists. Exploration of the effects of various types of exercise on body systems complete with testing protocols will be performed. VO2 max test, power tests, plyometric tests,

Lactate testing, body fat testing, and speed testing will be performed. Progressions based on testing outcomes will be created. (Prerequisite(s): HLTH 1610 with a grade of "C" or better) 3C/1/2/0

### **HLTH 1690 Sport and Exercise Sciences 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. Must earn a grade of "C" or better in this course. (Prerequisite(s): Instructor approval) 5C/0/5/0

### **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 1421) 4C/3/1/0

## **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. 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 8) 3C/3/0/0

### **HIST 1745 U.S. History to 1877**

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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 4C/4/0/0

### **HIST 1746 U.S. History Since 1877**

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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 4C/4/0/0

### **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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, 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. ((Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

**HIST 1773 African American History**

This course explores the history of African American men and women in the United States from their involuntary arrival in the early 17th century to the present. Within this chronological framework, the course will examine the historical changes that have shaped African American life and culture, explore how African Americans have understood their lives as individuals and as members of families, communities and institutions, evaluate how ideas about race and color have framed the societies in which Americans lived, and examine the struggle of African Americans to gain freedom, full citizenship, civil rights, and equality. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 3C/3/0/0

**HIST 1780 History of Race, Ethnicity, and Immigration of the United States**

This course surveys the experiences of ethnic minorities and immigrant groups within the United States from the colonial period to the present. The experiences of American Indians, African Americans and immigrant groups from Europe, Africa, Asia and Latin America are explored and their contributions to, and struggles within, a multi-cultural America are analyzed. Additional course themes include: slavery and its legacies, US government American Indian policy, US government immigration policy, the development of race as a social construct, and the continued impact systemic racism has on American society. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

**HIST 2780 Special Topics in History**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) Variable credits 1-6

**HIST 2790 Historical Methods**

This course is a capstone experience intended for students pursuing an AA degree with an emphasis in history. Students will arrange this

course with a history instructor and, along with the instructor, tailor their course to their interests and/or intended future area of study. Students will be exposed to the profession's methodology and produce a research-based semester-long capstone project. (Prerequisite(s): Instructor approval) (MnTC: Goals 5 & 7) 2C/2/0/0

## Hospitality 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. 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 2591 Hospitality, Management Internship**

This course provides hands-on opportunity to work in the hospitality industry. (Prerequisite(s): Advisor approval) Variable credits 1-3

## Human Resources

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**HMRS 1400 Human Resource Management**

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 1410 Talent Development**

This course provides students with a basic understanding of g activities related to Talent Development. Topics include: Talent Strategy as it relates to developing and retaining employees; Workforce Planning as it relate to forecasting and meeting short- and long-term workforce development needs; Employee Development and Training as it relates to Capability Development, Performance and Leadership; and Talent Analytics related to driving decisions and improving overall Talent Development efforts. 3C/3/0/0

**HMRS 1420 Digital HR**

Explores the application of technologies to HR related activities. Includes the use of social, mobile, analytics and cloud technologies being used to make HR initiatives more effective and efficient. 3C/3/0/0

**HMRS 1430 Total Rewards**

Covers foundational concepts related to compensation and benefits administration. Students explore methods to improve employee wellbeing by delivering meaningful rewards. Topics include various types of benefits that are typically offered by employers, direct and indirect compensation methods, and how these offerings relate to business 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 and 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 2430 Performance Management and Coaching**

The course provides a comprehensive review of methods for improving employee productivity and job satisfaction. Students will explore a variety of leading and coaching tools, techniques and best practices. Topics include improving skills for developing trust, confidence, and rapport. Students will learn to navigate employee discipline and performance issues and receive a primer on legal, practical and psychological issues they should be aware of when coaching employees. 3C/3/0/0

### **HMRS 2440 Talent Acquisition**

This course focuses on the staffing function and covers factors to consider and strategies to use in the talent acquisition process. Students explore techniques for recruitment, selection, orientation and documentation that ensure legal compliance and organizational effectiveness. 3C/3/0/0

### **HMRS 2550 Human Resource Special Projects**

The intent of this course is to allow flexibility in providing a learning experience to meet a special need of the student, the major program, and the College. (Prerequisite(s): Instructor approval) Variable 1-3 credits

### **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 credits 3–6

### **HMRS 2600 Human Resources Capstone**

This course reviews the principles covered in the Human Resources degree program through activities and assessment related to program outcomes. Students will demonstrate the knowledge and abilities required to perform as an HR professional, and the skills to conduct an effective job search in the HR field. 3C/3/0/0

## **Humanities**

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### **HUMA 1720 The Ancient and Medieval World**

This course introduces students to the global humanities and shows the relationship between cultures of the past and life in the present. The course includes an examination of written works, art, architecture, and religion from Greece, Rome, the Middle Ages and the Renaissance, and other cultures. Texts, materials and interdisciplinary assignments will examine the arts and ideas of the West in relation to those of other world cultures, including India, East Asia, Africa and Native America. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (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 other world cultures, including India, East Asia, Africa and Native America. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 4C/4/0/0

### **HUMA 1740 U.S. Cultural Diversity: Native/African/Latin/Asian American Humanities**

This course intends to introduce students to humanities of Native Americans, African Americans, Latin Americans and Asian Americans in the United States in the 20th century, and to look at the relationship between those works and culture and life in the United States in the present. We will look at humanities pieces in a historical and cultural context, pieces almost exclusively created by, for, and about peoples belonging to/identifying with one or more of these groups, including literature, visual art, music, dance, theatre and/or film. We will look especially at works with themes about identity, community, borders, and power. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 and 7) 4C/4/0/0

### **HUMA 1780 American Film**

This course offers an introduction to American cinema as art form and medium of cultural communication from its earliest years at the end of the nineteenth century to the present day. We consider the evolution of the Hollywood industry, film form, cinematic experience, genres, independents, social and political movements, and issues of national identity. Students taking this course develop skills to approach film as informed and critical viewers of style and content. Through film screenings and discussion, we explore relationships between movies and the images and ideas Americans have had of themselves. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

### **HUMA 1790 International Film**

This course introduces key developments and movements in the history of world cinema, from its origins in the late nineteenth century to the present. Students examine style, content, and historical contexts of narrative films from Europe, Asia, Africa, and Latin America. This course develops skills in critical viewing, describing, and analyzing film as art form and as cultural communication. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

### **HUMA 1795 Special Topics in Humanities**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) Variable credits 1-6

## **Individualized Studies**

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### **INDS 1401 Study Skills and Strategies for Individualized Studies and Planning**

This course is designed to help students identify and develop necessary skills and strategies to enhance study skills and college success. This course covers the development of the individualized studies degree plan. Upon completion of the course, students will have a completed individualized studies plan which meets their career and employment goals. Focused topics will include college expectations; overcoming barriers to success; study skills such as time management and note-taking; learning styles; college resources; and maintaining physical, mental, and emotional health. 3C/3/0/0

## **Interpreter/Transliterator Sign Language**

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### **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): INTP 1500 Interpreting Process with a grade of "C" or better) 3C/3/0/0

**INTP 1442 English Grammar for Sign Language Interpreters**

This course covers fundamentals of English grammar and writing and their relationship to the study of ASL and interpreting/transliterating. Topics include: parts of speech; prepositional phrases; simple, perfect, and progressive verb tenses; passive and active voice sentences; direct and indirect objects; predicate adjectives, predicate nouns, and predicate pronouns; fundamentals of English sentence structure; punctuation; capitalization; proofreading strategies; and grammatical aspects of English that create challenges for interpreters/transliterators. The course provides terminology and skill-building exercises which will enable students to: more clearly talk about and analyze aspects of English and ASL; more accurately evaluate their interpreting/transliterating work; identify non-standard English; and evaluate and develop their use of spoken and written standard English. (Prerequisite(s): Completion of ASLS 1413 American Sign Language 3 with a grade of "C" or better) 2C/2/0/0

**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, that 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 credits 1–5

**INTP 1500 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/Transliterating Program and ASLS 1420 ASL Linguistics and/or INTP 1442 English Grammar for Sign Language Interpreters with a grade of "C" or better or taken concurrently with ASLS 1420 ASL Linguistics and INTP 1442 English Grammar for Sign Language Interpreters. It is necessary for students in the Sign Language Interpreter/Transliterating Program to be able to process auditory and visual information.) 2C/2/0/0

**INTP 1512 Consecutive Interpreting 1**

This course develops consecutive interpreting skills introduced in INTP 1500 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 1500) 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 2410 Video Relay Interpreting/ Video Remote Interpreting**

This course introduces students to Video Remote Interpreting and Video Relay Interpreting. It consists of the history of VRI and VRS as a field of professional practice. It covers the call opening, middle and closing, call management, special populations, cultural considerations, register, affect, current technology, ethical considerations, federal and state governing rules, and similarities and differences between VRI and VRS. Vicarious trauma, self-care, and team interpreting topics will be included. Practical application will be made through real-time phone calls. Course content is at an intermediate to advanced level of complexity. (Prerequisite(s): INTP 2592 Interpreter Internship with a grade of "C" or better) 2C/1/1/0

**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 2585 Internship Orientation**

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 2592 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 Interactive Performance Skills Evaluations in INTP 2412 Sign to Voice 2, INTP 2422 Voice to Sign 2 and INTP 2432 Transliterating 2) 5C/0/0/5

## 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. Must earn a grade of "C" or better to proceed. (Prerequisite(s): Declared Massage Therapy major) 4C/2/2/0

### **MASS 1421 Massage Spa Techniques**

Students will refine previously learned techniques from the MASS 1400 course. Advanced techniques in chair massage, hydrotherapy, stone therapy, lymphatic drainage massage, reflexology, aromatherapy, pregnancy massage and body wraps will be introduced. Students will learn to integrate various spa techniques in a single massage session. Must earn a grade of "C" or better in this course. (Prerequisite(s): MASS 1400 with a grade of "C" or better) 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. Must earn a grade of "C" or better in this course. (Prerequisite(s): MASS 1400 with a grade of "C" or better) 4C/2/2/0

### **MASS 1423 Advanced Clinical Sports Massage 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 Isolate 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 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. Must earn a grade of "C" or better in this course. (Prerequisite(s): MASS 1400 and MASS 1422 with a grade of "C") 4C/0/0/4

### **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. Must earn a grade of "C" or better in this course. (Prerequisite(s): MASS 1423 (with a grade of "C" or better), 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/0/0/5

## Mathematics

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### **MATH 0740 Foundation for Statistics**

Foundation for Statistics course will focus on essential skills required for success in Introduction to Statistics for students concurrently enrolled in Introduction to Statistics (Math 1740). Topics included are typically found in arithmetic, pre-algebra, elementary algebra, intermediate algebra, geometry and introductory statistics. These concepts are taught through the context of descriptive data analysis. Core arithmetic and algebra skills that are needed to understand the concepts, formulas, and graphs used in transfer-level Statistics are investigated in a "just-in-time" approach, rather than in the standard sequence found in the traditional algebra path. (Prerequisite(s): MATH 0745 with a grade of "C" or better, or appropriate assessment score) 2C/2/0/0

### **MATH 0745 Fundamental Mathematics**

This course is designed for those who need to learn the basic principles of mathematics. Topics include whole numbers, fractions, decimals, and percents, applications of percents, graphs, plane geometry, solid figures, graphs and simple statistical measures, integers, polynomials, and linear equations. 0C/0/0/0

### **MATH 0910 Introductory Algebra**

This course is intended for students who need to master the fundamentals of algebra. The topics include a review of the real number system, solving equations and inequalities, and their applications, graphing linear equations, solving systems of linear equations, exponents, polynomials and quadratic equation solving and applications. (Prerequisite(s): MATH 0745 with a grade of "C" or better, or appropriate assessment score) 3C/3/0/0

### **MATH 0920 Intermediate Algebra**

This course is intended for 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 a review of solving equations and inequalities and their applications, exponents and polynomials, factoring polynomials, solving quadratic equations and their applications, rational expressions, rational exponents and radicals, and graphing functions (linear and quadratic). Students wanting to take Calculus will have the option of taking either Pre-Calculus or both College Algebra and Trigonometry as their prerequisites. (Prerequisite(s): Grade of "C" or better in MATH 0910, or appropriate assessment score) 3C/3/0/0

### **MATH 1411 Applied Mathematics**

This course is required for students in certain trade programs. It is designed to help students develop the numerical skills needed to perform tasks in their trade. Topics include whole numbers, fractions, decimals, percents, ratios and proportions, powers, roots, integers, polynomials, equations, plane and solid geometry, trigonometric functions, and word problems relevant to the trades. (Placement into this course will be according to college assessment score.) 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.) 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 0910 Introductory 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. Students wanting to take Calculus will have the option of taking either Pre-Calculus or both College Algebra and Trigonometry as their prerequisites. (Prerequisite(s): MATH 0920 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 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 0740 or MATH 0910 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

### **MATH 1750 Trigonometry**

This course introduces trigonometric functions and their applications. Topics in trigonometry include angles and the unit circle, graphs of functions, equations, identities, triangles, and the Laws of Sines and Cosines. Vectors, polar coordinates, and parametric equations will also be explored. A review of the fundamentals of functions will be included at the beginning of the course. Students wanting to take Calculus will have the option of taking either Pre-calculus or both College Algebra and Trigonometry as their prerequisites. (Prerequisite(s): MATH 1730 College Algebra with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 4) 3C/3/0/0

### **MATH 1762 Pre-Calculus**

Pre-Calculus is often described as an accelerated version of College Algebra and Trigonometry. This course introduces algebraic and trigonometric functions and their applications. Topics include polynomial, rational, exponential, logarithmic functions, sequences, series, and limits. Vectors, parametric equations, 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 0920 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) 5C/5/0/0

### **MATH 1790 Special Topics in Mathematics**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 4) Variable credits 1-6

### **MATH 2100 Intermediate Statistics**

Second course in statistics provides an approach to statistical practices including nonparametric methods, simple regression, multiple

regression, logistic regression, log-linear regression, ANOVA and survival, component and Bayesian data analysis. Application and interpretation of computer output will be highlighted. This course should be useful to students who are interested in learning natural sciences, economics, finance and data science. This course can be used to fulfill the general education requirement for math, and transfer to 2 and 4 year institutions. (Prerequisite(s): MATH 1740 Introduction to Statistics with a grade of "C" or better) (MnTC: Goal 4) 4C/4/0/0

### **MATH 2240 Statistics for Psychology/Behavioral Sciences**

Students use basic mathematical and computerized procedures to analyze data in the behavioral sciences. Statistical software is used to conduct descriptive and inferential data analyses. Students choose and apply statistical procedures to help answer psychological and behavioral scientific research questions. Students read, interpret, and write APA-style results sections for behavioral science research. (Prerequisite(s): PSYC 1710 and MATH 1740 with a grade of "C" or better, or MATH 1730 with a grade of "C" or better, or a higher MATH course with a grade of "C" or better) (MnTC Goals: 5) 4C/4/0/0

### **MATH 2460 Discrete Mathematics**

This is a course in discrete mathematical structures to prepare students for advanced courses. Topics include set theory, functions and relations, the big O notation, logic, truth tables and Boolean expressions, proof techniques including mathematical induction, and tree/graph fundamentals. Credit will not be awarded for both MATH 2460 and CSCI 2460. (Prerequisite(s): MATH 1730 or higher) 4C/4/0/0

### **MATH 2749 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 1750 Trigonometry or MATH 1762 Pre-Calculus with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

### **MATH 2750 Calculus 2**

This course is a continuation of MATH 2749 Calculus 1 and the continued development of the properties and applications of integration. Topics include applications of integral, transcendental functions, techniques of integration sequences and series and parametric equations and polar coordinates. A graphing calculator is required. Upon completion of Calculus 2, students can take either MATH 2753 or MATH 2760. (Prerequisite(s): A grade of "C" or better in MATH 2749) (MnTC: Goal 4) 4C/4/0/0

### **MATH 2753 Multivariable Calculus**

This course is intended for students who have successfully completed MATH 2750 Calculus 2 and covers the calculus of several variables. Topics include functions of several variables, three-dimensional analytic geometry, vectors, partial derivatives, multiple integrals, vector fields, surface integrals, Green's Theorem, Stokes Theorem, and the Divergence Theorem. (Prerequisite(s): MATH 2750 Calculus 2 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

### **MATH 2760 Differential Equations and Linear Algebra**

This course is an introduction to differential equations and linear algebra, which focuses on ordinary differential equations but students will be introduced to partial differential equations. Topics include the basic definition, terminology and ideas of ordinary differential equation, finding solutions of and working with applications of first and second order differential equations, existence and uniqueness of solutions, variation of parameters, undetermined coefficients, matrix

formulation of linear systems, Laplace transforms, and an introduction to numerical and graphical methods of solutions. Additional topics include Gauss-Jordan reduction and system of Linear equations, matrices and coordinates relative to different bases, general linear spaces, orthogonality, determinants, eigenvalues, eigenvectors, and phase plane analysis of linear and nonlinear systems of ordinary differential equations. (Prerequisite(s): MATH 2750 Calculus 2 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 4) 4C/4/0/0

## Medical Laboratory Technician

### MDLT 1400 Introduction to Medical Laboratory Science

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. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Enrollment in MDLT Major courses) 1C/1/0/0

### MDLT 1410 Laboratory Techniques

This course covers basic skills and techniques used in the medical lab which includes basic instrumentation. Major topics covered are: safety and standard precautions, laboratory glassware and pipettes, microscopy, balances and weighing, specimen collection and processing, spectrophotometry, metric/chemistry math and solutions, and laboratory information systems. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): CHEM 1711 and BIOL 1730 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 and blood cell structure concepts including function, appearance, and cell differentiation. Students will employ a laboratory information system to order tests and report results. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Enrollment in MDLT Major courses) 2C/1/1/0

### MDLT 1422 Hematology 2

This course is a continuation of Hematology 1 in which blood cell differentiation study continues. Hematology instrumentation will be introduced and students will evaluate quality control. Emphasis is placed on correlating laboratory findings with hematologic diseases. Coagulation theory and laboratory procedures are used to evaluate homeostasis. Students will employ a laboratory information system to order tests and report results. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): MDLT 1421) 4C/1/3/0

### MDLT 1430 Urinalysis/Body Fluids

This course covers basic urinalysis procedures used in the clinical laboratory in the examination of a patient's urine. Students study urine formation, renal physiology, the role of the kidney in health and disease, urine specimen types, and components of the routine urinalysis test. The course also includes an overview of other non-urine body fluids analyzed in the clinical laboratory. In the laboratory, students will perform routine urinalysis using both manual and automated methods. Students will practice using a laboratory information system to order tests and report results. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Enrollment in MDLT Major courses) 3C/2/1/0

### MDLT 1441 Clinical Chemistry 1

This course covers the analysis of various chemical constituents of plasma and serum. The physiology, methodology, and clinical significance of carbohydrates, non-protein nitrogen, and bilirubin is

addressed. The course includes a review/overview of renal and liver function including blood tests to assess each. Laboratory Techniques concepts of solution math, spectrophotometry, pipetting and safety will be reviewed and emphasized. Quality assurance concepts, quality control procedures, and manual laboratory techniques will be presented and practiced. POCT procedures will be discussed and practiced. Students will employ a laboratory information system to order tests and report results. Must earn a grade of "C" or better to proceed in MDLT Major coursework. (Prerequisite(s): CHEM 1711 & BIOL 1740 or concurrent enrollment and MDLT 1410) 2C/1/1/0

### MDLT 1442 Clinical Chemistry 2

This course covers the continued study of various chemicals in plasma/serum that are routinely analyzed to contribute to patient care. The physiology, test methodology and clinical correlations of proteins, enzymes, electrolytes, lipids, acid/base balance, and endocrinology are discussed. The course also includes a brief overview of therapeutic drug monitoring and toxicology. Instrumentation principles/ methodologies found in modern clinical chemistry laboratories and concepts that are basic to the operation and maintenance of automated laboratory instruments are covered. Students will test samples and controls using a variety of automated analyzers. Students will employ a laboratory information system to order tests and report results. (Prerequisite(s): grade of "C" or better in MDLT 1441, BIOL 1740 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, professionalism, the circulatory system, equipment, venipuncture, skin puncture procedures, and specimen transport/processing. Students may employ a laboratory information system to document specimen collection. Emphasis is placed on attaining competency in safe blood specimen collection as well as on demonstration of effective communication and professional skills to perform phlebotomy in a health care setting. Must earn a grade of "C" or better to proceed in MDLT Major coursework. (Prerequisite(s): MDLT 1410) 1C/0/1/0

### MDLT 1451 Learning Lab 1-Introductory Skills

This course reinforces the basic skills required for gaining proficiency in performing introductory medical laboratory procedures in hematology and basic skills. It is designed to allow completion of hands-on skill activities and enhance attainment of skills in MDLT 1410 and MDLT 1421. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. Safety, problem solving and quality assurance are emphasized. (Prerequisite(s): Concurrent enrollment in MDLT 1410 and MDLT 1421) 1C/0/1/0

### MDLT 1452 Learning Lab 2-Introductory Skills

This course reinforces the basic skills required for gaining proficiency in performing introductory medical laboratory procedures in urinalysis, clinical chemistry, phlebotomy. It is designed to allow completion of hands-on skill activities and enhance practical aspects of MDLT 1430, MDLT 1441, and MDLT 1446. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Safety, problem solving and quality assurance are emphasized. Must earn a grade of "C" or better to proceed in MDLT Major coursework. (Prerequisite(s): Concurrent enrollment in MDLT 1441, MDLT 1430, and MDLT 1446) 1C/0/1/0

### MDLT 1453 Learning Lab 3-Intermediate Skills

This course reinforces the basic skills required for attaining proficiency in performing intermediate level medical laboratory procedures in phlebotomy, and clinical chemistry. It is designed to allow completion of hands-on skill activities and enhance practical aspects of MDLT 1442. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Safety, problem-solving and quality assurance are emphasized. Must earn a grade of "C" or better to proceed in MDLT Major coursework. (Prerequisite(s): Concurrent enrollment in MDLT 1442) 1C/0/1/0



**MDLT 1454 Learning Lab 4-Intermediate Skills**

This course reinforces the basic skills required for attaining proficiency in performing intermediate level medical laboratory procedures in phlebotomy, immunology and hematology. It is designed to allow completion of hands-on skill activities and enhance attainment of skills in MDLT 1510 and MDLT 1422. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. Safety, problem solving and quality assurance are emphasized. (Prerequisite(s): Concurrent enrollment in MDLT 1422 and MDLT 1510) 1C/0/1/0

**MDLT 1510 Immunology**

This course 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. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Enrollment in MDLT Major courses) 2C/1/1/0

**MDLT 1600 Medical Laboratory Math**

This course will introduce the Medical Laboratory Technician student to mathematical formulas and calculations routinely used in the Medical Laboratory Science career. Topics of study include a review of basic algebra, rounding and significant figures, the metric system, logarithms, solutions & concentration, dilutions, graph construction & interpretation and statistics for quality control & method evaluation. Practice problems will provide real world context for application in today's medical laboratory setting. (Prerequisite(s): Appropriate assessment scores or MATH 0910 with a grade of "C" or better) 1C/1/0/0

**MDLT 2410 Immunoematology**

This course covers the introduction to both the theoretical and practical aspects of Immunoematology, a specialized branch of laboratory medicine which involves the study of blood group antigens and antibodies. Areas of study include a review of immunology concepts, blood group genetics, reagents and quality assurance, antigens and antibodies of the ABO, Rh and other blood group systems, pre-transfusion testing procedures (ABO/Rh typing, antibody screening and identification, cross-match), hemolytic disease of the fetus and newborn, neonatal and obstetric transfusion medicine testing, adverse effects of transfusion, donor screening, and blood component preparation and usage. Students will perform a variety of transfusion medicine laboratory tests utilizing both tube and gel system methods. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Grade of "C" or better in MDLT 1510) 3C/1/2/0

**MDLT 2420 Clinical Microbiology**

This course covers the isolation and identification of clinically significant microorganisms. Emphasis is placed on organism's growth characteristics, techniques for identification, safety, and quality assurance. Students will study conventional identification and susceptibility methods along with instrumentation used in the clinical microbiology lab. Students are introduced to recent advances in organism identification techniques. The correlation between pathogens, types of infection, and specimen sources is explored. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (Prerequisite(s): Grade of "C" or better in MDLT 1510) 4C/1/3/0

**MDLT 2430 Clinical Practice Orientation**

This course explains role of the MDLT student during the practicum phase of the program. Students prepare for the Clinical Practice experience and review theoretical concepts and procedures of testing performed in various clinical laboratory departments. Clinical practice policies and expectations are addressed. Additionally, the application process and timeline of certification is discussed. . Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. (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-Advanced Skills**

This course reinforces the basic skills required for attaining proficiency in performing medical laboratory procedures in phlebotomy and immunohematology. It is designed to allow completion of hands-on skill activities and enhance practical aspects of MDLT 2410 course. This course also provides an opportunity for the enrolled students to recall and practice key laboratory skills from first-year MDLT courses in preparation for the upcoming MLT Clinical Practice. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Safety, problem-solving and quality assurance are emphasized. Must earn a grade of "C" or better to proceed in MDLT Major coursework. (Prerequisite(s): MDLT 1446 and MDLT 2410) 1C/0/1/0

**MDLT 2456 Learning Lab 6-Advanced Skills**

This course reinforces the basic skills required for attaining proficiency in performing advanced level medical laboratory procedures in phlebotomy, microbiology, mycology, and parasitology. It is designed to allow completion of hands-on skill activities and enhance attainment of skills in MDLT 2500 and MDLT 2420. Students will be given the opportunity to perform a variety of laboratory techniques with direct instructor supervision. Safety, problem solving, and quality assurance will be emphasized. Must earn a grade of "C" or better in this course to proceed in MDLT Major coursework. Prerequisite(s): Concurrent enrollment in MDLT 2500 and MDLT 2420) 1C/0/1/0

**MDLT 2500 Molecular Diagnostics/Advanced Body Fluid Analysis**

This course provides a comprehensive overview of the fundamental principles of molecular diagnostics and explores the application of molecular techniques in the medical laboratory. Topics of study include: molecular diagnostic foundation concepts, nucleic acid structure and function, genetics, molecular methodologies and quality assurance. The course also provides an opportunity for advanced study of non-blood, non-urine body fluids, with particular emphasis on hematologic exam. Topics of study include CSF, synovial, and serous fluids. (Pre-requisites: MDLT 1510, MDLT 1430 & MDLT 1422) 2C/1/1/0

**MDLT 2591 Clinical Practice**

In this clinical laboratory course, the student is provided competency-based instruction in an affiliate hospital/clinic laboratory under the supervision of laboratory professionals. The work-based experience provides an opportunity for students to refine lab techniques and apply knowledge learned in the didactic phase in an employment-like setting with direct patient care that offers realistic experiences unavailable in student laboratory sessions. The experience also allows students to enhance non-technical attributes including, but not limited to, communication, critical thinking, multi-tasking and independent work skills. Using competency checklists provided by the college laboratory professionals at the affiliate evaluate student clinical skills, application of knowledge, professional behavior and attributes in each department of the clinical laboratory (hematology, chemistry, urinalysis, microbiology, transfusion medicine, and coagulation) and specimen collection and processing skills. Required on-campus afternoons provide learning activities on special topics that assist students in attaining competency in the clinical practice setting. Additional required learning activities assigned by campus faculty that are supplemental to the Clinical Practice competency checklists assist students in maintaining mastery of cognitive theory in major clinical laboratory departments. Must earn a grade of "P" to proceed in MDLT Major coursework. (Prerequisite(s): Grade of "C" or better in all MDLT program requirements) Variable credits 1-9

**MDLT 2593 Comprehensive Examinations**

Students' knowledge of theory and practical applications in all department areas of the clinical laboratory will be evaluated by comprehensive examinations to assist them in their preparation for the national certification examination desired by their potential employers. Students complete final summative evaluations of Clinical Practice experiences and of various components they experienced as a MLT Major. Job placement tracking efforts are described and forms provided. Prerequisite(s): Grade of "C" or better in all required courses in the Medical Laboratory AAS degree including successful completion of MDLT 2591 Clinical Practice) 1C/0/1/0

## Medical Office

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### **MEDS 1420 Health Information Foundations**

This course introduces the student to the health information management profession by covering topics fundamental to the field such as content, function, structure, and uses of health information, along with the health information profession itself. It covers prominent healthcare data sets, their purpose and use, as well as typical departmental functions associated with managing health information. An introduction of clinical vocabularies and classification systems is covered, as well as secondary data sources such as registries and indexes. Finally, students will learn the history, organization, financing, and delivery of health care services in the United States. Must earn a grade of “C” or better in this course to proceed. 3C/3/0/0

### **MEDS 1470 Anatomy and 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. Must earn a grade of “C” or better in this course to proceed. 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. Must earn a grade of “C” or better in this course to proceed. 3C/3/0/0

### **MEDS 1551 Medical Formatting/Transcription 1**

This course 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1480 or concurrent enrollment) 3C/2/1/0

### **MEDS 1552 Transcription And Documentation II**

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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1551) 3C/2/1/0

### **MEDS 1553 Advanced Medical Documentation**

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. Must earn a grade of “C” or better in this course to proceed. (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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1420) 3C/3/0/0

### **MEDS 1562 Billing and Reimbursement**

This course provides an introduction to commercial, managed care and federal insurance plans, including medical claim form preparation and processing, as well as the reimbursement systems and prospective

payment systems (PPS) used in the healthcare industry. Billing processes and procedures will be discussed and practiced including clean claims and denials and adherence to the National Correct Coding Initiatives. Chargemaster maintenance, regulatory guidelines, and reimbursement monitoring and reporting will be covered, in addition to compliance strategies. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1420) 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1480 or MEDS 1470 or instructor permission) 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1480) 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1420) 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1420) 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. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): MEDS 1420) 2C/2/0/0

### **MEDS 2461 ICD-10-CM Coding**

This course teaches the student to accurately code diagnoses using the ICD-10-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 from each body system will be covered as well as coding from healthcare documents. Emphasis is on Principle Diagnosis, Secondary Diagnoses, Complications, and Comorbidities. Other topics include DRG’s, coding compliance, over-coding and under-coding. Must earn a grade of “C” or better in this course to proceed. (Prerequisite(s): A grade of “C” or better in MEDS 1470 and MEDS 1480) 3C/3/0/0

**MEDS 2462 ICD-10-PCS Coding**

This course teaches the student to accurately code procedures using the ICD-10-PCS coding system. This class brings the student through all of the coding conventions in order to develop a basic coding foundation. Coding procedures from each section of ICD-10-PCS will be covered as well as coding from healthcare documents. Emphasis will be on Principle Procedure and Secondary Procedures, DRG's, coding compliance, over-coding and under-coding. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): A grade of "C" or better in MEDS 1470 and MEDS 1480) 4C/4/0/0

**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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): A grade of "C" or better in MEDS 1470 and MEDS 1480) 3C/3/0/0

**MEDS 2480 Advanced Coding**

In this course, students will use their basic ICD and CPT 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): A grade of "C" or better in MEDS 2461, MEDS 2462 and MEDS 2470) 3C/3/0/0

**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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): MEDS 1420 with a grade of "C" or better) 3C/3/0/0

**MEDS 2590 HIT Internship/Capstone Project**

Students will apply the coursework, theories, skills, and ethics learned during the program to the HIT Internship/Capstone. Under the supervision of a qualified health information professional, the student will gain professional practice and experience, when available, in a healthcare facility. Students will meet written goals and objectives and be evaluated by the Health Information Supervisor and the College Internship Coordinator. The capstone includes a focused review and objective measurement of the Domains and Subdomains required for writing the national certification examination. Students are required to select an independent area of study from a wide-range of topics and disciplines to broaden their scope of interest in health information management. Students work with faculty advisors to schedule the internship, independent study, and healthcare project. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): All required coursework for the Health Information Technology AAS Degree with a "C" or better in all MEDS-prefix courses and instructor approval.) 3C/3/0/0

**MEDS 2594 Medical Coding Capstone Project**

The focus of this class is to simulate 3 credits of on the job experience

as a medical coding specialist at a multi-specialty healthcare facility. This internship will provide you with an opportunity to utilize your coding skills and knowledge in an electronic environment. The coding capstone is a vital part of your education that serves as a format to demonstrate your level of expertise. All coding assignments in this course may be compiled into a portfolio to present to a future employer. (Prerequisite(s): All required coursework for the Medical Coding Diploma with a grade of "C" or better or instructor approval.) 3C/3/0/0

## Music

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**MUSC 1030 Applied Strings**

Provides private instruction in music -- Instrumental lessons by arrangement with the instructor. Fifteen one-hour lessons per semester. Coursework will be suited to the skill level of the student to develop musical technique. Extra charge for lessons assessed per semester. 2C/0/2/0

**MUSC 1310 Applied Voice**

Provides private instruction in music -- Vocal lessons by arrangement with the instructor. Fifteen one-hour lessons per semester. Coursework will be suited to the skill level of the student to develop musical technique. Extra charge for lessons assessed per semester. These credits may be repeated up to 8 credits. 2C/0/2/0

**MUSC 1320 Applied Piano**

Provides private instruction in music -- Instrumental lessons by arrangement with the instructor. Fifteen one-hour lessons per semester. Coursework will be suited to the skill level of the student to develop musical technique. Extra charge for lessons assessed per semester. These credits may be repeated up to 8 credits. 2C/0/2/0

**MUSC 1701 Music Theory 1**

This course is part 1 of a four-semester sequence in Music Theory. It will focus on the development of written music notation, including scales, tonality, key modes, intervals, triads, seventh chords, roman numeral analysis with bass position symbols, lead-sheet symbols, principles of voice leading and part writing. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) 2C/2/0/0

**MUSC 1702 Aural Skills 1**

This course is part 1 of a four semester sequence that should be taken concurrently with the Music Theory sequences. Aural Skills focuses on practical musicianship training in sight singing and ear training. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) 1C/1/0/0

**MUSC 1703 Music Theory 2**

This course is part 2 of a four-semester sequence in Music Theory. It will focus on the development of written music notation, including, roman numeral analysis with bass position symbols, lead-sheet symbols, principles of voice leading, part writing, harmonic progressions, sequences, cadences, phrases, periods, sentences, two-part tonal counterpoint and non-chord tones (Prerequisite(s): MUSC 1701 Music Theory 1 with a grade of "C" or better). (MnTC: Goal 6) 2C/2/0/0

**MUSC 1704 Aural Skills 2**

This course is part 2 of a four semester sequence that should be taken concurrently with the Music Theory sequence. Aural Skills focuses on practical musicianship training in sight singing and ear training. (Prerequisite(s): MUSC 1701 Music Theory 1 and MUSC 1702 Aural Skills 1 with a grade of "C" or better.) 1C/1/0/0

**MUSC 1720 Fundamentals of Music**

This course has been designed and structured for students with very little or no musical background. Its goal is to provide you with the tools for a basic understanding of the rudiments of music. Course topics include: The Keyboard, Notation: Staff, and Melody, Clefs, Major Scales, Key Signatures, Minor Scales, Intervals, Triads and The

Dominant Seventh Chord, Introduction to Rhythm and Meter, Basic Ear Training Exercises. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

### **MUSC 1730 Concert Choir**

This course is a mixed choral ensemble specializing in a wide range of sacred and secular choral literature of all historical periods and nationalities. The ensemble provides singers the opportunity to rehearse, learn and perform repertoire for an a cappella choir as well as repertoire performed with professional instrumental ensembles. The Saint Paul College Concert Choir is open to all students, regardless of major. (MnTC: Goal 6) 2C/0/2/0

### **MUSC 1735 Class Piano 1**

This course is part 1 of a two semester sequence designed to develop basic keyboard and musicianship skills including technique, sight reading, harmonization, accompaniment, theory, and piano repertoire in preparation for the Piano Proficiency Exam. (MnTC: Goal 6) 2C/0/2/0

### **MUSC 1736 Class Piano 2**

This course is part 2 of a two semester sequence designed to develop basic keyboard and musicianship skills including technique, sight reading, harmonization, accompaniment, theory, and piano repertoire in preparation for the Piano Proficiency Exam. (Prerequisite(s): MUSC 1735 with a grade of "C" or better or instructor approval) (MnTC: Goal 6) 2C/0/2/0

### **MUSC 1740 Music Appreciation**

This course is designed to heighten the enjoyment of music by improving listening skills, increasing musical knowledge, and exploring new forms and styles of Western music throughout the centuries. Course topics students will learn include basic elements of music, musical form and style throughout history, and representative composers and their music. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

### **MUSC 1745 History of Rock and Roll**

The purpose of this course is to explore the emergence of rock and roll music as a cultural phenomenon in the United States. Besides rock and roll, American musical styles including rhythm and blues, country, folk and rock will be studied within a historical and cultural perspective. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 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. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

### **MUSC 1760 American Music**

This course provides an introduction to folk, ethnic, popular and classical music in the United States. It is designed to help students become familiar with the music from diverse cultural groups and regions of the country. America's Music is an historical overview of the evolution of musical traditions in American society. Attendance at a live performance is required. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

### **MUSC 1765 Music of Latin America and the Caribbean**

This course introduces the musical styles and genres of Latin American and Caribbean music and the mix of aesthetic, cultural, and geographical distinctions that have emerged over time to define and identify the music of the continent. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or

appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

### **MUSC 1770 Music in World Cultures**

The aim of this course is to gain a broader understanding of music as worldwide phenomenon through the study of selected musical traditions and cultures of the world. This course will concentrate on the development and historical background of the music, the introduction of typical musical instruments and most well-known musicians of each region, and the relationship between music and the society. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

### **MUSC 1790 Special Topics in Music**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 6) Variable credits 1-6

### **MUSC 1800 Music Production 1**

An introductory course in music production using a digital audio workstation. Students will be introduced to standard audio recording and production techniques as well as basic audio theory. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

### **MUSC 2700 Music Theory 3**

This course is part 3 of a four-semester sequence in Music Theory. It will focus on the development of written music notation, including roman numeral analysis with bass position symbols, lead-sheet symbols, principles of voice leading, part writing, dominant and secondary functions, modulations, chromaticism, mode mixture, Neapolitan chords and larger compositional forms. (Prerequisite(s): MUSC 1703 Music Theory 2 (with a grade of "C" or better). (MnTC: Goal 6) 2C/2/0/0

### **MUSC 2705 Aural Skills 3**

This course is part 3 of a four semester sequence that should be taken concurrently with the Music Theory sequence. Aural Skills focuses on practical musicianship training in sight singing and ear training. (Prerequisite(s): MUSC 1703 Music Theory 2 and MUSC 1704 Aural Skills 2 with a grade of "C" or better). 1C/1/0/0

### **MUSC 2710 Music Theory 4**

This course is part 4 of a four-semester sequence in Music Theory. It will focus on the development of written music notation, including, roman numeral analysis with bass position symbols, lead-sheet symbols, principles of voice leading, part writing, augmented sixth chords, enharmonic spellings and modulations, advanced harmonic vocabulary, tonal harmonies of the late nineteenth century, and post-tonal music of the twentieth century. (Prerequisite(s): MUSC 2700 Music Theory 3 (with a grade of "C" or better). (MnTC: Goal 6) 2C/2/0/0

### **MUSC 2711 Chamber Singers**

This course is a small ensemble of mixed voice parts, which performs works from a wide variety of secular and sacred vocal music ranging from early music, such as madrigals and motets, to part songs, to vocal jazz scores and beyond. The emphasis is on a capella singing, through some accompaniments may be employed as preserved by the genre or style. Singers are expected to maintaining vocal Independence and have a strong sense of pitch and rhythm. Music reading skills are not required, but are extremely beneficial to the progress of the ensemble. 2C/0/2/0

### **MUSC 2713 Guitar Ensemble**

This course consists of the study and performance of standard guitar ensemble literature with emphasis on intonation, rhythmic alignment, balance, style and the requirements of effective ensemble playing. This course will culminate in a public performance. (MnTC: Goal 6) 2C/0/2/0

### **MUSC 2714 String Ensemble**

The course consists of the study of a variety of string ensemble literature with emphasis on intonation, balance, style and the requirements of effective ensemble playing. Open to all string instruments and piano. This course will culminate in a public performance. 2C/0/2/0

### **MUSC 2715 Aural Skills 4**

This course is part 4 of a four semester sequence that should be taken concurrently with the Music Theory sequence. Aural Skills focuses on practical musicianship training in sight singing and ear training. (Prerequisite(s): MUSC 2700 Music Theory 3 and MUSC 2705 Aural Skills 3 with a grade of "C" or better). 1C/1/0/0

### **MUSC 2720 Music History 1: Medieval to Baroque**

A study of Medieval, Renaissance, and Baroque periods of music. An emphasis is placed on the development of music and its literature within social, cultural, political, and religious contexts. (Prerequisite(s): ENGL 1711) (MnTC: Goals 6 & 8) 3C/3/0/0

### **MUSC 2721 Music History 2: Classical to Modern**

A study of Classical, Romantic, and Twentieth Century periods of music. An emphasis is placed on the development of music and its literature within social, cultural, political, and religious contexts. (Prerequisite(s): ENGL 1711) (MnTC: Goals 6 & 8) 3C/3/0/0

### **MUSC 2800 Music Production 2**

A continuation of MUSC 1800 Music Production 1. This course discusses advanced music production techniques using a digital audio workstation. (Prerequisite(s): MUSC 1800 Music Production 1 with a grade of "C" or better) (MnTC: Goal 6). 3C/3/0/0

### **MUSC 2900 Music Entrepreneurship**

Music entrepreneurship is based on the process of identifying opportunities in the music industry marketplace, exploring potential resources to pursue those opportunities, and committing to action the resources necessary to exploit the opportunities for long-term gain. Over the course of the semester we will examine the tools required to successfully create and maintain a life in the music industry. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) 3C/3/0/0

### **MUSC 2950 Music Production Capstone**

The Music Production Capstone allows the student to cultivate their talent and accumulate skills by producing a master recording of your choice. They will apply concepts of a music producer such as scheduling, budgeting, overseeing and engineering recording sessions, and balancing business and creative tasks. Advanced topics in recording, editing, mixing, and mastering will also be covered. The final project for the course includes releasing a recording on several digital platforms. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) 2C/2/0/0

## **Natural Sciences**

### **NSCI 1710 Earth Science**

This course introduces students to topics in geology, oceanography, meteorology and astronomy. The solid earth and earth processes, 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. Lab time will be used to reinforce lecture concepts and will include experiments, hands-on activities, and field trips. Traditional, hybrid, and online sections are available. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 4C/3/1/0

### **NSCI 1721 Introduction to Geology**

This course introduces students to the fundamentals of geology, including rock and mineral formation, geologic time, global tectonic

processes such as earthquakes and volcanoes, and earth surface processes that change our landscape. Current issues relating to geology, such as global climate change and energy resources will be addressed as well. Two hours of lab per week are required. Lab time will be used to reinforce lecture concepts and will include experiments, hands-on activities and field trips. Traditional and hybrid sections are available. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 4C/3/1/0

### **NSCI 1730 Introduction to Oceanography**

This course introduces students to basic scientific principles of oceanography. Topics covered will include the geological, biological, atmospheric, and chemical processes at work in the oceans, as well as contemporary issues related to marine pollution and resource use. Course includes lab-like learning activities. Traditional and online sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (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 terminology, weather phenomena, instrumentation and forecasting. Course includes lab-like learning activities. Traditional and hybrid sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 3C/3/0/0

### **NSCI 1750 Natural Disasters**

This course introduces students to the investigation of the physical processes, origins of natural disasters and human and economic impacts caused by natural disasters. Content covered will include earthquakes, volcanoes, severe weather, climate change, wildfires, floods and other catastrophic phenomena. Course includes lab-like learning activities. Traditional, online and hybrid sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (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. Course includes lab-like learning activities. Traditional and hybrid sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 3C/3/0/0

### **NSCI 1780 Contemporary Issues in Science**

Scientific dilemmas and advances in science make headlines every day. Without knowing the science behind the top issues, it is difficult to separate fact from hype. In this course we will focus on contemporary issues such as climate change, renewable energy, environmental toxins, stem cell research, gene therapy, and pandemic diseases. Students will learn the basic scientific concepts behind each issue and will then explore the ethical dilemmas that each issue brings up. Course includes lab-like learning activities. Traditional, hybrid, and online sections are available. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 9) 3C/3/0/0

### **NSCI 1782 Minnesota Geology**

This course surveys Minnesota's geological history, from exploring the formation of the bedrock more than 2 billion years ago to the current processes that shape the land usage in this State today. Students will learn about the many ways the state's geology contributed to the economic, environmental and political development. Topics include: geologic time, plate tectonics, rock and mineral identification, topographic and geologic maps, superficial processes, and

environmental concerns. Through numerous field trips, we will look to the Twin Cities metro area to provide examples of many different earth and environmental processes, and to give us hands-on experience understanding how these processes work (glacial history, rock formations, caves and ancient ocean floor, rivers, and other geologic sites). Course includes lab-like learning activities. Traditional and hybrid sections are available. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 3C/3/0/0

#### **NSCI 1790 Special Topics in Natural Science**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (MnTC: Goals 3 & 10) Variable credits 1-6

#### **NSCI 2770 Natural Sciences Internship**

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 report 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): Instructor approval) (MnTC: Goal 3) Variable credits 1-4

## **Nursing Assistant/Home Health Aide**

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#### **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): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or 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

## **Ojibwe**

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#### **OJIB 1310 Beginning Ojibwe 1**

This course is an introduction to the Ojibwe language, a spoken language of the Anishinaabeg people of the north central region of North America. You will learn basic communication skills that will prepare you for further study and application. The vocabulary centers on everyday themes and seasonal life. You will learn language in the context of culture and real-life situations. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 8) 5C/5/0/0

#### **OJIB 1320 Beginning Ojibwe 2**

The course is a continuation of Ojibwe 1. You will further develop communication skills to prepare for further study and application. The vocabulary centers on everyday themes and seasonal life. You will learn the language in the context of culture and real-life situations. You will learn more complex grammatical structures, as well as engage in more reading and writing activities. (Prerequisite(s): OJIB 1310) (MnTC: Goal 8) 5C/5/0/0

## **Pharmacy Technology**

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#### **PHAR 1700 Success Skills for the Pharmacy Technician**

This course reinforces the basic skills required for gaining proficiency in performing introductory pharmacy technician knowledge and

skills. It is designed to allow completion of skill activities and enhance attainment of skills in PHAR 1710, 1715 and 1720 (first semester pharmacy technician courses). Students will be given the opportunity to perform a variety of pharmacy skills with direct instructor supervision. This course is an elective course and is recommended for students who benefit from direct instructor supervision to reinforce the online learning throughout the first semester of the pharmacy technician program. (Co-Requisite(s): PHAR 1710, PHAR 1715, and PHAR 1720) 2C/0/0/0

#### **PHAR 1710 Pharmacy Law and Ethics**

This course will provide the student with the Federal and State laws as they pertain to pharmacy. This course will also address ethical theories and principles as they apply to the area of pharmacy practice. It will assist in preparing the student for the Pharmacy Technician Certification Exam. Must earn a grade of "C" or better to proceed in the Pharmacy Technician program. 3C/3/0/0

#### **PHAR 1715 Fundamentals of Pharmacy Technology 1**

Fundamentals of Pharmacy Technology will provide students with a detailed, interactive experience that leads to the understanding of community pharmacy practice, medication safety and communications in health care. Students will participate in active learning activities in the classroom, online and in the pharmacy lab. This course is intended to meet the goals of the model curriculum for pharmacy technician training developed by the American Society of Health-System Pharmacists. This class will provide to the student information necessary for preparation of the Technician Certification Exam in prescription processing. Must earn a grade of "C" or better to proceed in the Pharmacy Technician program. 5C/4/1/0

#### **PHAR 1720 Foundations of Pharmaceutical Calculations**

This course will introduce the student to foundational mathematical calculations utilized in pharmacy practice. This course will teach mathematical calculation and problem solving for production of pharmaceutical products. Must earn a grade of "C" or better to proceed in the Pharmacy Technician program. (Prerequisite(s): MATH 0745 or appropriate assessment score) 4C/4/0/0

#### **PHAR 1730 Principles of Pharmacy**

This course offers a didactic review of prescription processing with laboratory application. Students will receive skill development and problem solving in non-sterile product preparation. (Prerequisite(s): PHAR 1720 with a grade of "C" or better) 5C/3/2/0

#### **PHAR 1735 Pharmacy Medication Technology**

The student will use technologies within the scope of pharmacy practice. (Prerequisite(s): PHAR 1715 with a grade of "C" or better) 1C/1/0/0

#### **PHAR 1740 Success Skills for the Pharmacy Technician 2**

This course reinforces the skills required for gaining proficiency in performing intermediate pharmacy technician knowledge and skills. It is designed to allow completion of skill activities and enhance attainment of skills in PHAR 1730, PHAR 1735, and PHAR 2710 (second semester pharmacy technician courses). Students will be given the opportunity to perform a variety of pharmacy skills with direct instructor supervision. This course is an elective course and is recommended for students who benefit from direct instructor supervision to reinforce the online learning throughout the second semester of the pharmacy technician program. (Prerequisite(s): PHAR 1710, PHAR 1715, PHAR 1720 with a grade of "C" or better) (Co-requisite(s): PHAR 1730, PHAR 1735) 2C/2/0/0

#### **PHAR 1750 Pharmacy Externship 1 - Retail**

Students will receive pharmacy practice experience to refine skills necessary for employment as a pharmacy technician in a retail setting. (Prerequisite(s): PHAR 1710, PHAR 1715, and PHAR 1720 with a grade of "C" or better) 3C/0/0/3

#### **PHAR 1800 Pharmacy Technician Certification Exam Preparation**

This course prepares students to take the Pharmacy Technician Certification Exam through the Pharmacy Technician Certification

Exam Board (PTCB). This course includes instruction on all content areas of the exam, as well as test taking skills. Students take a practice certification exam at the end of the course. This is an elective course, but is highly recommended for students enrolled in the pharmacy technician program and is open to those outside the pharmacy technician program as well who meet the requirements for PTCB certification. 1C/1/0/0

### **PHAR 2710 Fundamentals of Pharmacy Technology 2**

This course will provide students with knowledge related to systems, regulations and applications of pharmacy practice in institutional settings. (Prerequisite(s): PHAR 1715 with a grade of “C” or better) 5C/4/1/0

### **PHAR 2700 Success Skills for the Pharmacy Technician 3**

This course reinforces the skills required for gaining proficiency in performing advanced pharmacy technician skills. It is designed to allow completion of skill activities and enhancement of skills in PHAR 2720 and PHAR 2740. Students will be given the opportunity to perform a variety of pharmacy skills with direct instructor supervision. This course is an elective course and is recommended for students who benefit from direct instructor supervision to reinforce the online learning throughout the third semester of the pharmacy technician program. (Prerequisite(s): PHAR 1730, PHAR 1735, PHAR 2710 with a grade of “C” or better) (Co-requisites: PHAR 2720, PHAR 2750) 1C/1/0/0

### **PHAR 2720 Pharmacy Sterile Products Lab**

This class will provide the student with the knowledge and skills to prepare, calculate, or produce sterile products for pharmaceutical use. (Prerequisite(s): PHAR 2710 with a grade of “C” or better) 5C/4/1/0

### **PHAR 2740 Pharmacotherapy of Disease Processes**

The basic concepts of diseases and the mechanisms of disease will be presented. It will include the general physiologic principles for the following systems: nervous, endocrine, skeletal, muscular, cardiovascular, respiratory, gastrointestinal, renal, reproductive, skin, hematologic. The course will discuss immune disorders and immune system responses along with infectious diseases and effects of nutrition and heredity on disease. (Prerequisite(s): PHAR 1715 with a grade of “C” or better) 4C/4/0/0

### **PHAR 2750 Pharmacy Externship 2 - Advanced**

Experience in advanced setting to refine skills learned in previous pharmacy technician coursework. (Prerequisite(s): PHAR 1750 and PHAR 2710 with a grade of “C” or better) 4C/0/0/4

## **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 will include areas such as the nature of human knowledge, perception and illusion, the nature of consciousness, personal identity, minds, brains and machines, freedom and determinism, philosophy of religion, and the meaning of life. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

### **PHIL 1710 Logic**

Logic is the study of arguments. This course uses the tools of symbolic logic to explore logical concepts such as logical truth, consistency, equivalence, and validity. It introduces an artificial, symbolic language that can be used to test the logical properties of statements and arguments. These analytical skills support work in a range of activities that require clear, careful, step-by-step thinking, although this cores falls within the goal of mathematics, it may not apply to certain technical programs or meet certain transfer requirements for

mathematics. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 4) 3C/3/0/0

### **PHIL 1715 Philosophy of Scientific Reasoning**

This course explores philosophical questions about the nature of science and scientific reasoning and helps students build skill at using and evaluating scientific reasoning. For instance, the course will address questions such as: What is the nature of science? Is science compatible with religion? How does science work? Are there limits to the knowledge science can give us? What is the difference between science and pseudoscience? How can we do a good job of understanding and evaluating scientific reasoning, especially when it is reported in the popular media? The course will explore these questions using historical and contemporary case studies about a variety of subjects, including evolution, astronomy and astrology, and theories and ideas in the social sciences, physics, and biology. The goal of the course will be to use these case studies to explore philosophical questions about the nature of scientific reasoning and to develop their own ability to understand and evaluate scientific reasoning in their lives and career fields. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goal 6) 3C/3/0/0

### **PHIL 1720 Ethics**

This course equips students with philosophical skills and theoretical frameworks useful for fostering productive reflection about ethical controversies. Topics could include the nature and ground of moral judgments, views about what constitutes a good life, theories of right or wrong conduct, and particular moral issues such as animal welfare, civil disobedience, the morality of truth-telling and promising extreme poverty, racism and sexism, gun control, and genetic manipulation. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (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 cultural differences regarding medical practices, contemporary moral decision-making on topics such as disclosure, confidentiality, human cloning, medical research, abortion, transplantation and organ markets, allocation of limited resources, conscientious objection, research on human subjects, and euthanasia. The course is open to all students interested in health care ethics. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC Goals: 6 & 9) 3C/3/0/0

### **PHIL 1724 Environmental Ethics**

This course will focus on helping students develop the ability to understand, analyze, and evaluate moral arguments about the value of nature and our obligations to the natural world and the human and non-human creatures that inhabit it. Topics will include global warming, pollution, animal welfare, anthropocentric and non-anthropocentric views of the value and role of nature, ecofeminism, the moral status of cultural and religious practices that affect the environment, energy and resource policy, conservation and the land ethic, and global and intergenerational justice. The course will include an introduction to basic skills and concepts in ethical theory and applied ethics. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of “C” or better, or appropriate assessment score) (MnTC: Goals 6 & 10) 3C/3/0/0

### **PHIL 1742 Greek and Roman Mythology**

This survey course introduces students to Greek and Roman myths: stories about gods, heroes and heroines, monsters, the workings of the universe, and how human beings fit in. Myths address various important questions people have, such as “why are human beings on the earth?” “what is the best way to live a life?” and “why is there death?” We will look at how people have attempted to answer and

make sense of these questions, as well as consider how these stories are a product of a particular culture and why they were so important to the people that produced them. We will also look at how they have continued to influence culture into the present time. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 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 Dhammapada. 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 discussion format supplemented by instructor lectures. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

#### **PHIL 1760 World Religions**

This course is an introduction to the world religions of Hinduism, Buddhism, Judaism, Christianity and Islam. Attention may also be given to indigenous religions and new religious movements. The course will focus on the main practices and beliefs, scriptures, formative periods and historical development of these religions. It will also include ways fundamental religious questions are answered and a critique of religion from a secular perspective. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

#### **PHIL 1770 Feminist Philosophy**

Feminist philosophers seek to understand and critique practices and institutions that oppress and subordinate women. They explore questions like: what is the nature of gender oppression, and how is it related to other types of oppression, such as racial oppression? What makes someone a woman or man? Is there a difference between a person's sex and their gender? Are women "naturally" different from men, and would it matter if they were? Is there a male bias in science and ethics? Can a pluralistic society like ours fight women's oppression while also recognizing the rights of cultures to maintain their distinctive practices? In this class, students will work to understand and evaluate prominent feminist answers to these questions, with an emphasis on helping students develop their own well-reasoned views on feminist issues and apply those views to their own lives. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 7) 3C/3/0/0

#### **PHIL 1790 Special Topics in Philosophy**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6) Variable credits 1-6

## **Phlebotomy**

#### **PHLB 1405 Phlebotomy**

This course provides instruction in blood specimen collection skills and procedures. The course addresses safety, legal issues, customer service, professionalism, equipment, venipuncture, skin puncture procedures, and specimen transport/processing. Emphasis is placed on attaining competency in safe blood specimen collection and effective sample processing/handling to preserve specimen integrity as well as on demonstration of effective communication and professional skills to

function in a health care setting. (Prerequisite(s): HLTH 1410, BIOL 1730, PHIL 1722, COMM 1710 or COMM 1720, HLTH 1430 or HLTH 1432 or concurrent enrollment) 4C/2/2/0

#### **PHLB 1410 Phlebotomy Clinical Experience**

This course provides concentrated practice and phlebotomy skill development in a health care setting (affiliate) where information learned in PHLB 1405 can be applied. Students work under the guidance and supervision of clinical staff at the assigned affiliate. Demonstration of a minimum of 100 successful blood collection procedures is required. The specific class times will vary according to the assigned site. (Prerequisite(s): PHLB 1405) 2C/0/0/2

## **Physics**

#### **PHYS 1720 Principles of Physics 1**

This course introduces students to fundamental principles of physics and their application to familiar phenomena. Topics include motion, fluids, heat, work, forces, gravity, waves and sound, and energy. The topics will be related to modern technology and everyday phenomena. The course is intended for students who have not had a high school physics course. Class includes lecture and lab. (Prerequisite(s): MATH 1730 with a grade of "C" or better) (MnTC: Goal 3) 4C/3/1/0

#### **PHYS 1722 Principles of Physics 2**

This course is a continuation of PHYS 1720 Principles of Physics 1. It covers electricity and magnetism, light and optics, simple circuits, topics in modern physics and applications and technology. Class includes lecture and lab. (Prerequisite: PHYS 1720 Principles of Physics 1) (MnTC: Goal 3) 4C/3/1/0

#### **PHYS 1760 Descriptive Astronomy (no lab)**

This course introduces students to astronomy. It includes the observation of the planets and stars weather permitting. The course will include topics such as life and death of stars, dark matter, formation of a solar system, the Big Bang Theory and more. Course includes lab-like learning activities. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 3 & 10) 3C/3/0/0

#### **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 Fluid Dynamics. Designed to fulfill physics requirements for students in liberal arts and sciences, engineering, and other related science fields. Class includes lecture and lab. High School Physics is recommended. (Prerequisite(s): MATH 2749 Calculus 1 with a grade of "C" or better) (MnTC: Goal 3) 5C/4/1/0

#### **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. Designed to fulfill physics requirements for students in liberal arts and sciences, engineering, and other related science fields. Class includes lecture and lab. (Prerequisite(s): PHYS 2700 General Physics 1 with a grade of "C" or better) (MnTC: Goal 3) 5C/4/1/0

#### **PHYS 2760 Introductory Astronomy (with lab)**

This course is designed for the non-science student who wants to know more about astronomy. We'll be studying the motion of the night sky, the planets and what shapes them, how stars are made and what happens when stars die all the way out to the edges of the known universe. Topics of note will include Planetary Formation, Extra Solar Planet Search, Dark Matter, Dark Energy, the Expanding Universe, and many more fun topics! This course includes a laboratory component with hands on activities to help build understanding. (Prerequisite(s): MATH 0745 with a grade of "C" or better or appropriate assessment score) (MnTC: Goals 3 & 10) 4C/3/1/0

#### **PHYS 2790 Special Topics in Physics**



This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 3) Variable credits 1-6

## 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Must be enrolled in Pipefitting pre-apprenticeship program) 5C/2/3/0

### 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. Must earn a grade of "C" or better in this course to proceed. (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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): PIPE 1451 and must be enrolled in Pipefitting pre-apprenticeship program) 4C/0/4/0

### PIPE 1540 Electric Controls

Fundamentals of electricity and electrical circuits are covered. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): PIPE 1451 and 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): PIPE 1451 and must be enrolled in Pipefitting pre-apprenticeship program) 3C/2/1/0

### PIPE 1555 Basic Electricity

Introductory course in basic electrical theory and electrical circuits. Electrical safety, terminology and circuit layout. Proper operation and care for multi meters. 2C/1/1/0

### PIPE 1560 Basic Refrigeration

Fundamental concepts of refrigeration are presented, Fundamental practices of repairing and maintaining refrigeration systems. 4C/1/3/0

### PIPE 1565 Heating and Cooling 1

Introductory course on low pressure steam. Areas include boiler, piping and heat transfer units. Fundamental concepts of heating and air conditioning are presented. Heat transfer theory and accessories. 4C/1/3/0

### PIPE 1570 Heating and Cooling 2

This course is a basic study of hydronic heating and cooling systems. Areas include systems, piping layout and figuring heat loss and cooling load. 4C/1/3/0

### PIPE 1575 Pipe Blueprint Reading

Study of basic drafting principles as they relate to piping drawing and blueprints. 2C/0/2/0

### PIPE 1580 Pipe Welding 1

Introductory course for OxyAcetylene torch setup safety and operation. Shielded Metal Arc Welding setup and operation concentrating on Fillet Welding. 3C/0/3/0

### PIPE 1585 Pipe Welding 2

This course covers the requirements for SMAW on open root joints. OxyFuel torch cutting and beveling of piping. Arc welding on both plate and pipe. 2C/0/2/0

### PIPE 2605 Pipefitting 1

Basic knowledge necessary to the beginning of a pipefitting career. 2C/0/2/0

### PIPE 2606 Pipefitting 2

This course is designed to fill out an experienced pipefitter's resume based on knowledge and acquiring certification levels. 2C/0/2/0

### PIPE 2614 Boiler Systems

This course is intended to provide the apprentice a strong foundation in stationary steam engineering, separate or combined low and high pressure and liquid systems. 2C/1/1/0

### PIPE 2615 Pipe Layout and Installation 1

Care and use of tools and equipment used by the pipefitter. Study the pipe math necessary for pipe installation. Different types of pipe, pipe fittings, hangers and supports. Skills needed to install steel threaded pipe with both straight and offset runs. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### PIPE 2616 Pipe Layout and Installation 2

Advanced pipe layout math skills. Skills needed to run copper, PVC, CPVC. This will include soldering, bending, and flaring copper. Threading, gluing, and fusing of plastic pipe. Students will have the opportunity to receive a Certification in Fusion Installation. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### PIPE 2623 Apprenticeship Refrigeration & Air Conditioning

This course covers applied refrigeration and air conditioning for first year pipe trade apprentices. The course focuses on the understanding of refrigeration theory and its application as it relates to the installation, operation, maintenance, troubleshooting, and repair of residential, commercial, industrial, and institutional refrigeration and air conditioning systems. A strong emphasis is placed on electrical theory, electrical application, electrical code, and electrical safety, as it applies to both low and high voltage circuits of air conditioning and refrigeration equipment. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### PIPE 2626 Basic Service Applications

This course is intended to provide a fundamental understanding of the various mechanical equipment and controls associated with heating and air conditioning equipment. Basic schematics, fundamentals of electricity and in-field troubleshooting techniques will also be covered. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### PIPE 2627 Basic Electricity

This course is intended to provide the apprentice a basic understanding of electricity. This course will combine both text and practical hands-on work. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

### PIPE 2628 Commercial Pneumatics

This course is on learning control of modern air conditioning, ventilation, and heating equipment. Part of the course will be on design, service, and basic understanding of various air handling systems. Another part will be hands on pneumatic and electric controls. (Prerequisite(s): Must be enrolled in the Pipefitters apprenticeship program) 2C/0/2/0

### PIPE 2631 Instrumentation

This course provides an understanding of instrumentation, controls and pneumatics for industrial, manufacturing and process plants. 2C/0/2/0

**PIPE 2632 Commercial Refrigeration**

This course encompasses electrical wiring diagrams electronic control theory and circuits related to the components used in the installation and repair of Refrigeration systems. Refrigeration mechanical components and related equipment and tools used for installation and repair. (Prerequisite(s): Must be enrolled in the Pipefitting pre-apprentice program) 2C/0/2/0

**PIPE 2636 Electrical Controls and Diagrams**

This is an in-depth study of electrical controls and motors as there applied to heating, ventilation, air-conditioning, and refrigeration. Here you will gain a foundation, designed to prepare you for the real world of service in the HVAC industry. The focus in this course is on electrical controls, motors and their control. With a large emphasis of your time will be making diagrams and preparation for shop projects. Prepare you for the challenges you will face servicing HVACR equipment. The project design is to develop the skills needed to work safely and efficiently in this trade. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2638 Computer Controls**

This course is designed to assist students in understanding computer concepts including the functions of the Internet and the Web. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2641 Foreman Leadership**

This course will cover both the METAL and the MENTAL aspect of the role of Foreman/Supervisor, as well as how to deal with both employers (management) needs and wants, and following the rules of labor unions, OSHA, demanding General Contractors and others. (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. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2643 Test and Balance of Systems**

This course covers the necessary steps for pipe trades apprentices and journeymen to start up, test, and balance heating, ventilation, and air conditioning systems. Students shall learn to test and balance systems by instruction and hands-on experience in measuring quantities such as pressures, temperature, the rates at which air and water are flowing, and electrical current and voltage. These measurements are then compared with corresponding quantities called for by the design specifications, and any necessary regulating is done to make actual measurements meet required values. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2644 Power Burners and Controls**

This is a course on gas and oil power burners and related control systems. The course will include flame safety controls and boiler controls. Also included will be different boiler and burner types and designs. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2645 Direct Digital Controls**

This course is focused on computer based electronic control systems that control a wide variety of heating, ventilating, air conditioning, refrigeration (HVACR) and other equipment installed in buildings which regulate environmental systems. (Prerequisite(s): Must be enrolled in the Pipefitter apprenticeship program) 2C/0/2/0

**PIPE 2651 Refrigeration Code**

This course is designed to prepare students for the City of Saint Paul Competency Card in refrigeration code. (Prerequisite(s): Must be enrolled in the Pipefitting pre-apprentice program) 1C/0/1/0

**PIPE 2652 Oil Code**

This course covers the installation and repair of fuel oil burning equipment, storage tanks and piping systems. Codes governing the installation and start up and service of this equipment will be covered. The emphasis in this course will be to apply knowledge learned in this class to the safe and proper installation and service of equipment and to obtain a certificate of competency for this work. (Prerequisite(s): Graduate of Pipefitting day school program or pipefitting work experience) 1C/0/1/0

**PIPE 2653 Gas Code**

This course covers the installation and repair of gas burning equipment and piping systems. Codes governing the installation and start up and service of this equipment will be covered. (Prerequisite(s): Graduate of Pipefitting day school program or pipefitting work experience) 1C/0/1/0

**PIPE 2654 Hot Water Code**

This course is intended to provide the student with information on the proper and safe piping of hot water. (Prerequisite(s): Graduate of Pipefitting day school program or pipefitting work experience) 1C/0/1/0

**PIPE 2655 Ammonia Code**

The purpose of this course is for registered Pipefitter Apprentices to learn and understand the Minnesota Department of Labor and Industry, High Pressure Piping and Code for Power Piping Systems. Registered apprentices shall also be instructed in the current proper piping practices for the installation of steam, hot water, oil, and ammonia refrigeration systems. 2C/0/2/0

**PIPE 2656 High Pressure Steam Code**

The purpose of this course is for registered pipefitter apprentices to learn and understand the Minnesota Department of Labor and Industry, High Pressure Piping and Code for Power Piping Systems. Registered apprentices shall also be instructed in the current proper piping practices for the installation of high steam pressure steam systems. 2C/0/2/0

**PIPE 2657 Advanced Boiler Systems**

Review of Hydronics heating and cooling systems. Introduction to boiler types, such as fire tube, water tube, condensing, and non condensing boilers. Students will understand hot water, low pressure steam, and high pressure steam boilers. Learning how to size pipe to attain delivery of desired BTU's to equipment. Discussion and understanding of the different burner fuel systems, as in natural gas, oil, propane, and electric. Students will understand burner ignition, and flame safety. Thorough coverage of pumps for HVAC systems, covering different types, i.e. positive displacement, and non positive displacement, pump installation, alignment, and repair. Pumping system calculations on pumping head & GPMs and pump curve analysis. 2C/0/2/0

**PIPE 2658 OSHA 30/Pro 10/ Heritage/Standard**

This course covers Industry safety practices professionalism, communication and mutual respect. Also covered is United Association History: how the United Association became an organization of trade workers, the importance of the collective bargaining agreement, and work site performance. 2C/0/2/0

**PIPE 2659 Commercial Building Systems**

Covers industry safety standards, ASHRAE standards, HVAC-R Star Certification program curriculum. 2C/0/2/0

**PIPE 2660 Industrial Rigging**

Knowledge required to properly rig and lift piping and equipment associated with the installation of piping systems. 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**

This course provides knowledge of jobsite hazards and work safety. (Prerequisite(s): Must be accepted into the Plumbing apprentice program) 2C/0/2/0

### **PLMB 2614 Applied Math for Plumbing**

This course covers basic mathematics and practical application 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 of joining pipe in the plumbing industry. (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 & Gas Controls**

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) 4C/0/4/0

### **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

## Political Science

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### **POLS 1720 Introduction to American Government**

This course provides an overview of the American political system. The course 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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 international politics. This course will focus on the causes of war, the global economy, human rights, and humanitarian intervention. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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 provides an introduction to political science with an emphasis on democracy, ideologies and current issues. We will explore how ideological differences lead to disagreements on a variety of global and domestic issues. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

### **POLS 1760 Introduction to Political Philosophy**

This course provides an introduction to enduring themes and questions in the history of political philosophy. We will study a selection of both historical and contemporary thinkers as a way to investigate the social, moral and political foundations of modern society. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

### **POLS 1790 Special Topics in Political Science**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (MnTC: Goals 5 & 9) Variable credits 1-6

## Practical Nursing

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### **PRNS 1425 Essentials of Clinical Pharmacology**

This course introduces the concepts of pharmaceuticals and dosage math. Included is information on pharmacokinetics, pharmacodynamics, common adverse side effects, and contraindications to drug use. Emphasis is placed on drug classifications and safe administration of medications to patients across the life span. Dosage math includes information on the systems of measurement, conversions, solving for x, ratio and proportions, pediatric formulas, and IV drip rate problems. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): HLTH 1310, HLTH 1410, BIOL 1730, ENGL 1711, and PSYC 1720 with a grade of "C" or better. Must be accepted as a Practical Nursing major.) 2C/2/0/0

### **PRNS 1436 Foundations of Nursing**

Students in Foundations of Nursing are introduced to basic theory and nursing skills required to care for patients of both genders throughout the lifespan, with particular emphasis on the geriatric patient. Students

are given the opportunity to demonstrate these skills in the laboratory setting. An introduction to the nursing process provides the student with a beginning framework for decision making. The concepts of teamwork, collaboration, safety, quality improvement, professional identity/behavior, patient-centered care, evidence based practice, and care management are introduced. (Prerequisite(s): HLTH 1310, HLTH 1410, BIOL 1730, ENGL 1711, and PSYC 1720 with a grade of "C" or better. Must be accepted as a Practical Nursing major.) 4C/2/2/0

#### **PRNS 1481 Clinical 1**

This course provides students the opportunity to work with health care personnel, apply learned basic skills, the nursing process, and critical thinking in caring for assigned patients. Students will follow plans of care, deliver safe and competent cares to patients of both genders, and complete written clinical assignments applying to theory learned in Level I. Students will demonstrate competency within the Practical Nurse scope of practice under the direction of a nursing instructor. Must earn a grade of "C" or better in this course to proceed.

(Prerequisite(s): HLTH 1310, HLTH 1410, BIOL 1730, ENGL 1711, PSYC 1720 with a grade of "C" or better. Must be accepted as a Practical Nursing major.) 3C/0/3/0

#### **PRNS 1482 Clinical 2**

In this clinical course, the Practical Nursing students will maintain a safe and effective care environment while taking care of selected patients throughout the life span. Students will implement cares and skills learned in prior Practical Nursing theory and lab courses while functioning within the roles and limitations of the LPN scope of practice. Students will use patient centered cares in collaboration with teamwork to meet the basic needs of assigned patients. Students will maintain professional identity by demonstrating dependability and accountability. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Grade of "C" or better in PRNS 1425, PRNS 1435, PRNS 1481, PRNS 1521 and PRNS 2411) 3C/0/3/0

#### **PRNS 1483 Clinical 3**

In this clinical course, the Practical Nursing students will care for selected patients in specialty areas (med/surg, psychosocial nursing, pediatrics and obstetrics) to afford them a well-rounded experience. Students will implement patient centered cares learned in prior theory and lab courses. Students will continue to use LPN scope of practice as a guide to implement a safe and effective care environment, and medication administration will be safe. Students will demonstrate professional identity by being dependable and accountable for actions. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Grade of "C" or better in PRNS 1484 and PRNS 1531) 3C/0/3/0

#### **PRNS 1484 Clinical 2**

In this clinical course, the Practical Nursing students will maintain a safe and effective care environment while taking care of selected patients throughout the life span. Students will implement cares and skills learned in prior Practical Nursing theory and lab courses while functioning within the roles and limitations of the LPN scope of practice. Students will use patient centered cares in collaboration with teamwork to meet the basic needs of assigned patients. Students will maintain professional identity by demonstrating dependability and accountability. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): PRNS 1425, PRNS 1436, PRNS 1481, PRNS 1521, and PRNS 2410 with a grade of "C" or better) 2C/0/2/0

#### **PRNS 1521 Medical Surgical Nursing 1**

This theory course is a detailed study of pathophysiology of adult patients. Students use their knowledge of normal physiology. Sensory, neurological, musculoskeletal, integumentary, hematologic, lymphatic, immune and infectious disease disorders are studied. Course topics also include fluid/electrolyte imbalance, pain management, pre- and post-operative care, oncology and gerontology. Students apply knowledge based on patient-centered care within the practical nurse scope of practice in preparation to provide safe, quality care. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): HLTH 1310, HLTH 1410, BIOL 1730, ENGL 1711, and PSYC 1720 with a

grade of "C" or better. Must be accepted as a Practical Nursing major.) 4C/4/0/0

#### **PRNS 1524 Medical Surgical Nursing 2**

This theory course continues the study of pathophysiology of adult patients. Genitourinary/reproductive, cardiovascular, gastrointestinal, respiratory and endocrine system disorders are studied. Students at this level continue utilizing critical thinking to apply information to situations in a safe and effective care environment. Principles of inter-professional teams and shared decision-making are studied and discussed in preparation for clinical experiences. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): PRNS 1425, PRNS 1436, PRNS 1481, PRNS 1521, and PRNS 2410 with a grade of "C" or better. Must be accepted as a Practical Nursing major.) 3C/3/0/0

#### **PRNS 1531 Maternal Child Health**

This course is designed to build on the student's understanding of child growth and development and the basic health needs of the mother, the newborn infant, and the family during pregnancy, labor, delivery, and post-partum period. It provides an overview of the LPN scope of practice when caring for the obstetric and pediatric patient. Patient centered care is emphasized while discussing common pediatric disorders, recommended plans of care, and the concepts of prevention and treatment. Concepts of teamwork and collaboration are integrated throughout the course along with a specific group project each student must complete and present. Upon completion of this course, students will be able to describe safe and effective care utilizing the nursing process for the obstetric and pediatric patient. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Grade of "C" or better in prerequisite courses. PRNS 1425, PRNS 1436, PRNS 1481, PRNS 1521, PRNS 2410.) 2C/2/0/0

#### **PRNS 2410 Psycho/Social Nursing**

This course is designed to build on the student's understanding of human behavior and provides an overview of the LPN scope of practice when caring for patients with alterations in mental health. Patient-centered care is emphasized while exploring common mental health disorders such as depression, anxiety, schizophrenia, bipolar disorder, eating disorders, and cognitive disorders. Concepts of teamwork and collaboration are integrated throughout the course. The basic components of evidence-based practice are introduced. Upon completion of this course, students will be able to describe safe and effective patient care to maintain psychosocial integrity by using the nursing process. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Grade of "C" or better in, HLTH 1410, BIOL 1730, ENGL 1711, and PSYC 1720. Must be accepted as a Practical Nursing major.) 2C/2/0/0

#### **PRNS 2492 Transition to Practice**

In this course additional topics and skills are taught that relate to the professional scope of practice for the graduate practical nurse, demonstrating the progression from education to practice. Students will work in a clinical setting applying the knowledge, skills, attitude and the practice of safe effective care expected of the Practical Nursing graduate. They have progressed from a novice level to an accomplished level in the areas of communication, teamwork, problem-solving and the practice of safe effective care. In depth NCLEX-PN preparation is also emphasized in this course. Must earn a grade of "C" or better in this course to complete the program. (Prerequisite(s): Grade of "C" or better in all Nursing Program course requirements (PRNS 1425, PRNS 1436, PRNS 1481, PRNS 1484, PRNS 1483, PRNS 1521, PRNS 1524, PRNS 1531, and PRNS 2410) (All prerequisites must have a minimum grade of 2.0 GPA equivalent). 3C/2/1/0

## **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 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) 4C/4/0/0

#### **PSYC 1720 Lifespan Development**

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 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 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 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 3C/3/0/0

#### **PSYC 1780 Psychology of Death and Dying**

Death is a topic that is often avoided, yet it is a universal part of the human experience. In this course, students will examine historical and sociocultural forces that influence our understanding of death and dying and explore topics such as coping with dying, end-of-life decision-making, grief and mourning, funeral customs, understanding death across the lifespan, and legal and ethical issues related to death and dying. Students will also explore their own attitudes and reactions to death and dying. Through gaining a deeper understanding of dying and death, we can reduce our fear and be more empowered when facing these inevitable events. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

#### **PSYC 1790 Special Topics in Psychology**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 5) Variable credits 1-6

#### **PSYC 2240 Statistics for Psychology/Behavioral Sciences**

Students use basic mathematical and computerized procedures to analyze data in the behavioral sciences. Statistical software is used to conduct descriptive and inferential data analyses. Students choose and apply statistical procedures to help answer psychological and behavioral scientific research questions. Students read, interpret, and write APA-style results sections for behavioral science research. (Prerequisite(s): PSYC 1710 and MATH 1740 with a grade of "C" or better, or MATH 1730 with a grade of "C" or better, or a higher MATH course with a grade of "C" or better) (MnTC Goals: 5) 4C/4/0/0

#### **PSYC 2720 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. (Prerequisite(s): PSYC 1710 or SOCI 1710 with a grade of "C" or better) (MnTC: Goal 5 & 7) 4C/4/0/0

## Public Health

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#### **PUBH 1700 Personal and Community Health**

This course is designed to look at health from a personal, community, and populations perspective. Students will explore the many dimensions of health practices, behaviors, and concerns by covering topics such as, mental/emotional health, dietary practices, physical fitness, disease prevention and management guidelines, and health promotion. 3C/3/0/0

#### **PUBH 1710 Consumer Health**

Students will explore the selection, evaluation, and understanding of health information, medical services, advertising of products, health quackery, and socio-cultural factors revolving around consumer health. Students will learn basic knowledge and skills to navigate through consumer health issues, services, and products. 3C/3/0/0

#### **PUBH 1790 Special Topics in Public Health**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. Variable credits 1-6

#### **PUBH 2700 Public Health Overview**

A foundation course that introduces students to the concept, history and practice of public health. The course examines the environmental, social, political and behavioral determinants of health and disease from a population perspective. It also looks at options for intervening to maintain the public's health through the use of the health care, public health, environmental health, and safety systems as well as laws and taxation. 3C/3/0/0

#### **PUBH 2710 Public Health Education**

This is a foundations course in health education and promotion for health educators. Students will learn the theories and models of health education, promotion, behavior change, and health promotion within government, worksites, public health agencies, and community organizations. Students will also explore determinants of disease, health, prevention, and interventions. 3C/3/0/0

#### **PUBH 2720 Global Health**

This course introduces key principles and concepts of global health. Students will examine how culture, human rights, economics, policies, and health care systems contribute to the global burden of disease and health promotion. In addition to traditional methods of assessment, this course will emphasize oral presentations. 3C/3/0/0

#### **PUBH 2730 Public Health Administration**

This is a foundational course in health policy and management related to the delivery, quality, and cost of healthcare for individuals and populations. Students will explore local health professional training requirements, health insurance systems, the organization and management within public health settings and how they are influenced by politics. 3C/3/0/0

#### **PUBH 2740 Environmental Health**

This course is an introduction to the identification and analysis of environmental influences on health. Students will explore major environmental threats to health found in the house, air, water, solid waste, toxic waste, sanitation, and land use, as well as laws, policies, and practices associated with their control in the US and around the world. 3C/3/0/0

### **PUBH 2750 Public Health Advocacy & Leadership in Action**

Take your public health education knowledge to the next level. In this course, students will develop an understanding of advocacy and their personal leadership style within public health promotion and education. Students will be prepared to participate within in a community organization addressing a health issue important to them. Students will focus on the ways in which advocacy and leadership are connected to the assessment, planning, and implementation of health education and promotion programs. (Prerequisite(s): PUBH 2710) 3C/3/0/0

### **PUBH 2770 Public Health Practicum**

This course is designed to provide public health students with 80 hours of worksite experience in the community. Students will apply public health knowledge gained throughout the program under the supervision of a public health professional. Students will have a shared responsibility in choosing the worksite, participating in appropriate worksite tasks, and reporting on their experience. (Prerequisite(s): Instructor approval) 2C/0/0/2

## **Reading**

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### **READ 0721 Reading 1**

This course provides instruction in developing an active reading approach to college-level texts, emphasizing the close relationship between reading and thinking. The content includes strategic vocabulary building, paraphrasing, responding to texts, increasing reading stamina, and improving comprehension. (Prerequisite(s): Placement into this course will be according to college assessment score.) 3C/3/0/0

### **READ 0722 Reading 2**

This course provides instruction in developing an active and critical reading approach to college-level texts, emphasizing analysis and synthesis of multiple sources. The content includes academic vocabulary building, summarizing, interpreting text, developing research skills, increasing reading stamina, and improving comprehension. (Placement into this course will be according to assessment score or successful completion of READ 0721 or EAPP 0860 with a grade of "C" or better.) 3C/3/0/0

### **READ 0724 Fast Track Reading**

This course fulfills the developmental reading requirements for the college-level courses in one semester. This accelerated course provides instruction in developing an active and critical reading approach to college-level texts, emphasizing the relationship between reading and thinking, as well as analysis and synthesis of multiple sources. Content includes strategic and academic vocabulary building, paraphrasing and summarizing, responding to and interpreting texts, developing research skills, increasing reading stamina, and improving comprehension. (Placement into this course will be according to college assessment score.) 5C/5/0/0

### **READ 0725 Vocabulary Development**

This course is designed to develop academic vocabulary by using a variety of strategies, including determining meaning from context and gaining knowledge of Latin/Greek roots and word parts. A variety of methods to increase reading, writing, and speaking vocabularies are utilized, and students establish systematic vocabulary study that can be used for lifelong development. 1C/1/0/0

### **READ 1350 Critical Reading and Thinking**

This course is designed to improve critical reading and thinking skills necessary for academic study. Students will read, analyze, and synthesize college level texts with the goal of expanding effectiveness and confidence in academic reading. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) 2C/2/0/0

### **READ 1450 Enhancing Vocabulary for College Success**

This course focuses on expanding and enhancing college-level and discipline specific vocabulary relevant to major study. Systematic

vocabulary study and major-related research are utilized, as well as word building strategies such as knowledge of Latin/Greek roots and word parts. The course includes multimodal practice of learned vocabulary - students will incorporate new words into a variety of assignments and contexts, both orally and in writing. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) 1C/1/0/0

### **READ 1490 Special Topics in Reading**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. Variable credits 1-6

## **Respiratory Therapist**

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### **RESP 1411 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, physics, and an introduction to the equipment used in basic respiratory care. An introduction to the sim lab and patient's medical record will be provided. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Acceptance into the program major. Must be taken concurrently with RESP 1412) 2C/1/1/0

### **RESP 1412 Respiratory Care Essentials Lab**

This introductory lab course provides a hands on experience with basic oxygen devices and equipment used in the practice of Respiratory Care. This will take place in the lab and simulation center. Vital signs, oxygen and pulse oximetry competencies will be done. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): Must be taken concurrently with RESP 1411) 1C/0/1/0

### **RESP 1510 Cardiopulmonary Pathophysiology 1**

This course is an introduction to the assessment and pathophysiology of the patient with cardiopulmonary 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): CHEM 1711, HLTH 1410, BIOL 1730, RESP 1411 and 1412) 3C/1/2/0

### **RESP 1521 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, and adverse reactions associated with each therapeutic procedure are covered. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): CHEM 1711, RESP 1411 and 1412, BIOL 1730; Co-Requisite(s): RESP 1522, RESP 1540) 4C/3/1/0

### **RESP 1523 Respiratory Care Therapeutics Lab**

This course provides demonstrations and hands on practice in the use of equipment and procedures required for basic Respiratory Care Therapeutics. This will take place in a supervised lab and SIM lab. Modalities included are High Flow, Small Volume Nebulizer, Hyperinflation Therapy, Bronchial Hygiene Therapy and Airway Management. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1412; Co-requisites RESP 1521) 2C/0/2/0

### **RESP 1540 Respiratory Care Pharmacology**

This course includes a study of pharmacological agents used in cardiopulmonary care. This would include the principles of pharmacological therapy, drug dosages, and the safe and effective administration of these agents. Must earn a grade of "C" or better in this course to proceed in the Respiratory Care Program. (Prerequisite(s): CHEM 1711, HLTH 1410 & BIOL 1730; Co-Requisite(s): RESP 1411 and 1412) 2C/2/0/0

**RESP 1580 Introduction to Clinical**

This course will introduce the student to the electronic medical record and requirements to start clinical's the following semester. (Prerequisite(s): Entry to the Program; Co-requisite(s): RESP 1411, RESP 1412, and RESP 1540 1C/0/0/1

**RESP 1581 Respiratory Care Clinical 1**

Students will have direct patient contact and provide basic patient care procedures as directed by the clinic instructor. Emphasis is on data collection, application of oxygen, aerosol and humidification devices. Students will collect vital signs and practice physical assessment techniques. Students will record pertinent information in patient's computerized chart. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1411,1412, and RESP 1580) 3C/0/0/3

**RESP 1582 Respiratory Care Clinical 2**

A continuation of clinical practice procedures for administration of routine patient care therapy. Student will build on previous clinical experience. Emphasis is on bedside patient assessment, High flow, SVN, MDI and CPAP. Must earn a grade of "C" or better in this course to proceed. In conjunction with clinical, a hybrid element includes case discussions, research data and clinical practice guidelines to enhance learning development. Specific hospital based policies and practice while identifying the AARC Clinical Practice Guidelines (Prerequisite(s): RESP 1581, RESP 2410) 3C/0/0/3

**RESP 1583 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. In conjunction with clinical, a hybrid element includes case discussions, research data and evidence based clinical practice guidelines to enhance learning development. Specific hospital based policies and practice while identifying the AARC Clinical Practice Guidelines. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1582) 6C/0/0/6

**RESP 1597 Respiratory Care Clinical 4**

A 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. Specialty rotations also are done this semester. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1593) 5C/0/0/5

**RESP 1599 Respiratory Care Clinical 5**

A continuation of clinical practice skills with emphasis on critical care time management at an Adult ICU of the students choosing. In conjunction with clinical, a hybrid element includes case discussions, research data and evidence based clinical practice guidelines to enhanced learning development. Students will also rotate through Pediatric ICU and Neonatal ICU. A sleep rotation in a sleep lab will also occur. Each clinical training during hospital rotations will be supported through student internship/specific hospital based regulations and practice while identifying the AARC Clinical Practice Guidelines. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1597) 4C/0/0/4

**RESP 2411 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 1510, RESP 1521, RESP 1522, RESP 1540, RESP 1591; Co-Requisite(s): RESP 1592) 3C/1/2/0

**RESP 2412 Mechanical Ventilation Lab**

This course provides hands-on practice in the clinical application and safety of mechanical ventilation. This will take place in a supervised lab. Must be taken concurrently with RESP 2411 Mechanical Ventilation. Must earn a grade of "C" or better in this course to proceed. 1C/0/1/0

**RESP 2420 Cardiopulmonary Pathophysiology 2**

This course continues the study of cardiopulmonary pathophysiology. Emphasis is placed on specific obstructive, restrictive and hemodynamic abnormalities. Must earn a grade of "C" or better in this course to proceed. (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. Must earn a grade of "C" or better in this course to proceed. (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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 2411, 2412, and 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 2420) 1C/0/1/0

**RESP 2452 Advanced Simulation**

This hybrid course is designed to train allied health program students in advanced critical care life support skills in a medical simulation lab setting. Students will be evaluated and observed on independent and team approach skills in a diverse simulation competency based scenario. Students will be assessed on skills based competencies on mock simulation patients in the lab, case study and scenario discussions. Students will be videotaped while they perform skills. Students must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 2440; Co-Requisite(s): BLS Card through AHA) 3C/0/3/0

**RESP 2458 Multidisciplinary RT**

This course reviews the multidisciplinary positions in respiratory care and management skills/position that is essential towards understanding an organizational environment and a healthcare manager's ability to perform various functions. This course will review the challenges of respiratory care professions and when necessary, classical theory and concepts. This curriculum will focus on relatively new concepts and trends in organizational management. An Online Research review will incorporate evidence based medicine and learner based theory concepts to promote concepts of respiratory care management. It is designed to help develop a solid base of understanding of the traditional core management functions of planning, decision making, organizing, staffing and decision making as well as the emerging functions of coaching, counseling, teaching and facilitating. In addition, students will also review different specialties and alternative sites in Respiratory Care. (Prerequisite(s): RESP 2440; Co-Requisites: RESP 2452) 1C/0/1/0

**RESP 2470 Registry Review**

This course is an advanced study in Respiratory Care Procedures and prep for the NBRC CRT and RRT exam. Each student will need to successfully pass an entry level CRT self-assessment exam at the end of the course. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 2411, RESP 2412, and 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. Must earn a grade of "C" or better in this course to proceed. (Prerequisite(s): RESP 2411 and 2412) 2C/1/1/0

## 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 1415 OSHA 30 HR Training**

Students will be given information on fire, ladders, scaffolding, electrical, cranes and personal protective equipment. Students will be trained in welding shop, sheet metal shop and field safety practices. 2C/2/0/0

### **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. (Prerequisite(s): SMET 1410, SMET 1415, SMET 1420, SMET 1430, SMET 1440, SMET 1450) 4C/2/2/0

### **SMET 1520 Duct System Fabrication**

Covers the fabrication and assembly of various types of duct systems. (Prerequisite(s): SMET 1410, SMET 1415, SMET 1420, SMET 1430, SMET 1440, SMET 1450) 4C/1/3/0

### **SMET 1530 Architectural Sheet Metal**

Covers the fabrication and assembly of various types of architectural sheet metal systems. Installation techniques will also be described. (Prerequisite(s): SMET 1410, SMET 1415, SMET 1420, SMET 1430, SMET 1440, SMET 1450) 4C/2/2/0

### **SMET 1540 Power Machine Operation**

Covers the fabrication of sheet metal items using the power shear, press brake, power rolls, punch press and spotwelder. (Prerequisite(s): SMET 1410, SMET 1415, SMET 1420, SMET 1430, SMET 1440, SMET 1450) 3C/1/2/0

### **SMET 1550 Sheet Metal CAD/CAM Systems**

Covers the setup and operation of plasma cutting systems and computer-aided drafting systems. (Prerequisite(s): SMET 1410, SMET 1415, SMET 1420, SMET 1430, SMET 1440, SMET 1450) 3C/1/2/0

## Somali

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### **SMLI 1510 Beginning Somali 1**

This course introduces students to Somali language and culture. Students will develop basic competencies in reading, vocabulary, writing, grammar, speaking, and listening. This class provides the linguistic foundation necessary to achieve proficiency in the Somali language in future semesters. No previous knowledge of Somali is necessary. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better or appropriate assessment score.) (MnTC: Goal 8) 5C/5/0/0

## 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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, single-hood, 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 3C/3/0/0

### **SOCI 1740 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. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 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 operates in society and the influence of media messages in the areas of print media, recordings, radio, film, advertising, public relations, digital media and the Web. The course will emphasize basic definitions and the functions of mass media forms and practices; the impact of mass media on society; and major theoretical perspectives and research methods of society will be used to analyze various examples of media. Specific areas of discourse explored in this course may include racism, sexism, heterosexism, ageism, stereotypes, discrimination, violence, and crime. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) 4C/4/0/0



**SOCI 1765 Sociology of Crime and Deviance**

This course will offer students an introduction to the sociological study of crime and deviance. We will examine the major types of crimes, such as violent crime, property crime, cybercrime, white-collar crime, and organized crime. This course will cover major sociological theories used to explain crime and deviance. Students will also learn about the relativity of deviance, how power, social control, and labeling are used to socially construct definitions of deviance, and the consequences of being labeled deviant. Topics in deviance may include suicide, mental illness, obesity, body modification, substance abuse, and sexual diversity. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 7) 3C/3/0/0

**SOCI 1766 Juvenile Delinquency**

This course is designed to familiarize students with the sociological study of juvenile delinquency in the United States, while simultaneously cultivating an historical and international perspective on delinquency. Topics include the nature of delinquency, means of measuring delinquency, theoretical understandings of delinquency, societal influences upon and responses to delinquency, as well as the development of the juvenile justice system. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC Goals: 5 & 9) 3C/3/0/0

**SOCI 1772 Introduction to Criminal Justice**

This course will introduce students to the major components of the American Criminal Justice System, specifically the police, corrections and the courts. Students will discuss the various types of crime and how crime is measured. Additional topics may include: a brief history of crime and punishment, the development of the criminal justice system, causes of crime and victimization, styles of policing, levels of the court system, philosophies of punishment, juvenile justice and prison life. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

**SOCI 1774 Introduction to Corrections**

This is an introductory course designed to provide students with an overview of the problems and ethical dilemmas that face America's correctional system. The institution of corrections is not only a study of our prison system but is, in fact, the study of a complex network of societal relationships and institutions. This course examines the history, present, and future of U.S. corrections. The role of penitentiaries, prisons, jails, and grass roots organizations is explored along with the concepts of punishment, rehabilitation, retribution, restoration and transformation. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

**SOCI 1776 Probation, Parole and Alternative Sentencing**

This course is designed to introduce students to the fields of probation and parole. We will examine a variety of community-based correctional practices and strive to understand the roles of individuals who work within community programming. Most importantly, we will begin to gain an understanding of those individuals who receive the services of these fields. The ultimate goal of this course is for students to develop their ability to critically examine a diverse range of correctional programming. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

**SOCI 1790 Special Topics in Sociology**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 5) Variable credits 1-6

**SOCI 1791 Special Topics in Sociology 2**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better or appropriate assessment score) (MnTC: Goal 5) Variable credits 1-6

**SOCI 2720 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 is 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. (Prerequisite(s): PSYC 1710 or SOCI 1710 with a grade of "C" or better) (MnTC: Goal 5 & 7) 4C/4/0/0

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**Spanish**
**SPAN 1710 Beginning Spanish 1**

An introduction to Spanish based on real-life situations as well as to various aspects of Hispanic societies and cultures. 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 necessary. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 6 & 8) 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 grade of "C" or better or Placement Exam or instructor approval) (MnTC: Goal 6 & 8) 5C/4/1/0

**SPAN 1730 Intermediate Spanish 1**

This course provides 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 instructor approval) (MnTC: Goals 6 & 8) 5C/4/1/0

**SPAN 1740 Intermediate Spanish 2**

This course is a continuation of SPAN 1730. The course provides 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. This course is usually offered during the spring term (Prerequisite(s): SPAN 1730 with a grade of "C" or better, or Placement Exam or instructor approval) (MnTC: Goals 6 & 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. This class may be offered for specific career industries such as the Hospitality or Healthcare industries. When this happens, the career industry will be specified in the title. No previous knowledge of Spanish is necessary. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goal 8) 3C/3/0/0

### **SPAN 1795 Special Topics in Spanish**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 8) Variable credits 1-6

## **Study Skills and Success Strategies**

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### **STSC 1200 College Success Strategies**

This course is designed to help students create greater success in college and in life. We will focus on the strategies, habits, and values necessary for students to take charge of their own academic and personal development through active and collaborative engagement. 2C/2/0/0

## **Supply Chain Logistics**

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### **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 credits 1-3

### **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 credits 1-3

### **BUSN 1420 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

### **BUSN 1530 Distribution Management**

Designed to clarify and define the primary role of warehousing and logistics in today's economy. This course includes inventory control, material handling equipment, just-in-time productivity and quality control. 3C/3/0/0

### **BUSN 2451 Procurement Principles and Applications**

The course covers a broad overview of the objectives of Procurement; its authority, responsibility, management function and expectations. Students learn how and why the procurement function has far-reaching effects on a company's profit or loss. Procurement is a dynamic business function and is important in controlling costs in large dollar expenditures. The Procurement department deals with Production, Engineering, Marketing, Sales, Logistics, Stores, Inventory Control, Transportation, Quality Assurance and Finance. The primary objective of procurement 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

### **BUSN 2520 Supply Chain Management**

Supply chain management provides training in the areas of efficient administration and control of logistical components: transportation, inventory, packaging, warehousing, materials handling, customer service and their eventual integration into a logistics system. 4C/4/0/0

## **Surgical Technology/Sterile Processing**

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### **SURG 1405 Introduction to Surgical Technology**

This course provides a broad study of the operative environment, professional roles, moral/legal/ethical responsibilities, and medical communications used in surgical technology. (Requires concurrent enrollment is SURG 1410 & SURG 1415) 1C/1/0/0

### **SURG 1410 Sterile Processing**

The course will introduce various surgical instruments, the classification and use(s), including the process of cleaning, decontamination, disinfection, and sterilization of equipment and supplies used in the surgical services department. Distribution and management of supplies to all customer service areas is also addressed for health care settings. (Prerequisite(s): BIOL 1471, BIOL 1740, BIOL 2721; Co-requisite(s): SURG 1415 and BIOL 2722) 3C/2/1/0

### **SURG 1415 Surgical Microbiology**

This course addresses natural and artificial body defense mechanisms and the methods by which infectious diseases are recognized, treated, transmitted, and prevented. Disinfection and sterilization are also included. Content covers the application of aseptic technique and various environmental controls. (Prerequisite(s): BIOL 1471, BIOL 1740, BIOL 2721; Co-requisite(s): SURG 1410 and BIOL 2722.) 2C/2/0/0

### **SURG 2400 OR Fundamentals**

To prepare competent entry-level surgical technologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. Course discusses in depth the concepts around the following areas as it relates to the Surgical Technologists role. In this interactive course the learner will focus on the patient and the surgical technologist in the operating room as it relates to safety, fire risk, positioning, prepping, patient transfer. Introduces to the learner concepts around safety, of self and also for the patient. Theory and physics around the safe use of electro cautery, lasers, and microscopes and robotics in the operating room. The learner will also be introduced to a wide variety of supplies, their safe and proper use in the operating room, such as suture, dressings, drains, and catheters. The learner will also explore the concepts around wound healing as it relates to the surgical patient. Surgical prepping, safety protocols, technique and theory will be explored. (Prerequisites: SURG: 1405, 1410, and 1415) 1C/1/0/0

### **SURG 2405 Pharmacology**

Learners will review basic math skills and learn a framework of pharmacological principles in order to apply them safely in a surgical environment. These will include metric system, percentages, and proportions for medication calculations. Commonly used medication with surgical applications are reviewed in depth. These include antibiotics, diagnostic agents, diuretics, drugs that affect coagulation, ophthalmic agents, perioperative medications, anesthesia agents for both local and general anesthesia. Specific topics include drug administration routes and methods, blood and fluid usage, drug reactions including malignant hyperthermia and allergic reactions. (Prerequisites: SURG 1405, 1410, and 1415) 2C/2/0/0

### **SURG 2411 Pathology & Procedure**

To prepare competent entry-level surgical technologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. This course reviews the pertinent anatomy and physiology related to the following surgical systems/specialties. General surgery, OBGYN, orthopedics, ear nose and throat (ENT), ophthalmic, neurology, spinal procedures, cardio-thoracic, peripheral vascular, urology, maxillofacial, head and neck, plastics, geriatrics, trauma (pediatrics and adult), robotics and laser. Conditions that warrant surgical correction are discussed and studied in depth. Also introduced are common specialized instrumentation by type, function, and name. Common procedures in each of the surgical specialty areas are explained in depth; to include indication, anatomy involved, incision(s), patient positioning, prepping, draping, dressings and suture used in such cases. (Prerequisite(s): BIOL 2722, SURG 1405, SURG 1410, and SURG 1415) 3C/1/2/0

### **SURG 2415 Operating Room Lab 1**

Learners will practice the concepts and theories learned in 2410 Pathology and Procedures and 2405 Pharmacology. Basic skill sets will be put into practice for scrub gown and gloving (both open and closed), draping of the surgical patient, as well as set up appropriate instrumentation on back-table and mayo stand for general surgery

abdominal cases. Focus will be on use of correct sterile technique, surgical consciousness, and communication by way of working within a team in the surgical environment. Learner will be able to practice passing instruments, load surgical blades and needles, and properly change contaminated gown and gloves. A focus will be made around labeling drugs properly that will be used in the sterile field. (Prerequisites: SURG 1405, 1410, and 1415) 4C/0/4/0

#### **SURG 2420 Operating Room Lab 2**

Learners will directly build on skill sets learned in SURG 2415, as they bring in more complex procedures to their training, from the curriculum in SURG 2411, these are then practiced directly in the lab session. The procedures will require new skill sets in the areas of draping, specialty equipment, instruments, and team communication. (Prerequisites: SURG 1405, 1410, and 1415) 4C/0/4/0

#### **SURG 2430 Operating Room Clinical 1**

Students are assigned to a pre-planned clinical facility and assist with surgical procedures within the operative setting under the personal supervision of a clinical preceptor. This clinical practicum is designed for the student to integrate knowledge and theory from previous classes specific to Surgical technology, to develop skill set specific to that of a practicing Surgical Technologist. Clinical assignments are based on a set of weekly clinical performance objectives that must be met prior to the completion of OR lab 2. Students will participate in 3 clinical conferences to debrief current learning and synthesize knowledge with practice. Also covered in these sessions are professional topics such as understanding the roles, responsibilities and variety of personalities that comprise OR settings, the development of a resume, cover letter, thank you letter, and the development of answers to commonly asked interview questions. Students will complete practice exams to prepare for the National Certification Exam administered by the National Board of Surgical Technology and Surgical Assisting. Participation in the Certification exam is MANDATORY. (Prerequisite(s): SURG 2405, 2411, 2415, and 2420) 8C/0/8/0

#### **SURG 2435 Operating Room Clinical 2**

Students are assigned to a pre-planned clinical facility and assist with surgical procedures within the operative setting under the personal supervision of a clinical preceptor. This clinical practicum is designed for the student to integrate knowledge and theory from previous classes specific to Surgical technology, to develop skill set specific to that of a practicing Surgical Technologist. Clinical assignments are based on a set of weekly clinical performance objectives that must be met prior to the completion of OR lab 2. Students will participate in 3 clinical conferences to debrief current learning and synthesize knowledge with practice. Also covered in these sessions are professional topics such as understanding the roles, responsibilities and variety of personalities that comprise OR settings, the development of a resume, cover letter, thank you letter, and the development of answers to commonly asked interview questions. Students will complete practice exams to prepare for the National Certification Exam administered by the National Board of Surgical Technology and Surgical Assisting. Participation in the Certification exam is MANDATORY. (Prerequisite(s): SURG 2405, 2411, 2415, and 2420) 8C/0/8/0

## **Theatre and Drama**

#### **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 1716 Theatre Around the World**

This course provides an introduction to the diverse theatrical styles and plays performed around the world. Students will explore a variety of theatre focusing on Eastern and Western cultures around the globe exploring the cultural, historical, social, religious, and linguistic significance of this work. Students will examine the aspects that go into creating these forms of theatre including, acting, design, and stagecraft.

Students will explore these forms of theatre and their impact on theatre around the world today. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 6 & 8) 3C/3/0/0

#### **THTR 1725 Acting 1**

This course provides students an Introduction to Acting. Students engage in physical and vocal exercises training the actor's voice and body. Students will also develop the skills to respond critically to theatrical performances. Students engage in vocal and physical warm-ups and exercises, read and analyze plays, use improvisation towards developing characters in scenes from a variety of plays. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (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. This course may be repeated for credit. (MnTC: Goal 6) 3C/3/0/0

#### **THTR 1731 Theatre Performance Practicum**

Students who are interested in pursuing active participation as a performer in a Saint Paul College theatrical production will be eligible for this course. Students will take an active role as a live performer within a college production. This course may be replaced in subsequent terms for a maximum of 4 credits. (Prerequisite(s): Instructor approval) (MnTC: Goal 6) 1C/0/1/0

#### **THTR 1732 Technical Theatre Practicum**

Students who are interested in pursuing active participation as a technical worker in a Saint Paul College theatrical production will be eligible for this course. Students will take an active role as a technical worker within a college production. This course may be replaced in subsequent terms for a maximum of 4 credits. (Prerequisite(s): Instructor approval) (MnTC: Goal 6) 1C/0/1/0

#### **THTR 1740 Fundamentals of Playwriting – Playwriting 1**

This course focuses on the skills necessary for writers who write for the stage rather than the page. Students work to develop an ability to create stage plots and dialogue. Through a series of writing and reading activities, exercises and assignments, students work to explore character, conflict and drama through their writing. Students also work through writing exercises to develop the skills to structure a play with a clear beginning, middle and end. Students are encouraged to develop their work and the course culminates in a reading of short plays. (Prerequisite(s): READ 0722 or READ 0724 or EAPP 0900 with a grade of "C" or better, or appropriate assessment score) (MnTC Goal: 6) 3C/3/0/0

#### **THTR 1790 Special Topics in Drama and Theatre**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete details. (MnTC: Goal 6) Variable credits 1-6

#### **THTR 2725 Acting 2**

This course provides students continued study in acting skills. Students work to develop and exercise basic acting skills through practical application of the fundamental elements of the actor's art and work. Students will become more familiar with the actor's tools and a variety of acting techniques and the best ways to utilize them. Students engage in more detailed physical and vocal exercises training the actor's voice and body. Students read and analyze plays and develop character analysis and script analysis skills. Through acting exercises, activities, development of acting techniques, and scene work, students will develop the skills required to create three-dimensional characters in scene work. (Prerequisite(s): THTR 1725 Acting 1 or instructor approval) (MnTC: Goal 6) 3C/3/0/0

## Truck Technician

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### **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 1445 Truck Welding 1**

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 are developed. 2C/0/2/0

### **TRKM 1455 Truck Welding 2**

Continuation of skills developed in TRKM 1445. Includes advanced Arc and MIG welding techniques for frame repair in the trucking industry. Emphasis on safety procedures. 2C/0/2/0

### **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 use and job seeking skills will also be covered. 3C/1/2/0

## Welding Technology

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### **WLDG 1402 Industrial Shop Practices 1**

This core course covers all of the safety instruction for the 1400 level welding courses and shop equipment that will be used during the first semester. Students will demonstrate safe practices while using welding and shop equipment. Students will also identify the characteristics of mild steel. (Co-Requisite(s): WLDG 1402-1450 will be taken in succession within the same semester block) 4C/4/0/0

### **WLDG 1410 Welding Basics**

This introductory course will cover shop safety practices, the theories and concepts necessary for an understanding of basic oxyacetylene welding, cutting and brazing processes. Emphasis will be on safe work habits based on current industry standards. It will also cover carbon arc and plasma arc cutting. (Co-Requisite(s): WLDG 1402-1450 will be taken in succession within the same semester block) 2C/0/2/0

### **WLDG 1420 SMAW: E6010**

This course covers the introduction of the theories and concepts necessary for the SMAW process using the E6010 electrode in the various welding positions, according to current industry and AWS standards. Instruction on the use, care and safety practices of SMAW equipment will also be emphasized. (Co-Requisite(s): WLDG 1402-1450 will be taken in succession within the same semester block) 2C/0/2/0

### **WLDG 1431 SMAW: E7018**

This course covers more advanced techniques of the SMAW weld process using the E7018 electrode. Students will learn to weld using proper technique and will judge their welds. Students will be exposed to the qualification process using weld place testing procedures. An emphasis will be put on safety while using the SMAW equipment. (Co-requisite(s): WLDG 1441, WLDG 1420, WLDG 1410, WLDG 1402 WLDG 1450) 2C/0/2/0

### **WLDG 1441 SMAW: Short Arc**

This course is an introduction to the GMAW process using short circuit transfer. Students will learn to weld using proper technique and will judge their welds. An emphasis will be put on safety while using the GMAW equipment. (Co-requisite(s): WLDG 1402, WLDG 1410, WLDG 1420, WLDG 1431, WLDG 1450 will be taken in succession within the same semester block) 3C/0/3/0

### **WLDG 1450 Intro to Blueprint/Measuring Devices**

This course is designed to cover such fundamental principles of drawing interpretation as may be required by a layout welder and setup person. To accomplish this objective, basic lines and blueprint viewing functions are studied and projects are assigned to reinforce base knowledge. This course also covers the use of different measuring devices used in the welding trades. (Co-Requisite(s): WLDG 1402-1450 will be taken in succession within the same semester block) 3C/3/0/0

### **WLDG 1502 Industrial Shop Practices**

This core course covers all the required safety instructions for all the 1500 category welding processes and the related shop equipment used. Instruction on welding equipment set-up and parameter settings along with welding theory will be covered for all welding processes. Students will be able to identify and demonstrate proper safety practices and usage on shop and welding equipment. (Prerequisite(s): Must complete 1st semester core group 1402-1450 prior to advancing to 2nd semester

core group 1502-1540) (Co-requisite(s): WLDG 1510, WLDG 1520, WLDG 1530, WLDG 1540) 4C/4/0/0

#### **WLDG 1510 GMAW Spray and Pulse Spray**

Provides students with the opportunity to build proficiency in the GMAW process using the spray and pulse spray transfers on 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. Weld testing plate procedures will be offered allowing the student the opportunity to achieve qualification. (Prerequisite(s): Must complete 1st semester core group 1402-1450 prior to advancing to 2nd semester core group 1502-1540; Co-Requisite(s): WLDG 1502-1540 will be taken in succession within the same semester block) 3C/0/3/0

#### **WLDG 1520 GMAW Core Wires**

Designed to build proficiency in FCAW, FCAW-G, Metal Core and SAW processes. The student will be expected to perform to industry standards as required for apprentice welders. Weld plate testing procedures will be stressed, allowing the student the opportunity to achieve qualification. (Prerequisite(s): Must complete 1st semester core group 1402-1450 prior to advancing to 2nd semester core group 1502-1540; Co-Requisite(s): WLDG 1502-1540 will be taken in succession within the same semester block) 3C/0/3/0

#### **WLDG 1530 Intro to GTAW**

Provides students with the opportunity to build proficiency in the GTAW process on mild steel in all positions. The student will be expected to work to industry and AWS standards for apprentice welders in the area of quality and efficiency. (Prerequisite(s): Must complete 1st semester core group 1402-1450 prior to advancing to 2nd semester core group 1502-1540; Co-Requisite(s): WLDG 1502-1540 will be taken in succession within the same semester block) 3C/0/3/0

#### **WLDG 1540 Blueprint Welding Symbols/Math/Welder Qualification**

This course will focus on the knowledge of welding symbols as specified by the American Welding Society, (AWS). Welding inspection and welder qualification procedures will also be covered. (Prerequisite(s): Must complete 1st semester core group 1402-1450 prior to advancing to 2nd semester core group 1502-1540; Co-Requisite(s): WLDG 1502-1540 will be taken in succession within the same semester block) 3C/3/0/0

#### **WLDG 2402 Industrial Shop Practices 3**

Students will perform mathematical problems and apply it to metal working problems/situations they may encounter on the job site. (Prerequisite(s): Must complete 1st and 2nd semester core groups 1402-1540 prior to advancing to 3rd semester core group 2402-2442) (Co-requisite(s): WLDG 2411, WLDG 2420, WLDG 2430, WLDG 2442) 4C/4/0/0

#### **WLDG 2411 GMAW: Aluminum and Stainless Steel**

Students have the opportunity to build proficiency in the GMAW process using Aluminum & Stainless Steel in various weld positions. The student will create welds to industry standards on Stainless-Steel and Aluminum. (Prerequisite(s): Must complete 1st & 2nd semester courses WLDG 1402-1540). (Corequisite(s): WLDG 2402, 2420, 2430, 2442) 3C/0/3/0

#### **WLDG 2420 GTAW Aluminum and SST**

Provides students with the opportunity to build proficiency in the GTAW process using aluminum & stainless steel in various weld positions. Aluminum & Stainless numbering systems will also be reviewed. Students will be expected to perform to industry and AWS standards as required for apprentice welders in the areas of quality and efficiency. (Prerequisite(s): Must complete 1st & 2nd semester core groups 1402-1540 prior to advancing to 3rd semester core group 2402-2442; Co-Requisite(s): WLDG 2402-2442 will be taken in succession within the same semester block) 4C/0/4/0

#### **WLDG 2430 Grinding and finishing**

Designed to create an in-depth knowledge of abrasives and equipment used in the welding & fabricating industry. Students will gain

proficiency in both grinding and high grade finishing on various base materials according to paint, food and pharmaceutical standards. (Prerequisite(s): Must complete 1st & 2nd semester core groups 1402-1540 prior to advancing to 3rd semester core group 2402-2442; Co-Requisite(s): WLDG 2402-2442 will be taken in succession within the same semester block) 2C/1/1/0

#### **WLDG 2442 Introduction to Robotics**

Student will be introduced to basic Robotic/CNC machine processes as it applies to manufacturing. Students will be given specified projects in order to develop fabrication techniques used in industry. (Prerequisite(s): Must complete 1st & 2nd semester core groups 1402-1540 prior to advancing to 3rd semester core group 2402-2442) (Co-requisites: WLDG 2402, WLDG 2411, WLDG 2420 & WLDG 2430) 3C/0/3/0

#### **WLDG 2500 2D CAD**

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 2D CAD blueprint drafting. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 2C/2/0/0

#### **WLDG 2510 Safety**

Designed to give students safety and operational instruction on all shop equipment required in the 2500 series certificate. Students will demonstrate correct safety procedures required in all the automated fabrication processes. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 1C/1/0/0

#### **WLDG 2520 CNC Plasma**

This course is designed to expose the student to CNC functions utilizing M & G coding Editing and perform CNC programing functions. Students will use proper safety equipment set up procedures and perform CNC operations according to industry standards. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 2C/1/1/0

#### **WLDG 2530 Press Brake Operations**

Designed to build proficiency in sheet metal fabrication the student will be expected to work within industry standards using math formulas, bend allowances and measuring instruments as required for apprentices. Students will program the CNC press to achieve correct bending outcomes to industry requirements. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 3C/1/2/0

#### **WLDG 2540 Robotic Welding Operations**

Designed to build proficiency in fabrication skills beyond the previous diploma courses. The student will be expected to work within Industry standards as for apprentice fabricators using robotic programing, set up procedures, trouble shooting and repair of robotic functions. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 3C/1/2/0

#### **WLDG 2550 Industrial Equipment**

Designed to build proficiency in the metal fabricating field, the student will be expected to perform within industry standards for apprentice

welders/fabricators. The student will be introduced to lifting devices which are encountered in live work situations, using fork truck and overhead cranes. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 2C/1/1/0

#### **WLDG 2560 Layout Practices**

Course 2560 will allow the student to demonstrate knowledge of manufacturing layout and planning through designated projects. These projects will require the student to use advanced techniques in design, layout and fabrication processes used in industry. (Prerequisite(s): Must complete 1st, 2nd & 3rd semester core groups 1402-2442 or receive instructor approval prior to advancing to 4th semester Advanced Certificate 2500-2560; Co-Requisite(s): WLDG 2500-2560 will be taken in succession within the same semester block) 4C/1/3/0

## **Women's and Gender Studies**

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#### **WGST 1785 Foundations in Women's 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, cultural beliefs, and social practices. Throughout the course, emphasis is placed on the diversity of women's experience in contemporary United States and connections to women worldwide. (Prerequisite(s): READ 0721 or READ 0724 or EAPP 0860 with a grade of "C" or better, or appropriate assessment score) (MnTC: Goals 5 & 9) 3C/3/0/0

#### **WGST 1790 Special Topics in Women's and Gender Studies**

This course is designed to present additional or unique material and learning experiences within a specified discipline. The course will be based on student need, flexibility, and may be designed to meet various transfer and pre-major course requirements. Please see a current Course Schedule for complete course details. (MnTC: Goals 5 & 9) Variable credits 1-6