Understanding Course Types and Credit Hours

Course Types

(A) indicates an academic transfer course that may apply to a baccalaureate degree.

(CE) indicates a Continuing Education course that may apply to training or meet licensure and certification requirements for professional development.

(D) indicates a developmental pre-college course that does not apply to an associate degree or transfer.

(W) indicates a workforce course that may not transfer or apply to a baccalaureate degree.

Technical or workforce courses are designated by a (W) at the end of their course description. Workforce courses provide an opportunity for students to obtain skills and knowledge needed for career exploration, licensure, and specific job qualifications. These courses are not college-level courses and therefore do not apply to college degrees or other awards, nor do they transfer.

Course numbers beginning with zero (0)

Course numbers beginning with zero include developmental education, English as Second Language (ESL) courses, and study skills courses. These courses prepare students to be successful in college-level work. They are not college-level courses and therefore do not apply to college degrees or other awards, nor do they transfer.

Course numbers beginning with one (1) or higher

Any course with a number that starts with a one (1) or higher is considered a college-level course. Completion of a college-level course with a D or higher will earn college credit.

Earned Course Credit Hours

Credit hours are earned upon successful completion of college credit courses. Each degree, certificate, or award requires the completion of a specific number of credit hours. The second digit in a course number indicates the number of credit hours earned upon successful completion of the course.
- **Course Rubrics / Subjects**
  - Listed Alphabetically By Subject 2 - 3
  - Listed Alphabetically By Rubric 4 - 5
- **Course Descriptions** 6 - 105

### Alphabetized Subject List

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## Alphabetized Listing

**ACCT 2301**  **Principles of Financial Accounting**
This course is an introduction to the fundamental concepts of financial accounting as prescribed by U.S. generally accepted accounting principles (GAAP) as applied to transactions and events that affect business organizations. Students will examine the procedures and systems to accumulate, analyze, measure, and record financial transactions. Students will use recorded financial information to prepare a balance sheet, income statement, statement of cash flows, and statement of shareholder’s equity to communicate the business entity’s results of operations and financial position to users of financial information who are external to the company. Students will study the nature of assets, liabilities, and owners’ equity while learning to use reported financial information for purposes of making decisions about the company. Students will be exposed to International Financial Reporting Standards (IFRS). Lab required. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 3 credit hours. (A)

**ACCT 2302**  **Principles of Managerial Accounting**
This course is an introduction to the fundamental concepts of managerial accounting appropriate for all organizations. Students will study information from the entity’s accounting system relevant to decisions made by internal managers, as distinguished from information relevant to users who are external to the company. The emphasis is on the identification and assignment of product costs, operational budgeting and planning, cost control, and management decision making. Topics include product costing methodologies, cost behavior, operational and capital budgeting, and performance evaluation. Lab required. Prerequisite: ACCT 2301. 3 credit hours. (A)

**ACNT 1303**  **Introduction to Accounting I**
A study of analyzing, classifying, and recording business transactions in a manual and computerized environment. Emphasis on understanding the complete accounting cycle and preparing financial statements, bank reconciliations, and payroll. Lab required. 3 credit hours. (W)

**ACNT 1311**  **Introduction to Computerized Accounting**
Introduction to utilizing the computer in maintaining accounting records with primary emphasis on a general ledger package. Lab required. 3 credit hours. (W)

**AERS 1105**  **The Air Force Today I**
Introduces students to the U.S. Air Force and the Air Force Reserve Officer Training Corps (AFROTC); includes Officership, professionalism, military customs and courtesies, and officer opportunities and benefits. AFROTC cadets must register for Leadership Laboratory as it complements this course with followership experience. 1 credit hour. (A)

**AERS 1106**  **The Air Force Today II**
Introduces students to the U.S. Air Force and the Air Force Reserve Officer Training Corps (AFROTC); includes Officership, professionalism, military customs and courtesies, and officer opportunities and benefits. AFROTC cadets must register for Leadership Laboratory as it complements this course with followership experience. 1 credit hour. (A)

**AERS 2103**  **The Development of Air Power I**
Introduces students to the U.S. Air Force and the Air Force Reserve Officer Training Corps (AFROTC); includes Officership, professionalism, military customs and courtesies, and officer opportunities and benefits; AFROTC cadets must register for Leadership Laboratory as it complements this course with followership experience. 1 credit hour. (A)

**AERS 2104**  **The Development of Air Power II**
Introduces students to the U.S. Air Force and the Air Force Reserve Officer Training Corps (AFROTC); includes Officership, professionalism, military customs and courtesies, and officer opportunities and benefits; AFROTC cadets must register for Leadership Laboratory as it complements this course with followership experience. 1 credit hour. (A)

**ANTH 2301**  **Physical Anthropology**
The study of human origins and bio-cultural adaptations. Topics may include primatology, genetics, human variation, forensics, health, and ethics in the discipline. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)
ANTH 2302 Introduction to Archeology
The study of the human past through material remains. The course includes a discussion of methods and theories relevant to archeological inquiry. Topics may include the adaption of agriculture, response to environmental charge, the emergence of complex societies, and ethics in the discipline. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ANTH 2346 General Anthropology
The study of human beings, their antecedents, related primates, and their cultural behavior and institutions. Introduces the major subfields: physical and cultural anthropology, archeology, linguistics, their applications, and ethics in the discipline. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ANTH 2351 Cultural Anthropology
The study of human cultures. Topics may include social organization, institutions, diversity, interactions between human groups, and ethics in the discipline. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ANTH 2389 Academic Co-op Anthropology
Integrates on-campus study with practical hands-on work experience in anthropology. In conjunction with class seminars, the student will set specific goals and objectives in the study of anthropology. Contact the Cooperative Work Experience Office. Prerequisites: Consent of Associate Dean and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ANTH 2401 Physical Anthropology
Lecture: The study of human origins and bio-cultural adaptations. Topics may include primatology, genetics, human variation, forensics, health, and ethics in the discipline.
Lab: Includes demonstrations of the major principles of the lecture section. Additionally, an overview of human origins and cultural adaptations combining study of our nearest relatives, the chimpanzees, with the analysis of reproductions of fossil bones. Unit concerning forensic anthropology explains how crimes can be solved from analysis of skeletal material; students work with replicas of human bone. Opportunity to participate in field trip to zoo. Lab required. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

ARAB 1411 Beginning Arabic I
This course, which is designed for students with little or no prior training in the language, focuses on developing the four basic skills of speaking, reading, writing and listening, as well as the study of selected aspects of Arabic civilization. Instruction is enhanced by the use of audio and video materials. Lab required. 3 credit hours. (A)

ARAB 1412 Beginning Arabic II
This course is a continuation of ARAB 1411. It continues the development of the four basic skills of speaking, reading, writing and listening, as well as the study of selected aspects of Arabic civilization. Instruction is enhanced by the use of audio and video materials. Lab required. Prerequisite: ARAB 1411 or consent of Associate Dean. 3 credit hours. (A)

ARCE 1352 Structural Drafting
A study of structural systems including concrete foundations and frames, wood framing and trusses, and structural steel framing systems. Includes detailing of concrete, wood, and steel to meet industry standards including the American Institute of Steel Construction and The American Concrete Institute. Lab required. Prerequisite: DFTG 1309. 3 credit hours. (W)

ARCE 2352 Mechanical and Electrical Systems
The properties of building materials (assemblies), specifications, codes, vendor references, and uses of mechanical, plumbing, conveying, and electrical systems as they relate to architecture for residential and commercial construction. Lab required. Prerequisite: DFTG 1317. 3 credit hours. (W)

ARTC 1302 Digital Imaging I
Digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image-acquisitions. Lab required. Prerequisite: ARTC 1325. 3 credit hours. (W)

ARTC 1305 Basic Graphic Design
Graphic design with emphasis on the visual communication process. Topics include basic terminology and graphic design principles. Lab required. 3 credit hours. (W)

ARTC 1313 Digital Publishing I
The fundamentals of using digital layout as a primary publishing tool and the basic concepts and terminology associated with typography and page
ARTC 1317  Design Communication I
Study of design development relating to graphic design terminology, tools and media, and layout and design concepts. Topics include integration of type, images and other design elements, and developing computer skills in industry standard computer programs. Lab required. Prerequisites: ARTC 1327 and ARTC 1353. Prerequisite/Concurrent enrollment: ARTC 1302. 3 credit hours. (W)

ARTC 1321 Illustration Techniques I
A study of illustration techniques in various media. Emphasis on creative interpretation and the discipline of draftsmanship for visual communication of ideas. Lab required. Prerequisite: ARTS 1316. 3 credit hours. (W)

ARTC 1325 Introduction to Computer Graphics
A survey of design concepts, terminology, processes, and procedures. Topics include computer graphics hardware, digital images, digital publishing, vector-based graphics, and interactive multimedia. Lab required. 3 credit hours. (W)

ARTC 1327 Typography
A study of letterforms and typographic concepts as elements of graphic communication. Emphasis on developing a current, practical typographic knowledge based on industry standards. Lab required. Prerequisites: ARTC 1305 and ARTC 1325. 3 credit hours. (W)

ARTC 1349 Art Direction I
Creation of projects in art direction for advertising graphic campaigns for products, services, or ideas. Topics include all campaign procedures from initial research and creative strategy to final execution and presentation of a comprehensive project. Lab required. Prerequisite: ARTC 1317. 3 credit hours. (W)

ARTC 1353 Computer Illustration I
Use of the tools and transformation options of an industry-standard vector drawing program to create complex illustrations or drawings. Includes principles of layout and design and manipulation of text and graphics. Lab required. Prerequisite: ARTC 1325. 3 credit hours. (W)

ARTC 1394 Special Topics in Animation, Interactive Technology, Video Graphics and Special Effects
Topics address recently identified current events, skills knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Lab required. 3 credit hours. (W)

Advanced 3-D Applications
Study of advanced computer graphics techniques using software applications adopted by the animation, visual effects and game industries. Topics will include 3-D modeling, animation, dynamics, texturing, shading, rendering and compositing in industry-standard production pipelines. Prerequisite: ARTV 1345 or consent of instructor.

Illustration for Digital Media
Development of drafting techniques applied to visual concept development for animation, visual effects and games. Emphasis on traditional art methods and media for use in narrative and interactive storytelling and communication. Prerequisite: Consent of Associate Dean.

ARTC 2301 Illustration Techniques II
Advanced study of illustration media and techniques using digital and/or traditional tools. Emphasis on conceptualization and composition. Lab required. Prerequisite: ARTC 1321 or consent of Associate Dean. 3 credit hours. (W)

ARTC 2305 Digital Imaging II
Principles of digital image processing and digital painting. Emphasis on raster-based imaging and the creative aspects of electronic illustration for commercial or fine art applications. Lab included. Prerequisite: ARTC 1302. 3 credit hours. (W)

ARTC 2311 History of Communication Graphics
Survey of the evolution of graphic arts in relation to the history of art. Includes formal, stylistic, social, political, economic, and historical aspects. Emphasis on art movements, schools of thought, individuals, and technology as they interrelate with graphic arts. 3 credit hours. (W)
ARTC 2335 Portfolio Development for Graphic Design
Preparation of a portfolio comprised of completed graphic design projects. Evaluation and demonstration of portfolio presentation methods based on the student’s specific area of study. Lab required. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

ARTC 2340 Computer Illustration II
Advanced use of software applications and/or various media with emphasis on output procedures, the resolution of complex design issues, and concept development. Lab required. Prerequisite: ARTC 1353. 3 credit hours. (W)

ARTC 2347 Design Communication II
An advanced study of the design process and art direction. Emphasis on form and content through the selection, creation, and integration of typographic, photographic, illustrative, and design elements. Lab required. Prerequisites: ARTC 1317 or ARTC 1349 and ARTC 1327. 3 credit hours. (W)

ARTC 2349 Art Direction II
Mastery of advanced art direction projects with emphasis on selected topics in advertising campaigns. Includes written, oral, and visual skills. Lab required. Prerequisite: ARTC 1349. 3 credit hours. (W)

ARTC 2371 User Experience Design
An advanced study of design as it applies to user experience in digital media. Emphasis on form, function as it relates to usability, accessibility, ergonomics, human factors, system performance, branding and content through the development of interface architecture and compositional layouts. The selection and creation of visual assets including the integration of typographic, photographic, illustrative, and design elements. Lab required. Prerequisites: ARTC 1317, ARTC 1327 and IMED 1316. 3 credit hours. (W)

ARTS 1301 Art Appreciation
A general introduction to the visual arts designed to create an appreciation of the vocabulary, media, techniques, and purposes of the creative process. Students will critically interpret and evaluate works of art within formal, cultural, and historical context. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

ARTS 1303 Art History I (Prehistoric to the 14th century)
A chronological analysis of the historical and cultural contexts of the visual arts from prehistoric times to the 14th century. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 1304 Art History II (14th century to the present)
A chronological analysis of the historical and cultural contexts of the visual arts from the 14th century to the present day. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 1311 Design I (2-dimensional)
An introduction to the fundamental terminology, concepts, theory, and application of two-dimensional design. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 1312 Design II (3-dimensional)
An introduction to the fundamental terminology, concepts, theory, and application of three-dimensional design. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 1313 Foundations of Art
Introduction to the creative media designed to enhance artistic awareness and sensitivity through the creative and imaginative use of art materials and tools. Includes art history and culture through the exploration of a variety of art works with an emphasis on aesthetic judgment and growth. Additionally, the examination of the change in art creation based on the advancement of tools and materials pushing art production from optic technology in Renaissance painting to mechanical art to technology based art. 3 credit hours. (A)

ARTS 1316 Drawing I
A foundation studio course exploring drawing with emphasis on descriptive, expressive and conceptual approaches. Students will learn to see and interpret a variety of subjects while using diverse materials and techniques. Course work will facilitate a dialogue in which students will engage in critical analysis and begin to develop their understanding of drawing as a discipline. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.
ARTS 1317 Drawing II
A studio course exploring drawing with continued emphasis on descriptive, expressive and conceptual approaches. Students will further develop the ability to see and interpret a variety of subjects while using diverse materials and techniques. Course work will facilitate a dialogue in which students will employ critical analysis to broaden their understanding of drawing as a discipline. Lab required. Prerequisite: ARTS 1316. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2311 Design III (may be 2-D, 3-D, color, or combinations thereof)
Elements and principles of art using two- and three-dimensional concepts. Additionally, this is a studio course that allows for further study of the elements and principles of art using two-dimensional and/or three-dimensional concepts. Emphasis is placed on the resolution of complex two-dimensional and/or three-dimensional design problems. Lab required. Prerequisite: ARTS 1311 or ARTS 1312. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2316 Painting I
Introduction to painting including use of materials, techniques, color study, and composition. Various painting styles will be practiced. Lab required. Prerequisite: ARTS 1316. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2317 Painting II
Increases the student's ability to use various techniques, color, and composition with acrylics, oils, and other media. Explores realistic and abstract approaches to painting. Emphasis on design, imagination, personal expression and painting style. Lab required. Prerequisite: ARTS 2316. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2323 Figure Drawing I
Drawing of the life model including instruction in anatomical and creative approaches to figure drawing. Emphasis on personal expression and creativity. Lab required. Prerequisite: ARTS 1316. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2326 Sculpture I
Study of three-dimensional form and introduction to sculpture techniques including basic methods of modeling, construction, and simple casting procedures. Exploration of various media including stone, wood, metal, plaster, and paper. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2333 Printmaking I
Introduction to the process of intaglio and relief printing including linoleum cuts, etching, aquatint, collagrapgh, and monotypes. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2341 Jewelry/Art Metals I
Exploration of wearable and small sculptural forms using non-ferrous and precious metals. Metal construction and jewelry making techniques including soldering, lost wax casting, cold connections, patinas and surface embellishment. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2346 Ceramics I
Introduction to ceramic design and methods including hand building techniques and use of the potter's wheel. Explores clays, glazing, and firing techniques including stoneware and raku. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2347 Ceramics II
Further study of ceramic design, method, and media with exploration of various clays, glaze compositions, and kiln operations. Emphasis on creative expression and personal style. Lab required. Prerequisite: ARTS 2346. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2348 Digital Photography I
This is a foundational digital photography course. It is a studio art course that explores the potential of the computer hardware and software medium for visual, conceptual, and practical uses in the visual arts. It includes camera operation and professional image workflow, composition, supplemental lighting and exposure control. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2356 Photography I/Darkroom
Introduction to photography: basic camera operations and darkroom techniques; emphasis on visual imagination and design. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.
ARTS 2357  Photography II/Darkroom
Intermediate black-and-white course; emphasis on developing a visual language, problem solving, craftsmanship, and learning to edit personal work. Technical considerations include print and negative quality, use of studio lighting, and large format cameras. Lab required. Prerequisite: ARTS 2356. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2366  Watercolor I
Introduction to watercolor including instruction in the use of brushes, papers, materials, and various painting techniques on wet and dry paper. Gain experience in mixing colors, color methods, and problem solving in the use of technique and in skillful observation of composition and painting style. Lab required. 3 credit hours. (A) Note: Students should expect additional supply costs.

ARTS 2389  Academic Co-op Arts/Photography
Integrates on-campus study with practical hands-on work experience in art/photography. In conjunction with class seminars, the student will set specific goals and objectives in the study of art. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

ARTV 1303  Basic Animation
Examination of animation concepts, principles, and storyboard for basic production. Emphasizes creating movement and expression utilizing traditionally or digitally generated image sequences. Lab required. Prerequisite: ARTC 1325. 3 credit hours. (W)

ARTV 1341  3-D Animation I
Intermediate level 3-D course introducing animation tools and techniques used to create movement. Emphasis on using the principles of animation. Lab required. Prerequisite: ARTV 1345 or consent of Instructor. 3 credit hours. (W)

ARTV 1343  Digital Sound
Digitizing sound and incorporating it into video games, multimedia or web projects for various delivery systems. Emphasizes compression issues, sampling, synchronizing, and resource management. Lab required. 3 credit hours. (W)

ARTV 1345  3-D Modeling and Rendering I
Techniques of three-dimensional (3-D) modeling utilizing industry standard software. Includes the creation and modification of 3-D geometric shapes, use of a variety of rendering techniques, camera, light sources, texture, and surface mapping. Lab required. Prerequisite/Concurrent enrollment: ARTC 1325. 3 credit hours. (W)

ARTV 1351  Digital Video
Producing and editing video and sound for multimedia or web productions. Emphasizes capture, editing, and outputting of video using a digital video workstation. Lab required. Prerequisites: ARTC 1325 and ARTV 1371. 3 credit hours. (W)

ARTV 1371  Storyboard and Concept Development
Storyboarding for film, video and animation. Visual concept development for linear and interactive media. Lab required. 3 credit hours. (W)

ARTV 2301  2-D Animation I
Skill development in the use of software to develop storyboards and two-dimensional animation including creating, importing, and sequencing media elements to create multimedia presentations. Emphasis on conceptualization, creativity, and visual aesthetics. Lab required. Prerequisite: ARTV 1303. 3 credit hours. (W)

ARTV 2320  Team Program Production I
Students assume roles in a production team using techniques and equipment to create short-form production(s). Lab required. Prerequisite: ARTV 1351. 3 credit hours. (W)

ARTV 2330  2-D Animation II
Advanced study of technical aspects of animation. Emphasizes aesthetic design, storytelling and completion of an animation project. Includes application of advanced skills and knowledge. Lab required. Prerequisite: ARTV 2301. 3 credit hours. (W)

ARTV 2335  Portfolio Development for Animation
A course in the development of a professional portfolio to showcase the student's skills in animation. Includes self-promotion, resumes, portfolio distribution, and interview techniques. Lab required. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

ARTV 2341  Advanced Digital Video
ARTV 2345 3-D Modeling and Rendering II
A studio course focused on advanced 3-D modeling and rendering techniques using industry standard software, modeling techniques, camera settings, lighting, and surfacing to develop detailed environments. Lab required. Prerequisite: ARTV 1345. 3 credit hours. (W)

ARTV 2351 3-D Animation II
Advanced level 3-D course utilizing animation tools and techniques used to develop movement. Emphasis on advanced animation techniques. Lab required. Prerequisite: ARTV 1341. 3 credit hours. (W)

ARTV 2371 Advanced Skill Development for Animation and Games
An upper level course in the development of concepts and execution of assets for 2D/3D animation and games. The student's incoming skill level and abilities are reviewed and areas of improvement are targeted. Includes the integration of aesthetic and technical skills as introduced in various lower level courses. Lab required. Prerequisite: ARTV 1341. 3 credit hours. (W)

BCIS 1305 Business Computer Applications
Students will study computer terminology, hardware, and software related to the business environment. The focus of this course is on business productivity software applications and professional behavior in computing, including word processing (as needed), spreadsheets, databases, presentation graphics, and business-oriented utilization of the Internet. Prerequisite: Meet TSI college-readiness standard for Reading; or equivalent. 3 credit hours. (A)

BIOL 1322 Nutrition and Diet Therapy
This course introduces general nutritional concepts in health and disease and includes practical applications of that knowledge. Special emphasis is given to nutrients and nutritional processes including functions, food sources, digestion, absorption, and metabolism. Food safety, availability, and nutritional information including food labels, advertising, and nationally established guidelines are addressed. 3 credit hours. (A)

BIOL 1323 Nutrition and Diet Therapy II
Applications of nutrition principles and techniques of nutrition care for healthy individuals and patients/clients at nutritional risk. Nutrition risk screening, interviewing/counseling methods, diet evaluation, basic diet calculations, and documentation. 3 credit hours. (A)

BIOL 1406 Biology for Science Majors I
Lecture: Fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. Lab: Laboratory activities will reinforce the fundamental principles of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

BIOL 1407 Biology for Science Majors II
Lecture: The diversity and classification of life will be studied, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. Lab: Laboratory activities will reinforce study of the diversity and classifications of life, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. Lab required. Prerequisite: BIOL 1406. 4 credit hours. (A) Note: This course includes dissection in lab.

BIOL 1408 Biology for Non-Science Majors I
Lecture: Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Lab: Laboratory activities will reinforce a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Lab required. 4 credit hours. (A)

BIOL 1409 Biology for Non-Science Majors II
Lecture: This course will provide a survey of biological principles with an emphasis on humans, including evolution, ecology, plant and animal
diversity, and physiology. Lab: Laboratory activities will reinforce a survey of biological principles with an emphasis on humans, including evolution, ecology, plant and animal diversity, and physiology. Lab required. Prerequisite: BIOL 1408. 4 credit hours. (A) Note: This course includes dissection in lab.

**BIOL 1414 Introduction to Biotechnology I**
Overview of classical genetics, DNA structure, the flow of genetic information, DNA replication, gene transcription, protein translation. Principles of molecular biology and genetic engineering techniques, including restriction enzymes and their uses, major types of cloning vectors, construction of libraries, Southern and Northern blotting, hybridization, PCR, DNA typing. Applications of these techniques in human health and welfare, medicine, agriculture and the environment. Introduction to the human genome project, gene therapy, molecular diagnostics, forensics, creation and uses of transgenic plans and animal and animal cloning and of the ethical, legal, and social issues and scientific problems associated with these technologies. Relevant practical exercises in the above areas. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A) Note: This course will transfer to a specific 2+2 baccalaureate program. Please check with your advisor to learn whether the course will transfer to a specific 2+2 baccalaureate program. There is an additional fee for this course.

**BIOL 1415 Introduction to Biotechnology II**
Lecture to focus on an integrative approach to study biomolecules with an emphasis on protein structures, functions and uses in the modern bioscience laboratory. Students will investigate the mechanisms involved in the transfer of information from DNA sequences to proteins to biochemical functions. The course will integrate biological and chemical concepts with techniques that are used in research and industry. Critical thinking will be applied in laboratory exercises using inquiry-based approaches, troubleshooting and analyzing experimental data. Lab required. Prerequisite/Concurrent enrollment: BIOL 1414. 4 credit hours. (A) Note: This course will transfer to a specific 2+2 baccalaureate program. Please check with your advisor to learn whether the course will transfer to the four-year program of your choice. There is an additional fee for this course.

**BIOL 2389 Academic Co-op Biology**
Integrates on-campus study with practical hands-on work experience in biology. In conjunction with class seminars, the student will set specific goals and objectives in the study of biology. Contact the Cooperative Work Experience Office. Prerequisite: BIOL 1406 or BIOL 1408. 3 credit hours. (A)

**BIOL 2401 Anatomy and Physiology I**
Lecture: Anatomy and Physiology I is the first part of a two course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. Lab: The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses. Lab required. Prerequisite: BIOL 1406 with a grade of “C” or better within the last three years or satisfactory score on the BIOL 2401 Readiness Test. We strongly recommend that you successfully complete BIOL 1406. 4 credit hours. (A)

**BIOL 2402 Anatomy and Physiology II**
Lecture: Anatomy and Physiology II is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. Lab: The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Lab required. Prerequisite: Biology 2401 with a grade of “C” or better within the last five years. 4 credit hours. (A)
BIOL 2404 Human Anatomy and Physiology Basic
A one-semester survey of the structure and function of the human body, including discussion and study of cells, tissues, organs, and systems. Lab required. 4 credit hours. (A)

BIOL 2406 Environmental Biology
Lecture: Principles of environmental systems and ecology, including biogeochemical cycles, energy transformations, abiotic interactions, symbiotic relationships, natural resources and their management, lifestyle analysis, evolutionary trends, hazards and risks, and approaches to ecological research. Lab: Laboratory activities will reinforce principles of environmental systems and ecology, including biogeochemical cycles, energy transformations, abiotic interactions, symbiotic relationships, natural resources and their management, lifestyle analysis, evolutionary trends, hazards and risks, and approaches to ecological research. Lab required, including field trips. 4 credit hours. (A)

BIOL 2416 Genetics
Study of the principles of molecular and classical genetics, and the function and transmission of hereditary material. Special emphasis on molecular genetics and genetic engineering. Lab required. Prerequisite: BIOL 1406. 4 credit hours. (A)

BIOL 2420 Microbiology for Non-Science Majors
Lecture: This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors. It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases. Major topics include bacterial structure as well as growth, physiology, genetics, and biochemistry of microorganisms. Emphasis is on medical microbiology, infectious diseases, and public health. Lab: This course covers basics of culture and identification of bacteria and microbial ecology. This course is primarily directed at pre-nursing and other pre-allied health majors and covers basics of microbiology. Emphasis is on medical microbiology, infectious diseases, and public health. Lab required. Prerequisite: BIOL 2401 with a grade of “C” or better within the last three years, and Prerequisite/Concurrent enrollment in BIOL 2402 with a grade of “C” or better within the last three years. 4 credit hours. (A)

BIOL 2421 Microbiology for Science Majors
Lecture: Principles of microbiology, including metabolism, structure, function, genetics, and phylogeny of microbes. The course will also examine the interactions of microbes with each other, hosts, and the environment. Lab: Laboratory activities will reinforce principles of microbiology, including metabolism, structure, function, genetics, and phylogeny of microbes. The course will also examine the interactions of microbes with each other, hosts, and the environment. Lab required. Prerequisites: BIOL 1407 and CHEM 1411. 4 credit hours. (A)

BIOM 2280 Cooperative Education - Biomedical Technology Technician
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 2 credit hours. (W)

BIOM 2380 Cooperative Education - Biomedical Technology Technician
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

BITC 1350 Special Studies and Bioethical Issues of Biotechnology
Current events, skills, attitudes, and behaviors pertinent to biotechnology and relevant to the professional development of the student. Includes exploration of ethical and legal behaviors in the context of the biotechnology industry. Prerequisites: BIOL 1414 and BIOL 1415 or Consent of Instructor. 3 credit hours. (W)
BITC 2350 Bioinformatics
Current topics in bioinformatics, proteomics, and computational biology. Includes methods for high-throughput data collection, storing, and accessing biological data. Covers programs and algorithms used to analyze data. Prerequisite: BITC 2411 or consent of Instructor. 3 credit hours. (W)

BITC 2386 Internship-Biology
Technician/Biotechnology Laboratory Technician
A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Contact the Cooperative Work Experience Office. Prerequisite: Completed 9 hours of biotechnology courses and consent of Instructor. Major Requirement: Biotechnology. 3 credit hours. (W)

BITC 2411 Biotechnology Laboratory Instrumentation
Theory, applications, and safe operation of various biotechnology-related analytical instruments. Addresses separation and identification techniques including electrophoresis, spectrophotometry, and chromatography. Lab required. Prerequisites: BIOL 1414 and BIOL 1415 or consent of Instructor. 4 credit hours. (W)

BITC 2431 Cell Culture Techniques
Theory and applications of cell culture techniques. Laboratory emphasis on the principles and practices of applications such as initiation, cultivation, maintenance, and preservation of cell lines. Lab required. Prerequisite: BIOL 1406 or consent of Instructor. 4 credit hours. (W)

BITC 2441 Molecular Biology Techniques
In-depth coverage of the theory and laboratory techniques in molecular biology with an emphasis on gene expression and regulation, recombinant DNA, and nucleic acids. Lab required. Prerequisites: BIOL 1414 and BIOL 1415 or consent of Instructor. 4 credit hours. (W)

BMGT 1305 Communications in Management
Basic theory and processes of communication skills necessary for the management of an organization's workforce. 3 credit hours. (W)

BMGT 1307 Team Building
Principles of building and sustaining teams in organizations. Includes team dynamics, process improvement, trust and collaboration, conflict resolution, and the role of the individual in the team. 3 credit hours. (W)

BMGT 1309 Information and Project Management
Critical path methods for planning and controlling projects. Includes time/cost tradeoffs, resource utilization, stochastic considerations, task determination, time management, scheduling management, status reports, budget management, customer service, professional attitude, and project supervision. 3 credit hours. (W)

BMGT 1313 Principles of Purchasing
The purchasing process as it relates to such topics as inventory control, price determination, vendor selection, supply chain management, negotiation techniques, and ethical issues in purchasing. 3 credit hours. (W)

BMGT 1327 Principles of Management
Concepts, terminology, principles, theories, and issues in the field of management. 3 credit hours. (W)

BMGT 1341 Business Ethics
Discussion of ethical issues, the development of a moral frame of reference, and the need for an awareness of social responsibility in management practices and business activities. Includes ethical corporate responsibility. 3 credit hours. (W)

BMGT 1344 Negotiations and Conflict Management
Theories which aid in the diagnosis of interpersonal and intergroup conflict. The role of manager as negotiator, intermediary, and problem solver. 3 credit hours. (W)

BMGT 2303 Problem Solving and Decision Making
Decision-making and problem-solving processes in organizations utilizing logical and creative problem solving techniques. Application of theory is provided by experiential activities using managerial decision tools. 3 credit hours. (W)

BMGT 2309 Leadership
Leadership and its relationship to management. Prepares the student with leadership and communication skills needed to motivate and identify leadership styles. 3 credit hours. (W)
BMGT 2311 Change Management
Knowledge, skills, and tools that enable a leader/organization to facilitate change in a participative style. 3 credit hours. (W)

BMGT 2341 Strategic Management
Strategic management process, including analysis of how organizations develop and implement a strategy for achieving organizational objectives in a changing environment. Prerequisite: BMGT 1327. Prerequisite/Concurrent enrollment: BMGT 2311. 3 credit hours. (W)

BMGT 2382 Cooperative Education - Business Administration and Management, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

BUSG 1307 Entrepreneurship and Economic Development
Overview of entrepreneurship as an economic development strategy. Includes community support systems for entrepreneurs. 3 credit hours. (W)

BUSG 2309 Small Business Management/Entrepreneurship
Starting, operating, and growing a small business. Includes essential management skills, how to prepare a business plan, accounting, financial needs, staffing, marketing strategies, and legal issues. 3 credit hours. (W)

BUSG 2371 Entrepreneurship Experience
Career-related activities associated with the operation of one's own business. This course will allow the student to identify and implement the necessary knowledge and skills required to be a successful business owner. Prerequisite: Consent of Discipline Lead. 3 credit hours. (W)

BUSI 1301 Business Principles
This course provides a survey of economic systems, forms of business ownership, and considerations for running a business. Students will learn various aspects of business, management, and leadership functions; organizational considerations; and decision-making processes. Financial topics are introduced, including accounting, money and banking, and securities markets. Also included are discussions of business challenges in the legal and regulatory environment, business ethics, social responsibility, and international business. Emphasized is the dynamic role of business in everyday life. 3 credit hours. (A)

BUSI 1307 Personal Finance
Personal financial issues including financial planning, insurance, budgeting, credit, home ownership, savings and tax problems. 3 credit hours. (A)

BUSI 2301 Business Law
The course provides the student with foundational information about the U.S. legal system and dispute resolution, and their impact on business. The major content areas will include general principles of law, the relationship of business and the U.S. Constitution, state and federal legal systems, the relationship between law and ethics, contracts, sales, torts, agency law, intellectual property, and business law in the global context. Prerequisite: High school coursework in U.S. history and government; or equivalent. 3 credit hours. (A)

CDEC 1270 Introduction to Teaching ESL
An overview of ESL education. Topics include awareness of cultural diversity, assessment strategies, teaching techniques, instructional activity development and historical/philosophical concepts of ESL education. Lab required. 2 credit hours. (W)

CDEC 1313 Curriculum Resources for Early Childhood Programs
A study of the fundamentals developmentally appropriate curriculum design and implementation in early care and education programs for children birth through age eight. Lab required. 3 credit hours. (W)

CDEC 1317 Child Development Associate Training I
Based on the requirements for the Child Development Associate credential (CDA). Topics include CDA overview, observation skills, and child growth and development. The four functional areas of study are creative, cognitive, physical, and communication. Lab required. 3 credit hours. (W)

CDEC 1319 Child Guidance
An exploration of guidance strategies for promoting pro-social behaviors with individual and groups of children. Emphasis on positive guidance principles
and techniques, family involvement, and cultural influences. Lab required. 3 credit hours. (W)

CDEC 1321  The Infant and Toddler
A study of appropriate infant and toddler programs (birth to age 3), including an overview of development, quality routines, learning environments, materials and activities, and teaching/guidance techniques. Lab required. 3 credit hours. (W)

CDEC 1323  Observation and Assessment
A study of observation skills, assessment techniques, and documentation of children's development. Lab required. 3 credit hours. (W)

CDEC 1358  Creative Arts for Early Childhood
An exploration of principles, methods and materials for teaching music, movement, visual arts, and dramatic play through process-oriented experiences to support divergent thinking for children birth through age eight. Lab required. 3 credit hours. (W)

CDEC 1359  Children with Special Needs
A survey of information regarding children with special needs including possible causes and characteristics of exceptionalities, intervention strategies, available resources, referral processes, the advocacy role, and legislative issues. Lab required. 3 credit hours. (W)

CDEC 1385  Cooperative Education - Child Development
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

CDEC 2166  Practicum - Child Care Provider/Assistant
Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: Consent of Associate Dean. 1 credit hour. (W)

CDEC 2304  Child Abuse and Neglect
Methods used in the identification of physical, emotional, and sexual abuse and neglect with an emphasis on developing skills for working with children and families. Includes methods of referral to public and private agencies that deal with investigation and treatment. Lab required. 3 credit hours. (W)

CDEC 2307  Math and Science for Early Childhood
Exploration of principles, methods, and materials for teaching children math and science concepts and process skills through discovery and play. Lab required. 3 credit hours. (W)

CDEC 2322  Child Development Associate Training II
A continuation of the study of the requirements for the Child Development Associate credential (CDA). The six functional areas of study include safe, healthy, learning environment, self, social, and guidance. Lab required. 3 credit hours. (W)

CDEC 2324  Child Development Associate Training III
Continuation of the requirements for the Child Development Associate credential (CDA). The three functional areas of study include family, program management, and professionalism. Lab required. 3 credit hours. (W)

CDEC 2326  Administration of Programs for Children I
Application of management procedures for early care and education programs. Includes planning, operating, supervising, and evaluating programs. Topics cover philosophy, types of programs, policies, fiscal management, regulations, staffing, evaluation, and communication. Lab required. 3 credit hours. (W)

CDEC 2328  Administration of Programs for Children II
An in-depth study of the skills and techniques in managing early care and education programs, including legal and ethical issues, personnel management, team building, leadership, conflict resolution, stress management, advocacy, professionalism, fiscal analysis, technical applications in programs and planning parent education / partnerships. Lab required. 3 credit hours. (W)
CDEC 2336 Administration of Programs for Children III
An advanced study of the skills and techniques in administering early care education programs. Lab required. 3 credit hours. (W)

CDEC 2340 Instructional Techniques for Children with Special Needs
Exploration of development and implementation of curriculum for children with special needs. Lab required. 3 credit hours. (W)

CDEC 2371 Using Technology in the Classroom
An overview of technology, media and digital information in education. This course includes a review of research on the impact, as well as methodology on effective use, of technology and media on children and teachers in the classroom and in curriculum planning and presentation. Lab required. 3 credit hours. (W)

CETT 1303 DC Circuits
A study of the fundamentals of direct current including Ohm's law, Kirchhoff's law, and circuit analysis techniques. Lab required. 3 credit hours. (W)

CETT 1305 AC Circuits
A study of the fundamentals of alternating current including series and parallel AC circuits, phasors, capacitive and inductive networks, transformers, and resonance. Lab required. Prerequisite: CETT 1303 or consent of Associate Dean. 3 credit hours. (W)

CETT 1325 Digital Fundamentals
An entry level course in digital electronics covering number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic. Emphasis on circuit logic analysis and troubleshooting digital circuits. Lab required. 3 credit hours. (W)

CETT 1329 Solid State Devices
A study of diodes and other semiconductor devices, including analysis of static and dynamic characteristics, biasing techniques, and thermal considerations. Lab required. 3 credit hours. (W)

CETT 1345 Microprocessor
An introductory course in microprocessor software and hardware, its architecture, timing sequence, operation, and programming, and discussion of appropriate software diagnostic language and tools. Prerequisite: CETT 1325 or consent of Associate Dean. Lab required. 3 credit hours. (W)

CETT 1357 Linear Integrated Circuits
Characteristics, operations, stabilization, testing, and feedback techniques of linear integrated circuits. Applications of computation, measurements, instrumentation, and active filtering. Lab required. Prerequisite: CETT 1305 or consent of Associate Dean. 3 credit hours. (W)

CETT 2380 Cooperative Education-Computer Engineering Technology/Technician
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

CHEF 1301 Basic Food Preparation
A study of the fundamental principles of food preparation and cookery to include Brigade System, cooking techniques, material handling, heat transfer, sanitation, safety, nutrition, and professionalism. Lab required. Prerequisite: Mandatory Culinary / Pastry Arts Orientation. 3 credit hours. (W)

CHEF 1302 Principles of Healthy Cuisine
Introduction to the principles of planning, preparation, and presentation of nutritionally balanced meals. Alternative methods and ingredients will be used to achieve a healthier cooking style. Lab required. Prerequisites: CHEF 2331 with a grade of “C” or better and IFWA 1310. 3 credit hours. (W)

Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 1305 Sanitation and Safety
A study of personal cleanliness; sanitary practices in food preparation; causes, investigation, control of illness caused by food contamination (Hazard Analysis Critical Control Points); and work place safety standards. 3 credit hours. (W)

CHEF 1310 Garde Manger
A study of cold foods and garnishes. Emphasis on design, techniques, and display of fine foods. Lab required. Prerequisite / Concurrent enrollment: CHEF
CHEF 1314 A La Carte Cooking
A course in a la carte or "cooking to order" concepts. Topics include menu and recipe interpretation and conversion, organization of work station, employment of appropriate cooking methods, plating, and saucing principles. Lab included. Prerequisites: CHEF 1310, CHEF 1341, CHEF 1345, and PSTR 1301. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 1341 American Regional Cuisine
A study of the development of regional cuisine’s in the United States with emphasis on the similarities in production and service systems. Application of skills to develop, organize, and acquire knowledge of recipe strategies and production systems. Professional chef uniform and kitchen tools required. Lab required. Prerequisite / Concurrent enrollment: CHEF 2331 with a grade of “C” or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 1345 International Cuisine
The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Topics include similarities between food production systems used in the United States and other regions of the world. Professional chef uniform and kitchen tools required. Lab required. Prerequisite / Concurrent enrollment: CHEF 2331 with a grade of “C” or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 2302 Saucier
Instruction in the preparation of stocks, soups, classical sauces, contemporary sauces, accompaniments, and the pairing of sauces with a variety of foods. Lab included. Prerequisite: CHEF 2331 with a grade of “C” or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 2331 Advanced Food Preparation
Advanced concepts of food preparation and presentation techniques. Identify and prepare breakfast meats, eggs, cereals, and batter products, discuss the applicability of convenience, value added, further processed or par cooked food items; and demonstrate food presentation techniques and writing standardized recipes. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1301 with a grade of “C” or better and CHEF 1305 with a grade of “C” or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 2336 Charcuterie
Advanced concepts in the construction of sausages, pates, and related force meat preparations. Lab required. Prerequisites: CHEF 1301, CHEF 1305 and CHEF 2331. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

CHEF 2380 Cooperative Education - Culinary Arts/Chef Training
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Prerequisites: CHEF 1301 with a grade of “C” or better and CHEF 1305 with a grade of “C” or better. 3 credit hours. (W)

CHEM 1405 Introduction to Chemistry I
For non-science majors. Survey of chemistry including scientific calculations, chemical equations, theory of atoms and bonding, states of matter, nuclear chemistry, elementary thermodynamics, and acid-base chemistry. Lab and recitation required. Prerequisite: Meet TSI standard for MATH 0310, and

Please refer to http://www.collin.edu/academics/programs/index.html for the most current information.
TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

**CHEM 1411 General Chemistry I**
Lecture: Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry.
Lab: Basic laboratory experiments supporting theoretical principles presented in CHEM 1311; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. High school chemistry is strongly recommended. Prerequisite: MATH 1314 equivalent or higher level within the last 5 years with a grade of "C" or better, and meet TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

**CHEM 1412 General Chemistry II**
Lecture: Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry.
Lab: Basic laboratory experiments supporting theoretical principles presented in CHEM 1312; introduction of the scientific method, experimental design, chemical instrumental, data collection and analysis, and preparation of laboratory reports. Prerequisite: CHEM 1411 within the last five years with a grade of "C" or better. 4 credit hours. (A)

**CHEM 2423 Organic Chemistry I**
Lecture: Fundamental principles of organic chemistry will be studied, including the structure, bonding, properties, and reactivity of organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereocemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. This course is intended for students in science or pre-professional programs. Lab: Laboratory activities will reinforce fundamental principles of organic chemistry, including the structure, bonding, properties, and reactivity of organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereocemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Methods for the purification and identification of organic compounds will be examined. Lab and recitation required. Prerequisite: CHEM 1412 within the last five years with a grade of "C" or better. 4 credit hours. (A)

**CHEM 2425 Organic Chemistry II**
Lecture: Advanced principles of organic chemistry will be studied, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereocemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. This course is intended for students in science or pre-professional programs. Lab: Laboratory activities reinforce advanced principles of organic chemistry, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereocemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Lab and recitation required. Prerequisite: CHEM 2423 within the last 5 years with a grade of "C" or better. 4 credit hours. (A)

**CHIN 1411 Beginning Chinese I**
Introduction to the basic skills of speaking, reading, writing, and listening with attention to selected aspects of Chinese culture; designed for students with little or no previous language training. Instruction is enhanced by the use of tapes, slides, and video cassettes. Lab required. 4 credit hours. (A)
CHIN 1412 Beginning Chinese II
Continuation of CHIN 1411. Lab required. Prerequisite: CHIN 1411 or consent of Associate Dean. 4 credit hours. (A)

CHIN 2311 Intermediate Chinese I
Review and application of skills in listening comprehension, speaking, reading, and writing. Emphasizes conversation, vocabulary acquisition, reading, composition, and culture. Prerequisite: CHIN 1412 or consent of Associate Dean. 3 credit hours. (A)

CHIN 2312 Intermediate Chinese II
Continuation of CHIN 2311, emphasizing conversation and reading skills. Prerequisite: CHIN 2311 or consent of Associate Dean. 3 credit hours. (A)

CJLE 1429 Basic Peace Officer V
Supplemental course taken in conjunction with Basic Peace Officer I, II, III, and IV. Satisfies or exceeds the Texas Commission on Law Enforcement (TCOLE) approved Basic Peace Officer Training Academy. Additionally, this course incorporates the following sections of TCOLE Course 1000: Strategies of Defense - Racial Profiling and the Law; Identity Crimes; Asset Forfeiture; Criminal Investigation. The entire basic peace officer training will be reviewed to prepare students for the state licensing exam. Lab required. Prerequisite: Admission to the Basic Peace Officer Program and consent of the Law Enforcement Academy Director or Designee. Corequisite: CJLE 1512. Major Requirement: Certificate - Basic Peace Officer. 5 credit hours. (W)

CJLE 1512 Basic Peace Officer II
Basic preparation for a new peace officer. Should be taken in conjunction with Basic Peace Officer I, III, IV and V (supplement) to satisfy the Texas Commission on Law Enforcement (TCOLE) approved Basic Peace Officer Training Academy. Additionally, this course incorporates the following sections of TCOLE Course 1000: Traffic, Intoxicated Driver and Standardized Field Sobriety Testing; Civil Process and Liability; Texas Alcoholic Beverage Code; Health and Safety Code - Controlled Substances Act; Family Code and Juvenile Issues; Force Options. Lab required. Prerequisite: Admission to the Basic Peace Officer Program and consent of the Law Enforcement Academy Director or Designee. Corequisite: CJLE 1506. Major Requirement: Certificate - Basic Peace Officer. 5 credit hours. (W)

CJLE 1518 Basic Peace Officer III
Basic preparation for a new peace officer. Should be taken in conjunction with Basic Peace Officer I, II, IV and V (supplement) to satisfy the Texas Commission on Law Enforcement (TCOLE) approved Basic Peace Officer Training Academy. Additionally, this course incorporates the following sections of TCOLE Course 1000: Written and Verbal Communications; Introductory Spanish; Strategies of Defense - Mechanics of Arrest; Strategies of Defense - Firearms; Emergency Medical Assistance; Problem Solving and Critical Thinking. Lab required. Prerequisite: Admission to the Basic Peace Officer Program and consent of the Law Enforcement Academy Director or Designee. Corequisite: CJLE 1506 and CJLE 1512. Major Requirement: Certificate - Basic Peace Officer. 5 credit hours. (W)

CJLE 1506 Basic Peace Officer I
Basic preparation for a new peace officer. Should be taken in conjunction with Basic Peace Officer II, III, IV and V (supplement) to satisfy the Texas Commission on Law Enforcement (TCOLE) approved Basic Peace Officer Training Academy. Additionally, this course incorporates the following sections of TCOLE Course 1000: Introduction and Orientation; TCOLE Rules; Fitness and Wellness, and Stress Management; Professional Policing; Professionalism and Ethics; U. S. and Texas Constitutions, Bill of Rights, and Criminal Justice System; Multiculturalism and Human Relations; Code of Criminal Procedure; Arrest, Search and Seizure; Penal Code. Lab required. Prerequisite: Admission to the Basic Peace Officer Program and consent of the Law Enforcement Academy Director or Designee. Corequisite: CJLE 1512. Major Requirement: Certificate - Basic Peace Officer. 5 credit hours. (W)

CJLE 1524 Basic Peace Officer IV
Basic preparation for a new peace officer. Should be taken in conjunction with Basic Peace Officer I, II, III and V (supplement) to satisfy the Texas Commission on Law Enforcement (TCOLE) approved Basic Peace Officer Training Academy. Additionally, this course incorporates the following sections of TCOLE Course 1000: Emergency Communications; Professional Police Driving; Patrol/Consular Notification; Victims of Crime;
Family Violence and Related Assaultive Offenses; Crisis Intervention Training (CIT)/Mental Health Code; Hazardous Materials Awareness. Lab required. Prerequisite: Admission to the Basic Peace Officer Program and consent of the Law Enforcement Academy Director or Designee. Prerequisite/Concurrent enrollment: CJLE 1506 and CJLE 1512. Major Requirement: Certificate - Basic Peace Officer. 5 credit hours. (W)

**COMM 1307 Introduction to Mass Communication**
Survey of basic content and structural elements of mass media and their functions and influences on society. Additionally, a study of mass media in the United States with emphasis on newspapers, magazines, radio, film, publishing, the internet and television; history of mass media and the business models that support them; and the role and responsibility of mass media in modern society. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 1335 Introduction to Electronic Media**
An overview of the development, regulation, economics, social impact, and industry practices in electronic media. Additionally, an historical and critical comparison of the first two broadcast media as they have evolved, this course includes discussion of important historical issues that resonate with contemporary media concerns’ including intellectual property and patent rights, aesthetics and production values, censorship and freedom of speech, broadcast ethics, ratings fallibility, public responsibility and emotional contagion. The course also discusses the development and necessary metamorphosis of each medium in response to contemporary events, social change, and the encroachment of new technology, new media and alternative delivery methods. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2300 Media Literacy**
Criticism and analysis of the function, role, and responsibility of the mass media in modern society from the consumer perspective. Includes the ethical problems and issues facing each media format, with the effect of political, economic, and cultural factors on the operation of the media. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2330 Introduction to Public Relations**
Exploration of the history and development of public relations. Presentation of the theory behind and process of public relations, including the planning, implementation, and evaluation of PR campaigns. Additionally, exploration of current trends in the profession and overview of how the process is carried out in different public relations specializations. The student is recommended to complete either COMM 1307 or SPCH 1311 prior to registering for this course, but not required. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2331 Radio / Television Announcing**
Principles of, and practice in, radio and TV announcing, including the study of voice (diction, pronunciation, and delivery) as it relates to mediated contexts and experience in news announcing, interviewing, and acting in commercial. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2332 Radio/Television News**
The preparation and analysis of news styles for the electronic media. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2339 Writing for Radio, Television, and Film**
Designed to train the student in all typical forms of broadcast and film writing, including news, commercial copy, critique and commentary, radio theatre, comedy and dramatic teleplay, and screenplay. Course provides both writing and production experiences. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**COMM 2366 Introduction to Cinema**
Survey and analyze cinema including history, film techniques, production procedures, selected motion pictures, and cinema’s impact on and reflection of society. Lab required. Prerequisite: ARTS 2348 or PHTC 1311 or consent of Associate Dean. 3 credit hours. (A) Note: Students may take either DRAM 2366 or COMM 2366, but not both.
COMM 2389 Academic Co-op Communication
For students with interest or major in mass communications, radio, TV, or film. Integrates on-campus study with practical hands-on work experience in communication. In conjunction with class seminars, the student will set specific goals and objectives in the study of communication. Contact the Cooperative Work Experience Office. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

COSC 1301 Introduction to Computing
Overview of computer systems hardware, operating systems, the Internet and application software including word processing, spreadsheets, presentation graphics, and databases. Current topics such as the effect of computers on society, and the history and use of computers in business, educational, and other interdisciplinary settings are also studied. This course is not intended to count toward a student's major field of study in business or computer science. Prerequisite: Meet TSI college-readiness standard for Reading; or equivalent. 3 credit hours. (A)

COSC 1315 Introduction to Computer Programming
Introduction to computer programming for solving a variety of problems. This course is intended for non-computer science and non-computer engineering majors. Emphasis on the fundamentals of design, development, testing, implementation, and documentation of computer programs. Includes problem solving with structured techniques and algorithms using pseudo code and/or graphical representations. Additionally, course also includes introduction to language syntax, data types, algorithms, input/output and arrays. Lab required. 3 credit hours. (A)

COSC 1337 Programming Fundamentals II (Java)
This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisites: COSC 1315 or COSC 1436 or consent of Associate Dean. 3 credit hours. (A) Note: Students may take either COSC 1337 or COSC 1437 but not both.

COSC 1436 Programming Fundamentals I (C++)
This course introduces the fundamental concepts of structured programming, and provides a comprehensive introduction to programming for computer science and technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 4 credit hours. (A)

COSC 1437 Programming Fundamentals II (C++)
This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisite: COSC 1436 or consent of Associate Dean. 4 credit hours. (A) Note: Students may take either COSC 1337 or COSC 1437 but not both.

COSC 2325 Computer Organization
The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced. Additionally, this class is taught with Intel assembly language. Prerequisites: COSC 1436 or consent of Associate Dean. 3 credit hours. (A)

COSC 2336 Programming Fundamentals III (C++)
Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), searching, sorting, recursion, and algorithmic analysis. Programs will be...
implemented in an appropriate object oriented language. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisite: COSC 1437 or consent of Associate Dean. 3 credit hours. (A) Note: Students may take either COSC 2336 or COSC 2436 but not both.

COSC 2436 Programming Fundamentals III (Java)
Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), searching, sorting, recursion, and algorithmic analysis. Programs will be implemented in an appropriate object oriented language. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisite: COSC 1337 or consent of Associate Dean. 4 credit hours. (A) Note: Students may take either COSC 2336 or COSC 2436 but not both.

COSU 0301 Test-Taking and Study Skills for Non-Native English Speakers
This class will prepare non-native English speaking students for success by providing instruction and practice in test-taking techniques as well as exposing them to the expectations and realities of college academic coursework. Topics that will be covered include information processing, memory, strategic learning, self-regulation, goal setting, motivation, educational planning, and learning styles. Techniques of study such as organization, time-management, listening/speaking/reading/writing in a lecture or classroom setting, note-taking, research skills, and test preparation will be covered. This course will be particularly beneficial to students who are required to complete the TOEFL or the IELTS prior to admission to college or university. Prerequisites: ESLC 0310, ESLR 0310 and ESLW 0310, or consent of ESL Testing Coordinator or ESL Associate Dean. 3 credit hours. (D)

CPMT 1305 IT Essentials I: PC Hardware and Software
Provides comprehensive overview of computer hardware and software and an introduction to advanced concepts addressed by CISCO CCENT certification. Lab required. 3 credit hours. (W)

CRIJ 1301 Introduction to Criminal Justice
This course provides a historical and philosophical overview of the American criminal justice system, including the nature, extent, and impact of crime; criminal law; and justice agencies and processes. 3 credit hours. (A)

CRIJ 1306 Court Systems and Practices
This course is a study of the court system as it applies to the structures, procedures, practices and sources of law in American courts, using federal and Texas statutes and case law. 3 credit hours. (A)

CRIJ 1307 Crime in America
American crime problems in historical perspective, social and public policy factors affecting crime, impact and crime trends, social characteristics of specific crimes, and prevention of crime. 3 credit hours. (A)

CRIJ 1310 Fundamentals of Criminal Law
This course is the study of criminal law including application of definitions, statutory elements, defenses and penalties using Texas statutes, the Model Penal Code, and case law. The course also analyzes the philosophical and historical development of criminal law and criminal culpability. 3 credit hours. (A)

CRIJ 1313 Juvenile Justice System
A study of the juvenile justice process to include specialized juvenile law, role of the juvenile law, role of the juvenile courts, role of police agencies, role of correctional agencies, and theories concerning delinquency. 3 credit hours. (A)

CRIJ 2313 Correctional Systems and Practices
This course is a survey of institutional and non-institutional corrections. Emphasis will be placed on the organization and operation of correctional systems; treatment and rehabilitation; populations served; Constitutional issues; and current and future issues. 3 credit hours. (A)

CRIJ 2314 Criminal Investigation
Investigative theory; collection and preservation of evidence; sources of information; interview and interrogation; uses of forensic sciences; case and trial preparation. 3 credit hours. (A)

CRIJ 2323 Legal Aspects of Law Enforcement
Police authority; responsibilities; constitutional constraints; laws of arrest, search, and seizure; and police liability. 3 credit hours. (A)
CRIJ 2328 Police Systems and Practices
This course examines the establishment, role and function of police in a democratic society. It will focus on types of police agencies and their organizational structure, police-community interaction, police ethics, and use of authority. 3 credit hours. (A)

DANC 1110 Tap Dance
Instruction in the fundamental techniques and concepts associated with Tap dance. May be repeated one time for additional degree credit. Lab required. 1 credit hour. (A)
Note: Students may take DANC 1110, DANC 1128, DANC 1151 and DANC 2151 for a combined total of no more than 18 credit hours.

DANC 1112 Dance Practicum
Practicum in dance related topics with emphasis on practical skills necessary for the field. May be repeated one time for additional degree credit.
Prerequisite: Consent of Instructor. 1 credit hour. (A)
NOTE: May be repeated one time for additional credit.

DANC 1128 Ballroom and Social Dance
Introductory instruction in the fundamental techniques and concepts associated with Ballroom and Social Dance. May be repeated one time for additional degree credit. Lab required. 1 credit hour. (A)
Note: Students may take DANC 1110, DANC 1128, DANC 1151 and DANC 2151 for a combined total of no more than 18 credit hours.

DANC 1151 Freshman Dance Performance
Instruction in dance performance through experiential projects at the freshman level. May be repeated one time for additional degree credit. Lab required. 1 credit hour. (A)
Note: Students may take DANC 1110, DANC 1128, DANC 1151 and DANC 2151 for a combined total of no more than 18 credit hours.

DANC 1201 Dance Composition - Improvisation
This introductory course in improvisation will investigate spontaneous problem solving as a means of generating movement for dance composition Students will be called upon to explore and respond to various forms of stimuli in a safe and supportive learning environment within solo and group work. Lab required. 2 credit hours. (A)

DANC 1214 Beginning Ballet
Instruction in the fundamental techniques and concepts associated with ballet. Lab required. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 1245 Beginning Modern Dance
Instruction in the fundamental techniques and concepts associated with the concert form of modern dance. May be repeated one time for additional degree credit. Lab required. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 1247 Beginning Jazz Dance
Instruction in the fundamental techniques and concepts associated with jazz dance. May be repeated one time for additional degree credit. Lab required. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 1301 Dance Composition - Choreography
This course is an examination of the principles of movement generation, phrasing, choreographic structure, and manipulation. Integration of choreographic principles will foster the growth of personal artistic style. Lab required. 3 credit hours. (A)

DANC 1305 World Dance
A survey of dances from different cultures, their histories, and their influences on contemporary dance and society. Cultural origins, significance, motivations and techniques will be explored experientially. 3 credit hours. (A)

DANC 2151 Sophomore Dance Performance
Instruction in of dance performance through experiential projects at the sophomore level. May be repeated one time for additional degree credit. Lab required. 1 credit hour. (A)
Note: Students may take DANC 1110, DANC 1128, DANC 1151 and DANC 2151 for a combined total of no more than 18 credit hours.

DANC 2241 Intermediate Ballet
Instruction in the intermediate techniques and concepts associated with ballet. May be repeated one time for additional degree credit. Lab required.
Prerequisite: DANC 1241 or Consent of Instructor. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 2245 Intermediate Modern Dance
Instruction in the intermediate techniques and concepts associated with the concert form of modern dance. May be repeated one time for additional degree credit. Lab required. Prerequisite: DANC 1245 or Consent of Instructor. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 2247 Intermediate Jazz Dance
Instruction in the intermediate techniques and concepts associated with jazz dance. May be repeated one time for additional degree credit. Lab required. Prerequisite: DANC 1247 or Consent of Instructor. 2 credit hours. (A)
NOTE: May be repeated one time for additional credit.

DANC 2303 Dance Appreciation
A general survey of dance forms designed to create an appreciation of the vocabulary, techniques, and purposes of the creative process. This course includes critical interpretation and evaluations of choreographic works and dance forms within cultural and historical contexts. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

DANC 2389 Academic Cooperative
Integrates on-campus study with practical hands-on work experience in dance. In conjunction with class seminars, the student will set specific goals and objectives in the study of dance. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

DFTG 1305 Technical Drafting
Introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, auxiliary views. Lab required. 3 credit hours. (W)

DFTG 1309 Basic Computer-Aided Drafting
An introduction to computer-aided drafting. Emphasis is placed on setup; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinating systems; and plot/print to scale. Lab required. 3 credit hours. (W)

DFTG 1317 Architectural Drafting-Residential
Architectural drafting procedures, practices, terms, and symbols. Preparation of detailed working drawings for residential structures. Emphasis on light frame construction methods. Lab required. Prerequisite: DFTG 2328. 3 credit hours. (W)

DFTG 1333 Mechanical Drafting
Study of mechanical drawings using dimensioning and tolerances, sectioning techniques, orthographic projection, and pictorial drawings. Lab required. Prerequisite: DFTG 2319. 3 credit hours. (W)

DFTG 1345 Parametric Modeling and Design
Parametric-based design software for 3D design and drafting. Lab required. Prerequisite: DFTG 1372. 3 credit hours. (W)

DFTG 1371 Mechanical Drafting-Fundamentals of Sheetmetal Design
The Fundamentals of Sheetmetal Design course teaches the skills required in designing sheetmetal parts and assemblies, trouble shooting and creating production drawings. All functions needed to create sheetmetal parts, drawings and assemblies are taught in this course. The lesson modules are structured to maximize hands-on interaction with the Pro/Sheetmetal module in Pro/Engineer. Lab required. Prerequisite: DFTG 1333. 3 credit hours. (W)

DFTG 1372 SOLIDWORKS Essentials
A study of mechanical drafting and design using SOLIDWORKS mechanical design automation software to build parametric models of parts and assemblies. The course teaches how to make drawings of those parts and assemblies through the use of dimensioning and tolerancing, sectioning techniques and orthographic projection. Lab required. 3 credit hours. (W)

DFTG 2319 Intermediate Computer-Aided Drafting
A continuation of practices and techniques used in basic computer-aided drafting including the development and use of prototype drawings, construction of pictorial drawings, extracting data
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisite(s)</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFTG 2321</td>
<td>Topographical Drafting</td>
<td>Plotting of surveyor’s field notes. Includes drawing elevations, contour lines, plan and profiles, and laying out traverses. Lab required. Prerequisite: DFTG 1309. 3 credit hours. (W)</td>
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<tr>
<td>DFTG 2328</td>
<td>Architectural Drafting-Commercial</td>
<td>Architectural drafting procedures, practices, governing codes, terms and symbols including the preparation of detailed working drawings for a commercial building, with emphasis on commercial construction methods. Lab required. Prerequisite: DFTG 1309. Prerequisite/Concurrent enrollment: DFTG 2319. 3 credit hours. (W)</td>
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<tr>
<td>DFTG 2350</td>
<td>Geometric Dimensioning and Tolerancing</td>
<td>Geometric dimensioning and tolerancing, according to standards, application of various geometric dimensions and tolerances to production drawings. Lab required. Prerequisite: DFTG 1309. 3 credit hours. (W)</td>
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<td>3</td>
</tr>
<tr>
<td>DFTG 2373</td>
<td>Advanced SOLIDWORKS</td>
<td>Study of advanced topics in SOLIDWORKS mechanical drafting and design. The course teaches how to build assemblies, to create professional drawing, and to use various SOLIDWORKS tools to manage information to facilitate the design process. Lab required. Prerequisite: DFTG 1372. 3 credit hours. (W)</td>
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<td>3</td>
</tr>
<tr>
<td>DFTG 2381</td>
<td>Cooperative Education-Drafting and Design Technology / Technician, General</td>
<td>Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)</td>
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<tr>
<td>DFTG 2432</td>
<td>Advanced Computer-Aided Drafting</td>
<td>Application of advanced CAD techniques. Lab required. Prerequisite / Concurrent enrollment: DFTG 1372. 4 credit hours. (W)</td>
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</tr>
<tr>
<td>DHYG 1201</td>
<td>Orofacial Anatomy, Histology and Embryology</td>
<td>The histology and embryology of oral tissues, gross anatomy of the head and neck, tooth morphology, and individual tooth identification. Lab required. Prerequisites: BIOL 2401 and BIOL 2402; both with a grade of &quot;C&quot; or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)</td>
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</tr>
<tr>
<td>DHYG 1207</td>
<td>General and Dental Nutrition</td>
<td>General nutrition and nutritional biochemistry emphasizing the effect nutrition has on oral health. Prerequisite: DHYG 1431 (or DHYG 1331) with a grade of “C” or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)</td>
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<td>2</td>
</tr>
<tr>
<td>DHYG 1211</td>
<td>Periodontology</td>
<td>Normal and diseased periodontium including the structural, functional, and environmental factors. Emphasis on etiology, pathology, treatment modalities, and therapeutic and preventive periodontics. Prerequisites: DHYG 1227 and DHYG 1261; both with a grade of &quot;C&quot; or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)</td>
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<tr>
<td>DHYG 1215</td>
<td>Community Dentistry</td>
<td>The principles and concepts of community public health and dental health education emphasizing community assessment, educational planning, implementation, and evaluation including methods and materials used in teaching dental health education in various community settings. Additionally, this course includes rotation schedule into the community (4 hours weekly). Lab required. Prerequisites: DHYG 1227, DHYG 1261 and ENGL 1301; all with a grade of &quot;C&quot; or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)</td>
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<tr>
<td>DHYG 1219</td>
<td>Dental Materials</td>
<td>Physical and chemical properties of dental materials including the application and manipulation of the various materials used in dentistry. Lab required. Prerequisite: DHYG 1431 with a grade of &quot;C&quot; or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)</td>
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<tr>
<td>DHYG 1227</td>
<td>Preventive Dental Hygiene Care</td>
<td>The role of the dental hygienist as a therapeutic oral health care provider with emphasis on concepts of disease management, health promotion,</td>
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</table>
communication, and behavior modification. Lab required. Prerequisites: DHYG 1201 and DHYG 1431, both with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

DHYG 1235 Pharmacology for the Dental Hygienist
Classification of drugs and their uses, actions, interactions, side effects, contraindications with emphasis on dental applications. Prerequisite: DHYG 1431 with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

DHYG 1239 General and Oral Pathology
Disturbances in human body development, diseases of the body, and disease prevention measures with emphasis on the oral cavity and associated structures. Lab required. Prerequisites: DHYG 1227 and DHYG 1261; both with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

DHYG 1261 Clinical I-Dental Hygienist
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: DHYG 1201 and DHYG 1431; both with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

DHYG 1301 Orofacial Anatomy, Histology and Embryology
The histology and embryology of oral tissues, gross anatomy of the head and neck, tooth morphology, and individual tooth identification. Lab required. Prerequisites: BIOL 2401 and BIOL 2402; both with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

DHYG 1304 Dental Radiology
Fundamentals of oral radiography, including techniques, interpretation, quality assurance, and ethics. Lab required. Corequisite: DHYG 1201, or consent of Program Director. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

DHYG 1311 Periodontology
Normal and diseased periodontium including the structural, functional, and environmental factors. Emphasis on etiology, pathology, treatment modalities, and therapeutic and preventive periodontics. Prerequisites: DHYG 1227 and DHYG 1261. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

DHYG 1319 Dental Materials
Physical and chemical properties of dental materials including the application and manipulation of the various materials used in dentistry. Lab required. Prerequisites: CHEM 1405 and DHYG 1331. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

DHYG 1331 Preclinical Dental Hygiene
Foundational knowledge for performing clinical skills on patients with emphasis on procedures and rationale for performing dental hygiene care. Introduction to ethical principles as they apply to dental hygiene care. Lab required. Prerequisites: BIOL 2401, and BIOL 2402, and CHEM 1405. Major Requirement: AAS-Dental Hygiene. 3 credit hours. (W)

DHYG 1339 General and Oral Pathology
Disturbances in human body development, diseases of the body, and disease prevention measures with emphasis on the oral cavity and associated structures. Prerequisites: DHYG 1235, DHYG 2201, and DHYG 2361. Major Requirement: AAS-Dental Hygiene. 3 credit hours. (W)

DHYG 2375 Strategies of Oral Medicine
Case presentation that emphasizes the integration of dental hygiene sciences, critical thinking and the application of evidence based research on an advanced level. Presentations by students include patient case studies and literature reviews for class discussion. Patient case studies integrate knowledge from the areas of research, pharmacology, periodontology, pathology, emergency care, ethics, nutrition, dental radiology and clinical courses that demonstrate the highest quality of care for each patient. Prerequisites: DHYG 1235, DHYG 2201, and DHYG 2361. Major Requirement: AAS-Dental Hygiene. 3 credit hours. (W)

DHYG 1431 Preclinical Dental Hygiene
Foundational knowledge for performing clinical skills on patients with emphasis on procedures and rationale for performing dental hygiene care. Introduction to ethical principles as they apply to dental hygiene care. Lab required. Prerequisites: BIOL 2401 and BIOL 2402; both with a grade of "C"
or better. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

**DHYG 2102 Applied Community Dentistry**
Application of the principles and concepts of community public health and dental health education emphasizing community assessment, educational planning, implementation, and evaluation including methods and materials used in teaching dental health education in various community settings. Lab required. Prerequisite: DHYG 1215 with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 1 credit hour. (W)

**DHYG 2153 Dental Hygiene Practice**
Emphasis on the laws governing the practice of dentistry and dental hygiene, moral standards, and the ethical standards established by the dental hygiene profession. Practice settings for the dental hygienist, office operations, and preparation for employment. Prerequisite: Admitted to the Dental Hygiene Program. Major Requirement: AAS - Dental Hygiene. 1 credit hour. (W)

**DHYG 2201 Dental Hygiene Care I**
Dental hygiene care for the medically or dentally compromised patient including supplemental instrumentation techniques. Prerequisites: DHYG 1227 and DHYG 1261; both with a grade of "C" or better. Corequisite: DHYG 2361, or consent of Program Director. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

**DHYG 2202 Applied Community Dentistry**
Application of the principles and concepts of community public health and dental health education emphasizing community assessment, educational planning, implementation, and evaluation including methods and materials used in teaching dental health education in various community settings. Lab required. Prerequisite: DHYG 1215 with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

**DHYG 2231 Dental Hygiene Care II**
A continuation of Dental Hygiene Care I. Dental hygiene care for the medically or dentally compromised patient including advanced instrumentation techniques. Lab required. Prerequisites: DHYG 2201 and DHYG 2361; both with a grade of "C" or better. Major Requirement: AAS - Dental Hygiene. 2 credit hours. (W)

**DHYG 2361 Clinical II - Dental Hygienist**
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Additionally, this course is a method of instruction providing detailed education, training and work-based experience and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. Onsite clinical instruction, supervision, evaluation, and placement are the responsibility of the college faculty. Clinical experiences are unpaid external learning experiences. Prerequisites: DHYG 1227 and DHYG 1261; both with a grade of “C” or better. Corequisite: DHYG 2201, or consent of Program Director. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

**DHYG 2363 Clinical III-Dental Hygienist**
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: DHYG 2201 and DHYG 2361; both with a grade of “C” or better. Corequisite: DHYG 2231. Major Requirement: AAS - Dental Hygiene. 3 credit hours. (W)

**DMSO 1202 Basic Ultrasound Physics**
Basic acoustical physics and acoustical waves in human tissue. Emphasis on ultrasound transmission in soft tissues, attenuation of sound energy, parameters affecting sound transmission, and resolution of sound beams. Lab required. 2 credit hours. (W)

**DMSO 1210 Introduction to Sonography**
An introduction to the profession of sonography and the role of the sonographer. Emphasis on medical terminology, ethical/legal aspects, written and verbal communication, and professional issues relating to registry, accreditation, professional organizations and history of the profession. 2 credit hours. (W)

**DMSO 1242 Intermediate Ultrasound Physics**
Continuation of Basic Ultrasound Physics. Includes interaction of ultrasound with tissues, mechanics of ultrasound production and display, various transducer designs and construction, quality assurance, bioeffects, and image artifacts. May introduce methods of Doppler flow analysis. Lab required. 2 credit hours. (W)
DMSO 1251  Sonographic Sectional Anatomy
Sectional anatomy of the male and female body. Includes anatomical relationships of organs, vascular structures, and body planes and quadrants. Lab required. 2 credit hours. (W)

DMSO 1341  Abdominopelvic Sonography
Normal anatomy and physiology of the abdominal and pelvic cavities as related to scanning techniques, transducer selection, and scanning protocols. Lab required. 3 credit hours. (W)

DMSO 1360  Clinical I - Diagnostic Medical Sonography/Sonographer and Ultrasound Technician
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. 3 credit hours. (W)

DMSO 2230  Advanced Ultrasound and Review
Knowledge, skills, and professional values within a legal and ethical framework addressing emerging technologies and professional development. Lab required. 2 credit hours. (W)

DMSO 2253  Sonography of Superficial Structures
Detailed study of normal and pathological superficial structures as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols. Lab required. 2 credit hours. (W)

DMSO 2254  Neurosonology
Normal and pathological intracranial structures. Lab required. 2 credit hours. (W)

DMSO 2341  Sonography of Abdominopelvic Pathology
Pathologies and disease states of the abdomen and pelvis as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols. Emphasizes endocavitary sonographic anatomy and procedures including pregnancy. Lab required. 3 credit hours. (W)

DMSO 2342  Sonography of High Risk Obstetrics
Maternal disease and fetal abnormalities. Includes scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols. Lab required. 3 credit hours. (W)

DMSO 2362  Clinical II - Diagnostic Medical Sonography/Sonographer and Ultrasound Technician
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. 3 credit hours. (W)

DMSO 2363  Clinical III - Diagnostic Medical Sonography/Sonographer and Ultrasound Technician
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. 3 credit hours. (W)

DMSO 2405  Sonography of Obstetrics/Gynecology
Detailed study of the pelvis and obstetrics/gynecology as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols. Lab required. 4 credit hours. (W)

DRAM 1120  Theatre Practicum I
Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions. Additionally, practicum in theatre with emphasis on performance techniques and procedures, including a major performance role in a college production. Flexible enrollment. Prerequisite: Consent of Instructor. 1 credit hour. (A)
Note: Students may take DRAM 1120 and DRAM 1121 for a combined total of no more than 9 credit hours.

DRAM 1121  Theatre Practicum II
Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions. Additionally, practicum in theatre with emphasis on performance techniques and procedures, including a major performance role in a college play. Flexible enrollment. Prerequisite: Consent of Instructor. 1 credit hour. (A)
Note: Students may take DRAM 1120 and DRAM 1121 for a combined total of no more than 9 credit hours.
DRAM 1310 Introduction to Theater
Survey of theater including its history, dramatic works, stage techniques, production procedures, and relation to other art forms. Participation in productions may be required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

DRAM 1322 Stage Movement
Principles, practices, and exercises in body techniques and stage movement; emphasis on character movement and body control. Lab required. 3 credit hours. (A)

DRAM 1330 Stagecraft I
Study and application of the methods and components of theatrical production which may include one or more of the following: theater facilities, scenery construction and painting, properties, lighting, costume, makeup, sound, and theatrical management. Lab required. 3 credit hours. (A)

DRAM 1341 Makeup
Design and execution of makeup for the purpose of developing believable characters. Includes discussion of basic makeup principles and practical experience of makeup application. Lab required. 3 credit hours. (A)

DRAM 1342 Introduction to Costume
Principles and techniques of costume design and construction for theatrical productions. Lab required. 3 credit hours. (A)

DRAM 1351 Acting I
An introduction to the fundamental principles and tools of acting as used in auditions, rehearsals, and performances. This may include ensemble performing, character and script analysis, and basic theater terminology. This exploration will emphasize the development of the actor’s instrument: voice, body and imagination. Lab required. 3 credit hours. (A)

DRAM 1352 Acting II
Exploration and further training within the basic principles and tools of acting, including an emphasis on critical analysis of oneself and others. The tools include ensemble performing, character and script analysis, and basic theater terminology. This will continue the exploration of the development of the actor’s instrument: voice, body and imagination. Lab required. Prerequisite: DRAM 1351 or consent of Instructor. 3 credit hours. (A)

DRAM 2331 Stagecraft II
Continued study and application of the methods and components of theatrical production which may include one or more of the following: theater facilities, scenery construction and painting, properties, lighting, costume, makeup, sound and theatrical management. Lab required. 3 credit hours. (A)

DRAM 2336 Voice for the Theater
Application of the performer’s use of the voice as a creative instrument of effective communication. Encourages an awareness of the need for vocal proficiency and employs techniques designed to improve the performer’s speaking ability. 3 credit hours. (A)

DRAM 2351 Acting III
Development of basic skills and techniques of acting including increased sensory awareness, ensemble performing, character analysis, and script analysis. Emphasis on the mechanics of voice, body, emotion, and analysis as tools for the actor. Lab required. 3 credit hours. (A)

DRAM 2361 History of Theater I
Study of the history of the theater from primitive times through the Renaissance. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

DRAM 2362 History of Theater II
Study of the history of the theater from the Renaissance through today. Prerequisite: Meet TSI requirement for INRW 0315; or equivalent. 3 credit hours. (A)

DRAM 2366 Introduction to Cinema
Survey and analyze cinema including history, film techniques, production procedures, selected motion pictures, and cinema’s impact on and reflection of society. Additionally, this course covers the period of 1890 to 1949. Lab required. 3 credit hours. (A)

Note: Students may take either DRAM 2366 or COMM 2366, but not both.

DRAM 2389 Academic Co-op Drama
Integrates on campus study with practical hands-on work experience in drama. In conjunction with class seminars, the student will set specific goals and objectives in the study of drama. Contact the
Cooperative Work Experience Office. 3 credit hours.  
(A)

**DSAE 1340 Diagnostic Electrocardiography**
Cardiac testing including the techniques and interpretation of patient physical assessment. Covers electrocardiography, stress testing, Holter monitoring, vital signs, and cardiovascular pharmacology. Lab required. 3 credit hours. (W)

**DSVT 1103 Introduction to Vascular Technology**
Introduction to basic non-invasive vascular theories. Emphasizes image orientation, transducer handling, and identification of anatomic structures. 1 credit hour. (W)

**ECON 1301 Introduction to Economics**
A survey of microeconomic and macroeconomic principles of non-business majors. Microeconomic topics will include supply and demand, consumer behavior, price and output decisions by firms under various market structures, factor markets, market failures, international trade, and exchange rates. Macroeconomic topics will include national income, unemployment, inflation, business cycles, aggregate supply and demand, monetary and fiscal policy, and economic growth. 3 credit hours. (A)

**ECON 2301 Principles of Macroeconomics**
An analysis of the economy as a whole including measurement and determination of Aggregate Demand and Aggregate Supply, national income, inflation, and unemployment. Other topics include international trade, economic growth, business cycles, and fiscal policy and monetary policy. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**ECON 2302 Principles of Microeconomics**
Analysis of the behavior of individual economic agents, including consumer behavior and demand, producer behavior and supply, price and output decisions by firms under various market structures, factor markets, market failures, and international trade. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**ECON 2389 Academic Co-op Economics**
Integrates on-campus study with practical hands-on work experience in economics. In conjunction with class seminars, the student will set specific goals and objectives in the study of economics. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

**ECRD 1111 Electrocardiography**
Fundamentals of cardiovascular anatomy and physiology. Includes basic electrocardiography procedures, interpretation of basic dysrhythmias, and appropriate treatment modalities. Prerequisite / Concurrent enrollment: DSAE 1340, or consent of Instructor. 1 credit hour. (W)

**EDUC 1300 Learning Framework**
A study of the: 1) research and theory in the psychology of learning, cognition, and motivation; 2) factors that impact learning, and 3) application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of college-level student academic strategies. Students use assessment instruments (e.g., learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. 3 credit hours. (A) Note: Students may only take one of the following: EDUC 1200, EDUC 1300, PSYC 1100 or PSYC 1300.

**EDUC 1301 Introduction to the Teaching Profession**
An enriched, integrated pre-service course and content experience that provides active recruitment and institutional support of students interested in a teaching career, especially in high need fields. The course provides students with opportunities to participate in early field observations at all levels of P-12 schools with varied and diverse student populations and provides students with support from college and school faculty, preferably in small cohort groups, for the purpose of introduction to and analysis of the culture of schooling and classrooms. Course content should be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards; and the course must include a minimum of 16 contact hours of field experience in P-12 classrooms. Lab required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)
EDUC 2301 Introduction to Special Populations
An enriched, integrated pre-service course and content experience that provides an overview of schooling and classrooms from the perspectives of language, gender, socioeconomic status, ethnic and academic diversity, and equity with an emphasis on factors that facilitate learning. The course provides students with opportunities to participate in early field observations of P-12 special populations and should be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards. Must include a minimum of 16 contact hours of field experience in P-12 classrooms with special populations. Lab required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

ECT 1348 Digital Signal Processing (DSP)
A study of the architecture and applications of digital signal processors (DSP) including mathematical signal processing techniques. Lab required. 3 credit hours. (W)

ECT 1371 Voice-over-Internet Protocol (CCNA VOICE)
Voice over Internet Protocol (VoIP) adds voice to existing data and video transmission networks enriching and unifying all our communication systems over a common media. It offers many benefits: lower telephony operational costs, greater flexibility, and offers the potential for a variety of present and future enhanced applications not possible on earlier communications systems. This course provides a thorough overview of the legacy Public Switched Telephone Network (PSTN), Internet Protocol (IP), and IP Telephony (IPT), including their protocols and its integration with data and video networks. VoIP I helps individuals to prepare for the Cisco CCNA Voice and CVOICE certification. This class requires extensive hands-on labs. Lab required. 3 credit hours. (W)

ECT 2337 Wireless Telephony Systems
Principles of wireless/cellular telephony systems to include call processing, hand-off, site analysis, antenna radiation patterns, commonly used test/maintenance equipment, and access protocol. Lab required. 3 credit hours. (W)

ECT 2380 Cooperative Education - Electrical, Electronic and Communications Engineering Technology Technician
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

EMSP 1160 Clinical-Emergency Medical Technician (EMT Paramedic)-Basic
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Consent of Program Director. 1 credit hour. (W)

EMSP 1161 Clinical-Emergency Medical Technician (EMT Paramedic)-Advanced I
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Consent of Program Director. 1 credit hour. (W)

EMSP 1162 Clinical-Emergency Medical Technician (EMT Paramedic)-Advanced II
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Consent of Program Director. 1 credit hour. (W)

EMSP 1355 Trauma Management
Knowledge and skills in the assessment and management of patients with traumatic injuries. Lab required. 3 credit hours. (W)

EMSP 1356 Patient Assessment and Airway Management
Knowledge and skills required to perform patient assessment, airway management, and artificial ventilation. Lab required. Prerequisite: Consent of Program Director. 3 credit hours. (W)
EMSP 1371  Introduction to Emergency Medical Technician (EMT)
Introduction to Emergency Medical Services including: history, organization and function, legal aspects, and ethics. Overview of human anatomy and physiology, patient assessment, airway control, and infection control techniques. Prerequisite: Consent of Program Director. Corequisites: EMSP 1160 and EMSP 1501. 3 credit hours. (W)

EMSP 1438  Introduction to Advanced Practice
Fundamental elements associated with emergency medical services to include preparatory practices, pathophysiology, medication administration, and related topics. Lab required. Prerequisites: EMSP 1160 and EMSP 1371 and EMSP 1501, or EMT-Basic certification, or consent of Program Director. 4 credit hours. (W)

EMSP 1501  Emergency Medical Technician
Preparation for certification as an Emergency Medical Technician (EMT). Lab required. Prerequisite: Consent of Program Director. Corequisite: EMSP 1160. 5 credit hours. (W)

EMSP 2143  Assessment Based Management
A summative experience covering comprehensive, assessment-based patient care management for the paramedic level. Additionally, it includes specific care when dealing with pediatric, adult, geriatric, and special needs patients. 1 credit hour. (W)

EMSP 2160  Clinical-Emergency Medical (EMT Paramedic)-Advanced III
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. 1 credit hour. (W)

EMSP 2206  Emergency Pharmacology
A study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of dosages. Lab required. 2 credit hours. (W)

EMSP 2267  Practicum-Emergency Medical (EMT Paramedic)
Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. 2 credit hours. (W)

EMSP 2305  EMS Operations
Knowledge and skills to safely manage multi-casualty incidents and rescue situations; utilize air medical resources; identify hazardous materials and other specialized incidents. Lab required. Prerequisites: EMSP 1438, EMSP 1355 and EMSP 1356. 3 credit hours. (W)

EMSP 2330  Special Populations
Knowledge and skills necessary to assess and manage ill or injured patients in diverse populations to include neonatology, pediatrics, geriatrics, and other related topics. Lab required. Prerequisite: Consent of Program Director. 3 credit hours. (W)

EMSP 2444  Cardiology
Assessment and management of patients with cardiac emergencies. Includes single and multi-lead ECG interpretation. Lab required. 4 credit hours. (W)

EMSP 2534  Medical Emergencies
Knowledge and skills in the assessment and management of patients with medical emergencies, including medical overview, neurology, gastroenterology, immunology, pulmonology, urology, hematology, endocrinology, toxicology, and other related topics. Lab required. 5 credit hours. (W)

ENGL 1301  Composition I
Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus on writing the academic essay as a vehicle for learning, communicating, and critical analysis. Lab required. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ENGL 1302  Composition II
Intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual, and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions. Lab required. Prerequisite: ENGL 1301. 3 credit hours. (A)
ENGL 2307 Creative Writing I
Practical experience in the techniques of imaginative writing. May include fiction, non-fiction, poetry, screenwriting, or drama. Additionally, this course does not satisfy the college requirements for a sophomore literature course. Prerequisite: ENGL 1302. 3 credit hours. (A)

ENGL 2311 Technical and Business Writing
Intensive study of and practice in professional settings. Focus on the types of documents necessary to make decisions and take action on the job, such as proposals, reports, instructions, policies and procedures, e-mail messages, letters, and descriptions of products and services. Practice individual and collaborative processes involved in the creation of ethical and efficient documents. Prerequisite: ENGL 1301. 3 credit hours. (A)

ENGL 2322 British Literature I
A survey of the development of British literature from the Anglo-Saxon period to the Eighteenth Century. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2323 British Literature II
A survey of the development of British literature from the Romantic period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2327 American Literature I
A survey of American literature from the period of exploration and settlement through the Civil War. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2328 American Literature II
A survey of American literature from the Civil War to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2332 World Literature I
A survey of world literature from the ancient world through the sixteenth century. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2333 World Literature II
A survey of world literature from the seventeenth century to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2342 Introduction to Literature I - Short Story and Novel
Study of short stories, novels, and nonfiction. Analysis and evaluation of major writers, their techniques, and their contributions to our literary heritage. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2343 Introduction to Literature II - Poetry and Drama
Study of poetry and drama and of mythology as it relates to these genres. Analysis of our classical heritage, origins of drama, development of contemporary drama and film, and elements and types of poetry. Prerequisite: ENGL 1302 or ENGL 2311. 3 credit hours. (A)

ENGL 2389 Academic Co-op English
Integrates on-campus study with practical hands-on work experience in English. In conjunction with class seminars, the student will set specific goals and objectives in the study of English. Contact the Cooperative Work Experience Office. Prerequisites: Consent of Associate Dean and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

ENGR 1201 Introduction to Engineering
An introduction to the engineering profession with emphasis on technical communication and team-based engineering design. Prerequisite: MATH 1314
or equivalent academic preparation.  2 credit hours.  (A)

**ENGR 1304  Engineering Graphics**
Introduction to computer-aided drafting using CAD software and sketching to generate two- and three-dimensional drawings based on the conventions of engineering graphical communication; topics include spatial relationships, multi-view projections and sectioning, dimensioning, graphical presentation of data, and fundamentals of computer graphics. Lab required. Prerequisite: MATH 1314 or equivalent academic preparation.  3 credit hours.  (A)

**ENGR 2105  Electrical Circuits I Laboratory**
Laboratory experiments supporting theoretical principles presented in ENGR 2305 involving DC and AC circuit theory, network theorems, time, and frequency domain circuit analysis. Introduction to principles and operation of basic laboratory equipment; laboratory report preparation. Prerequisites: MATH 2414 and PHYS 2425. Prerequisite/Concurrent enrollment: MATH 2320. Corequisite: ENGR 2105.  1 credit hour.  (A)

**ENGR 2106  Introduction to Digital Systems Laboratory**
Basic laboratory experiments supporting theoretical principles presented in ENGR 2306 involving design, construction, and analysis of combinational and sequential digital circuits and systems, including logic gates, adders, multiplexers, encoders, decoders, arithmetic logic units, latches, flip-flops, registers, and counters; preparation of laboratory reports. Prerequisite: MATH 1314. Corequisite: ENGR 2306.  1 credit hour.  (A)

**ENGR 2301  Engineering Mechanics I**
Basic theory of engineering mechanics, using calculus, involving the description of forces, moments, and couples acting on stationary engineering structures; equilibrium in two and three dimensions; free-body diagrams; friction; centroids; centers of gravity; and moments of inertia. Prerequisite: PHYS2425. Prerequisite/Concurrent enrollment: MATH2414.  3 credit hours.  (A)

**ENGR 2302  Engineering Mechanics II**
Basic theory of engineering mechanics, using calculus, involving the motion of particles, rigid bodies, and systems of particles; Newton's Laws; work and energy relationships; principles of impulse and momentum; application of kinetics and kinematics to the solution of engineering problems. Prerequisite: ENGR 2301.  3 credit hours.  (A)

**ENGR 2305  Electrical Circuits I**
Principles of electrical circuits and systems. Basic circuit elements (resistance, inductance, mutual inductance, capacitance, independent and dependent controlled voltage, and current sources). Topology of electrical networks; Kirchhoff's laws; node and mesh analysis; DC circuit analysis; operational amplifiers; transient and sinusoidal steady-state analysis; AC circuit analysis; first-and second-order circuits; Bode plots; and use of computer simulation software to solve circuit problems. Prerequisites: MATH 2414 and PHYS 2425. Prerequisite/Concurrent enrollment: MATH 2320. Corequisite: ENGR 2105.  3 credit hours.  (A)

**ENGR 2306  Introduction to Digital Systems**
Introduction to theory and design of digital logic, circuits, and systems. Number systems, operations and codes; logic gates; Boolean Algebra and logic simplification; Karnaugh maps; combinational logic; functions of combinational Logic; flip-flops and related devices; counters; shift registers; sequential logic; memory and storage. Prerequisite: MATH 1314. Corequisite: ENGR 2106.  3 credit hours.  (A)

**ENGR 2308  Engineering Economics**
Methods used for determining the comparative financial desirability of engineering alternatives. Provides the student with the basic tools required to analyze engineering alternatives in terms of their worth and cost, an essential element of engineering practice. The student is introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The course will address some aspects of sustainability and will provide the student with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam. Prerequisite: MATH 2413.  3 credit hours.  (A)

**ENGR 2332  Mechanics of Materials**
Stresses, deformations, stress-strain relationships, torsions, beams, shafts, columns, elastic deflections in beams, combined loading, and combined stresses. Behavior phenomena such as fracture, fatigue, and creep are introduced. Prerequisite/Concurrent enrollment: ENGR 2301.  3 credit hours.  (A)

**ENGT 1401  Circuit Analysis I**
Fundamental concepts of electrical science covering potential, current and power in DC circuits.
Fundamental laws and relationships applied to the analysis of circuits and networks: capacitance, inductance and magnetism; single-frequency concepts; the use of computer software in design and analysis of circuits. Lab required. Prerequisite/Concurrent enrollment: MATH 2412 equivalent or higher level. 4 credit hours. (A)

**ENTC 1323 Strength of Materials**
Introduces the relationship between externally applied forces and internally induced stresses and the resulting deformations in structural members. Lab required. 3 credit hours. (W)

**ENTC 2380 Cooperative Education-Engineering Technology, General**
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

**ENVR 1401 Environmental Science I**
Lecture: A survey of the forces, including humans that shape our physical and biologic environment, and how they affect life on Earth. Introduction to the science and policy of global and regional environmental issues, including pollution, climate change, and sustainability of land, water, and energy resources. Lab: Activities will cover methods used to collect and analyze environmental data. Lab required. Prerequisite: Meet TSI standard for MATH 0310; or equivalent. 4 credit hours. (A) Note: Students may take either ENVR 1401 or GEOL 1305 but not both.

**ENVR 1402 Environmental Science II**
Continued interdisciplinary study of both natural (biology, chemistry, geology) and social (economics, politics, ethics) sciences as they apply to the environment. Focus on energy issues, global warming, ozone loss, land use, conservation and management, deforestation, biodiversity, the history of environmental law and regulation and local environmental problems. Lab required. Prerequisite: ENVR 1401. 4 credit hours. (A)

**ESLC 0305 ESL Oral Communication, Intermediate**
Develops listening and speaking skills in speakers of languages other than English and prepares them to function in educational, vocational and/or personal English-speaking contexts. Additionally, emphasis on developing non-native speakers' intermediate listening and speaking skills to facilitate natural communication. Oral skills are developed through individual presentations and interactions in dyads, and in small and large groups. Aural skills are developed through classroom interaction, outside assignments, and video and audio clips designed to enhance non-native speakers' skills in understanding both formal and informal speech styles of English. Focus is given to students' spoken grammar, pronunciation, vocabulary, and exposure to U.S. culture. Lab required. Prerequisite: Meet TSI standard for ESLC 0305; or equivalent. 3 credit hours. (D)

**ESLC 0310 ESL Oral Communication, Advanced**
Develops listening and speaking skills in speakers of languages other than English and prepares them to function in educational, vocational and/or personal English-speaking contexts. Additionally, emphasis on developing non-native speakers' advanced oral communication and listening competencies. Students practice natural communication regarding abstract concepts in classroom activities by working in dyads and in small and large groups while formal speaking skills are focused upon through delivery of oral presentations. Students participate in advanced level listening activities through interaction both in and out of the classroom and the use of video and audio tapes. Focus is given to students' spoken grammar, pronunciation, vocabulary and exposure to U.S. culture. Lab required. Prerequisite: ESLC 0305, or meet TSI standard for ESLC 0310; or equivalent. 3 credit hours. (D)

**ESLC 0320 ESL Oral Communication, Pronunciation/Accent Reduction**
Develops listening and speaking skills in speakers of languages other than English and prepares them to function in educational, vocational and/or personal English-speaking contexts. Additionally, emphasis on teaching aspects of spoken English, including stress and intonation, individual phonemes, and awareness of connected and reduced speech. Addresses pronunciation problems of specific language groups. Attention to productive and
receptive skills is facilitated through classroom activities, student work in dyads and small and large groups, audio and video taping, and individualized feedback of Instructor. Lab required. Prerequisite: ESLC 0305 or consent of Associate Dean, or meet TSI standard for ESLC 0305 and ESLR 0305; or equivalent. 3 credit hours. (D)

ESLG 0305 Grammar for Non-Native Speakers, Intermediate I
Focuses on Standard English grammar usage for academic purposes. Open only to non-native speakers. Additionally, instruction for non-native speakers of English in all verb tenses (to include past, present, future in simple progressive and perfective forms), passive voice and modals. Course content supports ESLW 0305 objectives for grammar usage. Lab required. Prerequisite: Meet TSI standard for ESLG 0305; or equivalent. 3 credit hours. (D)

ESLG 0310 Grammar for Non-Native Speakers, Intermediate II
Focuses on Standard English grammar usage for academic purposes. Open only to non-native speakers. Additionally, a high-intermediate English grammar course designed for non-native speakers of English for instruction in nouns, noun clauses, gerunds, and infinitives. Course content supports ESLW 0310 objectives for grammar usage. Lab required. Prerequisite: ESLG 0305, or meet TSI standard for ESLG 0310; or equivalent. 3 credit hours. (D)

ESLG 0315 Grammar for Non-Native Speakers, Advanced
Focuses on Standard English grammar usage for academic purposes. Open only to non-native speakers. Additionally, an advanced English grammar course designed for non-native speakers of English and focused on noun clauses, adjective clauses, adjective phrases, adverb clauses, adverbial phrases, and conditionals. Course content supports ESLW 0215 objectives for grammar usage and successful transition into English 1301. Lab required. Prerequisite: ESLG 0310, or meet TSI standard for ESLG 0315; or equivalent. 3 credit hours. (D)

ESLR 0215 ESL Reading and Vocabulary, Advanced
Develops English reading proficiency and vocabulary for academic, career, or personal purposes in speakers of languages other than English and prepares them to function in a multicultural, multilingual society. Additionally, instruction in advanced reading comprehension to prepare non-native students for admission to reading-restrictive classes. ESLR 0215 focuses on cultural allusions, connotation of vocabulary, augmentation of reading rate for non-native speakers, implied main ideas, facts and opinion, inferences and conclusions, author's purpose, tone, point of view, vocabulary, and graphic aids in unabridged academic texts. Lab required. Prerequisites: ESLR 0310 and ESLW 0310, or meet TSI standard for ESLR 0215 and ESLW 0215; or equivalent. Corequisite: ESLW 0215. 2 credit hours. (D) Note: ESLR 0215, ESLR 0310, ESLW 0310, and ESLV 0310 may be taken for a combined total of no more than 9 credit hours.

ESLR 0305 ESL Reading and Vocabulary, Intermediate I
Develops English reading proficiency and vocabulary for academic, career, or personal purposes in speakers of languages other than English and prepares them to function in a multicultural, multilingual society. Additionally, focuses on teaching students with lower-level speaking and listening skills to identify topics, main ideas, and supporting details in simplified academic and literary texts. Lab required. Prerequisite: Meet TSI standard for ESLR 0305 and ESLW 0305; or equivalent. Corequisite: ESLW 0305. 3 credit hours. (D) Note: ESLR 0215, ESLR 0305, ESLR 0310, and ESLV 0310 may be taken for a combined total of no more than 9 credit hours.

ESLR 0310 ESL Reading and Vocabulary, Intermediate II
Develops English reading proficiency and vocabulary for academic, career, or personal purposes in speakers of languages other than English and prepares them to function in a multicultural, multilingual society. Additionally, focuses on teaching vernacular vocabulary and syntax in the informal register, context clues, topics, main ideas, supporting details, transitions, and organizational patterns for improving comprehension of abridged academic and literary texts. Lab required. Prerequisites: ESLR 0305 and ESLW 0305, or meet TSI standard for ESLR 0310 and ESLW 0310; or equivalent. Corequisite: ESLW 0310. 3 credit hours. (D) Note: ESLR 0215, ESLR 0305, ESLR 0310, and ESLV 0310 may be taken for a combined total of no more than 9 credit hours.

Please refer to http://www.collin.edu/academics/programs/index.html for the most current information.
ESLV 0310  **ESL Reading and Vocabulary, Idioms**
Develops English reading proficiency and vocabulary for academic, career, or personal purposes in speakers of languages other than English and prepares them to function in a multicultural, multilingual society. Additionally, instruction in idiomatic American English for second language learners. Increases familiarity with idiomatic English to facilitate comprehension and productive use of idioms in spoken and written discourse. Lab required. Prerequisites: ESLC 0305 and ESLR 0305, or consent of Associate Dean. 3 credit hours.  (D) Note: ESLR 0215, ESLR 0305, ESLR 0310, and ESLV 0310 may be taken for a combined total of no more than 9 credit hours.

ESLW 0215  **Writing for Non-Native Speakers, Advanced**
Focuses on strategies and techniques of writing and composition. Open only to non-native speakers. Additionally, instruction in advanced essay writing designed to prepare non-native students to enter ENGL 1301. Trains students to write academically acceptable papers in various rhetorical modes with a primary focus on argumentation. Focuses on mechanics of writing, common problems that ESL speakers encounter, research, and documentation. Lab required. Prerequisites: ESLR 0310 and ESLW 0310, or meet TSI standard for ESLR 0215 and ESLW 0215; or equivalent. Corequisite: ESLR 0215. 2 credit hours.  (D)

ESLV 0310  **Writing for Non-Native Speakers, Intermediate I**
Focuses on strategies and techniques of writing and composition. Open only to non-native speakers. Additionally, instruction in intermediate writing skills for non-native speakers. Focuses on sentence-level writing and paragraph development. Introduces students to pre-academic, experiential writing. Trains students to develop and organize ideas in description and process modes. Lab required. Prerequisites: Meet TSI standard for ESLR 0305 and ESLW 0305; or equivalent. Corequisite: ESLR 0305. 3 credit hours.  (D)

ESLW 0310  **Writing for Non-Native Speakers, Intermediate II**
Focuses on strategies and techniques of writing and composition. Open only to non-native speakers. Additionally, instruction in high-intermediate writing skills for non-native speakers. Focuses on multi-paragraph essays. Introduces students to academic writing. Trains students to develop and organize ideas in a variety of rhetorical modes. Lab required. Prerequisites: ESLR 0305 and ESLW 0305, or meet TSI standard for ESLR 0310 and ESLW 0310; or equivalent. Corequisite: ESLR 0310. 3 credit hours.  (D)

FIRS 1301  **Firefighter Certification I**
One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: Admission to the Program. 3 credit hours.  (W)

FIRS 1313  **Firefighter Certification III**
One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, II, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Prerequisites: FIRS 1407. 3 credit hours.  (W)

FIRS 1319  **Firefighter Certification IV**
One is a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, II, III, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: FIRS 1313. 3 credit hours.  (W)

FIRS 1323  **Firefighter Certification V**
One is a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, II, III, IV, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: FIRS 1319. 3 credit hours.  (W)

FIRS 1329  **Firefighter Certification VI**
One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, II, III, IV, V, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: FIRS 1323. 3 credit hours.  (W)
FIRS 1407 Firefighter Certification II
One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: FIRS 1301, or consent of Program Director. 4 credit hours. (W)

FIRS 1433 Firefighter Certification VII
One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, II, III, IV, V, and VI to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. Lab required. Prerequisite: FIRS 1329. 4 credit hours. (W)

FIRT 1301 Fundamentals of Fire Protection
Orientation to the fire service, career opportunities, and related fields. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements. 3 credit hours. (W)

FIRT 1315 Hazardous Materials I
The chemical characteristics and behavior of various materials. Storage, transportation, handling hazardous emergency situations, and the most effective methods of hazard mitigation. 3 credit hours. (W)

FIRT 1327 Building Construction in the Fire Service
Components of building construction that relate to life safety. Includes relationship of construction elements and building design impacting fire spread in structures. 3 credit hours. (W)

FIRT 1338 Fire Protection Systems
Design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection, and portable fire extinguishers. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements. Prerequisite: FIRT 1301 or consent of Program Director. 3 credit hours. (W)

FIRT 1349 Fire Administration II
In-depth study of fire service management as pertaining to budgetary requirements, administration, organization of divisions within the fire service, and the relationships between the fire service and outside agencies. 3 credit hours. (W)

FIRT 1442 Fire Officer I
Meets the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Officer I certification. 4 credit hours. (W)

FIRT 1443 Fire Officer II
Meets the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Officer II certification. Prerequisites: FIRT 1442 and FIRT 2305, or consent of Program Director. 4 credit hours. (W)

FIRT 2305 Fire Instructor I
Preparation of fire and emergency services personnel to deliver instruction from a prepared lesson plan. Includes the use of instructional aids and evaluation instruments to meet the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Instructor I certification. Prerequisite: Student must show proof of Basic Firefighter Certification from the Texas Commission on Fire Protection (TCFP), or consent of Program Director. 3 credit hours. (W)

FIRT 2307 Fire Instructor II
Development of individual lesson plans for a specific topic including learning objectives, instructional aids, and evaluation instruments. Includes techniques for supervision and coordination of activities of other instructors to meet the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Instructor II certification. Prerequisite: FIRT 2305 or consent of Program Director. 3 credit hours. (W)

FIRT 2309 Firefighting Strategies and Tactics I
Analysis of the nature of fire problems and selection of initial strategies and tactics including an in-depth study of efficient and effective use of staffing and equipment to mitigate the emergency. Prerequisite: FIRT 1301 or consent of Program Director. 3 credit hours. (W)

FIRT 2351 Company Fire Officer
A capstone course covering fire ground operations and supervisory practices. Includes performance evaluation of incident commander, safety officer, public information officer, and shift supervisor duties. 3 credit hours. (W)
FLMC 1301 History of Animation Techniques
A historical perspective of two-dimensional (2-D) and three-dimensional (3-D) animation. This class teaches students traditional forms of animation including cell, stop-motion and zoetropes. Students will also learn the history and evolution of the animation art form. Students will produce original animations utilizing traditional techniques as projects. Lab required. 3 credit hours. (W)

FLMC 1304 Lighting for Film or Video
Fundamentals of lighting techniques for film or video production with respect to lighting tools, composition and camera motion to support dynamic storytelling. Prerequisite: ARTV 1351. Lab required. 3 credit hours. (W)

FLMC 1331 Video Graphics and Visual Effects I
A course in the applications of computers for video production. Design of computer graphic workstations and development of a rationale for selecting software, hardware, and peripherals. Lab required. Prerequisite: ARTC 1325. Prerequisite/Concurrent enrollment: ARTV 1371. 3 credit hours. (W)

FLMC 2305 Film-Style 3-D Animation Production
Techniques in 3-D animation for film-style production. Lab required. Prerequisite: ARTV 1341 or consent of Instructor. 3 credit hours. (W)

FLMC 2331 Video Graphics and Visual Effects II
Advanced concepts of designing vector and raster graphics, executing rendering techniques, designing and producing three dimensional (3-D) materials, and selecting hardware, software, and peripherals for video production. Lab required. Prerequisite: FLMC 1331. 3 credit hours. (W)

FREN 2311 Intermediate French I
Continued development of the four basic language skills with increased attention to reading and writing. Instruction enhanced by slides, tapes, and other audio-visual aids. Prerequisite: FREN 1412 or consent of Associate Dean. 3 credit hours. (A)

FREN 2312 Intermediate French II
Continuation of FREN 2311. Prerequisite: FREN 2311 or consent of Associate Dean. 3 credit hours. (A)

GAME 1303 Introduction to Game Design and Development
Introduction to electronic game development and game development careers. Includes examination of history and philosophy of games, the game production process, employee factors for success in the field, and current issues and practices in the game development industry. Lab required. Prerequisite: ARTV 1345 or consent of Instructor or Associate Dean. 3 credit hours. (W)

GAME 1304 Level Design
Introduction to the tools and concepts used to create levels for games and simulations. Incorporates level design, architecture theory, concepts of critical path and flow, balancing, play testing, and storytelling. Includes utilization of toolsets from industry titles. Lab required. Prerequisite: GAME 1303. 3 credit hours. (W)

GAME 1314 Character Sculpting
Creation of original characters from the drawing stage to sculpting clay status. Explores a variety of poses using clay. Lab required. Prerequisite: ARTV 1345. 3 credit hours. (W)

GAME 2309 Video Game Art II
A study of industry-used, game-art techniques and its applications of game art assets. Utilizes tools and advanced techniques in the creation of assets for a game engine. Lab required. Prerequisite: ARTV 2345 or consent of Instructor. 3 credit hours. (W)

GAME 2325 3-D Animation II - Character Set-Up
Character animation for application interfaces. Prerequisite: ARTV 1341. Lab required. 3 credit hours. (W)
GAME 2336 Lighting, Shading, and Texture
Advanced application of lighting, shading, and texture techniques to increase system performance for digital games and simulation models. Lab required. Prerequisite: ARTV 2345 or consent of Instructor. 3 credit hours. (W)

GAME 2341 Game Scripting
Scripting languages with emphasis on game concepts and simulations. Lab required. Prerequisite: GAME 1303 or consent of Instructor. 3 credit hours. (W)

GAME 2359 Game and Simulation Group Project
Creation of a game and/or simulation project utilizing a team approach. Includes the integration of design, art, audio, programming, and quality assurance. Lab required. Prerequisite: GAME 1303. 3 credit hours. (W)

GAME 2386 Internship-Animation, Interactive Technology, Video Graphics and Special Effects
A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisite: ARTV 1341. 3 credit hours. (W)

GEOG 1301 Physical Geography
This course introduces students to the processes that drive Earth's physical systems. Students will explore the relationships among these physical systems, with emphasis on weather and climate, water, ecosystems, geologic processes and landform development, and human interactions with the physical environment. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GEOG 1302 Human Geography
This course introduces students to fundamental concepts, skills, and practices of human geography. Place, space, and scale serve as a framework for understanding patterns of human experience. Topics for discussion may include globalization, population and migration, culture, diffusion, political and economic systems, language, religion, gender, and ethnicity. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GEOG 1303 World Regional Geography
This course is an introduction to the world's major regions seen through their defining physical, social, cultural, political, and economic features. These regions are examined in terms of their physical and human characteristics and their interactions. The course emphasizes relations among regions on issues such as trade, economic development, conflict, and the role of regions in the globalization process. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GEOL 1305 Environmental Science - Natural Disasters
A survey of the forces, including humans, that shape our physical and biologic environment, and how they affect life on Earth. Introduction to the science and policy of global and regional environmental issues, including pollution, climate change, and sustainability of land, water, and energy resources. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A) Note: Students may take either ENVR 1401 or GEOL 1305 but not both.

GEOL 1401 Earth Sciences for Non Science Majors I
Lecture: Survey of geology, meteorology, oceanography, and astronomy. Lab: Activities will cover methods used to collect and analyze data in geology, meteorology, oceanography, and astronomy. Lab required. Prerequisites: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

GEOL 1402 Earth Sciences for Non Science Majors II
Lecture: Extension of the study of geology, astronomy, meteorology and oceanography, focusing on natural resources, hazards and climate variability. Lab: Activities will focus on methods used to collect and analyze data related to natural resources, hazards and climate variability. Lab required. Prerequisite: GEOL 1401 or GEOL 1403. 4 credit hours. (A)

GEOL 1403 Physical Geology
Lecture: Introduction to the study of the materials and processes that have modified and shaped the surface and interior of Earth over time. These processes are described by theories based on experimental data and geologic data gathered from
field observations. Lab: Laboratory activities will cover methods used to collect and analyze earth science data. Lab required. Prerequisites: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

GEOL 1404 Historical Geology
Lecture: A comprehensive survey of the history of life and major events in the physical development of Earth as interpreted from rocks and fossils. Lab: Laboratory activities will introduce methods used by scientists to interpret the history of life and major events in the physical development of Earth from rocks and fossils. Lab required. Prerequisite: GEOL 1403. 4 credit hours. (A)

GEOL 1445 Oceanography
A study of the various aspects of the ocean, including origins of the ocean, earth's ocean, plate tectonics, ocean sediments, the chemistry of seawater, oceans and climate, currents, waves, tides, coastal features, oceanic ecosystems, protection of coastal areas, and resources of the oceans. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

GEOL 1447 Introduction to Meteorology
An examination of the Earth's atmosphere, global climate, and associated environmental factors. Includes lab exercises in weather tracking on Weather-Net computer system. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading and Writing; or equivalent. 4 credit hours. (A)

GEOL 2389 Academic Co-op Geology
Integrates on-campus study with practical hands-on work experience in geology. In conjunction with class seminars, the student will set specific goals and objectives in the study of geology. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

GERM 1411 Beginning German I
Introduction to the basic skills of speaking, reading, writing, and listening; designed for students with little or no previous language training. Includes attention to selected aspects of German civilization. Instruction enhanced by the use of tapes, slides, and video cassettes. Lab required. 4 credit hours. (A)

GERM 1412 Beginning German II
Continuation of GERM 1411 with an emphasis on the reading of elementary texts. Lab required. Prerequisite: GERM 1411 or consent of Associate Dean. 4 credit hours. (A)

GERM 2311 Intermediate German I
Continued development of the four basic language skills with increased attention to reading and writing. Instruction enhanced by tapes, slides, and other audio-visual aids. Prerequisite: GERM 1412 or consent of Associate Dean. 3 credit hours. (A)

GERM 2312 Intermediate German II
Continuation of GERM 2311. Prerequisite: GERM 2311, or consent of Associate Dean. 3 credit hours. (A)

GISC 1301 Cartography and Geography in Geographical Information Systems (GIS) and Global Positioning Systems
Introduction to the principles of cartography and geography. Emphasis on global reference systems and the use of satellites for measurements and navigation. Lab required. Prerequisite/Concurrent enrollment: GISC 1411 (or 1311). 3 credit hours. (W)

GISC 1411 Introduction to Geographic Information Systems (GIS)
Introduction to basic concepts of vector GIS using several industry specific software programs. It also includes nomenclature of cartography and geography. Additionally, students will learn to display map data, change symbology, classify features and rasters, use dynamic labeling, join and relate tables, define projections, dissolve features, clip layers, create a geodatabase, and build a GIS model. Lab required. 4 credit hours. (W)

GISC 1421 Introduction to Raster-Based Geographic Information Systems (GIS)
Instruction in GIS data sets including raster-based information such as images or photographs, acquisition of such data, and processing and merging with vector data. Prerequisite/Concurrent enrollment: GISC 1411 (or 1311). 4 credit hours. (W)
GISC 2231 Advanced Problems in Geographic Information Systems (GIS)
Seminar/Capstone course designed for the final semester of a degree or certificate in Geographic Information Systems (GIS). Projects will include individual and group studies of GIS applications using the skills acquired in previous courses. The student will produce a professional project and present the results to a panel consisting of peers, instructors, or practicing GIS professionals. Lab required. Prerequisites: GISC 2402 and GISC 2420. 2 credit hours. (W)

GISC 2281 Cooperative Education-Cartography/GIS
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Prerequisite: GISC 2420. 2 credit hours. (W)

GISC 2335 Programming for Geographic Information Systems (GIS)
Focuses on the use of programming languages to customize and expand the capability of GIS applications. Instruction will include object-oriented and component programming. Students will also design their own Graphical User Interface (GUI). Lab required. Prerequisites: COSC 1315 and GISC 1411 (or 1311). 3 credit hours. (W)

GISC 2402 Geographic Information Systems (GIS) Design with Raster Analysis
Raster/remote sensing principles, technologies, and applications. Emphasizes processing raster imagery into useful information to be used in a GIS. Includes georeferencing and image classification. Student final project will be demonstrating raster and remote sensing techniques. Prerequisite: GISC 1421. 4 credit hours. (W)

GISC 2420 Intermediate Geographic Information Systems (GIS)
This course focuses on the study of spatial data structures and the display, manipulation, and analysis of geographic information. Students will study the technical aspects involved in spatial data handling, analysis, and modeling. Instruction will include theories and procedures associated with the implementation and management of GIS projects. A variety of GIS software packages will be used in the laboratory. Lab required. Prerequisite: GISC 1411 (or 1311). 4 credit hours. (W)

GOVT 2107 Federal and Texas Constitutions
A study of the United States and state constitutions with special emphasis on Texas. Prerequisites: By permission only, and meet TSI college-readiness standard for Reading and Writing; or equivalent. Enrollment limited to students who have already completed a minimum of six (6) credit hours of GOVT courses but have not satisfied the statutory requirement for study of the federal and state constitutions. Ensures compliance with TEC 51.301. 1 credit hour. (A)

GOVT 2304 Introduction to Political Science
Introductory survey of the discipline of political science focusing on the scope and methods of the field, and the substantive topics in the discipline including the theoretical foundations of politics, political interaction, political institutions and how political systems function. Prerequisites: Consent of Associate Dean, and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GOVT 2305 Federal Government (Federal constitution and topics)
Origin and development of the U.S. Constitution, structure and powers of the national government including the legislative, executive, and judicial branches, federalism, political participation, the national election process, public policy, civil liberties and civil rights. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GOVT 2306 Texas Government (Texas constitution and topics)
Origin and development of the Texas Constitution, structure and powers of the state and local government, federalism and inter-governmental relations, political participation, the election process, public policy and the political culture of Texas. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

GOVT 2311 Mexican-American Politics
This course explores the impact of Mexican-Americans on U.S. politics and political institutions and public policy. Prerequisite: Meet TSI college-
readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**GOVT 2389 Academic Co-op Government**
Integrates on-campus study with practical hands-on work experience in government. In conjunction with class seminars, the student will set specific goals and objectives in the study of government. Contact the Cooperative Work Experience Office. Prerequisites: Consent of Associate Dean, and meet TSI college-readiness standard for Writing; or equivalent. 3 credit hours. (A)

**GRPH 1359 Vector Graphics for Production**
A study and use of vector graphics for production. 3 credit hours. (W)

**GRPH 1380 Cooperative Education-Pre-Press/Desktop Publishing and Digital Imaging Design**
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

**HAMG 1313 Front Office Management**
Functions of front office operations as they relate to customer service. Includes a study of front office interactions with other departments in the lodging operation. Prerequisite: HAMG 1321. 3 credit hours. (W)

**HAMG 1321 Introduction to Hospitality Industry**
An exploration of the elements and career opportunities within the multiple segments of the hospitality industry. 3 credit hours. (W)

**HAMG 1324 Hospitality Human Resources Management**
Principles and procedures of human resource management in the hospitality industry. Prerequisite: HAMG 1321. 3 credit hours. (W)

**HAMG 1340 Hospitality Legal Issues**
A course in legal and regulatory requirements that impact the hospitality industry. Topics include Occupational Safety and Health Administration (OSHA), labor regulations, tax laws, tip reporting, franchise regulations, and product liability laws. 3 credit hours. (W)

**HAMG 2301 Principles of Food and Beverage Operations**
An overview of food and beverage management in various hospitality environments. Emphasizes cost controls from procurement to marketing and sales. Prerequisite: HAMG 1321. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**HAMG 2305 Hospitality Management and Leadership**
An overview of management and leadership in the hospitality industry with an emphasis on management philosophy, policy formation, communications, motivation, and team building. Prerequisites: HAMG 1324, HAMG 1340, HAMG 2301, HAMG 2307 and TRVM 2301; or consent of Associate Dean. 3 credit hours. (W)

**HAMG 2307 Hospitality Marketing and Sales**
Identification of the core principles of marketing and sales and their impact on the hospitality industry. Prerequisite: HAMG 1321. 3 credit hours. (W)

**HAMG 2332 Hospitality Financial Management**
Methods and applications of financial management within the hospitality industry. Primary emphasis on sales accountability, internal controls, and report analysis. Prerequisite: HAMG 1321. 3 credit hours. (W)

**HAMG 2337 Hospitality Facilities Management**
Identification of hospitality building systems and facilities; to include sustainability and risk management. Prerequisite: HAMG 1321. 3 credit hours. (W)

**HAMG 2380 Cooperative Education-Hospitality Administration / Management, General**
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work
Experience Office. Prerequisites: CHEF 1305, HAMG 1313, HAMG 1324, HAMG 1340, HAMG 2337, RSTO 1325 and TRVM 2301; or consent of Associate Dean. 3 credit hours. (W)

HART 1256 EPA Recovery Certification Preparation
Certification training for HVAC refrigerant recovery, recycle, and reclaim. Instruction will provide a review of EPA guidelines for refrigerant recovery and recycling during the installation, service, and repair of all HVAC and refrigeration systems. Lab required. 2 credit hours. (W)

HART 1301 Basic Electricity for HVAC
Principles of electricity as required by HVAC, including proper use of test equipment, electrical circuits, and component theory and operation. Lab required. 3 credit hours. (W)

HART 1307 Refrigeration Principles
An introduction to the refrigeration cycle, heat transfer theory, temperature/pressure relationship, refrigerant handling, refrigeration components, and safety. Lab required. 3 credit hours. (W)

HART 1375 Solar Cell and Array Certification Training
Review of Solar Cell and Array concepts and principles in preparation for sitting for a certification examination administered by an outside organization or agency. The course includes National and Local Electrical Code requirements. Lab required. Prerequisites: CETT 1303 and MATH 1314 equivalent or higher level, or consent of Associate Dean. 3 credit hours. (W)

HART 1403 Air Conditioning Control Principles
A basic study of HVAC and refrigeration controls; troubleshooting of control components; emphasis on use of wiring diagrams to analyze high and low voltage circuits; a review of Ohm's law as applied to air conditioning controls and circuits. Lab required. Prerequisite/Concurrent enrollment: HART 1301. 4 credit hours. (W)

HART 1441 Residential Air Conditioning
A study of components, applications, and installation of mechanical air conditioning systems including operating conditions, troubleshooting, repair, and charging of air conditioning systems. Lab required. Prerequisite/Concurrent enrollment: HART 1307. 4 credit hours. (W)

HART 1445 Gas and Electric Heating
Study of the procedures and principles used in servicing heating systems including gas fired furnaces and electric heating systems. Lab required. Prerequisite/Concurrent enrollment: HART 1301. 4 credit hours. (W)

HART 2268 Practicum (or Field Experience) - Heating, Air Conditioning and Refrigeration Technology/Technician
Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Additionally, this capstone course is to be taken in the final semester of the HVAC degree. Prerequisite/Concurrent enrollment: HART 2345 or consent of Discipline Lead. 2 credit hours. (W)

HART 2345 Residential Air Conditioning Systems Design
Study of the properties of air and results of cooling, heating, humidifying or dehumidifying; heat gain and heat loss calculations including equipment selection and balancing the air system. Lab required. Prerequisite/Concurrent enrollment: HART 1307. 3 credit hours. (W)

HART 2372 Alternative Energy Perspectives, Energy Sources, Energy Storage, and Energy Distribution
The course covers principles of alternative/renewable energy technologies (e.g. Solar Electrical Energy Generation, Solar Thermal Energy Generation, Wind Energy Generation, and Geo-Thermal Energy Generation). Each alternative is placed in the proper context of the energy equation. Traditional energy sources (e.g. coal, oil, natural gas, hydropower, nuclear) are described and contrasted so that the student sees costs and benefits of both alternative and traditional energy sources. Energy Storage and Energy Distribution is covered as it pertains to each energy technology. Lab required. Prerequisite: MATH 1314 or consent of Associate Dean. 3 credit hours. (W)

HART 2431 Advanced Electricity for HVAC
Advanced electrical instruction and skill building in installation and servicing of air conditioning and refrigeration equipment including detailed instruction in motors and power distribution motors, motor controls, and application of solid state devices. Lab
required. Prerequisites: HART 1301 and HART 1403. 4 credit hours. (W)

HART 2436 Air Conditioning Troubleshooting
An advanced course in application of troubleshooting principles and use of test instruments to diagnose air conditioning and refrigeration components and system problems including conducting performance tests. Lab required. Prerequisites: HART 1301, HART 1307, HART 1403, and HART 1441. 4 credit hours. (W)

HART 2438 Air Conditioning Installation and Startup
A study of air conditioning system installation, refrigerant piping, condensate disposal, and air cleaning equipment with emphasis on startup and performance testing. Lab required. Prerequisite/Concurrent enrollment: HART 1307. 4 credit hours. (W)

HART 2442 Commercial Refrigeration
Theory and practical application in the maintenance of commercial refrigeration; medium, and low temperature applications and ice machines. Lab required. Prerequisite/Concurrent enrollment: HART 1307. 4 credit hours. (W)

HART 2449 Heat Pumps
A study of heat pumps, heat pump control circuits, defrost controls, auxiliary heat, air flow, and other topics related to heat pump systems. Lab required. Prerequisite: HART 1403. 4 credit hours. (W)

HIST 1301 United States History I
A survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction era. Themes that may be addressed in United States History I include: American settlement and diversity, American culture, religion, civil and human rights, technological change, economic change, immigration and migration, and creation of the federal government. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 1302 United States History II
A survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War/Reconstruction era to the present. Themes that may be addressed in United States History II include: American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2301 Texas History
A survey of the political, social, economic, cultural, and intellectual history of Texas from pre-Columbian era to the present. Themes that may be addressed in Texas History include: Spanish colonization and Spanish Texas; Mexican Texas; the Republic of Texas; statehood and secession; oil, industrialization, and urbanization; civil rights; and modern Texas. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2311 Western Civilization I
A survey of the social, political, economic, cultural, religious, and intellectual history of Europe and the Mediterranean world from human origins to the 17th century. Themes that should be addressed in Western Civilization I include cultural legacies of Mesopotamia, Egypt, Greece, Rome, Byzantium, Islamic civilizations, and Europe through the Middle Ages, Renaissance, and Reformations. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2312 Western Civilization II
A survey of the social, political, economic, cultural, religious, and intellectual history of Europe and the Mediterranean world from the 17th century to the modern era. Themes that should be addressed in Western Civilization II include absolutism and constitutionalism, growth of nation states, the Enlightenment, revolutions, classical liberalism, industrialization, imperialism, global conflict, the Cold War, and globalization. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)
HIST 2321 World Civilizations I
A survey of the social, political, economic, cultural, religious, and intellectual history of the world from the emergence of human cultures through the 15th century. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include the emergence of early societies, the rise of civilizations, the development of political and legal systems, religion and philosophy, economic systems and trans-regional networks of exchange. The course emphasizes the development, interaction and impact of global exchange. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2322 World Civilizations II
A survey of the social, political, economic, cultural, religious, and intellectual history of the world from the 15th century to the present. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include maritime exploration and transoceanic empires, nation-state formation and industrialization, imperialism, global conflicts and resolutions, and global economic integration. The course emphasizes the development, interaction and impact of global exchange. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2327 Mexican-American History I
This course is a survey of the political, economic, social and cultural history of Mexicans in North America from the pre-Colombian Era through 1850, with emphasis on the Mexican-American War with the United States. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2328 Mexican-American History II
This course is a survey of the political, economic, social and cultural history of Mexicans in North America from 1850 to present, with emphasis on the Mexican-American cultural identity and the Civil Rights Movement in the United States. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2381 African-American History
Historical, economic, social, and cultural development of minority groups with an emphasis on the experiences of peoples of African descent in the United States from the colonial era to the present. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HIST 2389 Academic Co-op History
Integrates on-campus study with practical hands-on work experience in history. In conjunction with class seminars, the student will set specific goals and objectives in the study of history. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean. 3 credit hours. (A)

HITT 1160 Clinical I - Health Information / Medical Records Technology
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: HITT 1301. 1 credit hour. (W)

HITT 1301 Health Data Content and Structure
Introduction to systems and processes for collecting, maintaining, and disseminating primary and secondary health related information including content of health record, documentation requirements, registries, indices, licensing, regulatory agencies, forms, and screens used in electronic and paper medical records. Prerequisite/Concurrent enrollment: HITT 1301. 3 credit hours. (W)

HITT 1303 Medical Terminology II
A continuation of the study of medical terms through work origin and structure, abbreviations and symbols, surgical and diagnostic procedures, and medical specialties. Lab required. Prerequisite: HITT 1305. 3 credit hours. (W)

HITT 1305 Medical Terminology I
Study of medical terms through word origin and structure. Introduction to abbreviations and symbols, surgical and diagnostic procedures, and medical specialties. 3 credit hours. (W)

HITT 1311 Health Information Systems
Introduction to health IT standards, health-related data structures, software applications and enterprise architecture in health care and public health. Lab required. 3 credit hours. (W)
HITT 1341 Coding and Classification Systems
Fundamentals of coding rules, conventions, and guidelines using clinical classification systems. The student is recommended to complete BIOL 2404 prior to registering for this course, but not required. Lab required. Prerequisite: HITT 1305. Prerequisite / Concurrent enrollment: HITT 1301. 3 credit hours. (W)

HITT 1345 Health Care Delivery Systems
Examination of delivery systems including organization, financing, accreditation, licensure, and regulatory agencies. This course covers alternative health care delivery systems. Lab required. 3 credit hours. (W)

HITT 1353 Legal and Ethical Aspects of Health Information
Concepts of privacy, security, confidentiality, ethics, health care legislation, and regulations relating to the maintenance and use of health information. Prerequisite: HITT 1305. 3 credit hours. (W)

HITT 2245 Coding Certification Exam Review
Review of coding competencies and skills in preparation for a coding certification exam. This course focuses on developing the skills of testing well on the unique course material with the objective of passing the coding credentialing exam. Therefore, the majority of the course involves review and testing. Prerequisite: Consent of Program Director. 2 credit hours. (W)

HITT 2249 RHIT Competency Review
Review of Health Information Technology (HIT) competencies, skills, and knowledge. Prerequisite/Concurrent enrollment: HITT 2361 or consent of Program Director. 2 credit hours. (W)

HITT 2328 Introduction to Public Health
A survey of how health care and public health services are organized and delivered in the U.S. Covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. Includes health reform initiatives in the U.S. 3 credit hours. (W)

HITT 2339 Health Information Organization and Supervision
Principles of organization and supervision of human, financial, and physical resources. Also covers health information for electronic records. Lab required. Prerequisites: HITT 1301 and HITT 1305. 3 credit hours. (W)

HITT 2346 Advanced Medical Coding
Advanced concepts of ICD and CPT coding rules, conventions and guidelines in complex case studies. Investigation of government regulations and changes in health care reporting. Electronic encoder use covered and information about ICD-10. Lab required. Prerequisites: BIOL 2404, HITT 1305 and HITT 1341. 3 credit hours. (W)

HITT 2361 Clinical II-Health Information/Medical Records Technology
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Students should take this course in their final semester. Prerequisites: HITT 1160 and consent of Program Director. 3 credit hours. (W)

HITT 2435 Coding and Reimbursement Methodologies
Advanced coding techniques with emphasis on case studies, health records, and federal regulations regarding prospective payment systems and methods of reimbursement. The student is recommended to complete BIOL 2404 prior to registering for this course, but not required. Lab required. Prerequisite: HITT 1341. 4 credit hours. (W)

HITT 2443 Quality Assessment and Performance Improvement
Study of quality standards and methodologies in the health information management environment. Topics include licensing, accreditation, compilation and presentation of data in statistical formats, quality management and performance improvement functions, utilization management, risk management, and medical staff data quality issues. Approaches to assessing patient safety issues and implementation of quality management and reporting through electronic systems. Lab required. Prerequisite: HITT 1301, and meet TSI college-readiness standard for Mathematics; or equivalent. 4 credit hours. (W)

HITT 2471 Pathophysiology and Pharmacology
Study of the pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and the physical and psychological reactions to diseases and...
injuries. A study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of dosages. Lab required. 4 credit hours. (W)

**HPRS 1191 Special Topics in Health Professions and Related Sciences, General**
Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. 1 credit hour. (W)

**Topics in Health Professions**
An examination of the challenges of care coordination across the healthcare continuum and solutions for quality patient outcomes.

**HPRS 1204 Basic Health Profession Skills**
A study of the concepts that serve as the foundation for health profession courses, including client care and safety issues, basic client monitoring, and health documentation methods. Lab required. 2 credit hours. (W)

**HPRS 1206 Essentials of Medical Terminology**
A study of medical terminology, word origin, structure, and application. Lab required. 2 credit hours. (W)

**HPRS 1271 Introduction to the Healthcare System**
An overview of roles of various members of the healthcare system and their educational requirements, and issues affecting the delivery of healthcare. Additional concepts explored include the healthcare system, the continuum of care, levels of care, length of stay, healthcare providers, legal and ethical aspects of healthcare, reimbursement, healthcare policy determination and health insurance and managed care. 2 credit hours. (W)

**HPRS 1272 Microbiology for Health Professions**
An introduction to the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and the role microorganisms have in disease. Emphasis is on medical microbiology and infectious diseases. Lab required. Prerequisites: BIOL 2401 and BIOL 2402; both with a grade of “C” or better. 2 credit hours. (W)

**HPRS 1303 End of Life Issues**
Discussion of grief, loss, and end of life issues. Prepares caregivers to function in settings where communication skills are utilized to provide psychosocial support to persons and their families. 3 credit hours. (W)

**HPRS 1310 Introduction to Pharmacology**
A study of drug classifications, actions, therapeutic uses, adverse effects, and routes of administration. Does NOT include dosage calculations. 3 credit hours. (W)

**HPRS 1370 Central Sterile Processing II**
This course explores two subsections of the IAHCSMM Certification program: A) Inventory Control-prepares the student with organizational skills needed to control, track and distribute inventory through the use of different techniques in inventory control and distribution, as well as the use of bar codes and radio frequency identification to track inventories. B) Sterile Storage and Distribution-introduces the basic procedures of packaging processes through a comparison of reusable and disposable packaging materials, basic package closure methods, and factors, which affect shelf-life and stock rotation. Lab required. 3 credit hours. (W)

**HPRS 1470 Central Sterile Processing I**
This course will teach subsections of the IAHCSMM Certification program related to: A) Introduction to Central Service—an introduction to the central service role, surgical supplies, basic and specialty surgical instruments, and packaging and sterilization. B) Infection Control and Occupational Safety—related to the principles and practice of infection control and OSHA guidelines along with common safety and hazards protocols. C) Regulations and Standards—teaches the difference between the regulations and voluntary and regulatory standards, the role and responsibilities of federal agencies that impact Central Services, and the important aspects of the regulations and standards they administer. Lab required. 4 credit hours. (W)

**HPRS 1471 Central Sterile Processing III**
An exploration of the subsections of the IAHCSMM Certification program: A) Instrument and Instrument Identification-identifying surgical instruments by name and purpose, examination of the process by
which surgical instruments are manufactured and prepared for the sterilization process. B) Endoscopic Instruments-proper care, handling and processing of endoscopic instruments. C) Decontamination-describe how reusable equipment, instruments, and supplies are cleaned and decontaminated by means of manual or mechanical cleaning processes and chemical disinfection and the proper use of Personal Protective Equipment (PPE) and Standard Precautions. D) Preparation and Handling-relates to basic principles of various packaging materials and closure methods used for sterilization preparation as they relate to the Association of Advancement of Medical Instrument (AAMI) standards. E) Sterilization-relates sterilization procedures and theory including high and low temperature sterilization, sterilization equipment, types of sterilizers, various cycles, quality assurance concepts, documentation, standards, policies and procedures. Lab required. 4 credit hours. (W)

HPRS 1561 Clinical-Health Services/Allied Health/Health Sciences, General
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This course is an exploration of teamwork and the application of practical principles in the role of Central Sterile Processing Tech through "hands on" experience. 5 credit hours. (W)

HPRS 2232 Health Care Communications
Methods of communication with clients, client support groups, healthcare professionals, and external agencies. 2 credit hours. (W)

HPRS 2300 Pharmacology for Health Professions
A study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of dosages. Prerequisites: SRGT 1271 and SRGT 1409. Corequisites: SRGT 1441 and SRGT 1461. Major Requirement: AAS -Surgical Technology. 3 credit hours. (W)

HPRS 2301 Pathophysiology
Study of the pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and the physical and psychological reactions to diseases and injuries. 3 credit hours. (W)

HPRS 2371 The Case Management Process
Principles, concepts, process, roles, settings, and clinical practice of healthcare case managers are reviewed with a focus on standards of practice, managed care, quality of care and cost containment. Legal and ethical considerations and evidence-based practice are applied to case-based scenarios. Prerequisite: Awarded an AAS or BS in Nursing or current certification or licensure in a healthcare field or profession. 3 credit hours. (W)

HPRS 2372 Case Management Coordination and Financial Management
The concept of coordination of care is studied within the case management continuum of care. Identification, availability, and cost of available resources of care are explored. A case management resource path is developed for a specific disease, condition or injury. Prerequisite/Concurrent enrollment: HPRS 2371. 3 credit hours. (W)

HPRS 2373 Case Studies in Healthcare Case Management
Case-based scenarios are used to provide student experience in healthcare case management. Students develop plans of care for cases in selected fields of clinical practice. Prerequisite: Consent of Instructor. Prerequisite/Concurrent enrollment: HPRS 2371 and HPRS 2372. 3 credit hours. (W)

HPRS 2374 Trends in Healthcare
An examination of the changes in healthcare from the aspect of technology, deliver, and other trends. 3 credit hours. (W)

HRPO 2301 Human Resources Management
Behavioral and legal approaches to the management of human resources in organizations. 3 credit hours. (W)

HRPO 2303 Employment Practices
A study of employment issues including techniques for human resource forecasting, selection, and placement including interview techniques, pre-employment testing and other predictors. Topics include recruitment methods, the selection process, Equal Employment Opportunity (EEO), EEO recordkeeping, and Affirmative Action Plans. 3 credit hours. (W)

HRPO 2304 Employee Relations
An examination of policies, practices, and issues required to build strong employee relations. Topics include communications, employee conduct rules,
performance appraisal methods, Title VII, Family Medical Leave Act, Fair Labor Standards Act, and Americans with Disabilities Act updates. 3 credit hours. (W)

HRPO 2306 Benefits and Compensation
An overview of employee compensation systems. Topics include compensation systems, direct and indirect compensation, internal and external determination of compensation, benefits administration, managing and evaluating for effectiveness, legal and regulatory issues, pay equity, job analysis affecting job compensation and competencies. 3 credit hours. (W)

HRPO 2307 Organizational Behavior
The analysis and application of organizational theory, group dynamics, motivation theory, leadership concepts, and the integration of interdisciplinary concepts from the behavioral sciences. Prerequisite: BMGT 1327. 3 credit hours. (W)

HUMA 1301 Introduction to Humanities I
This stand-alone course is an interdisciplinary survey of cultures focusing on the philosophical and aesthetic factors in human values with an emphasis on the historical development of the individual and society and the need to create. Additionally, this course provides a broad overview of cultural traditions and the variety of aesthetic and intellectual works through which they express their values and aspirations. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

HUMA 1302 Introduction to Humanities II
This stand-alone course is an interdisciplinary survey of cultures focusing on the philosophical and aesthetic factors in human values with an emphasis on the historical development of the individual and society and the need to create. Additionally, this course specifically pursues a concentrated exploration of particular cultural traditions or persistent cultural concepts or practices through critical engagement with selected aesthetic and intellectual works. Prerequisite: Meet TSI college-readiness standard for Reading and Writing, or equivalent. 3 credit hours. (A)

IBUS 1341 Global Supply Chain Management
International purchasing or sourcing. Includes the advantages and the barriers of purchasing internationally, global sourcing, procurement technology, and purchasing processes. Emphasizes issues of contract administration, location, and evaluation of foreign suppliers, total cost approach, exchange fluctuations, customs procedures, and related topics. 3 credit hours. (W)

IBUS 1354 International Marketing Management
Analysis of international marketing strategies using market trends, costs, forecasting, pricing, sourcing, and distribution factors. Development of an international marketing plan. 3 credit hours. (W)

IBUS 2332 Global Business Simulation
A simulation of a global environment. Students will engage in business practice and theory. The simulation may include researching foreign business cultures and importing and exporting products. Emphasizes participation in all business decisions related to running a simulated company. 3 credit hours. (W)

IBUS 2341 Intercultural Management
Cross-cultural comparisons of management and communications processes. Emphasizes cultural ethnic geographic distinctions and antecedents that affect individual, group, and organizational behavior. May include sociocultural demographics, economics, technology, legal issues, negotiations, and processes of decision making in the international cultural environment. 3 credit hours. (W)

IFWA 1310 Nutrition and Menu Planning
Application of principles of nutrition in planning menus for the food service industry. This includes various types of commercial, industrial and institutional food service entities. 3 credit hours. (W)

IFWA 1319 Meat Identifying and Processing
A study of the identification and characteristics of wholesale and retail cuts of meat; hotel, restaurant, and institutional cuts of meat; U.S.D.A quality grades; quality control; and the Federal Meat Inspection Regulation. Lab required. Prerequisites: CHEF 1301, CHEF 1305, and CHEF 2331. 3 credit hours. (W)

IMED 1316 Web Design I
Instruction in web design and related graphic design issues including mark-up languages, web sites and browsers. Lab required. Prerequisite: ARTC 1325 or consent of Instructor. 3 credit hours. (W)
IMED 1341 Interface Design
Skill development in the interface design process including selecting interfaces that are relative to a project's content and delivery system. Emphasis on aesthetic issues such as iconography, screen composition, colors, and typography. Lab required. Prerequisite: ITSE 1311 or consent of Instructor. 3 credit hours. (W)

IMED 2309 Internet Commerce
An overview of the Internet as a marketing and sales tool with emphasis on developing a prototype for electronic commerce. Lab required. Prerequisite: ITSE 1311 or consent of Instructor or Associate Dean. 3 credit hours. (W)

IMED 2311 Portfolio Development
Preparation and enhancement of portfolio to meet professional standards, development of presentation skills, and improvement of job-seeking techniques. This is a capstone course which is to be completed during the last semester of the E-Business Development program. Lab required. 3 credit hours. (W)

IMED 2315 Web Design II
A study of mark-up language advanced layout techniques for creating web pages. Emphasis on identifying the target audience and producing web sites according to accessibility standards, cultural appearance, and legal issues. Lab required. Prerequisite: IMED 1316. 3 credit hours. (W)

IMED 2359 Interactive Web Elements
Production of projects using current web development tools that may incorporate dynamic data, web graphics, animation, video and audio streaming. Lab required. Prerequisite: IMED 2315 or consent of Instructor. 3 credit hours. (W)

INDS 1301 Basic Elements of Design
A study of basic design concepts with projects in shape, line, value, texture, pattern, spatial illusion, and form. Lab required. 3 credit hours. (W)

INDS 1315 Materials, Methods and Estimating
A study of materials, methods of construction and installation, and estimating for interior design applications. Lab required. Prerequisite: INDS 1301 or consent of Associate Dean. 3 credit hours. (W)

INDS 1341 Color Theory and Applications
A study of color theory and its applications to interior design. Actual interior design will be given that will involve applying various color systems, with emphasis on Munsell. The student will learn mixing techniques to gain desired hue; value and chroma (intensities) for solving design color schemes. Color psychology and phenomena will be investigated. The students will be introduced to elements and principles of design and will learn to achieve balance, rhythm, emphases, harmony, and variety through the use of color. Additive and subtractive color mixing, and relationship of light will be examined. Lab required. 3 credit hours. (W)

INDS 1345 Commercial Design I
A study of design principles applied to furniture layout and space planning for commercial interiors. Lab required. Prerequisites: INDS 1371 and INDS 2313. 3 credit hours. (W)

INDS 1349 Fundamentals of Space Planning
The study of residential and light commercial spaces, including programming, codes, standards, space planning, drawings and presentations. Lab required. 3 credit hours. (W)

INDS 1351 History of Interiors I
An historical survey of design in architecture, interiors, furnishings, and decorative elements from the ancient cultures through the Italian Renaissance time period. Lab required. 3 credit hours. (W)

INDS 1352 History of Interiors II
A multi-cultural historical survey of design in architecture, interiors, furnishings, and decorative elements from the post-Renaissance period to present time. Lab required. 3 credit hours. (W)

INDS 1371 Introduction to Green Design
A general study of Green Design and sustainable environment. Explore the basic principles of Green/Sustainable Design including passive solar, alternative energy, green water technology, recycling, green building certification outline, and interior air quality in built environment. Lab required. 3 credit hours. (W)

INDS 1372 Computer-Aided Drafting for Interior Designers
An introduction to computer-aided drafting. Emphasis is placed on setup; general knowledge of CAD software; reading basic blueprint; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinating systems; and plot/print to scale; interior furniture layouts. Lab required. 3 credit hours. (W)
INDS 1373 Green Interiors
Course introduces students to Green interior design and built environment. Emphasis is placed on: analyzing Indoor Air Quality, green interior material and finishes, green cleaning materials, and providing plans and solutions for creating a healthier interior environment. Lab required. Prerequisite: INDS 1371. 3 credit hours. (W)

INDS 2280 Cooperative Education - Interior Design
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

INDS 2313 Residential Design I
The study of residential spaces, including the identification of client needs, programming, standards, space planning, drawings, and presentations. Lab required. Prerequisites: DFTG 1309, INDS 1301, and INDS 1341. 3 credit hours. (W)

INDS 2315 Lighting for Interior Designer
Fundamentals of lighting design, including lamps, luminaries, lighting techniques, and applications for residential and commercial projects. Lab required. 3 credit hours. (W)

INDS 2330 Interior Design Building Systems
An overview of building materials, mechanical systems, and construction techniques as applied to interior design. Discussion of codes, project sequencing and the interpretation of detailed working drawings. Lab required. Prerequisite: INDS 1345 or consent of Associate Dean. 3 credit hours. (W)

INDS 2374 Sustainable Living
The course provides an introduction to sustainable thinking toward Green Built Environment. Emphasis is placed on: analyzing the Indoor Environment Quality, the effects of Indoor Air Quality on health and the well-being of the occupants. The course strives to evaluate the relationship between humans and natural resources. Lab required. Prerequisites: DFTG 1309, INDS 1371, and INDS 1373. 3 credit hours. (W)

INDS 2380 Cooperative Education - Interior Design - Career Related Activities
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

INEW 2330 Comprehensive Software Project: Planning and Design
A comprehensive application of skills learned in previous courses in a simulated workplace. Covers the development, testing, and documenting of a complete software and/or hardware solution. This course may be used as a capstone course for a certificate or degree. Prerequisite: Consent of Instructor. 3 credit hours. (W)

INEW 2338 Advanced Java Programming
A continuation of Java programming techniques such as servlets, and advanced graphical functions. Topics cover the Java 2 Platform, Enterprise Edition (J2EE) which defines the standard for developing component-based multi-tier enterprise applications. The focus of this class will be on development of Java Servlets and Java Server Pages (JSPs). Prerequisite: COSC 1337 or ITSE 2317 or consent of Associate Dean. 3 credit hours. (W)

INEW 2340 Object-Oriented Design
A study of large system analysis and design concepts from the object-oriented perspective. Includes determining required objects and their interfaces. Also covers relationships between objects. Lab required. Prerequisite: COSC 1337 or COSC 1437 or consent of Associate Dean. 3 credit hours. (W)

INRW 0300 Introduction to Integrated Reading and Writing
Integration of critical reading and academic writing skills. Successful completion of INRW 0315 fulfills TSI requirements for reading and/or writing. Additionally, this is a combined lecture/lab, performance-based course designed to develop students' reading and academic writing skills. Emphasizing grammar, sentence structure, and paragraph development, the course introduces the student to the writing process and the essay as well as fundamental components of college reading. Lab required. Prerequisite: TSI placement in Adult Basic Education Levels 3-6 for Developmental
Reading/Writing. Consult the Testing Center Director if you have questions about an assessment. 3 credit hours. (D)

**INRW 0315 Integrated Reading/Writing II**
Integration of critical reading and academic writing skills. Successful completion of this course fulfills TSI requirements for reading and/or writing. Additionally, this is a combined lecture/lab, performance-based course designed to develop students' critical reading and academic writing skills. The focus of the course will be on applying critical reading skills for organizing, analyzing, and retaining material and developing written work appropriate to the audience, purpose, situation, and length of the assignment. The course integrates preparation in basic academic reading skills with basic skills in writing a variety of academic essays. This is a course with a required lab. Lab required. Prerequisite: INRW 0405 or meet TSI standard for INRW 0315; or equivalent. If you do not meet placement requirements, check with the instructor to request consent. 3 credit hours. (D)

**INRW 0405 Integrated Reading/Writing I**
Integration of critical reading and academic writing skills. Successful completion of INRW 0315 fulfills TSI requirements for reading and/or writing. Additionally, seeks to improve students’ academic reading and writing skills through extensive integrated instruction emphasizing skills and techniques related to vocabulary, grammar, comprehension, paragraph elements, essay structure, and critical analysis that apply to both reading and writing. Students will demonstrate comprehension of varied texts through written responses, progressing from advanced paragraphs to short essays. The required lab component will target students' individual skills. Lab required. Prerequisite: INRW 0300 or meet TSI standard for INRW 0405; or equivalent. Consult the Testing Center Director if you have questions about an assessment. 4 credit hours. (W)

**INTC 1307 Instrumentation Test Equipment**
Theory and application of instrumentation test equipment. Emphasizes accuracy, limitations of instruments and calibration techniques. Lab required. 3 credit hours. (W)

**ITAL 1411 Beginning Italian I**
Introduction to the basic skills of speaking, reading, writing, and listening. Intended for students with little or no previous training in Italian. Lab required. 4 credit hours. (A)

**ITAL 1412 Beginning Italian II**
Continuation of ITAL 1411. Lab required. Prerequisite: ITAL 1411 or consent of Associate Dean. 4 credit hours. (A)

**ITCC 1314 CCNA 1: Introduction to Networks**
Formerly ITCC 1371
This course covers networking architecture, structure, and functions; introduces the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations to provide a foundation for the curriculum. Additionally, describes the use of OSI and TCP layered models to examine the nature and roles of protocols and services at the applications, network, data link, and physical layers. Covers the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations. Explains IPv6 Network Addresses, Design Considerations for IPv6, Managing IOS Configuration Files, and Integrated Routing Services. Students build simple LAN topologies by applying basic principles of cabling; perform basic configurations of network devices, including routers and switches; and implementing IP addressing schemes. Use common show commands to establish baseline performance and troubleshooting. Lab required. 3 credit hours. (W)

Note: This course is intended for students that have had some computer networking exposure. While the course does not have a prerequisite, students without any experience in Computer Network Engineering are strongly encouraged to take Network+ before CCNA 1.

**ITCC 1340 CCNA 2: Routing and Switching Essentials**
Formerly ITCC 1374
Describes the architecture, components, and basic operation of routers and explains the basic principles of routing and routing protocols. It also provides an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Additionally, students analyze, configure, verify, and troubleshoot the primary routing protocols and OSPF. Recognize and correct common routing issues and problems. Model and analyze routing processes. This course describes the architecture, components, and operation of switches, and explains the principles of switching, VLANs and Inter-VLAN routing. The essentials of security,
address translation and DHCP are also described. Use discovery protocols to map a network topology. Configure Syslog in a small to medium-sized business network. Maintain router and switch configuration and IOS files. Lab required. Prerequisite: ITCC 1314. 3 credit hours. (W)

**ITCC 2312 CCNA 3: Scaling Networks**  
*Formerly ITCC 2371*

CCNA R&S: Scaling Networks (ScaN) covers the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches using advanced protocols. Additionally, this course helps students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks, how routers operate and are implemented in the LAN environment for small and large networks. Detailed explanations of LAN switch operations, Rapid Spanning Tree Protocol (RSTP), router operations, DHCP, Link Aggregation, EIGRP, Multi-Area OSPF, and IOS File Management and wireless network operations. Analyze, configure, verify, and troubleshoot RSTP, DHCP, Link Aggregation, EIGRP, Multi-Area OSPF and wireless networks. Lab required. Prerequisite: ITCC 1340. 3 credit hours. (W)

**ITCC 2313 CCNA 4: Connecting Networks**  
*Formerly ITCC 2372*

WAN technologies and network services required by converged applications in a complex network; enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Additionally, it also describes the principles of traffic control, Borderless Networks, Virtualization, Collaboration, Tunneling, IPSec VPN, Syslog Operation, SNMP Operation and provides an overview of the services and protocols at the data link layer for wide-area access. Describes user access technologies and devices and describe how to implement and configure Point-to-Point Protocol (PPP), Point-to-Point Protocol over Ethernet (PPPoE), DSL, and Frame Relay. WAN security concepts, tunneling, and VPN basics are introduced. Discusses the special network services required by converged applications and an introduction to quality of service (QoS). Lab required. Prerequisite: ITCC 2312. 3 credit hours. (W)

**ITCC 2341 CCNA Security**  
*Formerly ITCC 2370*

Overall security processes with particular emphasis on hands-on skills in the following areas: security policy design and management; security technologies, products, and solutions; and secure router design, installation, configuration, and maintenance; AAA and VPN implementation using routers and firewalls. Additionally, the Cisco CCNA Security curriculum is taken in preparation for the Implementing Cisco IOS Network Security (IINS) Certification Exam (640-453) leading to the Cisco CCNA Security Certification. Through in-class lecture and lab sections, expertise is developed in Protocol Sniffers/Analyzers, TCP/IP and common desktop utilities, Cisco IOS software, Cisco VPN clients, and Packet Tracer (PT). Lab required. Prerequisite: ITCC 1340 or CCENT (ICND1) Certification and consent of Associate Dean. 3 credit hours. (W)

**ITCC 2354 CCNP R&S ROUTE**  
*Formerly ITCC 2374*

How to implement, monitor, and maintain routing services in an enterprise network. How to plan, configure, and verify the implementation of complete enterprise LAN and WAN routing solutions using a range of routing protocols in IPv4 and IPv6 environments. Configuration of secure routing solutions to support branch offices and mobile workers. Lab required. Prerequisite: ITCC 2313 or CCNA Certification and consent of Associate Dean. 3 credit hours. (W)

**ITCC 2355 CCNP R&S SWITCH**  
*Formerly ITCC 2375*

How to implement, monitor, and maintain switching in converged enterprise campus networks. How to plan, configure, and verify the implementation of complex enterprise switching solutions. How to secure integration of VLANs, WLANs, voice and video into campus networks. Lab required. Prerequisite: ITCC 2313 or CCNA Certification and consent of Associate Dean. 3 credit hours. (W)

**ITCC 2356 CCNP R&S TSHOOT**  
*Formerly ITCC 2376*

How to monitor and maintain complex, enterprise and switched IP networks. Skills learned include the planning and execution of regular network maintenance, as well as support and troubleshooting using technology-based processes and best practices based on systematic and industry recognized approaches. Lab required. Prerequisites: ITCC 2354
and ITCC 2355 or consent of Associate Dean. 3 credit hours. (W)

**ITMT 1371** Configuring and Supporting Microsoft Windows 10 (70-698)
Addresses the implementation and desktop support needs of customers that are planning to deploy and support Microsoft Windows 10 in a variety of standalone and network operating system environments. In-depth, hands-on training for Information Technology (IT) professionals responsible for the planning, implementation, management, and support of Windows 10. Lab required. Prerequisite: ITNW 1358 or consent of Associate Dean. 3 credit hours. (W)

**ITMT 1372** Installation, Storage, and Computing with Windows Server 2016
A course in Windows Server 2016 installation. Lab required. Prerequisite: ITNW 1358 or ITCC 1314. 3 credit hours. (W)

**ITMT 1373** Networking with Windows Server 2016
A course in Windows Server 2016 networking including implementing Domain Name System (DNS), implementing DHCP, implementing IP Address Management (IPAM), implementing network connectivity and remote access solutions, implementing core and distributed network solutions, implementing an advanced network infrastructure, preparation options (MS 70-741). Lab required. Prerequisite: ITMT 1372. 3 credit hours. (W)

**ITMT 1374** Identity with Windows Server 2016
Install and configure Active Directory Domain Services (AD DS), manage and maintain AD DS, create and manage Group Policy, implement Active Directory Certificate Services (AD CS), implement identity federation and access solutions (MS 70-742). Lab required. Prerequisite: ITMT 1372. 3 credit hours. (W)

**ITMT 2304** Implementing an Advanced Server Infrastructure
This course covers managing and maintaining a server infrastructure, planning and implementing a highly available enterprise infrastructure, planning and implementing a server virtualization infrastructure, and designing and implementing identity and access solutions. Additionally, this course is a preparation for the MS 70-414 professional exam. Lab required. Prerequisite: ITMT 1372 or ITMT 2370. 3 credit hours. (W)

**ITMT 2305** Designing and Implementing a Server Infrastructure
This course covers planning and deploying a server infrastructure; designing and implementing network infrastructure services; designing and implementing network access services and Active Directory infrastructure. Additionally, this course is preparation for the MS 70-413 professional exam. Lab required. Prerequisite: ITMT 2370 or ITMT 1372. 3 credit hours. (W)

**ITNW 1351** Fundamentals of Wireless LANs
Design, plan, implement, operate, and troubleshoot Wireless Local Area Networks (WLANs). Includes WLAN design, installation, and configuration; and WLAN security issues and vendor interoperability strategies. Lab required. 3 credit hours. (W)

**ITNW 1358** Network+
Assists individuals in preparing for Computing Technology Industry Association (CompTIA) Network+ certification exam and career as a network professional. Prepares individuals for a career as a Network Engineer in the Information Technology support industry. Includes the various responsibilities and tasks required for service engineer to successfully perform in a specific environment. Lab required. 3 credit hours. (W)

**ITNW 1370** Cloud+ Computing Essentials
A study of the main cloud computing principles, concepts, and architecture from a technical and an enterprise perspective in terms of moving to and governing the three types of cloud environments (private, public and hybrid). Lab required. Prerequisite: ITCC 1371 or ITNW 1358. 3 credit hours. (W)

**ITNW 2373** Information Storage Management (EMC)
The Information Storage Management course teaches the skills required in designing Storage Systems using Storage Networking Technologies and Virtualization concepts, Business Continuity approaches, and Storage Security and Management strategies. Lab required. Prerequisites: ITMT 1370 and ITNW 1358. 3 credit hours. (W)
ITNW 2375 VMware vSphere: Installation, Configuration, and Management
A study of Virtualization in computer network technology. The course covers the installation, configuration, and management of VMware vSphere, which consists of VMware vSphere ESXi and VMware vCenter Server. Lab required. Prerequisites: ITCC 1374 or ITCC 1340 and ITMT 2371 or ITMT 1373, or consent of Associate Dean. 3 credit hours. (W)

ITNW 2376 Advanced Topics in Computer Systems Networking and Collaborative Technologies
This course assimilates leading edge skills, knowledge, and advances in technologies relevant to the local industry needs. Lab required. 3 credit hours. (W)

ITNW 2380 Cooperative Education - Computer Systems Networking and Telecommunications
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

ITSC 1316 Linux Installation and Configuration
Introduction to Linux operating system. Includes Linux installation, basic administration, utilities and commands, upgrading, networking, security, and application installation. Emphasizes hands-on setup, administration, and management of Linux. Lab required. Prerequisite: ITNW 1358 or consent of Associate Dean. 3 credit hours. (W)

ITSC 1342 Shell Programming - Scripting
Reading, writing, and debugging shell scripts. Development of scripts to automate frequently executed sequences of commands. Covers conditional logic, user interaction, loops, and menus to enhance the productivity and effectiveness of the user. Intended for programmers who are familiar with operating environments and reading and writing various shell scripts. Lab required. Prerequisite: ITCC 1314. 3 credit hours. (W)

ITSC 2339 Personal Computer Help Desk Support
Diagnosis and solution of user hardware and software related problems with on-the-job and/or simulated projects. Lab required. Prerequisites: ITNW 1358 and ITSC 1305, or consent of Instructor. 3 credit hours. (W)

ITSC 2380 Cooperative Education-Computer and Information Sciences, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

ITSE 1301 Web Design Tools - Graphics
Designing and publishing Web documents according to World Wide Web Consortium (W3C) standards. Emphasis on optimization of graphics and images and exploration of the tools available for creating and editing Web documents. Includes in-depth technical investigation of digital imaging on the computer using image editing and/or image creation software. Manipulation, creation, and editing of digital images for a wide assortment of output. Will explore use of industry standard web editing and graphics software packages such as Adobe Photoshop and Adobe Dreamweaver. 3 credit hours. (W)
ITSE 1306 PHP Programming
Introduction to PHP, including the design of web-based applications, arrays, strings, regular expressions, file input/output, e-mail and database interfaces, stream and network programming, debugging, and security. Emphasizes hands-on programming skills necessary to develop secure and reliable PHP based web applications. Lab required. Prerequisites: COSC 1315 and ITSE 1311 or consent of Associate Dean. 3 credit hours. (W)

ITSE 1311 Beginning Web Programming
Skills development in web programming including mark-up and scripting languages. Additionally, the course focuses on use of HTML and CSS to create web sites and includes an introduction to JavaScript. Lab required. 3 credit hours. (W)

ITSE 1330 Introduction to C# Programming
A study of C# syntax including data types, control structures, functions, syntax, and semantics of the language, classes, class relationships, and exception handling. Lab required. Prerequisite: COSC 1315 or COSC 1436 or ITSE 1332 or consent of Associate Dean. 3 credit hours. (W)

ITSE 1332 Introduction to Visual Basic.NET Programming
A study of Visual Basic.NET (VB.NET) syntax including: data types, control structures, functions, syntax, and semantics of the language, classes, class relationships, and exception handling. An introduction to programming using the Visual Basic.NET language. 3 credit hours. (W)

ITSE 1347 Programming with Visual Basic.NET
Designing and developing enterprise applications using Microsoft Visual Basic.NET in the Microsoft.NET Framework. Includes reference types, class relationships, polymorphism, operators overloading, and creating and handling exceptions. An introduction to Object Oriented Programming techniques. Prerequisite: ITSE 1332. 3 credit hours. (W)

ITSE 1359 Introduction to Scripting Languages - AJAX/jQuery
Introduction to scripting languages including: basic data types, control structures, regular expressions, input/output, and textual analysis. Students will learn how to design and implement programming solutions using JavaScript, Cascading Style Sheets, and XML. Course includes introduction to AJAX (Asynchronous JavaScript) and related technologies. Prerequisite: ITSE 2302 or consent of Instructor. 3 credit hours. (W)

ITSE 1371 iOS Programming Fundamentals (Swift)
Course covers the basics of the Swift language and the use of development tools for iOS application programming. Lab required. Prerequisite: COSC 1315 or COSC 1436 or ITSE 1332 or consent of Instructor. 3 credit hours. (W)

ITSE 1372 Windows Mobile Programming I
Course explores developing applications for Windows Phone-based devices. Course will provide an overview of Windows Phone development for use of current SDK, to design of applications and industry business practices. Prior programming experience in either C#, Visual Basic, or an Object-Oriented Programming language is recommended for this course. Lab required. Prerequisite: ITSE 1330 or ITSE 1332 or consent of Associate Dean. 3 credit hours. (W)

ITSE 1373 Android Mobile Programming I
This course introduces mobile application development for the Android platform. Students will learn how to design, develop, test, and debug mobile Android applications. Topics include the Android Software Development Kit (SDK), design principles, application structure, and current issues in programming mobile devices. Prerequisite: COSC 1337 or consent of Associate Dean. 3 credit hours. (W)

ITSE 1374 Mobile Web
Course explores creating mobile web sites using HTML, CSS and JavaScript. Course will also explore creation of hybrid mobile applications for one or more mobile platforms. Lab required. Prerequisite: ITSE 1311 or consent of Instructor. 3 credit hours. (W)

ITSE 1380 Cooperative Education - Computer Programming/Programmer, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)
ITSE 1393  Special Topics in Computer Systems Analysis
Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Lab required. 3 credit hours. (W)

Business Intelligence
An introduction to Business Intelligence analysis and reporting. The topics of study will include creating a data source, dimensional model, dimensions and measures, attribute relationships and user-defined hierarchies, calculated members, aggregations, and analysis reports using Excel. Prerequisites: ITSE 2309 and ITSW 1304 or consent of Associate Dean.

ITSE 2302  Intermediate Web Programming
Techniques for web development. Includes server-side and client-side scripting. Additionally, students design and implement fully interactive web sites using HTML5, CSS, and JavaScript. Lab required. Prerequisite: ITSE 1311 or consent of Associate Dean. 3 credit hours. (W)

ITSE 2304  Visual Basic.NET Database Development with ADO.NET
Visual Basic.NET applications to access data from a database. Emphasizes Object-Oriented Programming (OOP) and database programming with ADO.NET. Prerequisites: ITSE 1332 and either ITSE 2309 or ITSW 1307. 3 credit hours. (W)

ITSE 2309  Database Programming - SQL
Database development using database programming techniques emphasizing database structures, modeling, and database access. Prerequisite: Knowledge of a programming language and ITSW 1307 or equivalent knowledge. Lab required. 3 credit hours. (W)

ITSE 2310  iOS Application Programming
Course explores developing applications for iOS devices. Will include Objective-C programming, use of the iOS SDK environment, and current programming issues in the iOS environment. Additionally, course will also use Swift programming language. Lab required. Prerequisite/Concurrent enrollment: ITSE 1371 or consent of Instructor. 3 credit hours. (W)

ITSE 2313  Web Authoring
Instruction in designing and developing web pages that incorporate text, graphics, and other supporting elements using current technologies and authoring tools. Lab required. Prerequisite: ITSE 1311 or consent of Instructor. 3 credit hours. (W)

ITSE 2334  Advanced Visual Basic.NET Programming with ASP.NET
Continuation of Visual Basic.NET programming using advanced features. Windows Forms, ADO.NET, XML, Data Bound Controls, DataSet, Assemblies, Attributes, Reflection, Marshalling and Remoting, Threads and Synchronization, Streams, Deployment, Generics, Partial Classes, Application Blocks, and data encryption. Emphasizes using the more advanced features of the .NET Framework Class Library and web programming with ASP.NET. Prerequisites: ITSE 1311 and ITSE 1347. 3 credit hours. (W)

ITSE 2338  C# Database Development with ADO.NET and LINQ
C# applications to access data from a database. Emphasizes Object-Oriented Programming (OOP) and database programming with ADO.NET. Prerequisite: ITSE 1330 or consent of Associate Dean. 3 credit hours. (W)

ITSE 2347  Advanced Database Programming
Database development using complex database programming techniques emphasizing multiple interrelated files, menu design, security implementation, and multiple access. Additionally, Advanced SQL Query Design, SQL Analytic functions, Database design, and Data Warehousing will be emphasized. Lab required. Prerequisite: ITSE 2309. 3 credit hours. (W)

ITSE 2353  Advanced C# Programming with ASP.NET
Continuation of C# programming using advanced features of the .NET Framework Class Library. Windows Forms, ADO.NET, XML, Data Bound Controls, DataSet, Assemblies, Attributes, Reflection, Marshalling and Remoting, Threads and Synchronization, Streams, Deployment, Generics, Partial Classes, Application Blocks, and data encryption. Emphasizes using the more advanced features of the .NET Framework Class Library and web programming with ASP.NET. Prerequisite: ITSE 1330 or consent of Associate Dean. 3 credit hours. (W)
ITSE 2354 Advanced Oracle PL/SQL
Advanced use of Oracle SQL. Topics include hierarchical queries, set based queries, correlated subqueries, scripting, and scripting generation. Prerequisite: ITSE 2309. Lab required. 3 credit hours. (W)

ITSE 2370 Descriptive Analytics
An introduction to principles and techniques in data analysis for problem solving and decision making used in business and industry. Lab required. Prerequisites: ITSE 2309, ITSW 1304, and MATH 1342. 3 credit hours. (W)

ITSE 2372 Windows Mobile Programming II
This course continues to explore mobile application development for the Windows Phone platform. Students will design, develop, test, and debug more advanced Windows Phone applications. Course will focus on more advanced topics related to programming mobile devices. Lab required. Prerequisite: ITSE 1372 or consent of Associate Dean. 3 credit hours. (W)

ITSE 2380 Cooperative Education-Computer Programming/Programmer, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

ITSW 1304 Introduction to Spreadsheets-Excel
Instruction in the concepts, procedures, and application of electronic spreadsheets. 3 credit hours. (W)

ITSW 1307 Introduction to Database-Access
Introduction to database theory and the practical applications of a database. Emphasis on database design, custom reports, file management, and application creation. 3 credit hours. (W)

ITSW 1310 Introduction to Presentation Graphics Software
Instruction in the utilization of presentation software to produce multimedia presentations. Graphics, text, sound, animation and/or video may be used in presentation development. Lab required. 3 credit hours. (W)

ITSW 1380 Cooperative Education-Data Processing and Data Processing Technology/Technician
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

ITSW 2370 SAS Programming
Introduction to the principles and techniques of using the SAS Programming Application Language. Lab required. Prerequisite: ITSE 2309. 3 credit hours. (W)

ITSW 2380 Cooperative Education-Data Processing and Data Processing Technology/Technician
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisite: ITSW 1380 or consent of Associate Dean. 3 credit hours. (W)

ITSY 1300 Fundamentals of Information Security (Security +)
An introduction to information security including vocabulary and terminology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. Lab required. Prerequisite: ITNW 1358. 3 credit hours. (W)

ITSY 2300 Operating System Security
Safeguard computer operating systems by demonstrating server support skills and designing and implementing a security system. Identify security threats and monitor network security implementations. Use best practices to configure operating systems to industry security standards. Lab
required. Prerequisite: ITMT 1371 or ITNW 1358. 3 credit hours. (W)

**ITSY 2301 Firewalls and Network Security**

Identify elements of firewall design, types of security threats and responses to security attacks. Use Best Practices to design, implement, and monitor a network security plan. Examine security incident postmortem reporting and ongoing network security activities. Lab required. Prerequisite: ITSY 2300 or consent of Associate Dean. 3 credit hours. (W)

**ITSY 2341 Security Management Practices**

In-depth coverage of security management practices, including asset evaluation and risk management; cyber law and ethics issues; policies and procedures; business recovery and business continuity planning; network security design; and developing and maintaining a security plan. Lab required. Prerequisite: ITSY 2300 or consent of Associate Dean. 3 credit hours. (W)

**ITSY 2342 Incident Response and Handling**

In-depth coverage of incident response and incident handling, including identifying sources of attacks and security breaches; analyzing security logs; recovering the system to normal; performing postmortem analysis; implementing and modifying security measures. Prerequisite: ITSY 2300 or consent of Associate Dean. 3 credit hours. (W)

**ITSY 2343 Computer System Forensics**

In-depth study of system forensics including methodologies used for analysis of computer security breaches. Collect document and evaluate evidence to perform postmortem analysis of a security breach. Prerequisite: ITSY 2342 or consent of the Associate Dean. Lab required. 3 credit hours. (W)

**ITSY 2572 Certified Information Systems Security Professional (CISSP) Common Body of Knowledge Domain Instruction**

An in-depth study of the 10 domains which make up the Common Body of Knowledge (CBK) of information security professionals. The course is designed to instruct individuals to implement solid security practices, perform risk analysis, identify necessary countermeasures, and help the enterprise as a whole protect its facility, network, systems, and information. Prerequisites: ITSY 1300 and ITSY 2300, or equivalent experience and consent of Associate Dean. 5 credit hours. (W)

**ITSY 2575 Certified Information Security Manager (CISM)**

An in-depth study of the five domains covered on the ISACA* - CISM professional certification exam. Each domain (Information Security Governance, Information Risk Management, Information Security Program Development, Information Security Program Management, and Incident Management and Response) covers the knowledge and tasks that cybersecurity professionals are expected to know how to perform in the workplace. *Previously known as Information Systems Audit and Control Association. Prerequisite: ITSY 1300 or ITSY 2300 or equivalent experience and consent of Associate Dean. 5 credit hours. (W)

**JAPN 1411 Beginning Japanese I**

Introduction to the basic skills of speaking, reading, writing, and listening with attention to selected aspects of Japanese culture; designed for students with little or no previous language training. Instruction is enhanced by the use of tapes, slides, and video cassettes. Lab required. 4 credit hours. (A)

**JAPN 1412 Beginning Japanese II**

A continuation of JAPN 1411. Lab required. Prerequisite: JAPN 1411 or consent of Associate Dean. 4 credit hours. (A)

**JAPN 2311 Intermediate Japanese I**

Continuing development of the four basic skills of speaking, reading, writing, and listening, emphasizing conversational and reading skills. Designed for students who have completed Beginning Japanese II. Additional Kanji structures are introduced. Also includes attention to selected aspects of Japanese culture. Lab required. Prerequisite: JAPN 1412 or consent of Associate Dean. 3 credit hours. (A)

**JAPN 2312 Intermediate Japanese II**

Continued development of four basic language skills with emphasis on conversation and reading skills. Additional Kanji and grammar structures are introduced. Includes attention to selected aspects of Japanese culture. Lab required. Prerequisite: JAPN 2311 or consent of Associate Dean. 3 credit hours. (A)
LGLA 1303 Legal Research
Presents legal research techniques emphasizing the paralegal's role. 3 credit hours. (W)

LGLA 1305 Legal Writing
Fundamentals of legal writing techniques including case and fact analysis, citation formats, and legal writing styles emphasizing the paralegal's role in legal writing. 3 credit hours. (W)

LGLA 1307 Introduction to Law and the Legal Professions
Overview of the law and the legal professions including legal concepts, systems, and terminology; substantive areas of law and the federal and state judicial systems; ethical obligations and regulations; professional trends and issues with emphasis on the paralegal's role. 3 credit hours. (W)

LGLA 1323 Employment Law
Presents the fundamental concepts of employment law, including employment contracts, at-will employment, governmental regulations, and discrimination issues, emphasizing the paralegal's role in employment law. Prerequisite: LGLA 1307 or consent of department. 3 credit hours. (W)

LGLA 1342 Federal Civil Litigation
Fundamental concepts and procedures of federal civil litigation including pretrial, trial, and post-trial phases of litigation emphasizing the paralegal's role in the federal civil litigation process. 3 credit hours. (W)

LGLA 1343 Bankruptcy
Fundamental concepts of bankruptcy law and procedure are presented including individual and business liquidation and reorganization with emphasis on the paralegal's role. 3 credit hours. (W)

LGLA 1344 Texas Civil Litigation
Fundamental concepts and procedures of Texas civil litigation including pretrial, trial, and post-trial phases of litigation emphasizing the paralegal's role in the Texas civil litigation process. Prerequisites: LGLA 1303, LGLA 1342, and LGLA 2303, or consent of Associate Dean. 3 credit hours. (W)

LGLA 1351 Contracts
Presents fundamental concepts of contract law including formation, performance, and enforcement of contracts under the common law and the Uniform Commercial Code with emphasis on the paralegal's role in contract law. 3 credit hours. (W)

LGLA 1353 Wills, Trusts, and Probate Administration
Fundamental concepts of the law of wills, trusts, and probate administration emphasizing the paralegal's role. 3 credit hours. (W)

LGLA 1355 Family Law
Fundamental concepts of family law including formal and informal marriages, divorce, annulment, marital property, and the parent-child relationship with emphasis on the paralegal's role in family law. 3 credit hours. (W)

LGLA 1380 Cooperative Education-Legal Assistant/Paralegal
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

LGLA 2303 Torts and Personal Injury Law
Fundamental concepts of tort and personal injury law including intentional torts, negligence, and strict liability are presented with emphasis on the paralegal's role in tort and personal injury law. 3 credit hours. (W)

LGLA 2307 Law Office Management
Fundamental principles and structure of management, administration, and substantive systems in the law office including law practice technology as applied to paralegals. 3 credit hours. (W)

LGLA 2309 Real Property
Presents fundamental concepts of real property law including the nature of real property, rights and duties of ownership, land use, voluntary and involuntary conveyances, and the recording of and searching for real estate documents emphasizing the paralegal's role in real property law. 3 credit hours. (W)

LGLA 2311 Business Organizations
Basic concepts of business organizations including law of agency, sole proprietorships, partnerships, corporations, and other emerging business entities with emphasis on the paralegal's role. Prerequisite: LGLA 1307 or LGLA 2333 or consent of Associate Dean. 3 credit hours. (W)
LGLA 2313 Criminal Law and Procedure
Fundamental concepts of criminal law and procedure from arrest to final disposition including principles of federal and state law emphasizing the role of the paralegal in the criminal justice system. 3 credit hours. (W)

LGLA 2323 Intellectual Property
Presents the fundamentals of intellectual property law, including creation, procurement, preparation, and filing documents related to patents, copyrights, trademarks, and the processes of intellectual property litigation. Emphasizes the paralegal's role in intellectual property law. 3 credit hours. (W)

LGLA 2333 Advanced Legal Document Preparation
Use of office technology skills in preparation of legal documents by paralegals based on hypothetical situations drawn from various areas of law. 3 credit hours. (W)

LGLA 2339 Certified Paralegal Exam Review
A review of the mandatory and optional topics covered in the Certified Paralegal Examination administered by the National Association of Legal Assistants. Prerequisites: LGLA 1305 and LGLA 1342. 3 credit hours. (W)

LMGT 1319 Introduction to Business Logistics
A systems approach to managing activities associated with traffic, transportation, inventory management, warehousing, packaging, order processing, and materials handling. 3 credit hours. (W)

LMGT 1325 Warehouse and Distribution Center Management
Emphasis on physical distribution and total supply chain management. Includes warehouse operations management, hardware and software operations, bar codes, organizational effectiveness, just-in-time, and continuous replenishment. 3 credit hours. (W)

LMGT 2330 International Logistics Management
Identification of the principles and practices involved in international distribution systems including the multinational corporation. Attention to global strategic planning, production, supply, manpower/labor, geography, business communications, cultural, political, and legal issues affecting global distribution and firm/host relationships. 3 credit hours. (W)

LMGT 2388 Internship: Logistics and Materials Management
A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. 3 credit hours. (W)

MATH 0302 Pre-algebra
With an emphasis on developing critical thinking skills, a study of arithmetic operations with rational numbers, an introduction to algebraic expressions, geometric properties, and basic linear equations. Lab required. Prerequisite: Meet TSI standard for MATH 0302; or equivalent. 3 credit hours. (D)

MATH 0305 Beginning Algebra
With an emphasis on developing critical thinking skills, a study of algebraic vocabulary, concepts, and notation, functions, linear equations, systems of linear equations, polynomial expressions, and quadratic expressions and equations. Lab required. Prerequisite: MATH 0302, or meet TSI standard for MATH 0305; or equivalent. 3 credit hours. (D)

MATH 0310 Intermediate Algebra
A study of relations and functions, inequalities, algebraic expressions and equations (absolute value, polynomial, radical, rational), with a special emphasis on linear and quadratic expressions and equations. Lab required. Prerequisite: MATH 0305 or MATH 0406, or meet TSI standard for MATH 0310; or equivalent. 3 credit hours. (D)

MATH 0406 Introductory Algebra
With an emphasis on developing critical thinking skills, a study of arithmetic operations with rational numbers, an introduction to algebraic vocabulary, concepts, and notation, and geometric properties, functions, linear equations, systems of linear equations, polynomial expressions, and quadratic expressions and equations. Lab required. Prerequisite: Meet TSI standard for MATH 0406; or equivalent. 4 credit hours. (D)

MATH 1314 College Algebra
In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Graphing calculator required. Lab required. Prerequisite: Meet
TSI college-readiness standard for Mathematics; or equivalent. 3 credit hours. (A) Note: Students may take either MATH 1314 or MATH 1414 but not both.

**MATH 1316 Plane Trigonometry**
In-depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates and parametric equations may be included. Graphing calculator required. Prerequisite: MATH 1314 or MATH 1414; or equivalent. 3 credit hours. (A)

**MATH 1324 Mathematics for Business and Social Sciences**
The application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Graphing calculator required. Lab required. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 3 credit hours. (A)

**MATH 1325 Calculus for Business and Social Sciences**
This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2413, Calculus I. Graphing calculator required. Lab required. Prerequisite: MATH 1314, or MATH 1324, or MATH 1414; or equivalent. 3 credit hours. (A)

**MATH 1332 Contemporary Mathematics (Quantitative Reasoning)**
Intended for Non STEM (Science, Technology, Engineering, and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics with appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded throughout the course. Additional topics may be covered. Additionally, this course is NOT intended to prepare students for calculus, business, or engineering courses. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 3 credit hours. (A)

**MATH 1342 Elementary Statistical Methods**
Collection, analysis, presentation and interpretation of data and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended. Graphing calculator required. Lab required. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 3 credit hours. (A)

**MATH 1350 Mathematics for Teachers I (Fundamentals of Mathematics I)**
This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the conceptual development of the following: sets, functions, numeration systems, number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking. Prerequisite: MATH 1314 or MATH 1414; or equivalent. 3 credit hours. (A)
Note: This course is intended for students pursuing the AAT degree with an emphasis on middle grades 4-8 and early childhood through grade 6.

**MATH 1351 Mathematics for Teachers II (Fundamentals of Mathematics II)**
This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking. Prerequisite: MATH 1350, MATH 1314, or MATH 1414; or equivalent. 3 credit hours. (A) Note: This course is designed specifically for students who seek middle grade (4 through 8) teacher certification.

**MATH 1376 Calculus for Business and Economics II**
Continuation of Math 1325. In this course, application of differential equations, functions of several variables, Lagrange Multipliers, Least Squares Modeling, multiple integrals and infinite series will be covered. Basic concepts are related to multivariable calculus. Graphing calculator required. Lab required. Prerequisite: MATH 1325. 3 credit hours. (A) Note: This course will transfer to a specific 2+2 baccalaureate program. Please check with your advisor to learn whether the course will
transfer to the four-year program of your choice. There is an additional fee for this course.

**MATH 1414 College Algebra**
In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Graphing calculator required. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. 4 credit hours. (A) Note: Students may take either MATH 1314 or MATH 1414 but not both

**MATH 2305 Discrete Mathematics**
A course designed to prepare math, computer science, and engineering majors for a background in abstraction, notation, and critical thinking for the mathematics most directly related to computer science. Topics include: logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, combinatorics, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques. Graphing calculator required. Prerequisite: MATH 2413. 3 credit hours. (A)

**MATH 2318 Linear Algebra**
Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering. Graphing calculator required. Prerequisite: MATH 2414. 3 credit hours. (A)

**MATH 2320 Differential Equations**
Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, and boundary value problems; application of differential equations to real-world problems. Graphing calculator required. Lab required. Prerequisite: MATH 2414. 3 credit hours. (A)

**MATH 2373 Matrices, Vectors, and Linear Programming**
Not for science majors. A study of matrices, vectors, determinants, inverses, system of linear equations, and linear programming with applications. Scientific calculator required. Prerequisite: MATH 1314 or MATH 1414; or equivalent. 3 credit hours. (A) Note: This course will transfer to a specific 2+2 baccalaureate program. Please check with your advisor to learn whether the course will transfer to the four-year program of your choice. There is an additional fee for this course.

**MATH 2412 Pre-Calculus Math**
In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Graphing calculator required. Lab required. Prerequisite: MATH 1314 or the equivalent preparation. 4 credit hours. (A)

**MATH 2413 Calculus I**
Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of area. Graphing calculator required. Lab included. Prerequisite: MATH 2412; or equivalent. 4 credit hours. (A)

**MATH 2414 Calculus II**
Differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals. Graphing calculator required. Lab included. Prerequisite: MATH 2413. 4 credit hours. (A)

**MATH 2415 Calculus III**
Advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem, and Stokes' Theorem. Graphing calculator required. Lab included. Prerequisite: MATH 2414. 4 credit hours. (A)

**MILS 1141 Foundations of Leadership**
Fundamental concepts of leadership in a profession in both classroom and outdoor laboratory environments.
The study of time management skills, basic drill and
ceremony, physical fitness, rappelling, leadership
reaction course, first aid, making presentations and
marksmanship. Concurrent enrollment in MILS 1180
lab and mandatory participation in
independent physical fitness training, plus optional
participation in a weekend field training exercise. 1
credit hour. (A)

**MILS 1142 Introduction to Leadership**
Application of principles of leadership through
participation in physically and mentally challenging
exercises with upper-division ROTC students. Course
focuses on communication skills, organizational
ethics, and study and time management techniques.
Concurrent enrollment in MILS 1180 leadership lab and
mandatory participation in individual physical
fitness training, plus optional participation in a
weekend field training exercise. 1 credit hour. (A)

**MILS 1180 Leadership Laboratory**
Practical laboratory of applied leadership and skills.
Student-planned, -organized and -conducted training,
oriented toward leadership development. Laboratory
topics include marksmanship, small unit tactics,
multi-tiered programs focused on individual skill
levels. Uniform and equipment provided, no fee. May
be repeated for credit. 1 credit hour. (A)

**MILS 2251 Individual/Team Development**
Application of ethics-based leadership skills and
fundamentals of ROTC’s Leadership Development
Program. Develop skills in oral presentations, concise
writing, event planning, coordination of group
efforts, advanced first aid, land navigation, and
military tactics. Concurrent enrollment in MILS 1180
leadership lab and mandatory participation in
individual physical fitness training, plus optional
participation in a weekend field training exercise. 2
credit hours. (A)

**MILS 2252 Individual/Team Military Tactics**
Introduction to individual and team aspects of
military tactics in small unit operations. Includes use
of radio communications, making safety assessments,
movement techniques, planning for team
safety/security, and pre-execution checks. Concurrent
enrollment in MILS 1180 leadership lab and
mandatory participation in individual physical fitness
training, plus optional participation in a weekend
field training exercise. 2 credit hours. (A)

**MRKG 1301 Customer Relationship Management**
General principles of customer relationship
management including skills, knowledge, attitudes,
and behaviors. 3 credit hours. (W)

**MRKG 1311 Principles of Marketing**
Introduction to the marketing mix functions and
process. Includes identification of consumer and
organizational needs and explanation of
environmental issues. 3 credit hours. (W)

**MRKG 2312 e-Commerce Marketing**
Explore electronic tools utilized in marketing, focus
on marketing communications in developing
customer relationships. 3 credit hours. (W)

**MRKG 2333 Principles of Selling**
Overview of the selling process. Identification of the
elements of the communication process between
buyers and sellers. Examination of the legal and
ethical issues of organizations which affect
salespeople. 3 credit hours. (W)

**MRKG 2348 Marketing Research and Strategies**
Practical experiences in analyzing marketing studies
using data-driven decision-making processes.
Includes interrelationships among marketing mix. 3
credit hours. (W)

**MRKG 2349 Advertising and Sales Promotion**
Integrated marketing communications. Includes
advertising principles and practices. Emphasizes
multi-media of persuasive communication including
buyer behavior, budgeting, and regulatory
constraints. 3 credit hours. (W)

**MRKG 2381 Cooperative Education-Marketing/Marketing Management, General**
Career-related activities encountered in the student's
area of specialization offered through an
individualized agreement among the college,
employer, and student. Under the supervision of the
college and the employer, the student combines
classroom learning with work experience. Includes a
lecture component. Contact the Cooperative Work
Experience Office. 3 credit hours. (W)

**MUAP 1101 – 1191 Secondary Applied Music**
Individual instruction in voice, instrument,
composition, or conducting. Additionally, private
in the area of the student’s concentration, consisting of one 25-minute lesson per week. Students must remain enrolled in 1 credit hour of a MUEN course, attend weekly Departmental recitals for the semester, and participate in a jury. Contact the Music Department for permission prior to registering. Prerequisite: Audition. Corequisites: Remain enrolled in at least one credit hour of MUEN class(es). 1 credit hour. (A) 

Note: Students may receive credit for up to 20 credit hours of any combination of MUAP courses. This includes MUAP 1101-MUAP 2291.

MUAP 1101 Violin
MUAP 1105 Viola
MUAP 1109 Cello
MUAP 1113 Double Bass
MUAP 1115 Electric Bass
MUAP 1117 Flute
MUAP 1211 Oboe
MUAP 1225 Bassoon
MUAP 1229 Clarinet
MUAP 1333 Saxophone
MUAP 1337 Trumpet
MUAP 1141 French Horn
MUAP 1145 Trombone
MUAP 1149 Baritone
MUAP 1153 Tuba
MUAP 1157 Percussion
MUAP 1158 Set
MUAP 1161 Guitar
MUAP 1162 Guitar
MUAP 1163 String Guitar
MUAP 1165 Organ
MUAP 1169 Piano
MUAP 1170 Piano
MUAP 1177 Harp
MUAP 1181 Voice
MUAP 1187 Composition
MUAP 1188 Electroacoustic Composition
MUAP 1189 Songwriting
MUAP 1190 Arranging
MUAP 1191 Conducting

MUAP 2201-2291 Concentration Applied Music
Individual instruction in voice, instrument, composition, or conducting. Additionally, private instruction in the area of the student’s concentration, consisting of one 50-minute lesson per week. Students must remain enrolled in 1 (one) credit hour of a MUEN course and at least 4 (four) credit hours to be selected from MUSI, MUEN, MUSB, or MUSC courses. All MUAP students must attend weekly Departmental recitals for the semester (in addition to their weekly lesson), perform in 1 (one) Departmental recital, and participate in a jury at the end of the semester. For full-time Music majors only. Contact the Music Department for permission prior to registering. Prerequisite: Audition. Corequisites: Remain enrolled in at least one credit hour of MUEN class(es). Remain enrolled in at least one credit hours of Performing Arts classes (Music, Dance, Theatre), including at least one credit hours of MUSC, MUSI or MUSC class(es). Full-time enrollment (12 credit hour minimum) status. 2 credit hours. (A)

Note: Students may receive credit for up to 20 credit hours of any combination of MUAP courses. This includes MUAP 1101-2291.

MUAP 2201 Violin
MUAP 2205 Viola
MUAP 2209 Cello
MUAP 2213 Double Bass
MUAP 2215 Electric Bass
MUAP 2217 Flute
MUAP 2221 Oboe
MUAP 2225 Bassoon
MUAP 2229 Clarinet
MUAP 2233 Saxophone
MUAP 2237 Trumpet
MUAP 2241 French Horn
MUAP 2245 Trombone
MUAP 2249 Baritone
MUAP 2253 Tuba
MUAP 2257 Percussion
MUAP 2258 Drum Set
MUAP 2261 Guitar
MUAP 2262 Jazz Guitar
MUAP 2263 Steel String Guitar
MUAP 2265 Organ
MUAP 2269 Piano
MUAP 2270 Jazz Piano
MUAP 2273 Harp
MUAP 2281 Voice
MUAP 2287 Composition
MUAP 2288 Electroacoustic Composition
MUAP 2289 Songwriting
MUAP 2290 Arranging
MUAP 2291 Conducting
MUEN 1121 Jazz Lab Band

Examples of major instrumental ensembles may include but are not limited to concert band, marching band, collaborative piano, jazz band, and orchestra. Additionally, participation in a large band concentrating on jazz and commercial music performance styles. Consisting of 16-21 instrumentalists and one vocalist, the band performs...
both traditional and contemporary jazz literature. A number of performances both on and off campus are given each semester. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1121 and MUEN 1122 for a combined total of no more than 8 credit hours.

MUEN 1122 Symphonic Wind Ensemble
Examples of major instrumental ensembles may include but are not limited to concert band, marching band, collaborative piano, jazz band, and orchestra. Additionally, study and performance of traditional and contemporary symphonic wind literature. Students participate in weekly rehearsals and perform on scheduled concerts. Basic instrumental proficiency is required. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1121 and MUEN 1122 for a combined total of no more than 8 credit hours.

MUEN 1131 New Music Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, performs experimental, avant garde, electronic, and contemporary music for mixed media ensemble including compositions by student composers. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1132 Keyboard Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, traditional piano literature for multiple performers and arrangements for electronic keyboard ensemble. Several performances each semester. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1133 Woodwind Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, a small group of woodwinds performs traditional classical repertoire. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1134 Brass Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, a small group of brass players perform traditional classical repertoire. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1135 Expressions Combo
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, expressions Combo is a small ensemble (4-6) of musicians who serve as the rhythm selection for the Expressions Vocal Jazz ensemble. In addition to rehearsing and performing with Expressions, the combo also prepares its own arrangements and performs as an independent ensemble. Typical repertoire includes bebop, Latin, and fusion standards. This ensemble may have several performances each semester. This group may have an annual tour. Lab required. Prerequisite: Audition. 1 credit hour. (A)

Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1136 Harp Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, this is a study and performance of traditional and contemporary symphonic harp ensemble literature. Students participate in weekly
rehearsals and perform on scheduled concerts. Basic instrumental proficiency is required. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1137 Guitar Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, a small group of guitarists performs traditional classical repertoire. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1138 Percussion Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, a small group of percussion players performs jazz and traditional repertoire. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1139 String Ensemble
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, a small group of string players performs traditional classical repertoire. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1140 Jazz Combo
Examples of small instrumental ensembles may include but are not limited to wind, string, percussion, piano, and mixed ensembles in various styles. Additionally, participation in a small jazz ensemble concentrating on jazz and commercial music performance styles. Ensemble consists of 4-9 instrumental/vocal members. Repertoire includes instrumental and vocal music typical of small jazz groups. A number of performances both on and off campus are given each semester. Lab required. Prerequisite: Audition or consent of Instructor. 1 credit hour. (A)
Note: Students may take MUEN 1131, MUEN 1132, MUEN 1133, MUEN 1134, MUEN 1135, MUEN 1136, MUEN 1137, MUEN 1138, MUEN 1139, and MUEN 1140 for a combined total of no more than 8 credit hours.

MUEN 1141 Collin Chorale
Any large choral ensemble. Additionally, this mixed choral ensemble studies and performs a wide variety of music representing the choral literature. This ensemble may have several performances each semester. This group may have an annual tour and open to all interested students. Lab required. Prerequisite: Consent of Instructor. 1 credit hour. (A)
Note: Students may take MUEN 1141 and MUEN 1142 for a combined total of no more than 8 credit hours.

MUEN 1142 Expressions Vocal Jazz Ensemble
Any large choral ensemble. Additionally, this group works on a wide variety of jazz styles throughout the year. They also work in conjunction with a jazz combo allowing them to experience solo jazz singing. This select ensemble of 10-16 singers has several performances each semester. This group may have an annual tour. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1141 and MUEN 1142 for a combined total of no more than 8 credit hours.

MUEN 1151 A Capella Pop Group
Examples of small vocal ensembles may include but are not limited to glee club, madrigals, opera/musical theater, commercial and folk. Additionally, this is a study and performance of accompanied and a cappella vocal music including contemporary pop and jazz repertoire for various sized groups and voice combinations. There may be several performances on and off campus each semester. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Students may take MUEN 1151, MUEN 1152, and MUEN 1153 for a combined total of no more than 8 credit hours.
MUEN 1152 Opera Theatre Ensemble
Example of small vocal ensembles may include but are not limited to glee club, madrigals, opera/musical theater, commercial, and folk. Additionally, this is a study of opera through performances of scenes and full productions. Emphasis is placed on the musical and dramatic qualities of performance, preparation of character, and aspects of language diction from the selected production. Audition required. Lab required. Prerequisite: Audition. 1 credit hour. (A)
Note: Student may take MUEN 1151, MUEN 1152 and MUEN 1153 for a combined total of no more than 8 credit hours.

MUEN 1153 Chamber Choir
Example of small vocal ensembles may include but are not limited to glee club, madrigals, opera/musical theater, commercial, and folk. Additionally, a select audition-only choir devoted to performance of an eclectic repertory of choral literature for mixed voices (S.A.T.B.). This course will focus on the development of vocal technique, performance practices, and will culminate with several performances throughout the year both on and off campus. This group may have an annual tour. Repertoire consists of advanced collegiate music. Lab required. Prerequisite: Consent of Instructor. 1 credit hour. (A)
Note: Student may take MUEN 1151, MUEN 1152 and MUEN 1153 for a combined total of no more than 8 credit hours.

MUSB 1305 Survey of the Music Business
An overview of the music industry including songwriting, live performance, the record industry, music merchandising, contracts and licenses, and career opportunities. 3 credit hours. (W)

MUSB 1341 Concert Promotion and Venue Management
Concert promotion and venue management. Includes considerations in purchasing a club, concert promotion and advertising, talent buying, city codes, insurance, Texas Alcoholic Beverage Commission Regulation, performance rights organization licenses, personnel management and concert production and administration. Lab required. Prerequisite: MUSB 1305. 3 credit hours. (W)

MUSB 2301 Music Marketing
Methods of music distribution, retailing, and wholesaling. Includes identifying a target market, image building, distribution (brick and mortar vs. digital delivery), pricing, advertising, and marketing mix. 3 credit hours. (W)

MUSB 2345 Live Music and Talent Management
An examination of the role, scope, and activities of the talent manager including establishing the artist/manager relationship; planning the artist’s career; and developing goals, strategies, and tactics with an overall view of the live music business. Lab required. Prerequisite: MUSB 1305. 3 credit hours. (W)

MUSB 2350 Commercial Music Project
The primary objective of this course is to apply the skills learned in other Commercial Music courses. This is a hands-on project oriented course aimed at helping students create a portfolio of their work. Artists and their music will be the focus. Each student must design and complete his/her own project with instructor approval. Lab required. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

MUSB 2355 Legal Aspects of the Entertainment Industry
Copyright law and the various agreements used in the entertainment industry. Emphasizes contracts used by music publishers, record companies, artist managers, record producers, film and television producers, and booking agencies. Prerequisite: MUSB 1305. 3 credit hours. (W)

MUSB 2380 Cooperative Education-Music Management
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

MUSC 1209 Conducting Class
Introduction to the art of conducting including regular and irregular beat patterns, subdivision, and beat pattern varieties applied to musical literature and practical experiences. Lab required. 2 credit hours. (W)

MUSC 1313 Commercial Music Theory I
Introduction to chord progressions, song forms, and harmonic techniques used in commercial music. Topics include modern chord notation and chord
voicings. Prerequisite: MUSI 1303. 3 credit hours. (W)

**MUSC 1321 Songwriting I**
Introduction to the techniques of writing marketable songs including the writing of lyrics and melodies, setting lyrics to music, developing lyrical and musical "hooks," analyzing the marketplace, and developing a production plan for a song demo. 3 credit hours. (W)

**MUSC 1323 Audio Electronics**
Basic concepts in electricity. Ohm's Law, circuit analysis and troubleshooting. Includes soldering techniques, and equipment maintenance. Lab required. 3 credit hours. (W)

**MUSC 1327 Audio Engineering I**
The tools, personnel and standard workflow of a recording studio. Topics include fundamentals of sound and overview of tracking, editing, and mixing audio. Lab required. 3 credit hours. (W)

**MUSC 1331 MIDI I**
Exploration of Musical Instrument Digital Interface (MIDI) systems and applications. Includes the MIDI language and applications in the studio environment using software-based sequencing programs. Lab required. 3 credit hours. (W)

**MUSC 1333 Synthesis I**
An exploration of sound synthesis. Includes additive, subtractive, and modulation-based synthesizers. Lab required. 3 credit hours. (W)

**MUSC 1405 Live Sound I**
An overview of the field of live sound. Includes principles of live sound and the theory and interconnection of the components of a sound reinforcement system. Lab required. Prerequisite: MUSC 1327. 4 credit hours. (W)

**MUSC 2313 Commercial Music Theory II**
Continuation of Commercial Music Theory I. Emphasizes harmonic and melodic analysis, extended chord theory, and modal and altered scales. Prerequisite: MUSC 1313 or consent of Instructor. 3 credit hours. (W)

**MUSC 2314 Improvisation Theory I**
Chordal structures of commercial music genres. Emphasizes extemporaneous performance. 3 credit hours. (W)

**MUSC 2330 Commercial Music Arranging and Composition**
Presentation of techniques for arranging and composing projects in the commercial music industry. Lab required. 3 credit hours. (W)

**MUSC 2345 Synthesis II**
Advanced sound synthesis. Includes hybrid synthesis and digital sampling. Lab required. Prerequisite: MUSC 1333. 3 credit hours. (W)

**MUSC 2351 Audio for Video**
Advanced audio techniques for video production. Includes synchronization, automated mixdown, audio post production for video, and editing techniques. Lab required. Prerequisite: ARTV 1343 or MUSC 1327. 3 credit hours. (W)

**MUSC 2355 MIDI II**
Advanced MIDI concepts and techniques. Includes synchronizing MIDI and audio and advanced sequencer operation. Prerequisite: MUSC 1331 with a grade of "C" or better; or consent of Instructor. Lab required. 3 credit hours. (W)

**MUSC 2356 Songwriting II**
Continuation in the development of techniques for writing marketable songs including the writing of lyrics and melodies, setting lyrics to music, developing lyrical and musical "hooks," analyzing the marketplace, and developing a production plan for a song demo. Prerequisite: MUSC 1321, or consent of Instructor. 3 credit hours. (W)

**MUSC 2403 Live Sound II**
Overview of stage monitor systems. Includes monitor systems set-up and operation and stage management. Also covers interactivity between sound management, performance quality, and audience experience. Lab required. Prerequisite: MUSC 1405. 4 credit hours. (W)

**MUSC 2427 Audio Engineering II**
Implementation of the recording process, including microphones, audio console, multi-track recorder, and signal processing devices. Lab required. Prerequisite: MUSC 1327 with a grade of "B" or better; or consent of Instructor. 4 credit hours. (W)

**MUSC 2447 Audio Engineering III**
Advanced techniques in recording and manipulation of audio. Includes digital audio editing, recording techniques, and signal processing. Prerequisite:
MUSC 2427 with a grade of “C” or better; or consent of Instructor. Lab required. 4 credit hours. (W)

**MUSC 2448 Audio Engineering IV**
Continued enhancement of recording, mixing, arranging, and editing. Includes the role of the producer in session planning, communication, budgeting, business aspects, technical considerations, and music markets. Prerequisite: MUSC 2447 with a grade of “C” or better; or consent of Instructor. Lab required. 4 credit hours. (W)

**MUSC 2453 Live Sound III**
Advanced concepts of live sound engineering for front-of-house mix. Includes techniques required to build and maintain a live sound mix for an audience. Lab required. Prerequisite: MUSC 2403. 4 credit hours. (W)

**MUSI 1116 Sight Singing & Ear Training I**
Singing tonal music in treble and bass clefs, and aural study of elements of music, such as scales, intervals and chords, and dictation of basic rhythm, melody and diatonic harmony. Lab required. Prerequisite: MUSI 1303. 1 credit hour. (A)

**MUSI 1117 Sight Singing & Ear Training II**
Singing tonal music in various clefs, continued aural study of the elements of music, and dictation of intermediate rhythm, melody and diatonic harmony. Lab required. Prerequisite: MUSI 1116. 1 credit hour. (A)

**MUSI 1161 International Phonetic Alphabet (IPA) for Singers**
A study of the International Phonetic Alphabet (IPA) and its application to singing in English, Italian, German, and French. Prerequisite: MUSI 1303. 1 credit hour. (A)

**MUSI 1181 Piano Class I**
Beginning class instruction in the fundamentals of keyboard technique. Additionally, emphasis is given on the practical application of music theory involving harmonization, transposition and related keyboard skills. Lab required. Prerequisite: MUSI 1303. 1 credit hour. (A)
Note: Student may take MUSI 1181, MUSI 1182, MUSI 2181, and MUSI 2182 for a combined total of no more than 4 credit hours.

**MUSI 1182 Piano Class II**
Advanced beginning class instruction in the fundamentals of keyboard technique. Additionally, this is a continuation of MUSI 1181. Development of two-octave minor scales, arpeggios, diatonic chord progressions, and piano repertoire. Lab required. Prerequisite: MUSI 1181. 1 credit hour. (A)

**MUSI 1183 Voice Class**
Class instruction in the fundamentals of singing including breathing, tone production, and diction. Designed for students with little or no previous voice training. Does not apply to a music major degree. Lab required. 1 credit hour. (A)

**MUSI 1192 Guitar Class**
Class instruction in the fundamental guitar playing, including technique, music-reading, fretboard theory, melodic and harmonic realizations. Lab required. 1 credit hour. (A)

**MUSI 1303 Fundamentals of Music**
Introduction to the basic elements of music theory, including scales, intervals, keys, triads, elementary ear training, notation, meter, and rhythm. Course does not apply to a music major degree. 3 credit hours. (A)

**MUSI 1306 Music Appreciation**
Understanding music through the study of cultural periods, major composers, and musical elements, illustrated with audio recordings and live performances. Course does not apply to a music major degree. Additionally, this course conducts an overview of music history that includes the study of Western art music – the six major eras, composers, their works and musical styles. Emphasis is given to vocabulary and critical listening skills needed to develop an eclectic taste in music. Music majors must take MUSI 1307. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

**MUSI 1307 Music Literature**
A survey of the styles and forms of music as it developed from the middle ages to the present. This course will familiarize the student with cultural context, terminology, genres, and notation. Additionally, study of selected works in music literature chosen from the six major eras of Western art music history. Includes musical styles, forms, and composers from the Medieval period to the present. Critical listening skills and technical musical terms are emphasized in this course. Required for all music majors. Prerequisite: MUSI 1303. 3 credit hours. (A)
MUSI 1310 American Music
A general survey of various styles of music of the Americas, including but not limited to jazz, folk, rock, and contemporary music. 3 credit hours. (A)

MUSI 1311 Music Theory I
The study of analysis and writing of tonal melody and diatonic harmony, including fundamental music concepts, scaled, intervals, chords, 7th chords, and early four-part writing. Analysis of small compositional forms. Optional correlated study at the keyboard. Additionally, investigation of music modes, transposition, cadences and non-harmonic tones, phrase structure, musical textures, and four-part voice leading. Prerequisite: MUSI 1303 or consent of Instructor. 3 credit hours. (A)

MUSI 1312 Music Theory II
The study of analysis and writing of tonal melody and diatonic harmony, including diatonic chords and seventh chords in root position and inversions, non-chord tones, and functional harmony. Introduction to more complex topics, such as modulation, may occur. Optional correlated study at the keyboard.
Prerequisite: MUSI 1311. 3 credit hours. (A)

MUSI 2116 Sight Singing & Ear Training III
Singing more difficult tonal music in various clefs, aural study including dictation of more complex rhythm, melody, chromatic harmony, and extended tertian structures. Lab required. Prerequisite: MUSI 1117. 1 credit hour. (A)
Note: Student may take MUSI 2116 and MUSI 2117 for a combined total of no more than 4 credit hours.

MUSI 2117 Sight Singing & Ear Training IV
Singing advanced tonal music and introduction of modal and post-tonal melodies. Aural study including dictation of advanced rhythm, melody, and harmony. Lab required. Prerequisite: MUSI 2116. 1 credit hour. (A)
Note: Student may take MUSI 2116 and MUSI 2117 for a combined total of no more than 4 credit hours.

MUSI 2181 Class Piano III
Intermediate class instruction of keyboard technique. Additionally, this is a continuation of MUSI 1182. Development of three-octave scales and arpeggios, accompaniment patterns, intermediate and 20th century piano repertoire, advanced sight reading skills. Lab required. Prerequisite: MUSI 1182. 1 credit hour. (A)
Note: Student may take MUSI 1181, MUSI 1182, MUSI 2181, and MUSI 2182 for a combined total of no more than 4 credit hours.

MUSI 2182 Class Piano IV
Advanced class instruction of keyboard technique. Additionally, this is a continuation of MUSI 2181. Culmination of skills including scales and arpeggios four-octaves hands together, advanced chord progressions, repertoire, and sight reading. Prepares music majors for piano barrier exams. Lab required. Prerequisite: MUSI 2181. 1 credit hour. (A)
Note: Student may take MUSI 1181, MUSI 1182, MUSI 2181, and MUSI 2182 for a combined total of no more than 4 credit hours.

MUSI 2311 Music Theory III
Advanced harmony voice leading, score analysis and writing of more advanced tonal harmony including chromaticism and extended-tertian structures. Optional correlated study at the keyboard. Additionally, study of music theory from late Renaissance polyphony through Baroque counterpoint and continuing with the chromatic harmonies of the Classic period as found within Sonata Allegro and Rondo formal structures.
Prerequisite: MUSI 2311. 3 credit hours. (A)

MUSI 2312 Music Theory IV
Continuation of advanced chromaticism and survey of analytical and compositional procedures in post-tonal music. Optional correlated study at the keyboard. Prerequisite: MUSI 2311. 3 credit hours. (A)

MUSI 2389 Academic Cooperative
An instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the individual student will set specific goals and objectives in the study of music. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

MUSP 1104 Applied Commercial Music: Bass Guitar
Private instruction in the bass guitar, with goals related to commercial music. Consists of one 100-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend

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weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1105 Applied Commercial Music: Commercial Guitar
Private instruction in commercial guitar, with goals related to commercial music. Consists of one 100-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1110 Applied Commercial Music: Piano
Private instruction in piano, with goals related to commercial music. Consists of one 100-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1113 Introductory Group Piano I
Fundamentals of playing various accompaniment patterns with chords. Includes reading standard notation, basic scales, and learning introductory improvisational skills. Lab required. 1 credit hours. (W)

MUSP 1114 Introductory Group Piano II
Continuation of playing various accompaniment patterns with chords. Includes reading standard notation, scales, and learning improvisational skills. Lab required. Prerequisite: MUSP 1113 or consent of Instructor. 1 credit hour. (W)

MUSP 1117 Applied Commercial Music: Percussion
Private instruction in percussion, with goals related to commercial music. Consists of one 100-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1127 Applied Commercial Music: Voice
Private instruction in voice, with goals related to commercial music. Consists of one 100-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1151 Small Commercial Music Ensemble: Recording
Participation in a small recording ensemble concentrating on commercial music performance styles. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1153 Small Commercial Music Ensemble: Rock
Participation in a rock ensemble concentrating on commercial music performance styles. Prerequisite: Audition and consent of Instructor. 1 credit hour. (W)

MUSP 1202 Introductory Group Voice
Introduction to Speech Level Singing philosophy and technique with goals related to commercial voice. Emphasizes sight singing and harmony singing applicable to commercial background singing. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)

MUSP 2230 Advanced Applied Commercial Music: Voice
Advanced private instruction in voice, with goals related to commercial music. Consists of one 150-minute lesson per week. Students must remain enrolled in three or more credit hours of Music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Lab required. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)
MUSP 2233 Advanced Applied Commercial Music: Bass Guitar
Advanced private instruction in bass guitar, with goals related to commercial music. Consists of one 150-minute lesson per week. Students must remain enrolled in three or more credit hours of music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Lab required. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)

MUSP 2235 Advanced Applied Commercial Music: Piano
Advanced private instruction in piano, with goals related to commercial music. Consists of one 150-minute lesson per week. Students must remain enrolled in three or more credit hours of music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Lab required. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)

MUSP 2237 Advanced Applied Commercial Music: Commercial Guitar
Advanced private instruction in commercial guitar, with goals related to commercial music. Consists of one 150-minute lesson per week. Students must remain enrolled in three or more credit hours of music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Lab required. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)

MUSP 2249 Advanced Applied Commercial Music: Percussion
Advanced private instruction in percussion, with goals related to commercial music. Consists of one 150-minute lesson per week. Students must remain enrolled in three or more credit hours of music courses (MUSB, MUSC, MUSI, and MUSP) as well as one ensemble course. Students must also attend weekly Departmental recitals for the semester, and perform for a jury at the end of the semester. Lab required. Prerequisite: Audition and consent of Instructor. 2 credit hours. (W)

NURA 1160 Clinical-Nursing Aide and Patient Care Assistant
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: NURA 1301 or consent of Program Director. 1 credit hour. (W)

NURA 1301 Nurse Aide for Health Care
Knowledge, skills, and abilities essential to provide basic care to residents of long-term care facilities. Topics include resident's rights, communication, safety, observation, reporting and assisting residents in maintaining basic comfort and safety. Emphasis is on effective interaction with members of the health care team, restorative services, mental health, and social service's needs. Prerequisites: HITT 1305, and HPRS 1204 or HPRS 1271; or consent of Program Director. Lab required. 3 credit hours. (W)

PHED 1100 Beginning Weight Training
Introduction to weight training and body building; learn the basic techniques for strength development and cardiovascular conditioning. Various weight machines, free weights and aerobic machines are used to establish an individual fitness program. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1102 Intermediate Weight Training
Designed for the individual who has experience in basic weight training skills and wants to increase their knowledge of training techniques and conditioning. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1104 Beginning Jogging and Fitness
Develops cardiovascular endurance, flexibility and strength through jogging, stretching and weight training. Physical fitness assessment leads to development of an individual fitness program. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.
PHED 1106 Walking and Fitness
Improve cardiovascular fitness, muscle tone, and flexibility through a vigorous walking and conditioning program. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1111 Basketball
Develops basic skills and strategies through knowledge of the history, rules, and terminology and through participation in game situations. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1112 Soccer
Develops the basic skills and strategies through knowledge of the history, rules and terminology and through participation in game situations. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1114 Volleyball
Individual skills and techniques, application of rules and an introduction to offensive and defensive strategies are stressed. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1115 Archery
Investigates the basic techniques, rules and scoring as well as the history and terminology of archery. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1116 Badminton
History, rules, basic strokes and strategies in singles and doubles play are emphasized through intra-class competition. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1117 Beginning Tennis
Stresses rules, scoring and fundamental techniques for beginners. Participation by skill level for singles and doubles play is made to ensure vigorous activity for cardiovascular fitness. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1118 Intermediate Tennis
Develops and improves each skill level in serving, forehand and backhand drives, lobs and volleys. Performance strategies for both singles and doubles are drilled. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1120 Beginning Racquetball
Instruction in rules and basic skills; develops the fundamental techniques of court play for beginners. Participation by skill level assures vigorous activity for cardiovascular fitness. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1121 Intermediate Racquetball
Drills in serving, forehand and backhand drives, kill shots, Z shots and lobs help develop strategies for singles and doubles play. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1123 Beginning Golf
Stresses basic skills, history, terminology and scoring of golf. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1125 Bowling
Teaches ball selection, stance, four-step approach, rules, and scoring procedures. Emphasis on game situations. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the
1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1126 Self-Defense
Basic understanding and practical application of fundamental self-defense techniques through physical conditioning. Includes balance, focus, breath control, block and counter, avoiding attack, striking, thrusting and kicking. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1127 Beginning Karate
Introduction to basic techniques, formal exercises, and sparring techniques for the beginner. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1129 Introduction to Hatha Yoga
Practice of yogic postures, or “asana,” defined as the physical positioning that coordinates breathing with moving and holding still for the purpose of both stretching and strengthening parts of the body. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1130 Intermediate Hatha Yoga
The refinement of the asanas (postures) covered in PHED 1129, with emphasis on breath work. Introduces more advanced asanas; emphasis on integrating yoga into daily routines at home and work. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1131 Beginning Swimming
Non-swimmers and beginners are taught basic swimming skills and strokes. Emphasizes personal safety skills and confidence in the water. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1136 Water Aerobics
Fitness level is improved through exercises in the water. A non-impact style of exercises that utilizes water resistance for increasing muscular strength, endurance, and cardiovascular fitness. Swimming skills are not necessary. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1137 Swimming Conditioning
Fitness level is improved through swimming strokes and water exercises. Different swimming programs enhance muscular strength, endurance and cardiovascular fitness. Prerequisite: Consent of Instructor. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1140 Beginning Aerobic Dance
Aerobic exercise and step training incorporating light weights. Includes interval training, which adds a new variation to aerobic endurance and flexibility. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1142 Varsity Condition I
Presentation of current scientific and technical information related to a particular activity with emphasis on developing health and skill related fitness, as well as fundamental skills. 1 credit hour. (A)

PHED 1144 Varsity Sports I
This course offers development of skills and personal potential for student athletes interested in improving their performance or preparing for further competition at the upper collegiate level. 1 credit hour. (A)

PHED 1147 Beginning Aerobic Kickboxing/Karate
Cardiovascular and body conditioning are acquired through the use of karate and martial arts techniques set to music and integrating punching bags. 1 credit hour. (A)
Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.
PHED 1148 Introduction to Team Sports
Develops the basic skills and strategies through the knowledge of the history, rules, and terminology. Students will participate in game situations. Three of the following activities will be elected for instruction: Basketball, Flag Football, Soccer, Softball, or Volleyball. 1 credit hour. (A) Note: A student may receive up to 4 credit hours of any combination of PHED course numbers in the 1100-1148 range; however, the same course cannot be taken more than twice.

PHED 1164 Introduction to Physical Fitness and Wellness
This course will provide an overview of the lifestyle necessary for fitness and health. Student will participate in physical activities and assess their fitness status. Students will be introduced to proper nutrition, weight management, cardiovascular health, flexibility, and strength training. Additionally, this course introduces basic concepts of fitness, nutrition, health promotion, and disease prevention. Includes the study and practices of activities and principles that promote fitness and wellness. 1 credit hour. (A)

PHED 1301 Foundations of Kinesiology
The purpose of this course is to provide students with an introduction to human movement that includes the historical development of physical education, exercise science, and sport. This course offers the student both an introduction to the knowledge base, as well as, information on expanding career opportunities. 3 credit hours (A)

PHED 1304 Personal / Community Health
This course provides an introduction to the fundamentals, concepts, strategies, applications, and contemporary trends related to understanding personal and/or community health issues. This course also focuses on empowering various populations with the ability to practice healthy living, promote healthy lifestyles, and enhance individual well-being. 3 credit hours (A)

PHED 1306 First Aid
Instruction and practice for emergency care. Designed to enable students to recognize and avoid hazards within their environment, to render intelligent assistance in case of accident or sudden illness, and to develop skills necessary for the immediate and temporary care of the victim. Successful completion of the course may enable the student to receive a certificate from a nationally recognized agency, the American Heart Association. 3 credit hours. (A)

PHED 1336 Introduction to Sports Management
The course will introduce basic principles of administration, marketing, management, and operations in relation to the various careers in sports management. An overview of the sports industry will be introduced. 3 credit hours. (A)

PHED 1338 Concepts of Physical Fitness
This course is designed to familiarize students with knowledge, understanding and values of health related fitness and its influence on the quality of life emphasizing the development and implementation of fitness programs. Lab required. 3 credit hours. (A)

PHED 2142 Varsity Condition II
Presentation of current scientific and technical information related to a particular activity with emphasis on developing advanced health and skill related fitness, as well as fundamental skills. Prerequisite: PHED 1142. 1 credit hour. (A)

PHED 2144 Varsity Sports II
This course offers advanced development of skills and personal potential for student athletes interested in improving their performance or preparing for further competition at the upper collegiate level. Prerequisite: PHED 1144. 1 credit hour. (A)

PHED 2356 Care and Prevention of Athletic Injuries
Prevention and care of athletic injuries with emphasis on qualities of a good athletic trainer, avoiding accidents and injuries, recognizing signs and symptoms of specific sports injuries and conditions, intermediate and long-term care of injuries, and administration procedures in athletic training. 3 credit hours. (A)

PHIL 1301 Introduction to Philosophy
A study of major issues in philosophy and/or the work of major philosophical figures in philosophy. Topics in philosophy may include theories of reality, theories of knowledge, theories of value, and their practical applications. Additionally, texts studied will be from ancient, medieval, and modern sources. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)
PHIL 1304 Introduction to World Religions  
A comparative study of world religions, including but not limited to Hinduism, Buddhism, Judaism, Christianity, and Islam. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

PHIL 2303 Introduction to Formal Logic  
The purpose of the course is to introduce the student to symbolic logic, including syllogisms, propositional and predicate logic, and logical proofs in a system of rules. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

PHIL 2306 Introduction to Ethics  
The systematic evaluation of classical and/or contemporary ethical theories concerning the good life, human conduct in society, morals, and standards of value. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

PHIL 2307 Introduction to Social and Political Philosophy  
A study of major issues in social and political theory and/or the work of major philosophical figures in this area. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

PHIL 2321 Philosophy of Religion  
A study of the major issues in the philosophy of religion such as the existence and nature of God, the relationships between faith and reason, the nature of religious language, religious experience, and the problem of evil. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

PHTC 1300 Digital Photography II  
An introduction to computer and software instruction for imaging. Includes color, gray scale, image conversion, presentation, and ethics. Lab required. Prerequisite: ARTS 2348. 3 credit hours. (W)

PHTC 1311 Fundamentals of Photography/Digital  
An introduction to camera operation and image production, composition, correct exposure and proper lighting. Lab required. 3 credit hours. (W)

PHTC 1341 Color Photography I  
Examination of color theory as it applies to photography. Emphasis on color concepts and the intricacies of seeing and photographing in color. Lab required. Prerequisite: PHTC 1300 or ARTS 2349. 3 credit hours. (W)

PHTC 1343 Expressive Photography  
A study of formal, professional, and individual uses of photography by applying photographic technology to personalized needs. Emphasis on creative visual thinking and problem solving and the exploration of personal vision. Lab required. 3 credit hours. (W)

PHTC 1345 Illustrative Photography I  
Instruction in the technical aspects involved in commercial photography. Topics include lighting equipment, techniques of production photography, reproduction principles, illustrative techniques, and advertising. Lab required. Prerequisite: PHTC 1353. 3 credit hours. (W)

PHTC 1347 Landscape Photography  
Skill development in the inspection of the landscape visually and photographically utilizing various camera formats. Topics include exploration of historic, geographical, and cultural locations, and review of landscape photographers. Lab required. Prerequisite: ARTS 2348 or ARTS 2356 or PHTC 1311. 3 credit hours. (W)

PHTC 1351 Photojournalism I  
Presentation of photographic techniques used by photojournalists in newspapers, magazines, trade publications and digital media to include news, feature, sports, editorial portraits, and photo essays. Includes a study of layout design and the freelance market. Lab required. Prerequisite: ARTS 2348 or ARTS 2356 or PHTC 1311. 3 credit hours. (W)

PHTC 1353 Portraiture I  
Skill development in the photographic principles of portrait lighting, posing, and subject rapport. This is a foundation course in photographic portraiture. Assignments are designed to provide both aesthetic challenges as well as comprehensive studio technique. All students must participate in class demos and stick close to prescribed procedures on assignments in order to maintain studio privileges. There will be a mixture of color and black and white materials used, with accent on studio time rather than darkroom or computer time. Lab required. Prerequisite: ARTS 2348 or ARTS 2356 or PHTC 1311. 3 credit hours. (W)
PHTC 1371 Book, Design, and Presentation
Structure and creation of promotional material and
one-of-a-kind material, with emphasis on
composition and design elements. Lab required. 3
credit hours. (W)

PHTC 2331 Architectural Photography
Study of the equipment, processes, and procedures
necessary for the photography of building exteriors
and interiors, dusk/night and night architectural
landscapes, and construction progress. Lab required.
Prerequisite: ARTS 2348 or ARTS 2356 or PHTC
1311. 3 credit hours. (W)

PHTC 2340 Photographic Studio
Management
In-depth study of photography business management,
pricing, market analysis, promotion, networking, job
acquisition, and photographic equipment analysis.
Lab required. 3 credit hours. (W)

PHTC 2342 Fashion Photography
Skill development in fashion photography in terms of
trends and techniques included in studio and location
work. Emphasizes model direction and lighting
control. Lab required. Prerequisite: PHTC 1353. 3
credit hours. (W)

PHTC 2343 Portfolio Development
A culmination experience for the evaluation of the
student’s photographic competencies. Includes
association with a professional photographic
organization, completion of portfolio, professional
self-presentation, comprehensive exam, and seminars
in areas of photographic interest. Prerequisite:
Consent of Associate Dean. Lab required. 3 credit
hours. (W)

PHTC 2349 Digital Photography III
Advanced concepts in the use of the computer and
software for photographic manipulation and output.
Lab required. Prerequisite: PHTC 1300 or ARTS
2349. 3 credit hours. (W)

PHTC 2353 Portraiture II
Advanced concepts in the study of principles of
effective portraiture with specific emphasis on unique
presentation and environmental and location studies.
Lab required. Prerequisite: PHTC 1353. 3 credit
hours. (W)

PHTC 2371 Video Production for
Photographers
This is a foundation course in professional video
production for photographers, including video
capture, editing, sound recording, color grading, and
delivery. Lab required. Prerequisite: ARTS 2348. 3
credit hours. (W)

PHTC 2380 Cooperative Education -
Commercial Photography
Career-related activities encountered in the student’s
area of specialization offered through an
individualized agreement among the college,
employer, and student. Under the supervision of the
college and the employer, the student combines
classroom learning with work experience. Includes a
lecture component. Prerequisite: Consent of
Associate Dean. 3 credit hours. (W)

PHYS 1401 College Physics I
Lecture: Fundamental principles of physics, using
algebra and trigonometry; the principles and
applications of classical mechanics and
thermodynamics, including harmonic motion,
mechanical waves and sound, physical systems,
Newton’s Laws of Motion, and gravitation and other
fundamental forces; with emphasis on problem
solving. Lab: Laboratory activities will reinforce
fundamental principles of physics, using algebra and
trigonometry; the principles and applications of
classical mechanics and thermodynamics, including
harmonic motion, mechanical waves and sound,
physical systems, Newton’s Laws of Motion, and
 gravitation and other fundamental forces; emphasis
will be on problem solving. Lab required.
Prerequisites: MATH 1314, and either MATH 1316
or MATH 2412. 4 credit hours. (A)

PHYS 1402 College Physics II
Lecture: Fundamental principles of physics, using
algebra and trigonometry; the principles and
applications of electricity and magnetism, including
circuits, electrostatics, electromagnetism, waves,
sound, light, optics, and modern physics topics; with
emphasis on problem solving. Lab: Laboratory
activities will reinforce fundamental principles of
physics, using algebra and trigonometry; the principles and applications of electricity and
magnetism, including circuits, electrostatics,
electromagnetism, waves, sound, light, optics, and
modern physics topics; with emphasis on problem
solving. Lab required. Prerequisite: PHYS 1401. 4
credit hours. (A)

PHYS 1403 Stars and Galaxies
Introduction to stars and galaxies; basic tools and
concepts in astronomy and physics are discussed.
Subjects studied include stellar evolution,
supernovae, black holes, neutron stars, galaxies, and quasars. Laboratory exercises, night observations, planetarium and observatory visits combine to enhance lecture material. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 1404 Solar System**
Introduction to the solar system; basic tools and concepts in astronomy and physics are discussed. Subjects studied include planets, moons, asteroids, comets, solar system formation, and solar system exploration. Laboratory exercises, night observations, planetarium and observatory visits combine to enhance lecture material. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 1405 Conceptual Physics**
This course presents concepts of classical and modern physics with application to biology and health sciences. What students should bring to this course is curiosity about how the world works. Intended for liberal arts, health science, or any majors. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 1410 Physics of Music and Sound**
This course is a study of the physics governing production, transmission and perception of sound. The focus is on the physical characteristics of sound, as well as the basic physical relationships that govern all vibrations and waves. We will also consider how sound is affected by the environment (acoustics) and how sound is physically and physiologically perceived. Laboratory exercises and classroom demonstrations combine to enhance lecture material. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 1415 Physical Science I**
Investigation of everyday phenomena of the physical world, which helps students to achieve a well-grounded understanding of selected science concepts as well as the skills that enable and encourage rational independent thinking. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 1417 Physical Science II**
Investigation of topics in physics, chemistry, geology, and meteorology in the context of a one-semester astronomy course. Topics will include: Celestial measurement of time, calendars, and seasons; geology and meteorology of the Earth, Moon, and planets; Chemistry and physics of stars and galaxies; and the interdisciplinary question of life beyond Earth. Laboratory exercises and night observations combine to enhance lecture material. Lab required. Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent. 4 credit hours. (A)

**PHYS 2389 Academic Co-op Physics**
Integrates on-campus study with practical hands-on work experience in physics. In conjunction with class seminars, the student will set specific goals and objectives in the study of physics. Contact the Cooperative Work Experience Office. 3 credit hours. (A)

**PHYS 2425 University Physics I**
Lecture: Fundamental principles of physics, using calculus for science, computer science, and engineering majors; the principles and applications of classical and modern mechanics, including harmonic motion and physical systems, and the laws of thermodynamics; and emphasis on problem solving. Lab: Basic laboratory experiments supporting theoretical principles presented in the lecture section involving the principles and applications of classical mechanics, including harmonic motion and physical systems; experimental design, data collection and analysis, and preparation of laboratory reports. Lab required. Prerequisite: MATH 2413 equivalent within the last five years with a grade of "C" or better. Prerequisite/Concurrent enrollment: MATH 2414 equivalent. 4 credit hours. (A)

**PHYS 2426 University Physics II**
Lecture: Principles of physics for science, computer science, and engineering majors, using calculus, involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics, and modern physics. Lab: Laboratory experiments supporting theoretical principles presented in the lecture section involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics; experimental design, data collection and analysis, and preparation of laboratory reports. Lab required. Prerequisites: MATH 2414 equivalent, and
PHYS 2425 within the last five years with a grade of "C" or better. 4 credit hours. (A)

PLAB 1160 Clinical - Phlebotomy
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills. Direct supervision is provided by the clinical professional. Prerequisite: Current Healthcare Provider Cardiopulmonary Resuscitation (CPR) Certification from American Heart Association (AHA); or consent of Program Director. Corequisite: PLAB 1323, or consent of Program Director. 1 credit hours. (W)

PLAB 1323 Phlebotomy
Skill development in the performance of a variety of blood collection methods using proper techniques and standard precautions. Includes vacuum collection devices, syringes, capillary skin puncture, butterfly needles and blood culture, and specimen collection on adults, children, and infants. Emphasis on infection prevention, patient identification, specimen labeling, quality assurance, specimen handling, processing, accessioning, professionalism, ethics, and medical terminology. Lab required. Prerequisites: HITT 1305, and HPRS 1204 or HPRS 1271, and Current Healthcare Provider Cardiopulmonary Resuscitation (CPR) Certification from American Heart Association (AHA); or consent of Program Director. 3 credit hours. (W)

POFT 1307 Proofreading and Editing
Instruction in proofreading and editing skills necessary to assure accuracy in business documents. Lab required. 3 credit hours. (W)

POFT 1319 Records and Information Management I
Introduction to basic records information management systems including manual and electronic filing. Lab required. 3 credit hours. (W)

POFT 1329 Beginning Keyboarding
Skill development of keyboarding techniques. Emphasis on development of acceptable speed and accuracy levels and formatting basic documents. 3 credit hours. (W)

POFT 1349 Administrative Office Procedures II
In-depth coverage of office procedures with emphasis on decision making, goal setting, management theories, and critical thinking. To be completed during the last semester of the Office Systems Technology degree or certificate. Prerequisites: ITSC 1309, POFI 2301, POFT 1307, POFT 1319, and POFT 2301 or consent of Associate Dean. 3 credit hours. (W)

POFT 1380 Cooperative Education-Administrative Assistant and Secretarial Science, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

POFT 2301 Intermediate Keyboarding
A continuation of keyboarding skills emphasizing acceptable speed and accuracy levels and formatting documents. Prerequisite: POFT 1329 or consent of Associate Dean. 3 credit hours. (W)

POFT 2303 Speed and Accuracy Building
Review, correct, and improve keyboarding techniques for the purpose of increasing speed and improving accuracy. Lab required. Prerequisite: POFT 1127 or POFT 1329 or POFT 2301 or consent of Associate Dean. 3 credit hours. (W)
POFT 2312 Business Correspondence and Communication
Development of writing and presentation skills to produce effective business communications. Lab required. Prerequisite: POFT 2301 or POFT 1329 or POFT 2301 or consent of Associate Dean. 3 credit hours. (W)

POFT 2380 Cooperative Education-Administrative Assistant and Secretarial Science, General
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

PSGT 1205 Neurophysiology of Sleep
Review of the human central nervous system as related to sleep. Emphasis on associated wave patterns and collection and utilization of sleep histories. Major Requirement: AAS - Polysomnographic Technology. 2 credit hours. (W)

PSGT 1215 Introduction to Polysomnography
Introduction to the history of sleep medicine and the role of the technologist in current practice settings. Lab required. Major Requirement: AAS - Polysomnographic Technology. 2 credit hours. (W)

PSGT 1260 Certificate Clinical I-Polysomnography
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Admitted to the Certificate -Polysomnographic Technology Program. Corequisite: PSGT 1400. Major Requirement: Certificate - Polysomnographic Technology. 2 credit hours. (W)

PSGT 1300 Neuroanatomy and Physiology
Basic neuroanatomy and physiology. Includes neurologic history, neurologic exam, and diagnostic tools applied to the study of various neurologic disorders. Lab required. Major Requirement: AAS - Polysomnographic Technology. 3 credit hours. (W)

PSGT 1340 Sleep Disorders
Disorders that affect sleep. Includes insomnia, circadian rhythm disorders, narcolepsy, sleep disordered breathing, REM Behavior, movement and neuromuscular disorders, medical, and psychiatric. Prerequisite: PSGT 1310. Major Requirement: AAS or Certificate - Polysomnographic Technology. 3 credit hours. (W)

PSGT 1360 AAS Clinical I-Polysomnography
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: PSGT 1400. Major Requirement: AAS-Polysomnographic Technology. 3 credit hours. (W)

PSGT 1400 Polysomnography I
Introduction to polysomnographic technology. Includes terminology, instrumentation, patient safety, infection control, recording and monitoring techniques, documentation, professional issues, and patient-technologist interactions. Lab required. Major Requirement: AAS or Certificate - Polysomnographic Technology. 4 credit hours. (W)

PSGT 1573 Polysomnographic Anatomy and Physiology
Basic anatomy and physiology of the neurological, cardiovascular, and pulmonary systems in relation to the field of polysomnography. Major requirement: Certificate - Polysomnographic Technology. 5 credit hours. (W)

PSGT 2205 Sleep Scoring and Staging
Development of skills for sleep scoring, staging, and record preparation. Lab required. Prerequisite: PSGT 1400. Major Requirement: AAS or Certificate - Polysomnographic Technology. 2 credit hours. (W)

PSGT 2250 Infant and Pediatric Polysomnography
Sleep physiology and the normal sleep patterns of the infant and pediatric population. Includes opportunities to perform a pediatric study. Lab required. Prerequisite: PSGT 1400. Major Requirement: AAS or Certificate - Polysomnographic Technology. 2 credit hours. (W)
PSGT 2260 Certificate Clinical II - Polysomnography
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: PSGT 1260. Major Requirement: Certificate - Polysomnographic Technology. 2 credit hours. (W)

PSGT 2271 Pharmacology for Polysomnography
Discusses the basic principles of pharmacology and the clinical and pharmacological treatment of sleep disorders. Addresses the use of sleep medication in children, adolescents, and the elderly. Examines the administration, mode of action, and the physiological effects of pharmacological agents on sleep. Prerequisite: PSGT 1205. Major Requirement: AAS - Polysomnographic Technology. 2 credit hours. (W)

PSGT 2272 Polysomnography Exam Preparation
Comprehensive review to optimize polysomnography credentialing exam success. Lab required. Prerequisite: Consent of Program Coordinator. Major Requirement: AAS or Certificate - Polysomnographic Technology. 2 credit hours. (W)

PSGT 2360 AAS Clinical II - Polysomnography
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: PSGT 1360. Major Requirement: AAS Polysomnographic Technology. 2 credit hours. (W)

PSGT 2361 AAS Clinical III - Polysomnography
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: PSGT 2360. Major Requirement: AAS Polysomnographic Technology. 2 credit hours. (W)

PSGT 2411 Polysomnography II
Current practices in polysomnography. Includes the use of specialized equipment used to record and monitor various physiological parameters involved with sleep testing. Emphasizes sleep disorders, theory of testing and treatment procedures, and analysis of polysomnography data. Lab required. Prerequisite: PSGT 1400. Major Requirement: AAS or Certificate - Polysomnographic Technology. 4 credit hours. (W)

PSTR 1301 Fundamentals of Baking
Fundamentals of baking including dough, quick breads, pies, cakes, cookies, and tarts. Instruction in flours, fillings, and ingredients. Topics include baking terminology, tool and equipment use, formula conversions, functions of ingredients, and the evaluation of baked products. Professional chef uniform and kitchen tools required. Lab required. Prerequisite: Mandatory Culinary / Pastry Arts Orientation. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

PSTR 1305 Breads and Rolls
Concentration on fundamentals of chemically and yeast raised breads and rolls. Instruction on commercial preparation of a wide variety of products. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1305 with a grade of "C" or better and PSTR 1301 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

PSTR 1306 Cake Decorating I
Introduction to skills, concepts and techniques of cake decorating. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1305 with a grade of "C" or better and PSTR 1301 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

PSTR 1310 Pies, Tarts, Teacakes, and Cookies
Focus on preparation of American and European style pie and tart fillings and dough, cookies, teacakes, custard and batters. Instruction of finishing and presentation techniques. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1305 with a grade of "C" or better and PSTR 1301 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes

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require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 1312 Laminated Dough, Pate a Choux, and Donuts**
Focus on preparation of laminated dough to include puff pastry, croissant, Danish and a variety of pate a choux products and donuts. Fillings and finishing techniques included. Professional chef uniform and kitchen tools required. Lab required. Prerequisite: PSTR 1310. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 1340 Plated Desserts**
Preparation and service of hot and cold desserts with a focus on individual desserts, a la minute preparations, and numerous components within one preparation. Emphasis on station organization, timing, and service coordination for restaurant dessert production. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1305 with a grade of "C" or better and PSTR 1301 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 1342 Quantity Bakeshop Production**
Advanced baking techniques to include volume production of a variety of breads and desserts. Lab required. Prerequisite: PSTR 1343. 3 credit hours. (W)

**PSTR 1343 Bakery Operations and Management**
Introduction to management, marketing, supervision, and sanitation principles required in retail bakery operations. Emphasis on cost control, pricing, computer usage, and personnel issues. Lab required. Prerequisite: PSTR 1310. 3 credit hours. (W)

**PSTR 2301 Chocolates and Confections**
Production and decoration of traditional truffles, marzipan, molded and hand-dipped chocolate, caramels, nougats, and pate de fruit. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: CHEF 1305 with a grade of "C" or better and PSTR 1301 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 2307 Cake Decorating II**
A course in decoration of specialized and seasonal products. Professional chef uniform and kitchen tools required. Lab required. Prerequisite: PSTR 1306 with a grade of "C" or better. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 2331 Advanced Pastry Shop**
A study of classical desserts, French and international pastries, hot and cold desserts, ice creams and ices, chocolate work, and decorations. Emphasis on advanced techniques. Professional chef uniform and kitchen tools required. Lab required. Prerequisites: PSTR 1305, PSTR 1306, PSTR 1310, PSTR 2301 and PSTR 2307. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

**PSTR 2380 Cooperative Education-Baking and Pastry Arts/Baker/Pastry Chef**
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Prerequisites: CHEF 1305 with a grade of "C" or better, PSTR 1301 with a grade of "C" or better, and completion of 9 credit hours in the major core of PSTR. 3 credit hours. (W)

**PSYC 1100 Learning Framework**
A study of the 1) research and theory in the psychology of learning, cognition, and motivation, 2) factors that impact learning, and 3) application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of college-level student academic strategies. Students use assessment instruments (e.g., learning inventories) to help them identify their own strengths and weaknesses as
strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. Lab required. 1 credit hour. (A) Note: Students may only take one of the following: EDUC 1200, EDUC 1300, PSYC 1100 or PSYC 1300.

**PSYC 1300 Learning Framework**
A study of the 1) research and theory in the psychology of learning, cognition, and motivation, 2) factors that impact learning, and 3) application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of college-level student academic strategies. Students use assessment instruments (e.g. learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. 3 credit hours. (A) Note: Students may only take one of the following: EDUC 1200, EDUC 1300, PSYC 1100 or PSYC 1300.

**PSYC 2301 General Psychology**
General Psychology is a survey of the major psychological topics, theories and approaches to the scientific study of behavior and mental processes. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**PSYC 2306 Human Sexuality**
This course will provide an overview of the broad field of human sexuality. Topics will be covered from various perspectives - biological, sociological, anthropological, etc., but will focus primarily on the psychological perspective. The goal is for each student to learn factual, scientifically-based information that will provoke thought and contribute to his/her own decision-making on sexual issues outside of the classroom. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A) Note: Students may take either PSYC 2306 or SOCI 2306 but not both.

**PSYC 2314 Life-Span Growth and Development**
Life-Span Growth and Development is a study of social, emotional, cognitive and physical factors and influences of a developing human from conception to death. Prerequisites: PSYC 2301, and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**PSYC 2315 Psychology of Adjustment**
Gives students’ deeper insight into their lives and those around them. Includes enhancing self-awareness, stress coping, healthy relationships and dealing with loss. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**PSYC 2316 Psychology of Personality**
In-depth study of theories of personality with practical application of each. Methods of personality measurement and assessment are also included. Prerequisites: PSYC 2301, and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**PSYC 2319 Social Psychology**
Research and theory regarding social factors that influence human behavior. Focuses on attitudes, interpersonal attraction, aggression, conformity, communication, values, roles and group processes. These principles will be applied to the human experience. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours (A)

**PSYC 2389 Academic Co-op Psychology**
Integrates on-campus study with practical hands-on work experience in psychology. In conjunction with class seminars, the student will set specific goals and objectives in the study of psychology. Contact the Cooperative Work Experience Office. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours (A)

**RBTC 1305 Robotic Fundamentals**
An introduction to flexible automation. Topics include installation, repair, maintenance, and development of flexible robotic manufacturing systems. 3 credit hours. (W)

**RBTC 2345 Robot Application, Set-up, and Testing**
A course that provides the student with laboratory experience in the installation, set-up, and testing of
robotic cells. Topics include maintenance.
Prerequisite: RBTC 1305. Lab required. 3 credit hours. (W)

**RELE 1300 Contract Forms and Addenda**
Promulgated Contract Forms, which shall include, but is not limited to, unauthorized practice of law, broker-lawyer committee, current promulgated forms, commission rules governing use of forms and case studies involving use of forms. Prerequisite: RELE 1311. 3 credit hours. (W)

**RELE 1301 Principles of Real Estate I**
A beginning overview of licensing as a real estate broker or salesperson. Includes ethics of practice as a license holder, titles to and conveyance of real estate, legal descriptions, deeds, encumbrances and liens, distinctions between personal and real property, appraisal, finance and regulations, closing procedures, and real estate mathematics. Covers at least three hours of classroom instruction on federal, state, and local laws relating to housing discrimination, housing credit discrimination, and community reinvestment. Fulfills at least 30 of 60 hours of required instruction for salesperson license. 3 credit hours. (W)

**RELE 1303 Real Estate Appraisal**
The central purposes and functions of an appraisal, social and economic determinants of value, appraisal case studies, cost, market data and income approaches to value estimates, final correlations, and reporting. 3 credit hours. (W)

**RELE 1307 Real Estate Investments**
Characteristics of real estate investments. Includes techniques of investment analysis, time-valued money, discounted and nondiscounted investment criteria, leverage, tax shelters, depreciation, and applications to property tax. 3 credit hours. (W)

**RELE 1311 Law of Contracts**
Elements of a contract, offer and acceptance, statute of frauds, specific performance and remedies for breach, unauthorized practice of law, commission rules relating to use of adopted forms and owner disclosure requirements. 3 credit hours. (W)

**RELE 1315 Property Management**
The role of the property manager, landlord policies, operational guidelines, leases, lease negotiations, tenant relations, maintenance, reports, habitability laws, and the Fair Housing Act. 3 credit hours. (W)

**RELE 1319 Real Estate Finance**
Monetary systems, primary and secondary money markets, sources of mortgage loans, federal government programs, loan applications, processes and procedures, closing costs, alternative financial instruments, equal credit opportunity laws affecting mortgage lending, Community Reinvestment Act, and the state housing agency. 3 credit hours. (W)

**RELE 1321 Real Estate Marketing**
Real estate professionalism and ethics; characteristics of successful salespersons; time management; psychology of marketing; listing procedures; advertising; negotiation and closing financing; and the Deceptive Trade Practices-Consumer Protection Act. 3 credit hours. (W)

**RELE 1325 Real Estate Mathematics**
Basic arithmetic skills. Includes mathematical logic, percentages, interest, time value of money, depreciation, amortization, proration, and estimation of closing statements. 3 credit hours. (W)

**RELE 1338 Principles of Real Estate II**
A continuing overview of licensing as a broker or salesperson. Includes ethics of practice as a license holder, titles to and conveyance of real estate, legal descriptions, deeds, encumbrances and liens, distinctions between personal and real property, appraisal, finance and regulations, closing procedures, and real estate mathematics. Covers at least three hours of classroom instruction on federal, state, and local laws relating to housing, discrimination, housing credit discrimination, and community reinvestment. Fulfills at least 30 of 60 hours of required instruction for salesperson license. 3 credit hours. (W)

**RELE 1380 Cooperative Education - Real Estate**
Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. 3 credit hours. (W)

**RELE 2301 Law of Agency**
Law of agency including principal-agent and master-servant relationships, the authority of an agent, the termination of an agent's authority, the fiduciary and other duties of an agent, employment law, deceptive
trade practices, listing or buying representation procedures, and the disclosure of an agency. 3 credit hours. (W)

RNSG 118 Transition to Professional Nursing Competencies
Transition to professional nursing competencies in the care of patients throughout the lifespan. Validates proficiency in psychomotor skills and clinical reasoning in the performance of nursing procedures related to the concepts of: clinical judgment, comfort, elimination, fluid and electrolytes, nutrition, gas exchange, safety, functional ability, immunity, metabolism, mobility, tissue integrity. Includes health assessment and medication administration. This course lends itself to a concept-based approach. Prerequisite: Admission to the AAS - Nursing (RN) (LVN / Paramedic / Medic Bridge) Program. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

RNSG 1125 Professional Nursing Concepts I
Introduction to professional nursing concepts and exemplars within the professional nursing roles: member of profession, provider of patient-centered care, patient safety advocate, and member of the health care team. Content includes clinical judgment, communication, ethical-legal, evidence-based practice, health promotion health information technology, patient-centered care, patient education, professionalism, safety, and team/collaboration. Emphasizes role development of the professional nurse. This course lends itself to a concept-based approach. Prerequisite: Admission to the AAS - Nursing (RN) Program. Corequisites: RNSG 1128, RNSG 1161, RNSG 1216 and RNSG 1430, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

RNSG 1126 Professional Nursing Concepts II
Expanding professional nursing concepts and exemplars within the professional nursing roles. Applying concepts of clinical judgment, ethical-legal, evidence-based practice, patient-centered care, professionalism, safety, and team/collaboration to the exemplars presented in the Health Care Concepts II course. Introduces concepts of leadership and management. Emphasizes role development of the professional nurse. This course lends itself to a concept-based approach. Prerequisites: RNSG 1125, RNSG 1128, RNSG 1161, RNSG 1216 and RNSG 1430, all with a grade of "C" or better, or consent of Program Director. Corequisites: RNSG 1533 and RNSG 2361, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

RNSG 1128 Introduction to Health Care Concepts
An introduction to concept-based learning with emphasis on selected pathophysiological concepts with nursing applications. Concepts include acid-base balance, fluid and electrolytes, immunity, gas exchange, perfusion, metabolism, coping, and tissue integrity. This course lends itself to a concept-based approach. Prerequisite: Admission to the AAS - Nursing (RN) Program or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

RNSG 1137 Professional Nursing Concepts III
Application of professional nursing concepts and exemplars within the professional nursing roles. Utilizes concepts of clinical judgment, ethical-legal, evidence-based practice, patient-centered care, professionalism, safety, teamwork and collaboration. Introduces the concepts of quality improvement health information technology, and health care organizations. Incorporates concepts into role development of the professional nurse. This course lends itself to a concept-based approach. Lab required. Prerequisites: RNSG 1126, RNSG 1533 and RNSG 2361, all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 1538 and RNSG 2362, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

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RNSG 1161 Clinical I-Nursing-Registered Nurse Training
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Course focuses on understanding and application of the nursing process, therapeutic communication, the development of critical thinking, patient/client advocacy, and safety to give comprehensive, quality patient-centered care using evidence based outcomes to culturally and socially diverse patient/client systems and documentation of care. Development of teaching/learning plans to address patient/client health care needs. Collaborate with the interdisciplinary health care team to promote, maintain and restore optimal health status of patient/client systems. Prerequisite: Admission to the AAS - Nursing (RN) Program. Corequisites: RNSG 1125, RNSG 1128, RNSG 1216, RNSG 1430, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (A)

RNSG 1163 Clinical - Nursing Transition from LVN / Paramedic / Medic
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Course focuses on critical thinking and implementation of the nursing process to plan safe, comprehensive, care for patient/client systems with common physical and mental health needs; development and implementation of teaching/learning plans evidence-based data to address health promotion, maintenance, and restoration. Care includes measures to reduce risks and coordinate health resources in collaboration with a multi-disciplinary health care team to improve patient/client outcomes. Requires communication/documentation skills, patient/client advocacy, and development of clinical reasoning. Prerequisite: Admission to the AAS - Nursing (RN) (LVN / Paramedic / Medic Bridge) Program. Corequisites: RNSG 1118, RNSG 1128 and RNSG 1324. Major Requirement: AAS - Nursing (RN) (LVN / Paramedic / Medic Bridge) Program. 1 credit hour. (A)

RNSG 1216 Professional Nursing Competencies
Development of professional nursing competencies in the care of patients throughout the lifespan. Emphasizes psychomotor skills and clinical reasoning in the performance of nursing procedures related to the concepts of: clinical judgment, comfort, elimination, fluid and electrolytes, nutrition, gas exchange, safety, functional ability, immunity, metabolism, mobility, and tissue integrity. Includes health assessment and medication administration. This course lends itself to a concept-based approach. Prerequisite: Admission to the AAS - Nursing (RN) Program. Corequisites: RNSG 1125, RNSG 1128, RNSG 1161 and RNSG 1430; or consent of Program Director. Major Requirement: AAS - Nursing (RN). 2 credit hours. (W)

RNSG 1324 Concept-Based Transition to Professional Nursing Practice
Integration of previous health care knowledge and skills into the role development of the professional nurse as a provider of patient-centered care, patient safety advocate, member of health care team, and member of the profession. Emphasis is on clinical decision-making for patients and their families. Review of selected health care and professional nursing concepts with application through exemplars. Health care concepts include comfort, diversity, elimination, functional ability, human development, mobility, nutrition, sensory perception, sleep, coping, thermoregulation, tissue integrity, acid-base balance, clotting, cognition, fluid and electrolyte balance, gas exchange, immunity, metabolism, nutrition, grief, and perfusion. Professional nursing concepts include clinical judgment, communication, ethical-legal, evidence-based practice, health promotion, health information technology, patient-centered care, patient education, professionalism, safety, teamwork and collaboration. Introduces concept of leadership and management. This course lends itself to a concept-based approach. Prerequisite: Admission to the AAS - Nursing (RN) (LVN / Paramedic / Medic Bridge) Program, or consent of Program Director. Major Requirement: AAS - Nursing (RN) (LVN / Paramedic / Medic Bridge). 3 credit hours. (W)

RNSG 1430 Health Care Concepts I
In-depth coverage of foundational health care concepts with application through selected exemplars. Concepts include comfort, diversity, elimination, functional ability, human development, mobility, nutrition, sensory perception, sleep, thermoregulation, grief, and tissue integrity. Emphasizes development of clinical judgment skills in the beginning nurse. This course lends itself to a concept-based approach. Lab required. Prerequisite: Admission to the AAS - Nursing (RN) Program. Corequisites: RNSG 1125, RNSG 1128, RNSG 1161 and RNSG 1216, or consent of Program Director.

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Major Requirement: AAS - Nursing (RN). 4 credit hours. (W)

RNSG 1533 Health Care Concepts II
In-depth coverage of health care concepts with application through selected exemplars. Concepts include acid-base balance, coping, clotting, cognition, fluid and electrolytes, gas exchange, immunity, metabolism, nutrition, comfort, and perfusion. Provides continuing opportunities for development of clinical judgment skills. The course lends itself to a concept-based approach. Lab required. Prerequisites: RNSG 1125, RNSG 1128, RNSG 1161, RNSG 1216 and RNSG 1430, all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 1126 and RNSG 2361, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 5 credit hours. (W)

RNSG 1538 Health Care Concepts III
In-depth coverage of health care concepts with nursing application through selected exemplars. Concepts include cellular regulation, end of life, immunity, interpersonal relationships, grief, human development, intracranial regulation, mood/affect, comfort, sexuality, mobility, and reproduction. Provides continuing opportunities for development of clinical judgment skills. This course lends itself to a concept-based approach. Lab required. Prerequisites: RNSG 1126, RNSG 1533 and RNSG 2361 all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 1137 and RNSG 2362, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 5 credit hours. (W)

RNSG 2138 Professional Nursing Concepts IV
Integration of professional nursing concepts and exemplars within the professional nursing roles. Synthesizes concepts of clinical judgment, ethical-legal, evidence-based practice, leadership and management, patient-centered care, professionalism, teamwork, and collaboration through exemplars presented in the Health Care Concepts courses. Emphasizes concept of quality improvement and introduces health policy. Incorporates concepts into role development of the professional nurse. This course lends itself to a concept-based approach. Lab required. Prerequisites: RNSG 1137, RNSG 1538 and RNSG 2362 all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 2363 and RNSG 2539, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 1 credit hour. (W)

RNSG 2361 Clinical II-Nursing-Registered Nurse Training
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Course focuses on critical thinking and implementation of the nursing process to plan safe, comprehensive, care for patient/client systems with common physical and mental health needs; development and implementation of teaching/learning plans evidence based data to address health promotion, maintenance, and restoration. Care includes measures to reduce risks and coordinate health resources in collaboration with multi-disciplinary health care team to improve patient/client outcomes. Requires communication/documentation skills, patient/client advocacy, and development of clinical reasoning. Prerequisites: RNSG 1125, RNSG 1128, RNSG 1161, RNSG 1216 and RNSG 1430, all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 1126 and RNSG 1533, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 3 credit hours. (A)

RNSG 2362 Clinical III-Nursing-Registered Nurse Training
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Course focuses on application of critical reasoning and implementation of the nursing process to plan patient-centered care for patient/client systems with complex physiologic and psychosocial health needs/problems using evidence based interventions. Care will include measures to meet patient/client systems teaching/learning needs to promote and maintain optimal health status for the patient/client and their families. Course requires communication / documentation care given; clinical reasoning to manage and coordinate quality, comprehensive patient-centered care and access to health care resources. Prerequisites: RNSG 1126, RNSG 1533 and RNSG 2361 all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 1137 and RNSG 1538, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 3 credit hours. (A)

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RNSG 2363 Clinical IV-Nursing-Registered Nurse Training
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, clinical reasoning, and concepts. Direct supervision is provided by the clinical professional. Course focuses on transition from student nurse to the roles/competencies and responsibilities of the professional nurse utilizing the nursing process to meet the advanced and integrated health needs of the patient/client systems within hospital and community. Promotion of healthy lifestyles with consideration for preferences of culturally and socially diverse patient/client systems in collaboration with the interdisciplinary health care team to promote and maintain optimal health status. Prerequisites: RNSG 1137, RNSG 1538 and RNSG 2362, all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 2138 and RNSG 2539, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 3 credit hours. (A)

RNSG 2539 Health Care Concepts IV
In-depth coverage of advanced health care concepts with nursing application through selected exemplars. Concepts include, cognition, immunity, clotting, fluid and electrolyte balance, gas exchange, metabolism, nutrition, perfusion, tissue integrity, and interpersonal relationships. Continuing development of clinical judgment with integration of all health care concepts. This course lends itself to a concept-based approach. Lab required. Prerequisites: RNSG 1137, RNSG 1538 and RNSG 2362, all with a grade of "C" or better; or consent of Program Director. Corequisites: RNSG 2138 and RNSG 2539, or consent of Program Director. Major Requirement: AAS - Nursing (RN). 5 credit hours. (W)

RSPT 1160 Clinical I-Respiratory Care Therapist
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Consent of Program Director. Corequisite: Consent of Program Director. Major Requirement: AAS- Respiratory Care. 1 credit hour. (W)

RSPT 1201 Introduction to Respiratory Care
An introduction to the field of respiratory care. Lab required. Prerequisite: Admission to the Respiratory Care Program. Corequisites: RSPT 1307 and RSPT 1410. Major Requirement: AAS-Respiratory Care. 2 credit hours. (W)

RSPT 1207 Cardiopulmonary Anatomy and Physiology
Anatomy and physiology of the cardiovascular and pulmonary systems. Prerequisite: Admission to the Polysomnographic Technology Program. 2 credit hours. (W)

RSPT 1237 Basic Dysrhythmia Interpretation
Study of electrophysiology of the heart and characteristics of cardiac dysrhythmias. 2 credit hours. (W)

RSPT 1307 Cardiopulmonary Anatomy and Physiology
Anatomy and physiology of the cardiovascular and pulmonary systems. Lab required. Prerequisite: Admission to the Respiratory Care Program. 3 credit hours. (W)

RSPT 1361 Clinical II-Respiratory Care Therapist
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RSPT 1160 with a grade of "C" or better. Major Requirement: AAS -Respiratory Care. 3 credit hours. (W)

RSPT 1362 Clinical III-Respiratory Care Therapist
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RSPT 1361 with a grade of "C" or better. Major Requirement: AAS - Respiratory Care. 3 credit hours. (W)

RSPT 1410 Respiratory Care Procedures I
Essential knowledge of the equipment and techniques used in the treatment of cardiopulmonary disease. Lab required. Prerequisite: Admission to the Respiratory Care Program. Major Requirement: AAS-Respiratory Care. 4 credit hours. (W)

RSPT 1411 Respiratory Care Procedures II
Develops essential knowledge and skills of airway care and mechanical ventilation. Lab required. Prerequisite: RSPT 1410 with a grade of “C” or
better. Major Requirement: AAS - Respiratory Care.
4 credit hours. (W)

**RSPT 2130 Respiratory Care Examination Preparation**
Comprehensive review to optimize respiratory care credentialing exam success. Lab required.
Prerequisites: RSPT 2255, RSPT 2353, and RSPT 2360; all with a grade of "C" or better. Corequisites: RSPT 2139, RSPT 2147, RSPT 2231, and RSPT 2361. Major Requirement: AAS - Respiratory Care. 1 credit hour. (W)

**RSPT 2139 Advanced Cardiac Life Support**
Advanced Cardiac Life Support (ACLS) with an emphasis on airway management. Designed to develop skills for resuscitation of the adult. Includes strategies for managing and stabilizing the cardiopulmonary arrested patient. May include certification based on American Heart Association standards. Prerequisites: RSPT 2255, RSPT 2353 and RSPT 2360; all with a grade of "C" or better. Corequisites: RSPT 2130, RSPT 2147, RSPT 2231 and RSPT 2361. Major Requirement: AAS - Respiratory Care. 1 credit hour. (W)

**RSPT 2147 Specialties in Respiratory Care**
Emerging and specialty practices in respiratory care. Additionally, this is an introduction to areas of interest in which the Respiratory Therapist may find application and/or employment. The depth of instruction will provide the indications, expected outcomes, hazards and methods for hyperbaric oxygen (HBO), extracorporeal membrane oxygenation (ECMO), nitric oxide (NO), sleep studies, nutritional assessment, metabolic monitoring, exercise/stress testing, and electroencephalograms. Also includes home care/rehabilitation, and fluid and electrolyte balance. Prerequisite: RSPT 2353. Major Requirement: AAS-Respiratory Care. 2 credit hours. (W)

**RSPT 2217 Respiratory Care Pharmacology**
A study of drugs that affect cardiopulmonary systems. Emphasis on classification, route of administration, dosages/calculations, and physiological interactions. Prerequisites: RSPT 1160, RSPT 1201, RSPT 1307 and RSPT 1410; all with a grade of "C" or better. Corequisites: RSPT 1361, RSPT 1411 and RSPT 2310. Major Requirement: AAS - Respiratory Care. 2 credit hours. (W)

**RSPT 2231 Simulations in Respiratory Care**
Theory of clinical simulation examinations. Includes construction types, scoring, and mechanics of taking the computerized simulation examination. Prerequisite: RSPT 2255 with a grade of “C” or better. Major Requirement: AAS - Respiratory Care. 2 credit hours. (W)

**RSPT 2247 Specialties in Respiratory Care**
Emerging and specialty practices in respiratory care. An introduction to areas of interest in which the Respiratory Therapist may find application and/or employment. The depth of instruction will provide the indications, expected outcomes, hazards and methods for hyperbaric oxygen (HBO), extracorporeal membrane oxygenation (ECMO), nitric oxide (NO), sleep studies, nutritional assessment, metabolic monitoring, exercise/stress testing, and electroencephalograms. Also includes home care/rehabilitation, and fluid and electrolyte balance. Prerequisite: RSPT 2353. Major Requirement: AAS-Respiratory Care. 2 credit hours. (W)

**RSPT 2255 Critical Care Monitoring**
Advanced monitoring techniques used to assess a patient in the critical care setting. Lab required. Prerequisites: RSPT 1362 and RSPT 2471; both with a grade of “C” or better. Corequisites: RSPT 2255 and RSPT 2360. Major Requirement: AAS - Respiratory Care. 2 credit hours. (W)

**RSPT 2310 Cardiopulmonary Disease**
Etiology, pathogenesis, pathology, diagnosis, history, prognosis, manifestations, treatment, and detection of cardiopulmonary diseases. Lab required. Prerequisites: RSPT 1160, RSPT 1201, RSPT 1307 and RSPT 1410; all with a grade of “C” or better. Corequisites: RSPT 1361 and RSPT 1411. Major Requirement: AAS - Respiratory Care. 3 credit hours. (W)

**RSPT 2353 Neonatal/Pediatric Cardiopulmonary Care**
A study of neonatal and pediatric cardiopulmonary care. Lab required. Prerequisites: RSPT 1362 and RSPT 2471; both with a grade of “C” or better. Corequisites: RSPT 2255 and RSPT 2360. Major Requirement: AAS - Respiratory Care. 3 credit hours. (W)
RSPT 2360  Clinical IV-Respiratory Care Therapist
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RSPT 1362 with a grade of “C” or better. Major Requirement: AAS - Respiratory Care. 3 credit hours. (W)

RSPT 2361  Clinical V-Respiratory Care Therapist
A health-related, work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RSPT 2360 with a grade of “C” or better. Major Requirement: AAS - Respiratory Care. 3 credit hours. (W)

RSPT 2471  Respiratory Care Procedures III
Provides essential knowledge of advanced mechanical ventilation concepts, critical care assessment, quality control, and basic neonatal/pediatric assessment. Advanced mechanical ventilation concepts include: methods of weaning, advanced modes, and methods of non-invasive ventilation. Critical care assessment includes: basic ECG interpretation and chest tube drainage systems. Quality control includes: maintenance of ABG analyzers. Neonatal/Pediatric assessment includes: APGAR scoring, gestational age assessment, Silverman score, vital signs, and pediatric assessment methods. Lab required. Prerequisite: RSPT 1411 with a grade of “C” or better. Corequisite: RSPT 1362. Major Requirement: AAS - Respiratory Care. 4 credit hours. (W)

RSTO 1304  Dining Room Service
Introduces the principles, concepts, and systems of professional table service. Topics include dining room organization, scheduling, and management of food service personnel. Lab required. Prerequisite/Concurrent enrollment: CHEF 1314. 3 credit hours. (W) Note: Culinary lab classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds), reaching, bending, and working around open flames and with cleaning chemicals.

RSTO 1325  Purchasing for Hospitality Operations
Study of purchasing and inventory management of foods and other supplies to include development of purchase specifications, determination of order quantities, formal and informal price comparisons, proper receiving procedures, storage management, and issue procedures. Emphasis on product cost analysis, yields, pricing formulas, controls, and record keeping at each stage of the purchasing cycle. Lab required. Prerequisites: CHEF 1305 and HAMG 1321. 3 credit hours. (W)

RSTO 2307  Catering
Principles, techniques, and applications for both on-premises, off-premises, and group marketing of catering operations including food preparation, holding, and transporting techniques. Lab required. Prerequisite: HAMG 2301; or consent of Associate Dean. 3 credit hours. (W)

RTVB 1329  Scriptwriting
Writing scripts for film and electronic media. Emphasizes format and style for commercials, public service announcements, promos, news, and documentaries. Lab required. 3 credit hours. (W)

RTVB 2330  Film and Video Editing
Digital media editing for the preparation and completion of shorts, trailers, documentaries, and features. Prerequisite: ARTV 1351. Lab required. 3 credit hours. (W)

RTVB 2340  Portfolio Development
Preparation and presentation of a portfolio suitable for employment in the media industry. This course is intended to be taken in the last semester. Lab required. Prerequisite: Consent of Associate Dean. 3 credit hours. (W)

RUSS 1411  Beginning Russian I
Introduction to the basic skills of speaking, reading, writing, and listening with attention to selected aspects of Russian culture; designed for students with little or no previous language training. Instruction is enhanced by the use of tapes, slides, computer software, and video cassettes. Lab required. 4 credit hours. (A)

RUSS 1412  Beginning Russian II
Continuation of RUSS 1411. Lab required. Prerequisite: RUSS 1411 or consent of Associate Dean. 4 credit hours. (A)

RUSS 2311  Intermediate Russian I
Intensive review of Russian grammar followed by continued development of speaking, listening, reading and writing skills. Instruction enhanced by
slides, tapes, and other audio-visual aids. Prerequisite: RUSS 1412 or consent of Associate Dean. 3 credit hours. (A)

RUSS 2312 Intermediate Russian II
Continuation of RUSS 2311. Instruction enhanced by slides, tapes, and other audio-visual aids. Prerequisite: RUSS 2311 or consent of Associate Dean. 3 credit hours. (A)

SGNL 1401 Beginning American Sign Language I
Introduction to American Sign Language, Deaf culture, and to a brief history of sign and culture. Includes development of expressive and receptive sign skills, together with the learning of numbers, sign vocabulary, and the manual alphabet. Class is conducted primarily without voice. Lab required. 4 credit hours. (A)

SGNL 1402 Beginning American Sign Language II
Study of sign vocabulary, numbers, fingerspelling and Deaf culture. Emphasizes further development of receptive skills, expressive skills, application of rudimentary syntactical and grammatical structures, and an understanding of Deaf and Hearing cultures. Class is conducted primarily without voice. Lab required. Prerequisite: SGNL 1401 or credit by exam. 4 credit hours. (A)

SGNL 2301 Intermediate American Sign Language I
Introduction to the intermediate skills needed in the production and comprehension of American Sign Language used in everyday communication. The course gives students an overview of the history, values, and social norms of the Deaf community in the United States. This course integrates and refines expressive and receptive skills in American Sign Language, including recognition of sociolinguistic variations. Class is conducted primarily without voice. Lab required. Prerequisite: SGNL 1402 with a grade of "C" or better. 3 credit hours. (A)

SGNL 2302 Intermediate American Sign Language II
A continuation of SGNL 2301, American Sign Language Intermediate II provides a review and application of conversational skills in American Sign Language and provides intensive practice in interpreting from signing to voice as well as from voice to signing, while increasing vocabulary. The course provides an introduction to American Sign Language literature and folklore. (The course includes grammar and vocabularies used in "real life" situations.) Lab required. Prerequisite: SGNL 2301 with a grade of "C" or better. 3 credit hours. (A)

SLNG 1207 Intra-lingual Skills Development for Interpreters
Development of intra-lingual (English to English) skills necessary for future development of inter-lingual (English to American Sign Language [ASL]/ASL to English) skills. Focus on linguistic and cognitive skills development in areas of paraphrasing, summarizing, main idea identification, comprehension, memory, delayed repetition, multi-tasking, vocabulary, and cultural literacy. Lab required. Offered spring semester only. 2 credit hours. (W)

SLNG 1211 Fingerspelling and Numbers
Development of expressive and receptive skills in fingerspelling and numbers. Receptive skills focus on whole word phrase recognition and fingerspelling/number comprehension in context. Expressive skills focus on the development of speed, clarity, and fluency. Lab required. Prerequisite: SGNL 1402. 2 credit hours. (W)

SLNG 1215 Visual/Gestural Communication
Development of skills in non-verbal communications. Emphasizes the use and understanding of facial expression, gestures, pantomime, and body language. Lab required. Offered fall semester only. 2 credit hours. (W)

SLNG 1291 Special Topics in Sign Language Interpreter
Topics address recently identified current events, skills, knowledges, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Offered summer semester only. 2 credit hours. (W) Preparation for BEI (Board of Evaluation of Interpreters) Certification Overview of BEI assessment and development of relevant ASL and interpreting skills and knowledge. Prerequisites: SLNG 2186 and SLNG 2302.

SLNG 1311 Fingerspelling and Numbers
Development of expressive and receptive skills in fingerspelling and numbers. Receptive skills focus on whole word phrase recognition and
fingerspelling/number comprehension in context.
Expressive skills focus on the development of speed, clarity, and fluency. Lab required.
Prerequisite/Concurrent enrollment: SGNL 1402. 3 credit hours. (W)

SLNG 1321 Introduction to the Interpreting Profession
An overview of the field of American Sign Language (ASL)/English interpretation. Provides a historical framework for the current principles, ethics, roles, responsibilities, and standard practices of the interpreting profession. Lab required. Prerequisite / Concurrent enrollment: SGNL 2301. 3 credit hours. (W)

SLNG 1347 Deaf Culture
Historical and contemporary perspective of American Deaf culture using a socio-cultural model. Includes cultural identity and awareness, values, group norms, communication, language, and significant contributions made by D/deaf people to the world. 3 credit hours. (W)

SLNG 1350 Sign-to-Voice
Skill development in interpreting and transliterating from American Sign Language and other modes of communication to English and analysis of increasingly complex tasks utilizing simulated interpreting experiences including skills analysis and peer evaluation. Lab required. Prerequisite: SLNG 1321. Offered fall semester only. 3 credit hours. (W)

SLNG 2186 Internship I - Sign Language Interpretation and Translation
A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisites: SLNG 1350 and SLNG 2301. 1 credit hour. (W)

SLNG 2189 ESC Internship - Sign Language Interpretation and Translation
A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisite/ Concurrent enrollment: SLNG 2371. 1 credit hour. (W)

SLNG 2266 Practicum - Sign Language Interpretation and Translation
Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: SLNG 2301. 2 credit hours. (W)

SLNG 2301 Interpreting I
An overview of the interpreting process and models of interpretation. Introduces the skills necessary to achieve dynamic message equivalence in interpreting American Sign Language (ASL) to English and English to ASL. Lab required. Prerequisite: SLNG 1321. Offered fall semester only. 3 credit hours. (W)

SLNG 2302 Interpreting II
Continued development of discourse analysis and interpreting skills for increasingly complex tasks. Utilization of consecutive and simultaneous interpreting scenarios including monologues and dialogues. Emphasizes skill development, self-analysis, and peer evaluation. Lab required. Prerequisite/Concurrent enrollment: SLNG 2301. Offered spring semester only. 3 credit hours. (W)

SLNG 2303 Transliterating
A practice-oriented course designed to develop skills necessary for rendering spoken English to a signed English format and signed English to spoken English. Lab required. Prerequisite: SLNG 2301. Offered spring semester only. 3 credit hours. (W)

SLNG 2311 Interpreting in Specialized Settings
Overview of interpreting/transliterating with special populations (e.g., deaf/blind, high visual, oral) and/or special settings (e.g., religious, artistic, medical, legal, mental health). Reinforce interpreting theories and techniques in relation to special population(s) and/or setting(s). Lab required. Prerequisites: SLNG 1350 and SLNG 2301. Offered spring semester only. 3 credit hours. (W)

SLNG 2331 Interpreting III
A practice-oriented course to develop skills in the integration and application of interpreting using complex source materials. Continued exposure to simulated interpreting/transliterating experiences. Lab required. Prerequisite: SLNG 2302 or state or national interpreter certification. Offered summer semester only. 3 credit hours. (W)

SLNG 2371 Interpreting in the Medical Setting
Methods and practice of interpreting skills (consecutive, simultaneous, and sign translation) in medical contexts, including protocols for managing sessions with patients, standards of practice for health
The course covers the fundamentals of Photovoltaic Solar Cell fabrication from ingot to the final solar cell array. The basic chemistry, physics, and materials science of the fabrication process is presented. The chemistry, device physics, and materials science of Photovoltaic Solar Cell technology which results in the production of electricity from sunlight is covered. An overview of the process flows used to manufacture solar cells, the resulting device characteristics, the variety of solar cell structures and the solid state electronics characterization of the structures is presented. The course is taught from an engineering perspective using an appropriate level of mathematics for the engineering models presented. Lab required. Prerequisite: MATH 1314 or consent of Associate Dean. 3 credit hours. (W)

SMFT 1375 Materials, Measurement Technology and Characterization Methods Used in Semiconductor Solar Cell Mfg

The course will include an in-depth coverage of materials measurement techniques, statistical process control/capability analysis, six sigma process characterization, and FEMA from the perspective of Photovoltaic Solar Cell materials characterization, electrical characterization and optical characterization technology and techniques. The course is taught from an engineering perspective using an appropriate level of mathematics for the engineering models presented. Lab required. Prerequisites: SMFT 1371 and SMFT 1373 or consent of Associate Dean. 3 credit hours. (W)

SOCI 1301 Introduction to Sociology

The scientific study of human society, including ways in which groups, social institutions, and individuals affect each other. Causes of social stability and social change are explored through the application of various theoretical perspectives, key concepts, and related research methods of sociology. Analysis of social issues in their institutional context may include topics such as social stratification, gender, race/ethnicity, and deviance. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

SOCI 1306 Social Problems

Application of sociological principles and theoretical perspectives to major social problems in contemporary society such as inequality, crime and violence, substance abuse, environmental issues, deviance, or family problems. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

SOCI 2301 Marriage and the Family

Sociological and theoretical analysis of the structures and functions of the family, the varied cultural patterns of the American family, and the relationships that exist among the individuals within the family, as well as the relationships that exist between the family and other institutions in society. Prerequisite: Meet...
TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**SOCI 2306 Human Sexuality**
This course will provide an overview of the broad field of human sexuality. Topics will be covered from various perspectives—biological, sociological, anthropological, etc., but will focus primarily on the psychological perspective. The goal is for each student to learn factual, scientifically-based information that will provoke thought and contribute to his/her decision-making on sexual issues outside of the classroom. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A) Note: Student may take either PSYC 2306 or SOCI 2306 but not both.

**SOCI 2319 Minority Studies**
This course studies minority-majority group relations, addressing their historical, cultural, social, economic, and institutional development in the United States. Both sociological and social psychological levels of analysis will be employed to discuss issues including experiences of minority groups within the context of their cultural heritage and tradition, as well as that of the dominant culture. Core concepts to be examined include (but are not limited to) social inequality, dominance / subordination, prejudice, and discrimination. Particular minority groups discussed may include those based on poverty, race / ethnicity, gender, sexual orientation, age, disability, or religion. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**SOCI 2340 Drug Use and Abuse**
Study of the use and abuse of drugs in today's society. Emphasis on the physiological, psychological, and sociological factors that contribute to this behavior. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**SOCI 2389 Academic Co-op Sociology**
Integrates on-campus study with practical hands-on work experience in sociology. In conjunction with class seminars, the student will set specific goals and objectives in the study of sociology. Contact the Cooperative Work Experience Office. Prerequisite: Consent of Associate Dean, and meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**SOCW 2361 Introduction to Social Work**
An overview of the history, fields, skills, and values of social work practice in the United States. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

**SOCW 2362 Social Welfare**
This course provides an overview of contemporary social welfare including income support services, mental health services and services for children and families. It includes an examination of social welfare policy and programs. Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. Prerequisite/Concurrent enrollment: SOCW 2361. 3 credit hours. (A)

**SPAN 1411 Beginning Spanish I**
Basic Spanish language skills in listening, speaking, reading, and writing within a cultural framework. Students will acquire the vocabulary and grammatical structures necessary to communicate and comprehend at the beginner level. Lab required. 4 credit hours. (A)

**SPAN 1412 Beginning Spanish II**
Continued development of basic Spanish language skills in listening, speaking, reading, and writing within a cultural framework. Students will acquire the vocabulary and grammatical structures necessary to communicate and comprehend at the high beginner to low intermediate level. Lab required. Prerequisite: SPAN 1411 or consent of Associate Dean. 4 credit hours. (A)

**SPAN 2311 Intermediate Spanish I**
The consolidation of skills acquired at the introductory level. Further development of proficiency in listening, speaking, reading, and writing. Emphasis on comprehension, appreciation, and interpretation of the cultures of the Spanish-speaking world. Prerequisite: SPAN 1412 or consent of Associate Dean. 3 credit hours. (A)

**SPAN 2312 Intermediate Spanish II**
The consolidation of skills acquired at the introductory level. Further development of proficiency in listening, speaking, reading, and writing. Emphasis on comprehension, appreciation, and interpretation of the cultures of the Spanish-speaking world. Prerequisite: SPAN 2311 or consent of Associate Dean. 3 credit hours. (A)
SPAN 2313 Spanish for Native/Heritage Speakers I
Builds upon existing oral proficiencies of heritage speakers of Spanish. Enhances proficiencies in the
home-based language by developing a full range of registers including public speaking and formal
written discourse. Emphasis on comprehension, appreciation, and interpretation of the cultures of the
Spanish-speaking world. Prerequisite: SPAN 1412 or consent of Associate Dean. 3 credit hours. (A)

SPAN 2315 Spanish for Native/Heritage Speakers II
Builds upon existing oral proficiencies of heritage speakers of Spanish. Enhances proficiencies in the
home-based language by developing a full range of registers including public speaking and formal
written discourse. Emphasis on comprehension, appreciation, and interpretation of the cultures of the
Spanish-speaking world. Prerequisite: SPAN 2313 or consent of Associate Dean. 3 credit hours. (A)

SPCH 1311 Introduction to Speech Communication
Introduces basic human communication principles and theories embedded in a variety of contexts
including interpersonal, small group, and public speaking. Prerequisite: Meet TSI college-readiness
standard for Reading and Writing; or equivalent. 3 credit hours. (A)

SPCH 1315 Public Speaking
Application of communication theory and practice to the public speaking context, with emphasis on
audience analysis, speaker delivery, ethics of communication, cultural diversity, and speech
organizational techniques to develop students' speaking abilities, as well as ability to effectively
evaluate oral presentations. Additionally, it includes student evaluation of speakers and speeches.
Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

SPCH 1318 Interpersonal Communication
Application of communication theory to interpersonal relationship development, maintenance, and
termination in relationship contexts including friendships, romantic partners, families, and
relationships with co-workers and supervisors. Additionally, this course focuses on interpersonal
contexts such as gender communication, conflict, intercultural communication, and listening.
Prerequisite: Meet TSI college-readiness standard for Reading and Writing; or equivalent. 3 credit hours. (A)

SPCH 1321 Business and Professional Communication
Study and application of communication within the business and professional context. Special emphasis
will be given to communication competencies in presentations, dyads, teams, and technologically
mediated formats. Additionally, it includes the relationship of communication to organizational
conflict, management and international business; practice in conducting and participating in business
interviews and presentations. Prerequisite: Meet TSI college-readiness standard for Reading and Writing;
or equivalent. 3 credit hours. (A)

SPCH 2335 Argumentation and Debate
This course introduces the students to various argumentation techniques. The student will learn basic
research skills and methods of cataloging evidence. The student will learn to organize and
present ideas in effective communication paradigms. Individual debate and team formats will be
demonstrated. 3 credit hours. (A)

SPCH 2389 Academic Co-op Speech
Integrates on-campus study with practical hands-on work experience in speech. In conjunction with class
seminars, the student will set specific goals and objectives in the study of speech. Contact the
Cooperative Work Experience Office. Prerequisite: Meet TSI college-readiness standard for Reading and Writing;
or equivalent. 3 credit hours. (A)

SRGT 1171 Transition to Practice for the Surgical Technologist
This course provides surgical technology students with information and skills to assist in transition from
the role of student to the role of a practicing surgical technologist. Information gained about high
performance work teams is applied to the surgical setting. Service quality management and diversity
concepts are applied to surgical settings. Lab required. Prerequisites: HPRS 2300, SRGT 1441 and
SRGT 1461. Corequisites: SRGT 2130 and SRGT 2561, or consent of Program Director. Major
Requirement: AAS - Surgical Technology. 1 credit hour. (W)

SRGT 1260 Clinical-Surgical Technology I
A health-related work-based learning experience that enables the student to apply specialized occupational
theory, skills, and concepts. Direct supervision is
provide the clinical professional. Prerequisite: Admission to the Surgical Technology Program. Corequisite: SRGT 1409 or consent of the Program Director. Major Requirement: AAS - Surgical Technology. 2 credit hours. (W)

**SRGT 1271 Basic Skills of Surgical Technology**
Learn the fundamentals and foundations of Surgical Technology. Apply basic skills of Surgical Technology in a mock laboratory environment in order to gain the skills needed to perform in the healthcare setting. Prerequisite: Admission to the Surgical Technology Program. Corequisite: SRGT 1409, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 2 credit hours. (W)

**SRGT 1409 Fundamentals of Peri-operative Concepts and Techniques**
In-depth coverage of peri-operative concepts such as aseptic principles and practices, infectious processes, wound healing, and creation and maintenance of the sterile field. Lab required. Prerequisite: Admission to the Surgical Technology Program. Corequisite: SRGT 1271, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 4 credit hours. (W)

**SRGT 1441 Surgical Procedures I**
Introduction to surgical pathology and its relationship to surgical procedures. Emphasis on surgical procedures related to the general, OB/GYN, genitourinary, otorhinolaryngology, and orthopedic surgical specialties incorporating instruments, equipment, and supplies required for safe patient care. Lab required. Prerequisites: SRGT 1271 and SRGT 1409. Corequisites: HPRS 2300 and SRGT 1461, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 4 credit hours. (W)

**SRGT 1442 Surgical Procedures II**
Introduction to surgical pathology and its relationship to surgical procedures. Emphasis on surgical procedures related to the cardiothoracic, peripheral vascular, plastic / reconstructive, ophthalmology, oral / maxillofacial, and neurological surgical specialties incorporating instruments, equipment, and supplies required for safe patient care. Lab required. Prerequisites: HPRS 2300, SRGT 1441, and SRGT 1461. Corequisites: SRGT 1171, SRGT 2130 and SRGT 2561, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 4 credit hours. (W)

**SRGT 1461 Clinical - Surgical Technology I**
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Additionally, the student is allowed to participate as a member of the surgical team under the supervision of the affiliate hospital staff or a clinical instructor in an aseptic environment. Case assignments will be assigned according to specific clinical rotations. Prerequisites: SRGT 1271 and SRGT 1409. Corequisites: HPRS 2300 and SRGT 1441, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 4 credit hours. (W)

**SRGT 1541 Surgical Procedures II**
Introduction to surgical pathology and its relationship to surgical procedures. Emphasis on surgical procedures related to the cardiothoracic, peripheral vascular, plastic / reconstructive, ophthalmology, oral / maxillofacial, and neurological surgical specialties incorporating instruments, equipment, and supplies required for safe patient care. Lab required. Prerequisites: HPRS 2300, SRGT 1541, and SRGT 1561. Corequisites: SRGT 1171, SRGT 2130 and SRGT 2561, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 5 credit hours. (W)

**SRGT 1561 Clinical-Surgical Technology II**
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. The student is allowed to participate as a member of the surgical team under the supervision of the affiliate hospital staff or a clinical instructor in an aseptic environment. Case assignments will be assigned
according to specific clinical rotations. Prerequisites: SRGT 1260 and SRGT 1409. Corequisites: HPRS 2300 and SRGT 1541, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 5 credit hours. (W)

SRGT 2130 Professional Readiness
Overview of professional readiness for employment, attaining certification, and maintaining certification status. Prerequisites: HPRS 2300, SRGT 1441 and SRGT 1461. Corequisites: SRGT 1171, SRGT 1442 and SRGT 2561, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 1 credit hour. (W)

SRGT 2561 Clinical - Surgical Technology II
A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: HPRS 2300, SRGT 1441 and SRGT 1461. Corequisites: SRGT 1171, SRGT 1442 and SRGT 2130, or consent of Program Director. Major Requirement: AAS - Surgical Technology. 5 credit hours (W)

TECA 1303 Families, School and Community
A study of the child, family, community, and schools, including parent education and involvement, family and community lifestyles, child abuse, and current family life issues. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education of Young Children position statement related to developmentally appropriate practices for children from birth through age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations. The course includes a minimum of 16 hours of field experiences. Lab required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

TECA 1318 Wellness of the Young Child
A study of the factors that impact the well-being of the young child including healthy behavior, food nutrition, fitness, and safety practices. Focus on local and national standards and legal implications of relevant policies and regulations. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education of Young Children position statement related to developmentally appropriate practices for children from birth to age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations. Course includes a minimum of 16 hours of field experiences. Lab required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

TECA 1354 Child Growth and Development
A study of the physical, emotional, social, language, and cognitive factors impacting growth and development of children through adolescence. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

TRVM 1323 Group Tour Operations
A study of the role of the group planner, selling to groups, and planning itineraries, including components of a tour package, tour costing, advertising and promotion, group dynamics, and tour guide qualifications. 3 credit hours. (W)

TECA 1311 Educating Young Children
An introduction to the education of the young child, including developmentally appropriate practices and programs, theoretical and historical perspectives, ethical and professional responsibilities and current issues. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education of Young Children position statement related to developmentally appropriate practices for children from birth through age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations; and the course includes a minimum of 16 hours of field experiences. Lab required. Prerequisite: Meet TSI standard for INRW 0315; or equivalent. 3 credit hours. (A)

TRVM 1327 Special Events Design
The development of a special event from the conceptual stage through completion. Emphasis on industry terminology, factors to consider when planning a special event, and contingency plans. 3 credit hours. (W)
TRVM 2301 Introduction to Convention/Meeting Management
Overview of the meetings and convention industry and the various aspects and skills involved in planning and managing meeting, conventions, and expositions. Emphasis on types of meetings, markets, industry suppliers, budget and program planning, site selection and contract negotiations, registration and housing, food and beverage requirements, function and meeting room setup, and audiovisual requirements. 3 credit hours. (W)

TRVM 2333 Applied Convention/Meetings Management
Practical application of meetings and exposition skills through a case study or participation in a conference/meeting. Includes integration of meeting planning tools that compare and discriminate between key areas of program development and convention objectives. Prerequisites: TRVM 1323, TRVM 1327, TRVM 2301, TRVM 2341 and TRVM 2355. 3 credit hours. (W)

TRVM 2341 International Convention/Meeting Management
Apply the principles of convention/meeting management in an international setting. Compare the differences in planning a domestic versus an international meeting; including contract negotiation, foreign currency, customs and laws, exposition, marketing, shipping, languages, cultures, and how foreign policy affects the meeting planning process. Identify resources to assist planner in development of an international meeting. Prerequisite: TRVM 2301. 3 credit hours. (W)

TRVM 2355 Exposition and Trade Show Operations
An overview of trade shows and exhibitions operations. Prerequisite: TRVM 2301. 3 credit hours. (W)

TRVM 2380 Cooperative Education-Tourism and Travel Services Management
Career-related activities encountered in the student’s area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and employer, the student combines classroom learning with work experience. Includes a lecture component. Contact the Cooperative Work Experience Office. Prerequisites: HAMG 1324, HAMG 1340, TRVM 1323, TRVM 1327, TRVM 2301, TRVM 2341 and TRVM 2355; or consent of Associate Dean. 3 credit hours. (W)

WLDG 1401 Metalsmithing
Basic skill development in hand-forging steel, forge welding, scroll-forming, shaping, and joinery utilizing hammers, anvils, and coal and gas forges. Emphasis on techniques and processes to demonstrate versatility and skill. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 1405 Art Metals
Fundamentals of producing utilitarian and ornamental items in various metals. Skills development through the techniques used in fabrication with sheet and/or stock materials including various welding and cutting processes. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 1408 Metal Sculpture
Techniques and methods of oxy-fuel and electric welding and cutting to produce ornamental and functional items. Skill development in material forming, welding, brazing, and finishing techniques. Includes work ethics, artistic styles, and professionalism. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 1413 Introduction to Blueprint Reading for Welders
A study of industrial blueprints. Emphasis placed on terminology, symbols, graphic description, and welding processes. Includes systems of measurement and industry standards. Also includes interpretation of plans and drawings used by industry to facilitate field application and production. Lab required. Prerequisite: WLDG 1428. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60
Pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1425 Introduction to Oxy-Fuel Welding and Cutting**
An introduction to oxy-fuel welding and cutting, safety, setup and maintenance of oxy-fuel welding, and cutting equipment and supplies. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1428 Introduction to Shielded Metal Arc Welding (SMAW)**
An introduction to the shielded metal arc welding process. Emphasis placed on power sources, electrode selection, and various joint designs. Additionally, instruction provided in SMAW fillet welds in various positions. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1434 Introduction to Gas Tungsten Arc Welding (GTAW)**
Principles of gas tungsten arc welding (GTAW), including set-up, GTAW equipment. Instruction in various positions and joint designs. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1435 Introduction to Pipe Welding**
An introduction to welding of pipe using the shielded metal arc welding process (SMAW), including electrode selection, equipment setup, and safe shop practices. Emphasis on various welding positions and electrodes. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1471 Introduction to Foundry Practices**
Fundamentals of conceptualizing and producing cast items in ferrous and non-ferrous metals. Skill development through the casting process to create objects from different materials. Includes welding, brazing, pattern making, mold making, flask construction and casting of ferrous and non-ferrous metals. Lab required. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 1530 Introduction to Gas Metal Arc Welding (GMAW)**
Principles of gas metal arc welding, setup and use of Gas Metal Arc Welding (GMAW) equipment, and safe use of tools/equipment. Instruction in various joint designs. Additionally, this is an overview of terminology, safety procedures, and equipment setup. Practice in performing T-joints, lap joints, and butt joints using Flux Cored Arc Welding (FCAW) equipment. Lab required. Prerequisite: Consent of Discipline Lead. 5 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 2413 Intermediate Welding Using Multiple Processes**
Instruction using layout tools and blueprint reading with demonstration and guided practices with some of the following welding processes: oxy-fuel gas cutting and welding, shield metal arc welding (SMAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), gas tungsten arc welding (GTAW). Lab required. Prerequisites: WLDG 2443, WLDG 2453, and WLDG 2450 or WLDG 2451. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

**WLDG 2431 Advanced Blueprint Interpretation and Cost Analysis**
A continuation of the Blueprint for Welders course. Emphasis placed on inspection, cost analysis, and estimating. Lab required. Prerequisite: WLDG 1413.
4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2440 Advanced Metal Sculpture
Project development in an open-studio atmosphere. Individualized instruction to encourage skill combinations and experimentation. Topics include portfolio preparation and presentation. Lab required. Prerequisites: WLDG 1401, WLDG 1405, and WLDG 1408. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2441 Power Hammer
Skill development in pneumatic, treadle, and trip hammer techniques. Topics include forging various steel alloys and larger stock configurations, tool making, machine care, and hardware. Projects to create functional esthetic objects using power hammers. Lab required. Prerequisite: WLDG 1401. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2443 Advanced Shielded Metal Arc Welding (SMAW)
Advanced topics based on accepted welding codes. Training provided with various electrodes in shielded metal arc welding processes with open V-groove joints in various positions. Lab required. Prerequisite: WLDG 1428. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2447 Advanced Gas Metal Arc Welding (GMAW)
Advanced topics in Gas Metal Arc Welding (GMAW). Includes welding in various positions. Lab required. Prerequisite: WLDG 1530. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2450 Orbital Tube Welding
Orbital tube welding in various industries. Special emphasis on the disciplines of orbital tube welding, including cutting, facing, and development of weld procedures. Lab required. Prerequisite: WLDG 1434. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2451 Advanced Gas Tungsten Arc Welding (GTAW)
Advanced topics in GTAW welding, including welding in various positions and directions. Lab required. Prerequisite: WLDG 1434. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2453 Advanced Pipe Welding
Advanced topics involving welding of pipe using the shielded metal arc welding (SMAW) process. Topics include electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 5G and 6G using various electrodes. Lab required. Prerequisite: WLDG 1435. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2471 Advanced Foundry Practices
Project development in an open-studio atmosphere. Individualized instruction to encourage skill combinations and experimentation. Topics include portfolio preparation and presentation. Lab required. Prerequisite: WLDG 1471. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.

WLDG 2480 Cooperative Education - Welding Technology/Welder
Career-related activities encountered in the student’s area of specialization offered through an
individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Prerequisite: Consent of Discipline Lead. 4 credit hours. (W) Note: Welding classes require extended periods of time standing in place, lifting heavy weights (up to 60 pounds repeatedly), reaching, bending, and working around open flames and intense heat for extended periods of time.