

Course Descriptions

Course Descriptions

All Lord Fairfax Community College course descriptions are a part of the Virginia Community College System Master Course file (<http://courses.vccs.edu/mcf/>), which is standardized statewide. Students should refer to individual faculty course syllabi for more specific details.

Course Credits

The credit value for each course is indicated after the title in the course description. One credit is equivalent to one collegiate semester hour credit.

Each semester hour of credit given for a course is based on approximately one academic hour (50 minutes) of formalized, structured instructional time in a particular course for 15 weeks, or the equivalent in other time periods or instructional format. This may consist of lectures, out-of-class study, laboratory, or combinations thereof as follows:

1. One hour of lecture (including lecture, seminar, discussion, or other similar experiences) per week for 15 weeks plus an examination period + 1 collegiate semester-hour credit.
2. Two or three hours, depending on the academic discipline, of laboratory (including laboratory, clinical training, supervised work experience, coordinated internship, or other similar experience) per week for 15 weeks plus an examination period (1 hour) = 1 collegiate semester-hour credit.
3. One to five credits, with variable hours of attendance, may be earned in general usage Coordinated Internship, Seminar and Project, and Supervised Study.

Course Prerequisites

If any prerequisites are required before enrolling in a course, the College identifies these prerequisites in the course description. Courses in special sequences (usually identified by the numerical I-II) require that prior courses or their equivalent be completed before enrolling in a course unless special permission is obtained from the Vice President of Instruction or the Instruction Departments.

Course Offerings

The College reserved the right to develop schedules of courses offered based on demand or other factors.

Course Numbering System

The following is a description of Lord Fairfax Community College's system for logically and meaningfully numbering courses.

Level of Courses

01-09

These courses will be used for Development Studies. Credits earned in these courses are not applicable toward associate degree programs. However, upon approval by the deans of instruction, some developmental courses may provide credit appropriate for diploma or certificate programs. Students may re-register for these courses in subsequent semesters in accordance with state policy.

10-99

These courses are basic occupational courses for diploma and certificate programs. The credits earned in these courses are applicable toward diploma and certificate programs. These credits are not applicable toward an associate degree.

100-199

These courses are freshman-level courses applicable toward associate degree, diploma, and certificate programs.

200-299

These courses are sophomore-level courses applicable toward associate degree, diploma, and certificate programs.

General Usage Courses

These courses are used by inserting the appropriate department prefix for the desired course and by adding relevant descriptive information in the course title. Credit value is variable, from one to five hours. In instances where work, clinical, or field experience is used, the work/credit ratio may not exceed one credit for each five contact hours per week (or the equivalent in other time periods). All of these courses may be repeated for credit.

90, 190, and 290	Coordinated Internship
95, 195, and 295	Topics
93, 193, 293	Studies
96, 196, and 296	On-Site Training
98, 198, and 298	Seminar and Project
99, 199, and 299	Supervised Study

Course Descriptions

Accounting (ACC)

ACC 117 Essentials of Accounting (3 Cr.)

Covers financial statements, internal control requirements for safeguarding assets, and accounting procedures necessary to complete the entire accounting cycle, including journals, ledgers, and financial statements. Lecture 3 hours per week. Typically offered fall.

ACC 211 Principles of Accounting I (3 Cr.)

Introduces accounting principles with respect to financial reporting. Demonstrates how decision makers use accounting information for reporting purposes. Focuses on the preparation of accounting information and its use in the operation of organizations. Lecture 3 hours per week. Typically offered all semesters.

ACC 212 Principles of Accounting II (3 Cr.)

Introduces accounting principles with respect to cost and managerial accounting. Focuses on the application of accounting information with respect to product costing, as well as its use within the organization to provide direction and to judge performance. *Prerequisite: ACC 211.* Lecture 3 hours per week. Typically offered all semesters.

ACC 215 Computerized Accounting (3 Cr.)

Introduces the computer in solving accounting problems. Focuses on operation of computers. Presents the accounting cycle and financial statement preparation in a computerized system and other applications for financial and managerial accounting. *Prerequisite: ACC 211.* Lecture 3 hours per week. Generally offered spring.

ACC 221 Intermediate Accounting I (3 Cr.)

Covers accounting principles and theory, including a review of the accounting cycle and accounting for current assets, current liabilities and investments. Introduces various accounting approaches and demonstrates the effect of these approaches on the financial statement users. *Prerequisite: ACC 212 or equivalent.* Lecture 3 hours per week. Typically offered fall.

ACC 222 Intermediate Accounting II (3 Cr.)

Continues accounting principles and theory with emphasis on accounting for fixed assets, intangibles, corporate capital structure, long-term liabilities and investments. *Prerequisite: ACC 221 or equivalent.* Lecture 3 hours per week. Typically offered spring.

ACC 225 Managerial Accounting (3 Cr.)

Presents the preparation, analysis and interpretation of accounting data for managerial decision-making. Includes cost control, capital budgeting and pricing decisions. *Prerequisite: ACC 212 or equivalent.* Lecture 3 hours per week. Typically offered spring.

ACC 231 Cost Accounting I (3 Cr.)

Studies cost accounting and reporting as applied to job order, process and standard cost accounting systems. Includes cost control and other topics. *Prerequisite: ACC 212 or equivalent.* Lecture 3 hours per week. Typically offered fall.

ACC 261 Principles of Federal Taxation I (3 Cr.)

Presents the study of federal taxation as it relates to individuals and related entities. Includes tax planning, compliance and reporting. Lecture 3 hours per week. Typically offered fall.

ACC 262 Principles of Federal Taxation II (3 Cr.)

Presents the study of federal taxation as it is related to partnerships, corporations and other tax entities. Includes tax planning, compliance and reporting. Lecture 3 hours per week. Typically offered spring.

ACC 298 Seminar and Project (1-5 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours. Typically offered spring.

Administration of Justice (ADJ)

ADJ 100 Survey of Criminal Justice (3 Cr.)

Presents an overview of the United States criminal justice system; introduces the major system components--law enforcement, judiciary, and corrections. Lecture 3 hours per week. Typically offered fall and spring.

ADJ 105 The Juvenile Justice System (3 Cr.)

Presents the evolution, philosophy, structures and processes of the American juvenile delinquency system; surveys the right of juveniles, dispositional alternatives, rehabilitation methods and current trends. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

ADJ 107 Survey of Criminology (3 Cr.)

Surveys the volume and scope of crime; considers a variety of theories developed to explain the causation of crime and criminality. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall and spring.

ADJ 116 Special Enforcement Topics (s Cr.)

Considers contemporary issues, problems, and controversies in modern law enforcement. Lecture 3 hours per week. Typically offered spring.

Course Descriptions

ADJ 120 Introduction to Courts (3 Cr.)

Presents an overview of the American judiciary--the federal and 50 state judicial systems—with emphasis on criminal court structures, functions, and personnel; surveys the judicial system in Commonwealth of Virginia. Lecture 3 hours per week. Typically offered spring.

ADJ 140 Introduction to Corrections (3 Cr.)

Focuses on societal responses to the offender. Traces the evolution of practices based on philosophies of retribution, deterrence and rehabilitation. Reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

ADJ 164 Case Studies in Murder/Violent Crime (3 Cr.)

Introduces the student to the investigation of murder and other violent crimes by means of classic case studies and to the extent feasible, local case files, local case files, includes methodology, strategy and tactics, analysis, relevant law, and future trends. Covers evidentiary techniques and technologies with a primary focus on how critical thinking is applied to serious violent crime. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours were week. Offered periodically.

ADJ 171 Forensic Science I (4 Cr.)

Introduces student to crime scene technology, procedures for sketching, diagramming and using casting materials. Surveys the concepts of forensic chemistry, fingerprint classification/identification and latent techniques, drug identification, hair and fiber evidence, death investigation techniques, thin-layer chromatographic methods, and arson materials examination. Part I of II. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. Typically offered fall.

ADJ 172 Forensic Science II (3-4 Cr.)

Introduces student to crime scene technology, procedures for sketching, diagramming and using casting materials. Surveys the concepts of forensic chemistry, fingerprint classification/identification and latent techniques, drug identification, hair and fiber evidence, death investigation techniques, thin-layer chromatographic methods, and arson materials examination. Part II of II. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. Typically offered spring.

ADJ 173 Forensic Photography I (3 Cr.)

Surveys fundamental photographic skills—exposure, composition, film, filters, darkroom materials and procedures. Emphasizes use of photography for law enforcement purposes and for courtroom presentation. Considers current status and trends in photographic law. Part I of II. Lecture 3 hours per week. Typically offered spring, summer or fall.

ADJ 216 (3 Cr.)

Addresses judicial efforts against and involvement in corruption, drug, vice, and white-collar crimes, both individual and organized. Lecture 3 hours per week. Typically offered spring.

ADJ 228 Narcotics and Dangerous Drugs (3 Cr.)

Surveys the historical and current usage of narcotics and dangerous drugs. Teaches the identification and classification of such drugs and emphasizes the symptoms and effects on their users. Examines investigative methods and procedures utilized in law enforcement efforts against illicit drug usage. Lecture 3 hours per week. Typically offered spring.

ADJ 232 Domestic Violence (3 Cr.)

Surveys historical issues that have affected family violence. Examines current trends in the context of the criminal justice system. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically in spring.

ADJ 236 Principles of Criminal Investigation (3 Cr.)

Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene search, collecting, handling and preserving of evidence. Lecture 3 hours per week

ADJ 247 Criminal Behavior (3 Cr.)

Introduces and evaluates the concepts of normal and abnormal behavior. Focuses on the psychological and sociological aspects of criminal and other deviant behavior patterns. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically in spring.

ADJ 275 Forensic Pathology (3 Cr.)

Introduces the pathology and physiology of the human body with emphasis on scientific name and technique used in medico-legal investigations of death. Studies types of death, the mechanisms of death and death reflex, and the determining of the cause of death by postmortem examination. Lecture 3 hours per week. Typically offered spring.

Course Descriptions

ADJ 278 Firearms and Tool- Mark Identification (3 Cr.)

Introduces the role of the firearms in forensic science. Teaches the examination techniques and procedures for identifying firearms, tool-marks, ammunition, projectiles and projectile fragments. Instructs on the topics of determining muzzle-to-target distance, gunshot residue tests, firearms nomenclature, comparative micrography, serial number restoration, and the collecting, handling, and presenting of firearms and tool-mark evidence. Lecture 3 hours per week. Typically offered spring, summer or fall.

Administrative Support Technology (AST)

AST 80 Basic Keyboarding I (1 Cr.)

Introduces students to the basic operation of the microcomputer with the focus on the development of keyboarding skills using basic keyboarding by touch. Lecture 1 hour per week. Typically offered summer.

AST 81 Basic Keyboarding II (2 Cr.)

Introduces students to basic letter formats, simple tables, basic memo formats, and skill-building techniques. Lecture 2 hours per week. Typically offered summer.

AST 101 Keyboarding I (3 Cr.)

Teaches the alpha/numeric keyboard with emphasis on correct techniques, speed and accuracy. Teaches formatting of basic personal and business correspondence, reports and tabulation *Prerequisite: Placement into ENF2 or higher or successful completion of ENF1.* Lecture 3 hours per week. Typically offered all semesters.

AST 102 Keyboarding II (3 Cr.)

Develops keyboarding and document production skills with emphasis on preparation of specialized business documents. Continues skill building for speed and accuracy. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and 30 wpm placement assessment.* Lecture 3 hours per week. Typically offered all semesters.

AST 107 Editing/Proofreading Skills (3 Cr.)

Develops skills essential to creating and editing business documents. Covers grammar, spelling, diction, punctuation, capitalization and other usage problems. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and 30 wpm placement assessment or AST 102 or AST 141.* Lecture 3 hours per week. Typically offered fall.

AST 141 Word Processing I (3 Cr.)

Teaches creating and editing documents, including line and page layouts, columns, fonts, search/replace, cut/paste, spell/thesaurus and advanced editing and formatting features of word processing software. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and 30 wpm placement assessment or AST 102.* Lecture 3 hours per week. Typically offered summer and fall.

AST 142 Word Processing II (3 Cr.)

Teaches advanced software applications. *Prerequisites: Placement into ENF 2 or higher or successful completion of ENF 1 and AST 102 or AST 141.* Lecture 3 hours per week. Typically offered spring.

AST 205 Business Communications (3 Cr.)

Teaches techniques of oral and written communications. Emphasizes writing and presenting business-related materials. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102, AST 141 or AST 142.* Lecture 3 hours per week. Typically offered fall.

AST 206 Professional Development (3 Cr.)

Develops professional awareness in handling business and social situations. Emphasizes goal setting, critical thinking, decision-making and employment skills. *Prerequisites: Readiness to enroll in ENF 2 or above and AST 102, AST 141 or AST 142.* Lecture 3 hours per week. Typically offered spring and summer.

AST 215 Medical Keyboarding (3 Cr.)

Develops decision-making skills, speed and accuracy in preparation of medical documents with emphasis on meeting office requirements. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Occasionally offered summer.

AST 230 Introduction to Office Technology (3 Cr.)

Introduces principles, methods and techniques involved in office technology. Emphasizes word processing, microcomputer equipment and software. *Prerequisites: Placement into ENF 2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered spring.

AST 232 Microcomputer Office Applications (3 Cr.)

Teaches production of business documents using word processing, databases and spreadsheets. Emphasizes document production to meet business and industry standards. *Prerequisites: Placement into ENF 2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Occasionally offered summer.

Course Descriptions

AST 234 Records and Database Management (3 Cr.)

Teaches filing and records management procedures using microcomputer database software. Incorporates both manual and electronic methods for managing information. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered fall.

AST 236 Specialized Software Applications (3 Cr.)

Teaches specialized integrated software applications on the microcomputer. Emphasizes document production to meet business and industry standards. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered summer.

AST 243 Office Administration I (3 Cr.)

Develops an understanding of the administrative support role and the skills necessary to provide organizational and technical support in a contemporary office setting. Emphasizes the development of critical-thinking, problem-solving and job performance skills in a business office environment. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered fall.

AST 244 Office Administration II (3 Cr.)

Enhances skills necessary to provide organizational and technical support in a contemporary office setting. Emphasizes administrative and supervisory role of the office professional. Includes travel and meeting planning, office budgeting and financial procedures, international issues and career development. *Prerequisites: AST 243.* Lecture 3 hours per week. Typically offered spring.

AST 245 Medical Machine Transcription (3 Cr.)

Develops machine transcription skills, integrating operation of transcribing equipment with understanding of medical terminology. Emphasizes dictation techniques and accurate transcription of medical documents in prescribed formats. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1; AST 102 or AST 141 or AST 142; BIO 141 & 142 or BIO 145; HIM 111. Recommend HIM 112 but may enroll concurrently with AST 245.* Lecture 3 hours per week. Generally offered spring.

AST 253 Advanced Desktop Publishing I (3 Cr.)

Introduces specific desktop publishing software. Teaches document layout and design, fonts, typestyles, style sheets and graphics. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered fall.

AST 254 Advanced Desktop Publishing II (3 Cr.)

Presents advanced features of desktop publishing software, culminating in the layout and design of complex multi-page documents. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 253.* Lecture 3 hours per week. Typically offered spring.

AST 257 WP Desktop Publishing (3 Cr.)

Uses word processing software to teach advanced document preparation. *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered fall.

AST 260 Presentation Software (3 Cr.)

Teaches creation of slides including use of text, clip art and graphs. Includes techniques for enhancing presentations with on-screen slide shows as well as printing to transparencies and handouts. Incorporates use of sound and video clips *Prerequisite: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Typically offered spring.

AST 265 Legal Office Procedures I (3 Cr.)

Introduces general office procedures used in law offices and courts *Prerequisites: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Occasionally offered summer.

AST 266 Legal Office Procedures II (3 Cr.)

Develops skills necessary to provide organizational and technical support in a legal setting. Emphasizes administrative and supervisory duties *Prerequisites: AST 265.* Lecture 3 hours per week. Occasionally offered summer.

AST 271 Medical Office Procedures I (3 Cr.)

Covers medical office procedures, records management, preparation of medical reports, and other medical documents. *Prerequisite: Placement into ENF2 or higher or successful completion of ENF1 and AST 102 or AST 141 or AST 142.* Lecture 3 hours per week. Occasionally offered summer.

Agriculture (AGR)

AGR 141 Introduction to Animal Science and Technology (4 Cr.)

Introduces the science and technology involved in sustainable animal production and management practices. Includes beef, sheep, horses, dairy, swine, goats, and poultry, with emphasis on practical experiences in laboratory and farm settings. Lecture 3 hours. Laboratory 2 hours. Total 6 hours per week. Typically offered spring.

Course Descriptions

AGR 142 Introduction to Plant Science and Technology (3 Cr.)

Introduces students to plant science, ecology, plant morphology, plant and soil relations and energy conversions. Includes surveying agricultural crops and their importance in the economy. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered summer.

AGR 143 Introduction to Agribusiness and Financial Management (3 Cr.)

Introduces agriculture's importance to society and ways to start a farm or agribusiness. Evaluates forms of business including cooperatives and create financial statements and reports necessary for routine accounting and tax preparation. Utilizes financial tools for decision making, budgets and time value of money. Explores retirement, transition planning, personal financial management, and capital acquisition techniques. Typically offered fall.

Air Conditioning and Refrigeration (AIR)

AIR 121 Air Conditioning and Refrigeration I (3 Cr.)

Studies refrigeration theory, tools and equipment, soldering, brazing, refrigeration systems, system components, compressors, evaporators, metering devices. Provides laboratory application of refrigerators and freezers. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Generally offered fall.

AIR 122 Air Conditioning and Refrigeration II (3 Cr.)

Studies refrigeration theory, tools and equipment, soldering, brazing, refrigeration systems, system components, compressors, evaporators, metering devices. Provides laboratory application of refrigerators and freezers. *Prerequisite* AIR 121. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Generally offered spring.

AIR 134 Circuit and Controls I (3 Cr.)

Presents circuit diagrams for air conditioning units, reading and drawing of circuit diagrams, types of electrical controls. Includes analysis of air conditioning circuits, components, analysis and characteristics of circuits and controls, testing and servicing, introduces electricity for air conditioning which includes circuit elements, direct current circuits and motors, single and three-phase circuits and motors, power distribution systems and protective devices. Studies the electron and its behavior in passive and active circuits and components. Demonstrates electronic components and circuits as applied to air conditioning system. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Generally offered spring.

AIR 154 Heating Systems I (3 Cr.)

Introduces types of fuels and their characteristics of combustion; types, components and characteristics of burners and burner efficiency analyzers. Studies forced air heating systems including troubleshooting, preventive maintenance and servicing. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Generally offered fall.

AIR 155 Heating Systems II (3 Cr.)

Introduces types of fuels and their characteristics of combustion; types, components and characteristics of burners and burner efficiency analyzers. Studies forced air heating systems including troubleshooting, preventive maintenance and servicing. *Prerequisite:* AIR 154. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

American Sign Language (ASL)

ASL 101-102 American Sign Language I-II (3 Cr. each)

Introduces the fundamentals of American Sign Language (ASL) used by the Deaf Community, including basic vocabulary, syntax, finger spelling and grammatical non manual signals. Focuses on communicative competence. Develops gestural skills as a foundation for ASL enhancement. Introduces cultural knowledge and increases understanding of the Deaf Community. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. ASL 101 Typically offered fall; ASL 102 Typically offered spring.

ASL 115 Finger Spelling and Number Use in ASL (2 Cr.)

Provides intensive practice in comprehension and production of finger spelled words and numbers with emphasis on clarity and accuracy. Focuses on lexicalized finger spelling and numeral incorporation as used by native users of American Sign Language. *Prerequisite* ASL 101 or permission of instructor. Lecture 2 hours per week. Offered periodically.

ASL 125 History and Culture of the Deaf Community I (3 Cr.)

Presents an overview of various aspects of deaf culture, including educational and legal issues. *Prerequisite:* ENG 111. Lecture 3 hours per week. Offered periodically.

ASL 150 Working with Deaf and Hard-of-Hearing People (2 Cr.)

Explores career options for serving Deaf/hard-of-hearing people and/or for using American Sign Language skills in a career. Examines interests, skills, and educational assessments. Investigates job market viability via the Internet and professional periodicals. Develops opportunities for students to network with professionals in the field of deafness. Lecture 2 hours per week. Offered periodically.

Course Descriptions

ASL 201-202 American Sign Language III-IV (3 Cr.) (3 Cr.)

Develops vocabulary, conversational competence and grammatical knowledge with a total immersion approach. Introduces increasingly complex grammatical aspects including those unique to ASL. Discusses culture and literature. Contact with the deaf community is encouraged to enhance linguistic and cultural knowledge. Lecture 3-4 hours per week. Laboratory 0-2 hours per week. Total 3-5 hours per week. ASL 201 Typically offered fall; ASL 202 Typically offered spring.

ASL 210 ASL Storytelling (3 Cr.)

Focuses on the elements of storytelling in American Sign Language and the techniques that deaf individuals utilize to pass on the histories and traditions of the deaf community. Emphasizes comprehension and production of short stories in American Sign Language with emphasis on sign production clarity and conceptual accuracy. Lecture 3 hours per week. Offered periodically.

ASL 220 Comparative Linguistics: ASL & English (3 Cr.)

Describes spoken English and ASL (American Sign Language) on five levels: phonological, morphological, lexical, syntactic, and discourse. Compares and contrasts the two languages on all five levels using real-world examples. Documents similarities between signed languages and spoken languages in general. Describes the major linguistic components and processes of English and ASL. Introduces basic theories regarding ASL structure. Emphasizes ASL's status as a natural language by comparing and contrasting similarities and unique differences between the two languages. *Prerequisite: ASL 201.* Lecture 3 hours per week. Typically offered spring.

ASL 261 American Sign Language V (3 Cr.)

Develops advanced American Sign Language comprehension and production skills. Emphasizes advanced linguistic aspects of ASL. Presents ASL literary forms. Encourages contact with the Deaf Community. *Prerequisite: ASL 202.* Part I of II. Lecture 3 hours per week.

ASL 262 American Sign Language VI (3 Cr.)

Develops advanced American Sign Language comprehension and production skills. Emphasizes advanced linguistic aspects of ASL. Presents ASL literary forms. Encourages contact with the Deaf Community. *Prerequisite: ASL 202.* Part II of II. Lecture 3 hours per week.

Arabic (ARA)

ARA 101 Beginning Arabic I (4-5 Cr.)

Introduces understanding, speaking, reading, and writing skills and emphasizes basic Arabic sentence structure. Discusses the diversity of cultures in the Arab world. Part I of II. Lecture 4-5 hours per week.

ARA 102 Beginning Arabic II (4-5 Cr.)

Introduces understanding, speaking, reading, and writing skills and emphasizes basic Arabic sentence structure. Discusses the diversity of cultures in the Arab world. Part II of II. Lecture 4-5 hours per week.

ARA 201 Intermediate Arabic I (4 Cr.)

Continues to develop understanding, speaking, reading and writing skills and emphasizes basic Arabic sentence structure. Discusses the diversity of cultures in the Arab world. Classes are conducted in Arabic. *Prerequisite: ARA 102.* Part I of II. Lecture -4 hours per week.

ARA 202 Intermediate Arabic II (3-4 Cr.)

Continues to develop understanding, speaking, reading and writing skills and emphasizes basic Arabic sentence structure. Discusses the diversity of cultures in the Arab world. Classes are conducted in Arabic. *Prerequisite: ARA 102.* Part II of II. Lecture 3-4 hours per week.

Architecture (ARC)

ARC 130 Introduction to Materials and Methods of Construction (3 Cr.)

Introduces the physical properties and characteristics of building materials and methods of construction. Includes review of residential and light commercial wood-frame construction techniques and an introduction to steel and concrete structural systems. Lecture 3 hours per week. Typically offered fall.

ARC 221 Architectural CAD Applications Software I (3 Cr.)

Teaches the principles and techniques of architectural drawing practices through the use of architecture specific CAD software. Utilizes the commands and features of the software to generate drawings that emphasize architectural design and structural systems. *Requires knowledge of AutoCAD 2D software.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

ARC 222 Architectural CAD Applications Software II (3 Cr.)

Uses advanced features of architectural CAD software to teach students to develop working drawings and details that adhere to the practices and techniques of architectural drawing principles. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered fall.

ARC 240 Designing Sustainable Built Environments (3 Cr.)

Introduces students to ethics, ideas, technologies, methods and current practices in designing sustainable environments. Lecture 3 hours per week. Typically offered spring.

Course Descriptions

Art (ART)

ART 100 Art Appreciation (3 Cr.)

Introduces art from prehistoric times to the present day. Describes architectural styles, sculpture, photography, printmaking, and painting techniques. Lecture 3 hours per week. Offered periodically.

ART 101-102 History and Appreciation of Art I-II (3 Cr. ea)

Presents the history and interpretation of architecture, sculpture and painting. Begins with prehistoric art and follows the development of western civilization to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

ART 103 History of Far Eastern Art I (3 Cr.)

Surveys the history of Far Eastern art from the prehistoric period to the present. Part I focuses on the art of India and Southeast Asia. Part II focuses on the art of China, Japan, and Korea. Emphasizes architecture, painting and sculpture with some instruction in printmaking and decorative arts. Lecture 3 hours per week. Offered periodically.

ART 114 General Art (3 Cr.)

Introduces art to the student without previous training. Provides studio exercises in drawing, painting, and two- and three-dimensional design. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered fall and spring.

ART 121-122 Drawing I-II (3 Cr. each)

Develops basic drawing skills and understanding of visual language through studio instruction/lecture. Introduces concepts such as proportion, space, perspective, tone and composition as applied to still life, landscape and the figure. Uses drawing media such as pencil, charcoal, ink wash and color media. Includes field trips and gallery assignments as appropriate. *ART 121 is prerequisite for ART 122.* Lecture 2 hours per week. Studio instruction 4 hours per week. Total 5 hours per week. Typically offered all semesters.

ART 131-132 Fundamentals of Design I-II (4 Cr. each)

Explores the concepts of two- and three-dimensional design and color. May include field trips as required. *Art 131 is a prerequisite for ART 132.* Lecture 2 hours per week. Studio instruction 4 hours per week. Total 6 hours per week. Typically offered fall and spring.

ART 138 Figure Drawing (3 Cr.)

Develops drawing skills for the beginning and experienced students. Explores a broad range of drawing problems dealing with the human figure in costume using various media and techniques. *Prerequisite: ART 121 or divisional approval.* Lecture 2 hours per week. Studio instruction 3 hours per week. Total 5 hours per week. Offered periodically.

ART 153-154 Ceramics I-II (3 Cr. each)

Presents problems in the design and production of functional and non-functional ceramic works. Includes hand building the potter's wheel and clays and glazes. Lecture 2 hours per week. Studio instruction 4 hours per week. Total 6 hours per week. Typically offered fall and spring.

ART 235 Functional Ceramics (3 Cr.)

Explores the design and production of functional ceramics, including hand building and use of the wheel. *Prerequisite: ART 154 or instructor approval.* Lecture 2 hours per week. Studio instruction 4 hours per week. Total 6 hours per week. Offered periodically.

ART 236 Sculptural Ceramics (3 Cr.)

Explores the design and production of sculptural ceramics, including hand building and use of the wheel. *Prerequisite: ART 154 or instructor approval.* Lecture 2 hours per week. Studio instruction 4 hours per week. Total 6 hours per week. Offered periodically.

ART 241-242 Painting I-II (3 Cr. each)

Introduces abstract and representational painting in acrylic and/or oil with emphasis on color composition and value. *Prerequisite: ART 122 or instructor approval.* Lecture 2 hours per week. Studio instruction 4 hours per week. Total 5 hours per week. Offered periodically.

ART 243-244 Watercolor I-II (3 Cr. each)

Presents abstract and representational painting in watercolor with emphasis on design, color, composition, technique and value. *Prerequisite: ART 131 or instructor approval.* Lecture 2 hours per week. Studio instruction 2 hours per week. Total 4 hours per week. Typically offered fall and spring.

ART 271-272 Printmaking I-II (3 Cr. each)

Introduces the student to the full range of printmaking techniques. Includes woodcut, silkscreen, etching and lithography. Provides historical perspective on printmaking. Lecture 2 hours per week. Studio instruction 3 hours per week. Total 5 hours per week. Offered periodically.

ART 283-284 Computer Graphics I-II (3 Cr. each)

Utilizes microcomputers and software to produce computer graphics. Employs techniques learned to solve studio projects which reinforce instruction and are appropriate for portfolio use. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 1 hour per week. Studio instruction 4 hours per week. Total 5 hours per week. Typically offered fall and spring.

Course Descriptions

ART 287 Portfolio and Resume Preparation (1-4 Cr.)

Focuses on portfolio preparation, resume writing and job interviewing for students. Recommended for final semester program students. *Requires instructor's approval.* Lecture 1 hour. Studio instruction 0-4 hours. Total 1-6 hours per week. Typically offered fall and spring.

Biology (BIO)

BIO 100 Basic Human Biology (3 Cr.)

Presents basic principles of human anatomy and physiology. Discusses cells, tissues, and selected human systems. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

BIO 101 General Biology I (4 Cr.)

Focuses on foundations in cellular structure, metabolism, and genetics in an evolutionary context. Explores the core concepts of evolution: structure and function; information flow, storage and exchange; pathways and transformations of energy and matter; and systems biology. *Prerequisites: Readiness to enroll in ENG 111, plus completion of developmental math unit 3 or placement in unit 4 or above.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered fall and spring and occasionally summer.

BIO 102 General Biology II (4 Cr.)

Focuses on diversity of life, anatomy and physiology of organisms, and ecosystem organization and processes in an evolutionary context. Explores the core concepts of evolution; structure and function; information flow, storage and exchange; pathways and transformations of energy and matter; and systems biology. Emphasizes process of science, interdisciplinary approach, and relevance of biology to society. *Prerequisites: Readiness to enroll in ENG 111, plus completion of developmental math unit 3 or placement in unit 4 or above and BIO 102.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered fall and spring and occasionally summer.

BIO 141-142 Human Anatomy & Physiology I-II (4 Cr. ea)

Integrates anatomy and physiology of cells, tissues, organs and systems of the human body. Integrates concepts of chemistry, physics and pathology. *BIO 141 prerequisite to BIO 142. Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

BIO 145 Human Anatomy and Physiology for the Health Sciences (4 Cr.)

Introduces human anatomy and physiology primarily to those planning to pursue an AAS degree in nursing. Covers basic chemical concepts, cellular physiology, as well as the anatomy and physiology of human organ systems. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3-4 hours. Laboratory 3 hours. Total 6-7 hours per week. Typically offered all semesters.

BIO 150 Introductory Microbiology (4 Cr.)

Studies the general characteristics of microorganisms. Emphasizes their relationships to individual and community health. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

BIO 206 Cell Biology (4 Cr.)

Introduces the ultrastructure and functions of cells. Emphasizes cell metabolism, cell division, and control of gene expression. *Prerequisites: BIO 101 and CHM 111.* Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 215 Plant Life of Virginia (3 Cr.)

Focuses on identification and ecological relationships of the native plants of Virginia. Emphasizes shrubs, vines, weeds, wildflowers, ferns, and mushrooms. Lecture 2 hours. Recitation and laboratory 3 hours. Total 5 hours per week.

BIO 295 Topics In (1-5 Cr.)

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours. Typically offered spring.

Business Management & Administration (BUS)

BUS 100 Introduction to Business (3 Cr.)

Presents a broad introduction to the functioning of business enterprise within the U.S. economic framework. Introduces economic systems, essential elements of business organization, production, human resource management, marketing, finance and risk management. Lecture 3 hours per week. Typically offered fall and spring.

BUS 111 Principles of Supervision I (3 Cr.)

Teaches the fundamentals of supervision, including the primary responsibilities of the supervisor. Introduces factors relating to the work of supervisors and subordinates. Covers aspects of leadership, job management, work improvement, training and orientation, performance evaluation and effective employee/supervisor relationships. Lecture 3 hours per week. Typically offered spring.

Course Descriptions

BUS 116 Entrepreneurship (3 Cr.)

Presents the various steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations of the business, development of business plans, buyouts versus starting from scratch and franchising. Uses problems and cases to demonstrate implementation of these techniques. Lecture 3 hours per week. Typically offered fall.

BUS 165 Small Business Management (3 Cr.)

Identifies management concerns unique to small businesses. Introduces the requirements necessary to initiate a small business and identifies the elements compromising a business plan. Presents information establishing financial and administrative controls, developing a marketing strategy, managing business operations and the legal and government relationships specific to small businesses. Lecture 3 hours per week. Typically offered spring.

BUS 200 Principles of Management (3 Cr.)

Teaches management and the management functions of planning, organizing, leading and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. Lecture 3 hours per week. Typically offered spring.

BUS 205 Human Resource Management (3 Cr.)

Introduces employment, selection and placement of personnel, usage levels and methods, job descriptions, training methods and programs and employee evaluation systems. Includes procedures for management of human resources and uses case studies and problems to demonstrate implementation of these techniques. Lecture 3 hours per week. Typically offered spring.

BUS 236 Communication in Management (3 Cr.)

Introduces the functions of communication in management with emphasis on gathering, organizing and transmitting facts and ideas. Teaches the basic techniques of effective oral and written communication. Lecture 3 hours per week. Typically offered fall.

BUS 241 Business Law I (3 Cr.)

Develops a basic understanding of the US business legal environment. Introduces property and contract law, agency and partnership liability, and government regulatory law. Students will be able to apply these legal principles to landlord/tenant disputes, consumer rights issues, employment relationships, and other business transactions. Lecture 3 hours per week. Typically offered fall.

BUS 242 Business Law II (3 Cr.)

Focuses on business organization and dissolution, bankruptcy and Uniform Commercial Code. Introduces international law and the emerging fields of E-Commerce and Internet Law. Lecture 3 hours per week. Lecture 3 hours per week. Typically offered spring.

BUS 285 Current Issues in Management (3 Cr.)

Designed as a capstone for management majors, the course is designed to provide an integrated perspective of current issues and trends in business management. Contemporary issues will be explored in a highly participatory class environment. Lecture 3 hours per week. Typically offered fall.

Chemistry (CHM)

CHM 101-102 Introductory Chemistry I-II (4 Cr.) (4 Cr.)

Emphasizes experimental and theoretical aspects of inorganic, organic and biological chemistry. Discusses general chemistry concepts as they apply to issues within our society and environment. Designed for the non-science major. *Prerequisite: Readiness to enroll in ENG 111. Prerequisite for CHM 101 is competence in MTE 1-5. CHM 101 prerequisite to CHM 102.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

CHM 110 Survey of Chemistry (3 Cr.)

Introduces the basic concepts of general, organic and biochemistry with emphasis on their applications to other disciplines. No previous chemistry background required. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

CHM 111-112 General Chemistry I-II (4 Cr. each)

Explores the fundamental laws, theories and mathematical concepts of chemistry. Designed primarily for science and engineering majors. Requires a strong background in mathematics. *Prerequisite: Readiness to enroll in ENG 111. Prerequisite for CHM 111 is competence in MTE 1-9. CHM 111 prerequisite to CHM 112.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

CHM 241-242 Organic Chemistry I-II (3 Cr. each)

Introduces fundamental chemistry of carbon compounds, including structures, physical properties, syntheses and typical reactions. Emphasizes reaction mechanisms. *Prerequisite: CHM 111-112. CHM 241 prerequisite to CHM 242. Recommended co-requisite: CHM 243-244.* Lecture 3 hours per week. CHM 241 Typically offered fall and spring; CHM 242 Typically offered spring.

Course Descriptions

CHM 245-246 Organic Chem. Lab. I-II (2 Cr. each)

Includes qualitative organic analysis. Shall be taken concurrently with CHM 241 and CHM 242. Lecture 1 hour per week. Laboratory 3 hours per week. Total 4 hours per week. CHM 245 Typically offered fall; CHM 246 Typically offered spring.

CHM 260 Introductory Biochemistry (3 Cr.)

Explores fundamentals of biological chemistry. Includes study of macromolecules, metabolic pathways, and biochemical genetics. *Prerequisite: CHM 112 or divisional approval.* Lecture 3 hours per week. Typically offered spring.

CHM 261 Biochemistry Lab (1 Cr.)

Provides hands on lab experiences designed to reinforce the fundamentals of biological chemistry taught in CHM 260 such as biochemistry assays, enzyme kinetics, enzyme purification, chromatography, electrophoresis and use of western blots. Laboratory 3 hours per week. Typically offered spring.

Childhood Development (CHD)

CHD 118 Language Arts for Young Children (3 Cr.)

Emphasizes the early development of children's language and literacy skills. Presents techniques and methods for supporting all aspects of early literacy. Surveys children's literature, and examines elements of promoting oral literacy, print awareness, phonological awareness, alphabetic principle, quality storytelling and story reading. Addresses strategies for intervention and support for exceptional children and English Language Learners. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered fall.

CHD 119 Introduction to Reading Methods (3 Cr.)

Focuses on promoting language and literacy skills as the foundation for emergent reading. Emphasizes phonetic awareness and alphabetic principles, print awareness and concepts, comprehension and early reading and writing. Addresses strategies for intervention and support for exceptional children and English Language Learners. NOTE: This course replaces CHD 117. *Prerequisite: Readiness to enroll in ENG 111. Prerequisite: CHD 118.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

CHD 120 Intro. to Early Childhood Education (3 Cr.)

Introduces early childhood development through activities and experiences in early childhood, pre-kindergarten, kindergarten and primary programs. Investigates classroom organization and procedures and use of classroom time and materials, approaches to education for young children, professionalism and curricular procedures. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

CHD 145 Teaching Art, Music and Movement to Children (3 Cr.)

Focuses on children's exploration, play, and creative expression in the areas of art, music, and movement. Emphasis will be on developing strategies for using various open-ended media representing a range of approaches in creative thinking. Addresses strategies for intervention and support for exceptional children and English Language Learners. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered fall and spring.

CHD 146 Math, Science, and Social Studies for Children (3 Cr.)

Provides experiences in content, methods, and materials for the development of math, science, and social studies skills in children. Emphasis will be on developing strategies for using various resources to facilitate children's construction of knowledge. Addresses strategies for intervention and support for children with special needs and English Language Learners. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

CHD 165 Observation and Participation in Early Ch/Primary Settings (3 Cr.)

Focuses on observation as the primary method for gathering information about children in early childhood settings. Emphasizes development of skills in the implementation of a range of observation techniques. May be taken again for credit. One hour seminar, 4 hours field placement. *Prerequisite: Readiness to enroll in ENG 111.* Total 5 hours per week. Typically offered all semesters.

CHD 166 Infant and Toddler Programs (3 Cr.)

Examines child growth and development from birth to 36 months. Focuses on development in the physical, cognitive, social, emotional, and language domains. Emphasizes the importance of the environment and relationships for healthy brain development during the child's first three years of life. Investigates regulatory standards for infant/toddler care giving. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

CHD 167 CDA Theories and Applications: Portfolio (2-3 Cr.)

Supports the CDA candidate in organizing and developing a portfolio for presentation at local assessment team meeting. Lecture 2-3 hours per week. Typically offered spring.

Course Descriptions

CHD 205 Guiding the Behavior of the Children (3 Cr.)

Explores the role of the early childhood educator in supporting emotional and social development of children, and in fostering a sense of community. Presents practical strategies for encouraging prosocial behavior, conflict resolution and problem solving. Emphasizes basic skills and techniques in child guidance. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall and spring.

CHD 210 Introduction to Exceptional Children (3 Cr.)

Reviews the history of and legal requirements for providing intervention and educational services for young children with special needs. Studies the characteristics of children with a diverse array of needs and developmental abilities. Explores concepts of early intervention, inclusion, guiding behavior and adapting environments to meet children's needs. Lecture 3 hours per week. Typically offered spring and summer.

CHD 215 Models of Early Childhood Education Programs (3 Cr.)

Studies and discusses the various models and theories of early childhood education programs including current trends and issues. Presents state licensing and staff requirements. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

CHD 216 Early Childhood Programs, School, and Social Change (3 Cr.)

Explores methods of developing positive, effective relations with families to enhance their developmental goals for children. Considers culture and other diverse needs, perspectives, and abilities of families and educators. Emphasizes advocacy and public policy awareness as an important role of early childhood educators. Describes risk factors and identifies community resources. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

CHD 265 Adv. Observation and Participation, in Early Ch/Primary Settings (3 Cr.)

Focuses on implementation of activity planning and observation of children through participation in early childhood settings. Emphasizes responsive teaching practices and assessment of children's development. Reviews legal and ethical implications of working with children. One hour seminar. 4 hours field placement. Total 5 hours per week. Students must have completed the majority of program specific courses before enrolling. Students must be eligible to work with young children according to Department of Social Services requirements. *Prerequisite: CHD 165.* Typically offered spring.

CHD 270 Admin. of Childcare Programs (3 Cr.)

Examines the skills needed for establishing and managing early childhood programs. Emphasizes professionalism and interpersonal skills, program planning, staff selection and development, creating policies, budgeting, and developing forms for recordkeeping. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

CHD 298 Seminar and Project (1-5 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours. *Prerequisite: Readiness to enroll in ENG 111 and successful completion of 24 CHD or EDU credits.* Typically offered spring.

Chinese (CHI)

CHI 101 Beginning Chinese I (5 Cr.)

Introduces understanding, speaking, reading, and writing skills; emphasizes basic Chinese sentence structure. Lecture 5 hours per week. Typically offered fall.

CHI 102 Beginning Chinese II (5 Cr.)

Introduces understanding, speaking, reading, and writing skills; emphasizes basic Chinese sentence structure. *Prerequisite: CHI 101.* Lecture 5 hours per week.

CHI 201 Conversational Chinese (Mandarin) I (4 Cr.)

Offers intensive practice in comprehending and speaking Chinese, with emphasis on developing structure and fluency. *Prerequisite: CHI 102.* Lecture 4 hours per week.

CHI 202 Conversational Chinese (Mandarin) II (4 Cr.)

Offers intensive practice in comprehending and speaking Chinese, with emphasis on developing structure and fluency. *Prerequisite: CHI 201.* Lecture 4 hours per week.

Civil Engineering Technology (CIV)

CIV 171 Surveying I (3 Cr.)

Introduces surveying equipment, procedures and computations including adjustment of instruments, distance measurement, leveling, angle measurement, traversing, traverse adjustments, area computations and introduction to topography. Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Typically offered fall.

CIV 172 Surveying II (3 Cr.)

Introduces surveys for transportation systems including the preparation and analysis of topographic maps, horizontal and vertical curves, earthwork and other topics related to transportation construction. *Prerequisite: CIV 171.* Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Typically offered spring.

Course Descriptions

CIV 226 Soil Mechanics Laboratory (1 Cr.)

Introduces practical soil sampling; classification of unified, ASTM and AASHTO specifications; laboratory testing of soils to predict engineering performance. Laboratory 2 hours per week. Typically offered spring.

Communication Studies and Theatre (CST)

CST 100 Principles of Public Speaking (3 Cr.)

Applies theory and principles of public address with emphasis on preparation and delivery. *Prerequisite: placement testing approval for ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

CST 110 Intro to Speech Communication (3 Cr.)

Examines the elements affecting speech communication at the individual, small group and public communication levels with emphasis on practice of communication at each level. *Prerequisite: placement testing approval for ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

CST 114 Survey of Mass Media (3 Cr.)

Examines the history and current understanding of mass communication. Covers print media (newspapers, magazines, and books), electronic media (radio, television, film, the Internet), advertising, public relations, and mass media theory, research, and ethics. Lecture 3 hours per week. Offered periodically.

CST 116 Speech Workshop (1-6 Cr.)

Enables work in competitive speech activities such as debate, oratory, impromptu speaking, prose and poetry reading and rhetorical criticism. *Prerequisite: placement testing approval for ENG 111.* May be repeated for credit. Variable hours per week. Typically offered fall and spring.

CST 126 Interpersonal Communication (3 Cr.)

Teaches interpersonal communication skills for both daily living and the world of work. Includes perception, self-concept, self-disclosure, listening and feedback, nonverbal communication, attitudes, assertiveness and other interpersonal skills. Lecture 3 hours per week. Offered periodically.

CST 130 Intro to the Theatre (3 Cr.)

Surveys the principles of drama, the development of theatre production and selected plays to acquaint the student with various types of theatrical presentation. Lecture 3 hours per week. Offered periodically.

CST 131-132 Acting I-II (3 Cr. each)

Develops personal resources and explores performance skills through such activities as theatre games, role playing, improvisation, work on basic script units and performance of scenes. Lecture 2 hours per week. Lab 3 hour per week. Total 5 hours per week. Offered periodically.

CST 136 Theatre Workshop (3 Cr.)

Enables students to work in various activities of play production. The student participates in performance, set design, stage carpentry, sound, costuming, lighting, stage-managing, props, promotion, or stage crew. May be repeated for credit. Workshop 3 hours per week. Typically offered fall and spring.

CST 137 Oral Interpretation (3 Cr.)

Studies the theory and practice of performing various types of literature: prose, poetry, and drama. Emphasizes the relationship among the oral interpreter, the literary work, and the audience. Lecture 3 hours per week.

CST 138 Communication for Allied Health Professionals (3 Cr.)

Explores and analyzes relational concepts and behaviors of interaction in verbal and nonverbal communication in the healthcare context. Requires oral and written presentations. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring and summer.

CST 141 Theatre Appreciation I (3 Cr.)

Aims to increase knowledge and enjoyment of theatre. Considers process, style, organization written drama, and performed drama. Part I of II. Lecture 3 hours per week. Offered periodically.

CST 151 Film Appreciation I (3 Cr.)

Provides students with a critical understanding of film through the discussion and viewing of motion pictures with emphasis upon the study of film history and the forms and functions of film. Students will develop skills to analyze the shared social, cultural and historical influences of films and their contexts. Part I of II. Lecture 3 hours per week. Offered once every two years.

CST 160 Improvisation I (3 Cr.)

Explores the basic techniques of improvisation through short and long form exercises and the study of the history of improvisation and improvisation theory and practices. Lecture 3 hours per week. Offered periodically.

CST 229 Intercultural Communication (3 Cr.)

Emphasizes the influence of culture on the communication process including differences in values, message system and communication rules. Lecture 3 hours per week. Offered periodically.

Course Descriptions

Computer Aid Drafting and Design (CAD)

CAD 165 Architectural Blueprint Reading (3 Cr.)

Emphasizes reading, understanding and interpreting standard types of architectural drawings including plans, elevation, section and details. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week.

Typically offered spring every other year.

CAD 175 Schematics and Mechanical Diagrams (2 Cr.)

Covers interpretation of basic shop drawings, conventional symbols, common electrical and electronics symbols, wiring diagrams, hydraulic and pneumatic symbols, schematic drawings and piping diagrams. Lecture 2 hours per week.

Typically offered fall semester. Occasionally offered summer.

CAD 241 Parametric Solid Modeling I (3 Cr.)

Focuses on teaching students the design of parts by parametric solid modeling. Topics covered will include, but not limited to, sketch profiles; geometric and dimensional constraints; 3-D features; model generation by extrusion, revolution and sweep; and the creation of 2-D drawing views that include sections, details and auxiliary. Part I of II. *Requires knowledge of AutoCAD 2D software.* Lecture 2-3 hours. Laboratory 2-3 hours. Total 4-6 hours per week. Typically offered spring.

CAD 242 Parametric Solid Modeling II (3 Cr.)

Focuses on teaching students the design of parts by parametric solid modeling. Topics covered will include, but not limited to, sketch profiles; geometric and dimensional constraints; 3-D features; model generation by extrusion, revolution and sweep; and the creation of 2-D drawing views that include sections, details and auxiliary. Part II of II. *Prerequisites: CAD 241.* Lecture 2-3 hours. Laboratory 2-3 hours. Total 4-6 hours per week. Typically offered fall.

Computer Science (CSC)

CSC 110 Introduction to Computing (3 Cr.)

Introduces problem solving through computer applications and a programming language. Examines development of computers, social and ethical implications of computers, and properties of programming languages. Covers input storage, data manipulation, software and hardware. Lecture 3 hours per week. Typically offered fall and spring.

CSC 200 Introduction to Computer Science (3 Cr.)

Provides broad introduction to computer science. Discusses architecture and function of computer hardware, including networks and operating systems, data and instruction representation and data organization. Covers software, algorithms, programming languages and software engineering. Discusses artificial intelligence and theory of computation. Includes a hands-on component. *Prerequisites: Readiness for MTH 163 or equivalent and readiness to enroll in*

ENG 111. Lecture 3 hours per week. Typically offered fall and spring.

CSC 201 Computer Science I (4 Cr.)

Introduces algorithm and problem solving methods. Emphasizes structured programming concepts, elementary data structures and the study and use of a high level programming language. *Prerequisite: CSC 200 or CSC 210 and Co-requisite MTH 173.* Lecture 4 hours per week. Typically offered spring.

CSC 202 Computer Science II (4 Cr.)

Examines data structures and analyzes algorithms. Covers data structures (including sets, strings, stacks, queues, arrays, records, files, linked lists, and trees), abstract data types, algorithm analysis (including searching and sorting methods), and objects. *Prerequisite: CSC 201 and co-requisite MTH 174.* Lecture 4 hours per week. Typically offered spring.

CSC 205 Computer Organization (3 Cr.)

Examines the hierarchical structure of computer architecture. Focuses on multi-level machine organization. Uses a simple assemble language to complete programming projects. Includes processors, instruction, execution, addressing techniques, data representation and digital logic. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall and spring.

CSC 298 Seminar and Project (3 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours. 1-5 credits. Typically offered spring.

Dental Hygiene (DNH)

DNH 111 Oral Anatomy (2 Cr.)

Studies the morphology and function of the oral structures with emphasis on the primary and permanent dentition, eruption sequence, occlusion and intra-arch relationships. Lecture 2 hours per week. Typically offered fall.

DNH 115 Histology/Head and Neck Anatomy (3 Cr.)

Presents a study of the microscopic and macroscopic anatomy and physiology of the head, neck and oral tissues. Includes embryologic development and histologic components of the head, neck, teeth and periodontium. Lecture 3 hours per week. Typically offered fall.

Course Descriptions

DNH 120 Management of Emergencies (2 Cr.)

Studies the various medical emergencies and techniques for managing emergencies in the dental setting. Additional practical applications and simulations of emergencies may be conducted to enhance basic knowledge from the one-hour lecture component. Lecture 1-2 hours per week. Typically offered fall.

DNH 130 Oral Radiography for the Dental Hygienist (3 Cr.)

Studies radiation physics, biology, safety and exposure techniques for intra- and extra-oral radiographic surveys. Laboratory provides practice in exposure, processing methods, mounting and interpretation of normal findings. Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Typically offered fall.

DNH 141 Dental Hygiene I (5 Cr.)

Introduces clinical knowledge and skills for the performance of dental hygiene services; basic skill components, lab manikins and client practice. Lecture 3 hours per week. Clinic 6 hours per week. Total 9 hours per week. Typically offered fall.

DNH 142 Dental Hygiene II (5 Cr.)

Exposes students to instrument sharpening, time management and client education techniques and methods. Provides supervised clinical practice in the dental hygiene clinic with emphasis on developing client treatment and instrument skills. *Prerequisite: DNH 141.* Lecture 1-2 hours per week. Clinical 9-12 hours per week. Total 11-13 hours per week. Typically offered spring.

DNH 143 Dental Hygiene III (4 Cr.)

Introduces dental health care for clients with special needs. Includes introduction to computer concepts and applications. Provides supervised clinical practice in the dental hygiene clinic with emphasis on refining client treatment and instrumentation skills, including oral radiographs. *Prerequisite: DNH 142.* Lecture 2 hours. Clinic 6 hours. Total 8 hours per week. Typically offered summer.

DNH 145 General and Oral Pathology (2 Cr.)

Introduces general pathology with consideration of the common diseases affecting the human body. Particular emphasis is given to the study of pathological conditions of the mouth, teeth and their supporting structures. *Prerequisite: DNH 113, 114, or 115.* Lecture 2 hours per week. Typically offered spring.

DNH 146 Periodontics for the Dental Hygienist (2 Cr.)

Introduces the theoretical and practical study of various concepts and methods used in describing, preventing and controlling periodontal disease. Presents etiology, microbiology, diagnosis, treatment and prognosis of diseases. Lecture 2 hours per week. Typically offered spring.

DNH 150 Nutrition (2 Cr.)

Studies nutrition as it relates to dentistry and general health. Emphasizes the principles of nutrition as applied to the clinical practice of dental hygiene. Lecture 2 hours per week. Typically offered summer.

DNH 214 Practical Materials for Dental Hygiene (2 Cr.)

Studies the current technologic advances, expanded functions and clinical/laboratory materials used in dental hygiene practice. Provides laboratory experience for developing skills in the utilization and applications of these technologies and functions. Lecture 1 hour per week. Laboratory 2 hours per week. Total 3 hours per week. Typically offered fall.

DNH 216 Pharmacology (2 Cr.)

Studies the chemical and therapeutic agents used in dentistry, including their preparation, effectiveness and specific application. Lecture 2 hours per week. Typically offered spring.

DNH 226 Public Health Dental Hygiene I (2 Cr.)

Studies and compares concepts of delivery of health care, applying the public health delivery model. Utilizes epidemiologic methods, research and biostatistics as applied to oral health program planning, implementation and evaluation. Incorporates and applies current health issues and trends. Lecture 2 hours per week. Typically offered fall.

DNH 227 Public Health Dental Hygiene II (1 Cr.)

Applies concepts of public health program planning through student directed community projects with an emphasis on preventative oral health education. Includes development of table clinics, bulletin board and volunteer service in the community. *Prerequisite: DNH 226.* Laboratory 3 hours per week. Typically offered spring.

DNH 230 Office Practice and Ethics (1 Cr.)

Studies the principles of dental ethics and economics as they relate to the dental hygienist. The course also includes a study of jurisprudence and office procedures. Lecture 1 hour per week. Typically offered spring.

Course Descriptions

DHN 235 Management of Dental Pain and Anxiety in the Dental Office (2 Cr.)

Provides a study of anxiety and pain management techniques used in dental care. Students will understand the necessary theory to appropriately treat, plan and successfully administer topical anesthesia, local anesthesia, and nitrous oxide/oxygen analgesia. Includes the components of pain, pain control mechanisms, topical anesthesia, local anesthesia and nitrous oxide/oxygen analgesia. *Prerequisites:* DNH 115, DNH 120 and DNH 216. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered fall.

DNH 244 Dental Hygiene IV (5 Cr.)

Introduces advanced skills and the dental hygienist's role in dental specialties. Includes supervised clinical practice in the dental hygiene clinic and/or off-campus clinical rotations at various community facilities. Emphasizes treatment of clients demonstrating periodontal involvement, stressing application and correlation of knowledge and skills from previous semesters. *Prerequisite:* DNH 143 or DNH 190. Lecture 1 hour per week. Clinic 12 hours per week. Total 13 hours per week. Typically offered fall.

DNH 245 Dental Hygiene V (5 Cr.)

Exposes student to current advances in dentistry. Includes supervised clinical practice in the dental hygiene clinic and/or off-campus clinical rotations at various community facilities. Emphasis is placed on synthesis of knowledge from previous semesters, treatment of clients with moderate to advanced periodontal involvement and improving clinical speed while maintaining quality in preparation for practice. *Prerequisite:* DNH 244. Lecture 1 hour per week. Clinic 12 hours per week. Total 13 hours per week. Typically offered spring.

Economics (ECO)

ECO 201 Principles of Macroeconomics (3 Cr.)

Introduces macroeconomics including the study of Keynesian, classical, monetarist principles and theories, the study of national economic growth, inflation, recession, unemployment, financial markets, money and banking, the role of government spending and taxation, along with international trade and investments. *Prerequisite:* Readiness to enroll in ENG 111 and competence in MTE 1-3, or completion of MTH 120 or MTH 126. Lecture 3 hours per week. Typically offered all semesters.

ECO 202 Principles of Microeconomics (3 Cr.)

Introduces the basic concepts of microeconomics. Explores the free market concepts with coverage of economic models and graphs, scarcity and choices, supply and demand, elasticities, marginal benefits and costs, profits, and production and distribution. *Prerequisites:* Readiness to enroll in ENG 111 and competence in MTE 1-3, or completion of MTH

120 or MTH 126. Lecture 3 hours per week. Typically offered all semesters.

Education (EDU)

EDU 198 Seminar and Project (1-2 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours. Typically offered all semesters.

EDU 200 Intro. to Teaching as a Profession (3 Cr.)

Provides an orientation to the teaching profession in Virginia, including historical perspectives, current issues and future trends in education on the national and state levels. Emphasizes information about teacher licensure examinations, steps to certification, teacher preparation and induction programs and attention to critical shortage areas in Virginia. Includes supervised field placement (recommended: 40 clock hours) in a K-12 school. *Prerequisite:* successful completion of 24 credits of transfer courses. Student must have a high school diploma or GED. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall and spring.

EDU 235 Health, Safety and Nutrition Education (3 Cr.)

Focuses on the physical needs of children and explores strategies to meet these needs. Emphasizes positive health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases and safety. Places emphasis on the development of food habits and concerns in food and nutrition. Describe symptoms and reporting procedures for child abuse. Lecture 3 hours per week. Typically offered fall and spring.

EDU 295 Topics In (1-3 Cr.)

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours.

Electrical Technology (ELE)

ELE 127 Residential Wiring Methods (3 Cr.)

Studies wiring methods and standards used for residential dwellings. Provides practical experience in design, layout, construction, and testing of residential wiring systems by use of scaled mock-ups. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered summer.

ELE 133 Practical Electricity I (3 Cr.)

Teaches the fundamentals of electricity, terminology, symbols and diagrams. Includes the principles essential to the understanding of general practices, safety and the practical aspects of residential and non-residential wiring

Course Descriptions

and electrical installation, including fundamentals of motors and controls. *Pre/Corequisite: MTE 2 or completion of basic high school math or higher. Part I of II.* Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall and spring.

ELE 134 Practical Electricity II (3 Cr.)

Teaches the fundamentals of electricity, terminology, symbols and diagrams. Includes the principles essential to the understanding of general practices, safety and the practical aspects of residential and non-residential wiring and electrical installation, including fundamentals of motors and controls. *Pre/Corequisite: ELE 134. Part II of II.* Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

ELE 135 National Electrical Code – Residential (3 Cr.)

Studies purposes and interpretations of the national electrical code that deals with single and multi-family dwellings, including state and local regulations. Lecture 2-3 hours per week. Laboratory 2-4 hours per week. Total 4-5 hours per week. Typically offered fall.

ELE 137 National Electrical Code – Industrial (3 Cr.)

Provides comprehensive study of the purpose and interpretations of the National Electrical Code that deal primarily with industrial wiring methods, including state and local regulations. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

ELE 156 Electrical Control Systems (3 Cr.)

Introduces troubleshooting and servicing electrical controls, electric motors, motor controls, motor starters, relays, overloads, instruments and control circuits. May include preparation of a report as an out-of-class activity. *Prerequisite: ELE 159.* Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

ELE 159 Electrical Motors (3 Cr.)

Teaches practical applications and fundamentals of A.C. and D.C. machines. Includes the concepts of magnetism and generators used in electrical motor applications. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall.

ELE 190 Coordinated Internship (1-5 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours. Typically offered all semesters.

ELE 239 Programmable Controllers (3 Cr.)

Examines installation, programming, interfacing and concepts of trouble shooting programmable controllers. *It is*

highly recommended that students complete ELE 156 or have the instructor's permission prior to taking ELE 239. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall.

ELE 240 Advanced Programmable Logic Controllers (3 Cr.)

Advances further study of Programmable Logic Controllers that was initiated in ELE 239. Students will learn to use more advanced program instructions, including data manipulation, sequences and program control, and advanced PLC features, including timers, counters. Covers connectivity and use of a variety of real world I/O devices. *Prerequisite: ELE 239.* Lecture 2 hours. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

ELE 290 Coordinated Internship (1-5 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

Electronics Technology (ETR)

ETR 113 D.C. and A.C. Fundamentals I (3 Cr.)

Studies D.C. and A.C. circuits, basic electrical components, instruments, network theorems and techniques used to predict, analyze and measure electrical quantities. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

Emergency Medical Services (EMS)

EMS 151 Intro. to Advanced Life Support (4 Cr.)

Prepares the student for Virginia Enhanced certification eligibility and begins the sequence for National Registry Intermediate and/or Paramedic certification. Includes the theory and application of the following: foundations, human systems, pharmacology, overview of shock, venous access, airway management, patient assessment, respiratory emergencies, allergic reaction and assessment based management. Conforms at a minimum to the Virginia Office of Emergency Medical Services curriculum. *Corequisite: EMS 170.* Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week. Typically offered fall.

EMS 152 Advanced EMT Completion (2 Cr.)

Continues the Virginia Office of Emergency Medical Services Advanced, Intermediate and/or Paramedic curricula. Includes patient assessment, differential diagnosis and management of multiple complaints. Includes, but are not limited to conditions relating to diabetic, neurological, abdominal pain, environmental, behavioral, gynecology, and toxicological disease conditions. Also includes Advanced EMT level cardiac, trauma and special population topics.

Course Descriptions

Prerequisite: EMT certification. Lecture 1 hour per week. Laboratory 2 hours. Total 3 hours per week. Typically offered fall.

EMS 153 Basic ECG Recognition (2 Cr.)

Focuses on the interpretation of basic electrocardiograms (ECG) and their significance. Includes an overview of anatomy and physiology of the cardiovascular system including structure, function and electrical conduction in the heart. Covers advanced concepts that build on the knowledge and skills of basic dysrhythmia determination and introduction to 12 lead ECG. Lecture 2 hours per week. Typically offered fall.

EMS 154 ALS Cardiac Care (2 Cr.)

Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curricula. Includes Advanced Life Support (ALS) airway management, electrical therapy, pharmacology, drug and fluid administration with emphasis on patient assessment, differential diagnosis and management of cardiovascular emergencies. It will incorporate the current American Heart Association (AHA) - ACLS guidelines and curriculum including stroke management. *Prerequisites: EMS 151 and EMS 153.* Lecture 1 hour per week. Laboratory 2 hours. Total 3 hours per week. Typically offered spring.

EMS 155 ALS Medical Care (4 Cr.)

Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curricula. Includes ALS pharmacology, drug and fluid administration with emphasis on patient assessment, differential diagnosis and management of multiple medical complaints. Includes, but are not limited to conditions relating to cardiac, diabetic, neurological, nontraumatic abdominal pain, environmental, behavioral, gynecology and toxicological disease conditions. *Prerequisites: current EMT-B certification, EMS 151 and EMS 153.* Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week. Typically offered spring.

EMS 157 ALS Trauma Care (3 Cr.)

Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curricula. Utilizes techniques which will allow the student to utilize the assessment findings to formulate a field impression and implement the treatment plan for the trauma patient. *Prerequisites: current EMT-B certification and EMS 151.* Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall.

EMS 159 ALS Special Populations (3 Cr.)

Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curricula. Focuses on the assessment and management of specialty patients including obstetrical, neonates, pediatric and geriatrics. *Prerequisites:*

EMS 151 and EMS 153. Pre or Corequisite EMS 155. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered spring.

EMS 170 ALS Internship I (1-2 Cr.)

Begins the first in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in and out of hospitals. Includes but not limited to patient care units such as the emergency department, critical care units, pediatric, labor and delivery, operating room, trauma centers and various advanced life support units. Laboratory 3-6 hours per week. Typically offered fall.

EMS 172 ALS Clinical Internship II (1 Cr.)

Continues with the second in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in and out of hospitals. Includes but not limited to patient care units such as the emergency department, critical care units, pediatric, labor and delivery, operating room and trauma centers. *Corequisite: EMS 151.* Laboratory 3-6 hours per week. Typically offered spring.

EMS 173 ALS Field Internship II (1 Cr.)

Continues with the second in a series of field experiences providing supervised direct patient care in out-of-hospital advanced life support units. Laboratory 3 hours per week. Typically offered spring.

EMS 190 Coordinated Internship 1 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Offered as needed.

EMS 196 On-Site Training (1 Cr.)

Specializes in career orientation and training program without pay in selected businesses and industry, supervised and coordinated by the college. Lecture 1 hour per week. Typically offered summer, if needed.

EMS 201 EMS Professional Development (3 Cr.)

The purpose of this course is to prepare the EMS student to use community resources to facilitate personal and community wellness and fulfills the wellness and resource objectives of the Virginia Office of Emergency Medical Services Intermediate curriculum. *Prerequisite: EMT/B Certification.* Lecture 3 hours. Total 3 hours per week. Typically offered fall.

EMS 205 Advanced Pathophysiology (4 Cr.)

Focuses on the pathological processes of disease with emphasis on the anatomical and physiological alterations of the human body by systems. Includes diagnosis and management appropriate to the advanced health care provider in and out of the hospital environment. Lecture 4

Course Descriptions

hours. Total 4 hours per week. *Prerequisite:* EMT/B Certification. Typically offered spring.

EMS 207 Advanced Patient Assessment (3 Cr.)

Focuses on the principles of normal and abnormal physical exam. Emphasizes the analysis and interpretation of physiological data to assist in patient assessment and management. Applies principles during the assessment and management of trauma, medical, and specialty patients in laboratory environment. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

EMS 209 Advanced Pharmacology (4 Cr.)

Focuses on the principles of pharmacokinetics, pharmacodynamics and drug administration. Includes drug legislation, techniques of medication administration, and principles of math calculations. Emphasizes drugs used to manage respiratory, cardiac, neurological, gastrointestinal, fluid and electrolyte and endocrine disorders and includes classification, mechanism of action, indications, contraindications, precautions, and patient education. Incorporates principles related to substance abuse and hazardous materials. Applies principles during the assessment and management of trauma, medical, and specialty patients in a laboratory environment. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week. Typically offered fall.

EMS 211 Operations (2 Cr.)

Prepares the student in the theory and application of the following: medical incident command, rescue awareness and operations, hazardous materials incidents, and crime scene awareness. (Conforms to the current Virginia Office of Emergency Medical Services curriculum for EMT-Paramedics.) Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered fall.

EMS 242 ALS Clinical Internship III (1 Cr.)

Continues with the third in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in-and-out of hospitals. Includes but not limited to patient care units such as the Emergency Department, Critical Care units, Pediatric, Labor and Delivery, Operating Room, Trauma Centers and various advanced life support units. Laboratory 3-6 hours per week. Typically offered fall.

EMS 243 ALS Field Internship III (1 Cr.)

Continues with the third in a series of field experiences providing supervised direct patient care in out-of-hospital advanced life support units. Laboratory 3-6 hours per week. Typically offered fall.

EMS 244 ALS Clinical Internship IV (1 Cr.)

The fourth in a series of clinical experiences providing direct patient contact in appropriate patient care facilities in-and-out of hospitals. Includes, but not limited to patient care units such as the Emergency Department, Critical Care units, Pediatric, Labor and Delivery, Operating Room and Trauma Centers. May be repeated as necessary. Laboratory 3-6 hours per week. Typically offered spring.

EMS 245 ALS Field Internship IV (1 Cr.)

Continues with the fourth in a series of field experiences providing supervised direct patient care in out-of-hospital advanced life support units. May be repeated as necessary. Laboratory 3-6 hours per week. Typically offered spring.

Engineering (EGR)

EGR 110 Engineering Graphics (3 Cr.)

Presents theories and principles of orthographic projection. Studies multi-view, pictorial drawings and sketches, geometric construction, sectioning, lettering, tolerancing, dimensioning and auxiliary projections. Studies the analysis and graphic presentation of space relationships of fundamental geometric elements; points, lines, planes and solids. Preparation of drawings using both manual techniques and Computer Aided Drafting (CAD). Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Typically offered fall and spring.

EGR 120 Introduction to Engineering (2 Cr.)

Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer and operating systems. Includes engineering problem solving techniques using computer software. *Corequisite:* MTH 173. Lecture 2 hours. Laboratory 1 hour. Total 3 hours per week. Typically offered fall.

EGR 123 Introduction to Engineering Design (2 Cr.)

Introduces the fundamental knowledge and experience needed to understand the engineering design process through the basics of electrical, computer, and mechanical systems. Includes the completion of a project in which a specific electromechanical robot kit will be analyzed, assembled, and operated. *Prerequisites:* MTH 173 and EGR 120 and EGR 126. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered spring.

EGR 126 Computer Programming for Engineers (3 Cr.)

Introduces computers, their architecture and software. Teaches program development using flowcharts. Solves engineering problems involving programming in languages such as FORTRAN, PASCAL, or C++. Lecture 3 hours. Total 3 hours per week. Typically offered fall.

Course Descriptions

EGR 135 Statics for Engineering Technology (3 Cr.)

Introduces Newton's Laws, resultants and equilibrium of force systems, analysis of trusses and frames. Teaches determination of centroids, distributed loads and moments of inertia. Covers dry friction and force systems in space. *Prerequisite: MTH 115.* Lecture 3 hours per week. Typically offered fall.

EGR 136 Strength of Materials for Engineering Technology (3 Cr.)

Presents concepts of stress and strain. Focuses on analysis of stresses and deformations in loaded members, connectors, shafts, beams, columns and combined stress. *Prerequisite: EGR 135.* Lecture 3 hours per week. Typically offered spring.

EGR 140 Engineering Mechanics - Statics (3 Cr.)

Introduces mechanics of vector forces and space, scalar mass and time, including S.I. and U.S. customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroids, moments of inertia analysis of two-force and multi-force members and friction and internal forces. *Prerequisite: MTH 174.* Lecture 3 hours per week. Typically offered fall.

EGR 206 Engineering Economics (3 Cr.)

Presents economic analysis of engineering alternatives. Studies economic and cost concepts, calculation of economic equivalence, comparison of alternatives, replacement economy, economic optimization in design and operation, depreciation and after tax analysis. Lecture 3 hours per week. Typically offered fall.

EGR 216 Computer Methods in Engineering and Technology (3 Cr.)

Provides advanced level experience in using a computer as a tool for solving technical problems and performing office functions. Includes computer hardware and operating system usage, structured programming in a selected high level language, use of word processing software, computer graphics and spreadsheets. Focuses on the analysis and solution of problems in engineering and technology. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

EGR 245 Engineering Mechanics - Dynamics (3 Cr.)

Presents approach to kinematics of particles in linear and curvilinear motion. Includes kinematics of rigid bodies in plane motion. Teaches Newton's second law, work-energy and power, impulse and momentum, and problem solving using computers. *Prerequisite: MTH 174.* Lecture 3 hours per week. Typically offered fall.

EGR 246 Mechanics of Materials (3 Cr.)

Teaches concepts of stress, strain, deformation, internal equilibrium, and basic properties of engineering materials. Analyzes axial loads, torsion, bending, shear and combined loading. Studies stress transformation and principle stresses, column analysis and energy principles. *Prerequisite: EGR 140.* Lecture 3 hours per week. Typically offered spring.

EGR 251 Basic Electric Circuits I (3 Cr.)

Teaches fundamentals of electric circuits. Includes circuit quantities of charge, current, potential, power and energy. Teaches resistive circuit analysis; Ohm's and Kirchoff's laws; nodal and mesh analysis; network theorems; RC, RL and RLC circuit transient response with constant forcing functions. Teaches AC steady-state analysis, power, three-phase circuits. Presents frequency domain analysis, resonance, Fourier series, inductively coupled circuits, Laplace transform applications, and circuit transfer functions. Introduces problem solving using computers. Part I of II. *Pre- or co-requisite: MTH 174 and PHY 241 or equivalent.* Lecture 3 hours per week. Typically offered spring.

EGR 255 Electric Circuits Laboratory (1 Cr.)

Teaches principles and operation of laboratory instruments such as VOM, electronic voltmeters, digital multimeters, oscilloscopes, counters, wave generators and power supplies. Presents application to circuit measurements, including transient and steady-state response of simple networks with laboratory applications of laws and theories of circuits plus measurement of AC quantities. *Pre- or co-requisite: EGR 251 or equivalent.* Laboratory 3 hours per week. Typically offered spring.

English (ENG)

ENG 111 College Composition I (3 Cr.)

Introduces students to critical thinking and the fundamentals of academic writing. Through the writing process, students refine topics: develop and support ideas; investigate, evaluate and incorporate appropriate resources; edit for effective style and usage; and determine appropriate approaches for a variety of contexts, audiences and purposes. Writing activities will include exposition and argumentation with at least one researched essay. *Prerequisite: Satisfactory score on the VPT-English or satisfactory completion of ENF 1 or ENF 2.* Lecture 3 hours per week. Typically offered all semesters.

ENG 112 College Composition II (3 Cr.)

Continues to develop college writing with increased emphasis on critical essays, argumentation and research, developing these competencies through the examination of a range of texts about the human experience. Requires students to locate, evaluate, integrate and document sources and effectively edit for style and usage. *Prerequisite: ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

Course Descriptions

ENG 115 Technical Writing (3 Cr.)

Develops ability in technical writing through extensive practice in composing technical reports and other documents. Guides students in achieving voice, tone, style and content in formatting, editing and graphics. Introduces students to technical discourse through selected reading. *Prerequisite: placement testing approval for ENG 111 or instructor approval.* Lecture 3 hours per week. Typically offered fall and spring.

ENG 116 Writing for Business (3 Cr.)

Develops ability in business writing through extensive practice in composing business correspondence and other documents. Guides students in achieving voice, tone, style and content appropriate to a specific audience and purpose. Includes instruction in formatting and editing. Introduces students to business discourse through selected readings. Lecture 3 hours per week. Offered periodically.

ENG 121 Introduction to Journalism I (3 Cr.)

Introduces students to all news media, especially news gathering and preparation for print. *Prerequisite: ENG 111 or 112 or divisional approval.* Part I of II. Lecture 3 hours per week.

ENG 122 Introduction to Journalism II (3 Cr.)

Introduces students to all news media, especially news gathering and preparation for print. *Prerequisite: ENG 111 or 112 or divisional approval.* Part II of II. Lecture 3 hours per week.

ENG 139 College Grammar (3 Cr.)

Studies formal English grammar and effective expression with attention to recognizing and employing appropriately the various levels of English usage, thinking logically, speaking and writing effectively, editing, evaluating content and intent of both spoken and written English, and punctuating correctly. Lecture 3 hours per week. Offered periodically.

ENG 195 English Honors Seminar (1 Cr.)

Explores works on an annual theme selected by the English faculty. Presents varied faculty and student viewpoints and encourages students to research and present individual aspects of theme. Offered for honors credit. Students may enroll more than once. *Instructor approval required.* Offered periodically.

ENG 210 Advanced Composition (3 Cr.)

Helps students refine skills in writing non-fiction prose. Guides development of individual voice and style. Introduces procedures for publication. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 211-212 Creative Writing I-II (3 Cr.) (3 Cr.)

Introduces the student to the fundamentals of writing imaginatively. Students write in forms to be selected from poetry, fiction, drama and essays. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 215-216 Creative Writing – Fiction I-II (3 Cr.) (3 Cr.)

Introduces the fundamentals and techniques of writing short and long fiction. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 217 Creative Writing Poetry I (3 Cr.)

Introduces the fundamentals and techniques of writing poetry. Lecture 3 hours per week. *Prerequisite: ENG 112.* Offered periodically.

ENG 218 Creative Writing Poetry II (3 Cr.)

Introduces the fundamentals and techniques of writing poetry. *Prerequisite: ENG 217 or instructor's approval.* 3 hours per week. Offered periodically.

ENG 236 Introduction to the Short Story (3 Cr.)

Examines selected short stories emphasizing the history of the genre. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 241-242 Survey of American Literature I-II (3 Cr. each)

Examines American literary works from colonial times to the present, emphasizing the ideas and characteristics of our national literature. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Typically offered all semesters.

ENG 243-244 Survey of English Literature I-II (3 Cr. each)

Studies major English works from the Anglo-Saxon period to the present, emphasizing ideas and characteristics of the British literary tradition. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Typically offered all semesters.

ENG 245 Major English Writers (3 Cr.)

Examines major writers in English literary history. Involves critical reading and writing. *Prerequisite: ENG 112 or divisional approval.* Lecture 3 hours per week. Offered periodically.

ENG 246 Major American Writers (3 Cr.)

Examines major writers of American literary history. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 250 Children's Literature (3 Cr.)

Surveys the history, development and genres of children's literature, focusing on analysis of texts for literary qualities and in terms of audience. *Prerequisite: ENG 112 or 125.* Lecture 3 hours per week. Typically offered summer.

Course Descriptions

ENG 251-252 Survey of World Literature I-II (3 Cr. each)

Examines major works of world literature. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Typically offered fall and spring.

ENG 255 Major Writers in World Literature (3 Cr.)

Examines major writers selected from a variety of literary traditions. Involves critical reading and writing. *Prerequisite: ENG 112 or divisional approval.* Lecture 3 hours per week. Typically offered fall.

ENG 261-262 Advanced Creative Writing I-II (3 Cr. each)

Guides the student in imaginative writing in selected genres on an advanced level. *Prerequisites: ENG 112 and ENG 211 or 212.* Lecture 3 hours per week. Offered periodically.

ENG 270 Non-Western Literature in Global Context (3)

Examines non-western popular culture, written texts, film and mythology through the lens of comparative literature and the shifting horizons brought on by dynamic changes in global social and cultural values. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 276 Southern Literature (3 Cr.)

Examines the themes and techniques of selected writers dealing with the American South as a distinctive cultural entity. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 278 Appalachian Literature (3 Cr.)

Examines selected works of outstanding authors of the Appalachian region. Involves critical reading and writing. *Prerequisite: ENG 112.* Lecture 3 hours per week. Offered periodically.

ENG 279 Film and Literature (3 Cr.)

Examines the translation of literature into film viewing and writing. *Prerequisite: ENG 112 or divisional approval.* Lecture 3 hours per week. Offered periodically.

ENG 280 Writing User Manuals (3 Cr.)

Provides instruction on how to design, write and test a manual. Focuses on the principles used in writing technical manuals, the document process, design and drafting procedures and finally, testing and revising the manual. *Prerequisite: ENG 112 or division approval.* Lecture 3 hours per week. Offered periodically.

ENG 295 Modern Arab Literature (3 Cr.)

This non-western literature course focuses on contemporary literature of the Arab world through the study of modern Arab short stories and novels translated into English by Arab authors from Syria, Iran, Iraq, Lebanon and Turkey. The objective is to develop an understanding and analysis of Arab contemporary literature focusing on political, social, and religious realities of the modern Arab world. *Prerequisite: ENG 112.* Typically offered all semesters.

English Fundamentals (ENF)

ENF 1 (8 Cr.)

Provides integrated reading and writing instruction for students who require extensive preparation to succeed in college-level English courses. *Students will place into this course based on placement test score.* Upon successful completion and faculty recommendation, students will move into Preparing for College English III (if they require additional preparation) or into college-level English (if they require no additional preparation). Credit is not applicable toward graduation. Lecture 8 hours per week. Typically offered all semesters.

ENF 2 (4 Cr.)

Provides integrated reading and writing instruction for students who require intermediate preparation to succeed in college-level English courses. *Students will place into this course based on placement test score.* Upon successful completion and faculty recommendation, students will move into Preparing for College Level III (if they require additional preparation) or into college-level English (if they require no additional preparation). Credit is not applicable toward graduation. Typically offered all semesters.

ENF 3 (2 Cr.)

Provides integrated reading and writing instruction for students who require minimal preparation for college-level English but still need some preparation to succeed. *Students in this course will be co-enrolled in college-level English. Students will place into this course based on placement test score.* Credit is not applicable toward graduation. Typically offered all semesters.

English As a Second Language (ESL)

ESL 7 Oral Communication I (3 Cr.)

Helps students practice and improve listening and speaking skills as needed for functioning successfully in academic, professional and personal settings. Assesses students' oral skills and includes, as needed, practice with pronunciation, stress and intonation. Provides exercises, practices, small and large group activities and oral presentations to help students overcome problems in oral communication. Lecture 3 hours per week. Typically offered summer.

Course Descriptions

ESL 17 English As a Second Language: Reading III (3 Cr.)

Helps students improve their reading comprehension and vocabulary development. Improves students' reading proficiency to a level which would allow students to succeed in certificate and degree programs. Emphasizes applying and synthesizing ideas. Includes ways to detect organization, summarize, make inferences, draw conclusions, evaluate generalizations, recognize differences between facts and opinions, and other advanced comprehension strategies. May also include comprehensive library skills. Typically offered summer.

ESL 18 English As a Second Language: Writing Workshop (3-6 Cr.)

Provides an opportunity for further practice in intermediate and advanced writing techniques taught in required ESL writing courses. Provides reinforcement in writing skills, including composing, organizing, revising and editing. Variable hours per week. Typically offered fall and spring.

ESL 21 ESL: Written Communications II (3 Cr.)

Provides instruction in writing at the low-intermediate level. Improves students' competence in grammatical patterns of written English. Requires practice in writing sentences and longer pieces of writing. *Prerequisite: Placement via Accuplacer placement test.* Lecture 3 credits. Typically offered fall and spring.

ESL 22 ESL: Reading and Vocabulary II

Provides instruction and practice in reading and vocabulary development at the low-intermediate level. Improves students' reading fluency, proficiency, and vocabulary to enable them to function adequately in ESL Level 3 and prepare for college-level reading. Credits are not applicable toward graduation. *Prerequisite: Placement via Accuplacer placement test.* Lecture 3 credits. Typically offered fall and spring.

ESL 24 Oral and Written Communications I (3 Cr.)

Provides practice in the sound, stress, intonation, structural patterns, grammar, vocabulary, and idioms of beginning-level English. *Prerequisite: Requires ability to understand short spoken passages as well as familiarity with basic grammatical structure.* Lecture 3 credits. Typically offered fall and spring.

ESL 31 Composition I (3 Cr.)

Provides instruction and practice in the writing process, emphasizing development of fluency in writing and competence in structural and grammatical patterns of written English. *Prerequisite: Requires ability to express ideas clearly in writing without a consistent pattern of grammatical errors as indicated by a placement exam or teacher recommendation from a previous level. Credits are not applicable toward graduation. Prerequisite: Placement via*

Accuplacer placement test. Lecture 3 hours per week. Typically offered fall and spring.

ESL 32 Reading I (3 Cr.)

Helps students improve their reading comprehension and vocabulary development. Improves students' reading proficiency to a level that would allow the students to function adequately in [ESL 42](#) and other college classes. *Prerequisite: Requires competency in reading as indicated by the placement test or by teacher recommendation from a previous level. Prerequisite: Placement via Accuplacer placement test.* Lecture 3 hours per week. Typically offered fall and spring.

ESL 33 Oral Communications I (3 Cr.)

Helps students practice and improve listening and speaking skills as needed for functioning successfully in academic, professional, and personal settings. Assesses students oral skills and includes, as needed, practice with pronunciation, rhythm, stress, and intonation. Provides exercises, practices, small and large group activities, and oral presentations to help students overcome problems in oral communication. Credits are not applicable toward graduation. *Prerequisite: Requires competency in the English language as indicated by a placement test score or teacher recommendation from a previous level or from other college classes. Prerequisite: Placement via Accuplacer placement test.* Lecture 3 hours per week. Typically offered fall and spring.

ESL 35 Applied Grammar 3 (3 Cr.)

Provides instruction and practice in the use of intermediate-level academic English grammar structures including verb tenses, parts of speech and basic sentence structure. Helps ESL students assess their own knowledge of English grammar, improve accuracy, and learn methods to improve editing. *Prerequisite: Placement via Accuplacer placement test.* Lecture 3 hours per week. Typically offered fall and spring.

ESL 41 Composition II (3 Cr.)

Provides further instruction and practice in the writing process and introduces advanced language patterns. Includes practice in developing and improving writing strategies. Credits are not applicable: Requires a sense of paragraph structure and development, appropriate use of verb forms, and command of basic sentence structures with some coordination and subordination, as indicated by a placement test and writing sample, or teacher recommendation from a previous level. Credits are not applicable toward graduation. *Prerequisite: Placement via Accuplacer placement test.* Lecture 3 hours per week.

Course Descriptions

ESL 42 Reading II (3 Cr.)

Improves students' reading proficiency to a level that would allow students to function adequately in the ESL 52 reading class and other college courses. Credits are not applicable toward graduation. Prerequisite: Requires competency in reading as indicated by the placement test or by teacher recommendation from a previous level. Helps students improve their reading comprehension and vocabulary development. *Prerequisite: Placement via Accuplacer placement test.* Lecture 3-6 hours per week. Typically offered fall and spring.

ESL 43 Oral Communication II (3 Cr.)

Provides further instruction and practice in helping students to improve listening and speaking skills. Assesses students' oral skills and includes, as needed, practice with pronunciation, rhythm, stress, and intonation. Emphasizes the development of fluency through exercises, practices, small and large group activities, and formal and informal presentations. *Prerequisite: Placement via Accuplacer placement test.* Variable hours per week. Typically offered fall and spring.

ESL 45 Applied Grammar 4 (3 Cr.)

Provides instruction and practice in the use of high intermediate and advanced academic English grammar structures including advanced verb forms, clauses, determiners, and prepositions. Helps ESL students assess their own knowledge of English grammar, improve accuracy, and learn methods to improve editing. Lecture 3 hours per week.

ESL 95 Preparing for College English 111 for ESL (2 Cr.)

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. *Prerequisite: Readiness for ENG 111.* Variable hours. Typically offered fall and spring.

Environmental Science (ENV)

ENV 121 General Environmental Science I (4 Cr.)

Explores fundamental components and interactions that make up the natural systems of the earth. Introduces the basic science concepts in the discipline of biological, chemical, and earth sciences that are necessary to understand and address environmental issues. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ENV 122 General Environmental Science II (4 Cr.)

Explores fundamental components and interactions that make up the natural systems of the earth. Introduces the basic science concepts in the disciplines of biological, chemical, and earth sciences that are necessary to understand and address environmental issues. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

Financial Services (FIN)

FIN 107 Personal Finance (3 Cr.)

Presents a framework of personal money management concepts, including establishing values and goals, determining sources of income, managing income, preparing a budget, developing consumer buying ability, using credit, understanding savings and insurance, providing for adequate retirement and estate planning. Lecture 3 hours per week. Typically offered spring.

FIN 215 Financial Management (3 Cr.)

Introduces basic financial management topics including statement analysis, working capital, capital budgeting, and long-term financing. Focuses on net present value and internal rate of return techniques, lease vs. buy analysis and cost of capital computations. Uses problems and cases to enhance skills in financial planning and decision-making. Lecture 3 hours per week. Typically offered fall.

French (FRE)

FRE 101-102 Beginning French I-II (4 Cr. each)

Introduces understanding, speaking, reading and writing skills and emphasizes basic French sentence structure. *Prerequisite: FRE 101 for FRE 102.* Lecture 4 hours per week. Typically offered fall and spring.

FRE 201-202 Intermediate French I-II (3 Cr. each)

Continues to develop understanding, speaking, reading and writing skills. French used in the classroom. *Prerequisite: FRE 102 for FRE 201; FRE 201 for FRE 202.* Lecture 3 hours per week. Typically offered fall and spring.

FRE 233-234 Introduction to French Civilization and Literature I-II (3 Cr. each)

Introduces the student to French culture and literature. Readings and discussions conducted in French. *Prerequisite: FRE 201-202 or equivalent.* Offered periodically.

Funeral Services (FNS)

FNS 110 Introduction to Funeral Service (2 Cr.)

Presents a comprehensive study of the history of funeral service, commencing with the practices of the Egyptians, early Christians, Romans, and Hebrews. Traces funeral practice from its early pagan origins to the modern practices of today. May include the study of the sociology of funeral service. Lecture 2 hours per week. Typically offered fall.

Course Descriptions

Geography (GEO)

GEO 210 People and the Land: Intro to Cultural Geography (3 Cr.)

Focuses on the relationship between culture and geography. Presents a survey of modern demographics, landscape modification, material and non-material culture, language, race and ethnicity, religion, politics and economic activities. Introduces the student to types and uses of maps. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

GEO 220 World Regional Geography (3 Cr.)

Studies physical and cultural characteristics of selected geographical regions of the world. Focuses upon significant problems within each of the regions, and examines the geographical background of those problems. Introduces the student to types and uses of maps. Lecture 3 hours per week. Typically offered all semesters.

Geology (GOL)

GOL 105 Physical Geology (4 Cr.)

Introduces the composition and structure of the earth and modifying agency and processes. Investigates the formation of minerals and rocks, weathering, erosion, earthquakes and crustal deformation. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

GOL 106 Historical Geology (4 Cr.)

Traces the evolution of the earth and life through time. Presents scientific theories of the origin of the earth and life and interprets rock and fossil records. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

GOL 110 Earth Science (4 Cr.)

Examines the dynamics of the earth and its relation to the solar system. Applies the principles of geology, oceanography, meteorology, and astronomy in a multi-disciplinary science environment. Stresses the effects of geologic processes on the environment. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. Typically offered fall and spring.

GOL 225 Environmental Geology (4 Cr.)

Explores the interaction between man and his physical environment. Stresses geologic hazards and environmental pollution utilizing case histories. *Prerequisite: GOL 105.* Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. Typically offered spring, summer, or fall.

German (GER)

GER 101 Beginning German I (4-5 Cr.)

Introduces understanding, speaking, reading, and writing skills and emphasizes basic German sentence structures. Lecture 4-5 hours per week. May include one additional hour oral practice per week. Typically offered fall.

GER 102 Beginning German II (4-5 Cr.)

Introduces understanding, speaking, reading, and writing skills and emphasizes basic German sentence structures. Part II of II. Lecture 4-5 hours per week. May include one additional hour oral practice per week. Typically offered spring.

GER 201 Intermediate German I (3-4 Cr.)

Continues to develop understanding, speaking, reading, and writing skills. German is used in the classroom. *Prerequisite: GER 102 or equivalent.* Part I of II. Lecture 3-4 hours per week. May include one additional hour oral practice per week. Offered periodically.

GER 202 Intermediate German II (3-4 Cr.)

Continues to develop understanding, speaking, reading, and writing skills. German is used in the classroom. *Prerequisite: GER 102 or equivalent.* Part II of II. Lecture 3-4 hours per week. May include one additional hour oral practice per week. Offered periodically.

Health (HLT)

HLT 100 First Aid and Cardiopulmonary Resuscitation (2-3 Cr.)

Focuses on the principles and techniques of safety, first aid, and cardiopulmonary resuscitation. Lecture 2-3 hours per week. Typically offered spring.

HLT 105 Cardiopulmonary Resuscitation (1 Cr.)

Provides training in coordinated mouth-to-mouth artificial ventilation and chest compression, choking, life-threatening emergencies, and sudden illness. Equivalent to EMS 100. Lecture 1 hour per week. Offered periodically.

HLT 106 First Aid Safety (2 Cr.)

Focuses on the principles and techniques of safety and first aid. Lecture 2 hours per week. Typically offered spring.

HLT 115 Intro to Personal and Community Health (1 Cr.)

Introduces and focuses on the principles of personal and community health. Lecture 1 hour per week. Typically offered fall and spring.

Course Descriptions

HLT 116 Personal Wellness (2 Cr.)

Introduces students to the dimensions of wellness, including nutrition, weight control, stress management and physical conditioning. Includes a personal wellness plan. Lecture 2 hours per week. Typically offered fall and spring.

HLT 130 Nutrition and Diet Therapy (2 Cr.)

Studies nutrients, sources, functions and requirements with an introduction to diet therapy. Lecture 2 hours per week. Typically offered all semesters.

HLT 160 Personal Health and Fitness (3 Cr.)

Studies the relationships between health and fitness. Topics include nutrition, disease prevention, weight control, smoking and health, medical care, aerobic and anaerobic conditioning. And the relationship between physical and mental health. Lecture 2 hours per week. Laboratory 2 hours per week. Total 3 hours per week. Typically offered fall and spring.

HLT 206 Exercise Science (3 Cr.)

Surveys scientific principles, methodologies, and research as applied to exercise and physical fitness. Emphasizes physiological responses and adaptations to exercise. Addresses basic elements of kinesiology, biomechanics, and motor learning. Presents an introduction to the physical fitness industry. Lecture 3 hours per week

HLT 215 Personal Stress and Stress Management (2 Cr.)

Provides a basic understanding of stress and its physical, psychological and social effects. Includes the relationships between stress and change, self-evaluation, sources of stress and current coping skills for handling stress. Lecture 2 hours per week. Typically offered fall and spring.

HLT 230 Principles of Nutrition and Human Development (3 Cr.)

Teaches the relationship between nutrition and human development. Emphasizes nutrients, balanced diet, weight control, and the nutritional needs of an individual. Lecture 3 hours per week. Typically offered spring.

Health Information Management (HIM)

HIM 110 Introduction to Human Pathology (3 Cr.)

Introduces the basic concepts, terminology, etiology, and characteristics of pathological processes. *Prerequisite: BIO 145 or BIO 141/142.* Lecture 3 hours per week. Typically offered fall and spring.

HIM 111-112 Medical Terminology I-II (3 Cr. each)

Introduces the student to the language used in the health record. Includes a system-by-system review of anatomic disease, operative terms, abbreviations, radiography procedures, laboratory tests and pharmacology terms. *Prerequisites: Readiness to enroll in ENG 111. HIM 111 for HIM 112.* Lecture 3 hours per week. Typically offered all semesters.

HIM 130 Healthcare Information Systems (3 Cr.)

Teaches basic concepts of microcomputer software (to include operating systems, word processing, spreadsheets, and database applications. Focuses on microcomputer applications, information systems and applications in the health care environment. *Prerequisite: Readiness to enroll in ENG 111. ITE 115 strongly recommended.* Lecture 3 hours per week. Typically offered spring.

HIM 141 Fundamentals of Health Information Systems I (3 Cr.)

Focuses on health data collection, storage, retrieval and reporting systems, with emphasis on the role of the computer in accomplishing these functions. *Prerequisite: Readiness to enroll in ENG 111. ITE 115 preferred.* Lecture 3 hours per week. Typically offered fall.

HIM 143 Managing Electronic Billing in a Medical Practice (3 Cr.)

Presents practical knowledge on use of computer technology in medical practice management. Develops basic skills in preparation of universal billing claim. Explores insurance claim processing issues. *Prerequisites: Readiness to enroll in ENG 111 and HIM 253.* Lecture 3 hours per week. Typically offered summer.

HIM 220 Health Statistics (2 Cr.)

Introduces the student to basic statistical principles and calculations as applied in the health care environment, procedures for collection and reporting vital statistics, and basic quality control basics. *Prerequisites: Readiness to enroll in ENG 111 and HIM 141.* Lecture 2 hours per week. Typically offered spring.

HIM 226 Legal Aspects of Health Record Documentation (2 Cr.)

Presents the legal requirements associated with health record documentation. Emphasizes the policies and procedures concerning the protection of the confidentiality of patient's health records. *Prerequisite: Readiness to enroll in ENG 111 and HIM 141.* Lecture 2 hours per week. Typically offered spring.

Course Descriptions

HIM 229 Performance Improvement in Health Care Settings (2 Cr.)

Focuses on concepts of facility wide performance improvement, resource management and risk management. Applies tools for data collection and analysis. *Prerequisite: Readiness to enroll in ENG 111 and HIM 226.* Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered spring.

HIM 230 Information Systems and Technology in Health Care (3 Cr.)

Explores computer technology and system application in health care. Introduces the information systems life cycle. LITE 120 may substitute for HIM 230. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Typically offered fall.

HIM 231 Health Record Applications I (3 Cr.)

Uses an integrated approach to practicing health record skills in a simulated clinical environment. Emphasizes the use of the microcomputer in accomplishing problem-solving tasks. Part I of II. *Prerequisite: HIM 112; HIM 250 or BIO 141 and BIO 142 or BIO 14.* Laboratory 6 hours per week. Typically offered fall.

HIM 232 Health Record Applications II (3 Cr.)

Continues utilizing an integrated approach to practicing health record skills in a simulated clinical environment. Emphasizes the use of the microcomputer in accomplishing problem-solving tasks. *Prerequisites: HIM 231.* Part II of II. Laboratory 6 hours per week. Typically offered spring and summer.

HIM 249 Supervision and Management Practices (3 Cr.)

Introduces supervision and management principles with emphasis on the application of these principles in the health information setting. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

HIM 250 Health Data Classification Systems I (4 Cr.)

Focuses on the current classification systems used in the healthcare industry. Introduces the professional standards for coding and reporting of inpatient/outpatient diagnostic codes as well as inpatient procedures. Utilizes standards in identifying and accurately assigning codes to diseases and procedures as they relate to statistical research and healthcare financing. *Prerequisite: Readiness For ENG 111; Pre-requisite BIO 145 or BIO 141/142; HIM 112 co-or-pre-requisite.* Lecture 4 hours per week. Typically offered spring.

HIM 253 Health Records Coding (4 Cr.)

Examines the development of coding classification systems. Introduces ICD-10-CM coding classification system, its format and conventions. Stresses basic coding steps and guidelines according to body systems. Provides actual coding exercises in relation to each system covered. *Prerequisites: Readiness to enroll in ENG 111 and HIM 111 and BIO 145 or BIO 141 and BIO 142.* Lecture 4 hours per week. Typically offered spring.

HIM 254 Advanced Coding and Reimbursement (4 Cr.)

Stresses advanced coding skills through practical exercises using actual medical records. Introduces CPT-4 coding system and guidelines for out-patient/ambulatory surgery coding. Introduces prospective payment system and its integration with ICD-10-CM coding. *Prerequisites: HIM 253 and HIM 112.* Lecture 4 hours per week. Typically offered summer.

HIM 255 Health Data Classification Systems II: CPT (2 Cr.)

Focuses on procedure classification using CPT. This system is currently utilized for collecting health data for the purposes of statistical research and financial reporting. *Prerequisites: BIO 145 (or BIO 141 and BIO 142), HIM 112, and HIM 250.* Lecture 2 hours per week. Typically offered fall.

HIM 260 Pharmacology for Health Information Technology (2 Cr.)

Emphasizes general pharmacology for Health Information professionals; covers general principles of drug actions/reactions, major drug classes, specific agents within each class, and routine mathematical calculation needed to determine desired dosages. *Prerequisite: HIM 110.* Lecture 2 hours per week. Typically offered spring and summer.

HIM 290 Coordinated Internship (3 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Typically offered spring and summer.

History (HIS)

HIS 101 History of Western Civilization I (3 Cr.)

Examines the development of western civilization from ancient times to the present. Part I of II. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

HIS 102 History of Western Civilization II (3 Cr.)

Examines the development of western civilization from ancient times to the present. Part II of II. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week.

Course Descriptions

HIS 111-112 History of World Civilization I-II (3 Cr. each)

Surveys Asian, African, Latin American and European civilizations from the ancient period to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

HIS 121-122 United States History I-II (3 Cr.)

Surveys United States history from its beginning to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

HIS 141-142 African-American History I-II (3 Cr. each)

Surveys the history of black Americans from their African origins to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HIS 193 Studies In (1-5 Cr.)

Covers new content not covered in existing courses in the discipline. Allows instructor to explore content and instructional methods to assess the course's viability as a permanent offering. Variable hours per week. Offered periodically.

HIS 251-252 History of Middle East Civilization I-II (3 Cr.)

Surveys intellectual, cultural, social, economic and religious patterns in the civilizations of the Middle East. Covers Semitic, Indo-European, and Turkic-speaking peoples from pre-Islamic to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered alternate two year cycle with HIS 253.

HIS 253 -254 History of Asian Civilizations I-II (3 Cr.) (3 Cr.)

Surveys the civilizations of Asia from their origins to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered alternate two year cycle with HIS 251-252.

HIS 267 The Second World War (3 Cr.)

Examines causes and consequences of the Second World War. Includes the rise of totalitarianism, American neutrality, military developments, the home fronts, diplomacy and the decision to use the atomic bomb. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HIS 268 The American Constitution (3 Cr.)

Analyzes the origin and development of the United States Constitution. Includes the evolution of civil liberties, property rights, contracts, due process, judicial review, federal-state relationships, and corporate-government relations. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HIS 269 Civil War and Reconstruction (3 Cr.)

Studies factors that led to the division between the States. Examines the war, the home fronts, and the era of Reconstruction. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Course Typically offered spring.

HIS 276 United States History Since World War II (3 Cr.)

Investigates United States history from 1946 to the present, studying both domestic developments and American involvement in international affairs. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HIS 281 History of Virginia I (3 Cr.)

Examines the cultural, political, and economic history of the Commonwealth from its beginning to the present. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered summer.

Hotel-Restaurant Mgmt (HRI)

HRI 154 Principles of Hospitality Management (3 Cr.)

Presents basic understanding of the hospitality industry by tracing the industry's growth and development, reviewing the organization and management of lodging, food, and beverage operations, and focusing on industry opportunities and future trends. Lecture 3 hours per week. Typically offered fall.

HRI 190 Coordinated Internship (2 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Lecture 2 hours. Typically offered spring.

HRI 255 Human Res. Mgmt, and Trng. for Hosp. & Tourism (3 Cr.)

Prepares the students for interviewing, training and developing employees. Covers management skills (technical, human, and conceptual) and leadership. Covers the establishment and use of effective training and evaluative tools to improve productivity. Emphasizes staff and customer relations. Lecture 3 hours per week. Typically offered spring.

Human Services (HMS)

HMS 100 Introduction to Human Services (3 Cr.)

Introduces human service agencies, roles and careers. Presents an historical perspective of the field as it relates to human services today. Additional topics include values clarification and needs of target populations. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

Course Descriptions

HMS 121 Basic Counseling Skills I (3 Cr.)

Develops skills needed to function in a helping relationship. Emphasizes skills in attending, listening and responding. Clarifies personal skill strengths, deficits and goals for skill improvement. *Prerequisites: Readiness to enroll in ENG 111 and HMS 100.* Lecture 3 hours per week.

HMS 141 Group Dynamics I (3 Cr.)

Examines the stages of group development, group dynamics, the role of the leader in a group, and recognition of the various types of group processes. Discusses models of group dynamics that occur as a result of group membership dynamics.

HMS 290 Coordinated Internship (3 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. *Prerequisites: ENG 111, HMS 100, HMS 121, 2 HMS/SOC/PSY electives, instructor permission.*

Humanities (HUM)

HUM 100 Survey of the Humanities (3 Cr.)

Introduces the humanities through art, literature, music and philosophy of various cultures and historical periods. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 195 Leadership Development (3 Cr.)

This course is designed to provide emerging and existing leaders the opportunity to explore the concept of leadership and to develop and improve their leadership skills. The course integrates readings from the humanities, experiential exercises, films, and contemporary readings on leadership. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 195 Cultural Literacy (3 Cr.)

Develops in students a broader knowledge of the people, places, and events necessary for an educated understanding of allusions. The focus will be on the wider comprehension of all college material with the emphasis on critical reading to the goal of effective understanding of orally presented class material. Content learned will serve as a road base of understanding that should precede all Humanities classes. The use of allusions in these classes is a viable teaching strategy that enables a deeper, clearer understanding of contexts. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week.

HUM 201 Survey of Western Culture I (3 Cr.)

Studies thought, values and arts of Western culture, integrating major developments in art, architecture, literature, music and philosophy. Covers the following periods: Ancient and Classical, Early Christian and Byzantine, Medieval and early Renaissance. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

HUM 202 Survey of Western Culture II (3 Cr.)

Studies thought, values and arts of Western culture, integrating major developments in art, architecture, literature, music and philosophy. Covers the following periods: Renaissance, Baroque, Enlightenment, Romantic and Modern. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

HUM 211-212 Survey of American Culture I-II (3 Cr.) (3 Cr.)

Examines elements of our national culture as they evolved from the first European explorations through colonization and independence to the present day. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 215 Native American Culture (3 Cr.)

Surveys the cultural history of Native (Indian) peoples in the Americas from the pre-Columbian era until the present. Studies history, religion, literature, arts, life-ways and world-views which comprise the diverse traditions of Native peoples. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 218 Survey of Horror (3 Cr.)

Surveys and analyzes the horror genre, focusing on the psychological, anthropological, and historical background of monsters. Acquaints students with recurring horror themes in literature, art, and popular culture from around the world. Fluency in Standard American English. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 241-242 Interdisciplinary Principles of the Humanities I-II (3 Cr.) (3 Cr.)

Integrates unifying principles of the humanities and related fields of study. Emphasizes the expansion of student's intellectual perspective and development of concepts enabling the integration of knowledge from diverse fields into a unified whole. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

Course Descriptions

HUM 260 Survey of Twentieth-Century Culture (3 Cr.)

Explores literature, visual arts, philosophy, music and history of our time from an interdisciplinary perspective. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

HUM 295 Topics In (3 Cr.)

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors course. *Prerequisite: Readiness to enroll in ENG 111.* May be repeated for credit. Variable hours 1-5 credits. Offered periodically.

HUM 298 Honors Leadership Seminar (3 Cr.)

Provides emerging and existing leaders the opportunity to explore the concept of leadership and to develop and improve their leadership skills. The course uses a humanities-based approach and integrates readings from the humanities, films, and contemporary readings to explore contemporary leadership. *Prerequisite: Completion of ENG 112.* Lecture 3 hours per week. Offered periodically.

Industrial Engineering Tech (IND)

IND 145 - Introduction to Metrology (3 Cr.)

Studies principles of measurement and calibration control, application of statistics to measurement processes, and standards of measurements in calibration. May include the use of gauges and instruments in modern production and dimensional control concepts. *Prerequisite: MTH 158 or MTH 115 or any higher level math.* Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered spring.

Information Technology Design and Database (ITD)

ITD 110 Web Page Design I (3 Cr.)

Stresses a working knowledge of Web site designs, construction and management using HTML or XHTML. Course content includes headings, lists, links, images, image maps, tables, forms and frames. *Prerequisite: Readiness to enroll in ENG 111 and ITE 115 (or equivalent) strongly recommended.* Lecture 3 hours per week. Typically offered fall.

ITD 112 Designing Web Page Graphics (3 Cr.)

Explores the creation of digital graphics for Web design. Basic design elements such as color and layout will be explored utilizing a computer graphics program(s). *Prerequisites: Readiness to enroll in ENG 111. ITD 110 (or equivalent) strongly recommended.* Lecture 3 hours per week. Typically offered spring.

ITD 130 Database Fundamentals (3 Cr.)

Introduces the student to Relational Database and Relational Database theory. Includes planning, defining and using a database; table design, linking and normalization; types of

databases, database description and definition. *Prerequisite: Readiness to enroll in ENG 111. ITE 115 (or equivalent) strongly recommended.* Lecture 3 hours per week. Typically offered fall; occasionally summer.

ITD 132 Structured Query Language (3 Cr.)

Incorporates a working introduction to commands, functions and operators used in SQL for extracting data from standard databases. *Prerequisite: Readiness to enroll in ENG 111 and ITD 130.* Lecture 3 hours per week. Typically offered fall.

ITD 134 PL/SQL Programming (3 Cr.)

Presents a working introduction to PL/SQL programming with the Oracle RDBMS environment. Includes PL/SQL fundamentals of block program structure, variables, cursors and exceptions and creation of program units of procedures, functions, triggers and packages. *Prerequisites: Readiness to enroll in ENG 111 and ITP 100 and ITD 130.* Lecture 3 hours per week. Typically offered spring.

ITD 210 Web Page Design II (3 Cr.)

Incorporates advanced techniques in Web site planning, design, usability, accessibility, advanced site management and maintenance utilizing Web editor software(s). *Prerequisites: Readiness to enroll in ENG 111 and ITD 110.* Lecture 3 hours per week. Typically offered spring.

ITD 250 Database Architecture and Administration (3 Cr.)

Involves in-depth instruction about the underlying architecture of databases and the handling of database administration. *Prerequisites: Readiness to enroll in ENG 111 and ITD 130 and ITD 132 or ITD 134.* Lecture 3 hours per week. Typically offered spring.

Information Technology Essentials (ITE)

ITE 115 Introduction to Computer Applications and Concepts (3 Cr.)

Covers computer concepts and Internet skills and use of a software suite which includes word processing, spreadsheet, database and presentation software to demonstrate skills required for computer literacy. *Prerequisites: Readiness to enroll in ENG 111 and keyboarding skills highly recommended.* Lecture 3 hours per week. Typically offered all semesters.

ITE 119 Information Literacy (3 Cr.)

Presents the information literacy core competencies focusing on the use of information technology skills. Skills and knowledge will be developed in database searching, computer applications, information security and privacy, and intellectual property issues. *Prerequisites: Readiness to enroll in ENG 111 and keyboarding skills highly recommended.* Lecture 3 hours per week. Typically offered fall and spring.

Course Descriptions

ITE 120 Principles of Information Systems (3 Cr.)

Provides an overview of the fundamentals of computer information systems. Focuses on the role of computers in business today including hardware, software, analysis, design and implementation of information systems. Includes an introduction to computer ethics, and business and personal security. Exposes students to techniques used in programming and system development. Utilizes a hands-on component for spreadsheets, databases, and Web design applications. *Prerequisite: Readiness to enroll in ENG 111. ITE 115 recommended.* Lecture 3 hours per week. Typically offered spring; occasionally summer.

ITE 221 PC Hardware and OS Architecture (3 Cr.)

Covers instruction about processors, internal functions, peripheral devices, computer organization, memory management, architecture, instruction format, and basic OS architecture. Typically offered fall and spring.

Information Technology Networking (ITN)

ITN 100 Introduction to Telecommunications (3 Cr.)

Surveys data transmission systems, communication lines, data sets, network, modes of transmission, protocols, and interfacing. Emphasizes network structure and operation. *Prerequisites: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered summer and fall.

ITN 107 Personal Computer Hardware and Troubleshooting (3 Cr.)

Includes specially designed instruction to give students a basic knowledge of hardware and software configurations. It includes the installation of various peripheral devices as well as basic system hardware components. Maps to A+ Hardware Certification. Lecture 3 hours per week. Typically offered spring.

ITN 124 Wireless Network Administration (3)

Incorporates instruction in the fundamentals of radio frequency and spread spectrum technology and wireless networking systems implementation and design. Includes radio frequency and spread spectrum concepts, 802.11 standards and regulations, wireless network architecture, topology, software, equipment, OSI Model, site surveys, security features, and the design and implementation of wireless network solutions. *Prerequisites: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

ITN 170 Linux System Administration (3 Cr.)

Focuses instruction on the installation, configuration and administration of the Linux operating system and emphasizes the use of Linux as a network client and workstation. *Prerequisites: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

ITN 200 Administration of Network Resources (3 Cr.)

Focuses on the management of local area network servers. Teaches proper structuring of security systems. Explains print queues, disk management and other local area network (LAN) issues. Presents concerns and issues for the purchase and installation of hardware and software upgrades. Can be taught using any network operating system or a range of operating systems as a delivery tool. *Prerequisites: Readiness to enroll in ENG 111, and ITN 100.* Lecture 3 hours per week. Typically offered fall.

ITN 260 Security Basics (3 Cr.)

Provides instruction in the basics of network security in depth. Course content includes security objectives, security architecture, security models and security layers. Course content also includes risk management, network security policy and security training. Course content includes the give security keys, confidentiality integrity, availability, accountability and auditability. *Prerequisites: Readiness to enroll in ENG 111 and ITN 100.* Lecture 3 hours per week. Typically offered summer and fall.

ITN 261 Network Attacks, Computer Crime and Hacking (3 Cr.)

Encompasses in-depth exploration of various methods for attacking and defending a network. Course content explores network security concepts from the viewpoint hackers and their attack methodologies. Course content also includes topics about hackers, attacks, Intrusion Detection Systems (IDS) malicious code, computer crime and industrial espionage. *Prerequisites: Readiness to enroll in ENG 111 and ITN 260. Networking background highly recommended.* Lecture 3 hours per week. Typically offered fall.

ITN 262 Network Communication, Security and Authentication (3 Cr.)

Covers an in-depth exploration of various communication protocols with a concentration on TCP/IP. Course content explores communication protocols from the point of view of the hacker in order to highlight protocol weaknesses. Course content includes Internet architecture, routing, addressing, topology, fragmentation and protocol analysis and the use of various utilities to explore TCP/IP. *Prerequisites: Readiness to enroll in ENG 111 and ITN 260. Networking background highly recommended.* Lecture 3 hours per week. Typically offered fall.

Course Descriptions

ITN 263 Internet/Intranet Firewalls and E-Commerce Security (3 Cr.)

Conveys an in-depth exploration of firewall, Web security and e-commerce security. Course content also explores firewall concepts, types, topology and the firewall's relationship to the TCP/IP protocol. Course content also includes client/server architecture, the Web server, HTML and HTTP in relation to Web Security and digital certification, D.509 and public key infrastructure (PKI). *Prerequisites: Readiness to enroll in ENG 111 and ITN 260; networking background highly recommended.* Lecture 3 hours per week. Typically offered spring.

ITN 266 Network Security Layers (3 Cr.)

Provides an in-depth exploration of various security layers needed to protect the network. Explores Network Security from the viewpoint of the environment in which the network operates and the necessity to secure that environment to lower the security risk to the network. Includes physical security, personnel security, operating system security, software security and database security. *Prerequisite: ITN 260.* Lecture 3 hours per week. Typically offered fall.

ITN 267 Legal Topics in Network Security (3 Cr.)

Conveys an in-depth exploration of the civil and common law issues that apply to network security. Explores statutes, jurisdictional, and constitutional issues related to computer crimes and privacy. Includes rules of evidence, seizure and evidence handling, court presentation and computer privacy in the digital age. *Prerequisite: ITN 260.* Lecture 3 hours per week. Typically offered spring; occasionally summer.

ITN 276 Computer Forensics I (3 Cr.)

Teaches computer forensic investigation techniques for collecting computer-related evidence at the physical layer from a variety of digital media (hard drives, compact flash and PDAs) and performing analysis at the file system layer. *Prerequisite: ITE 221 or ITN 107 or instructor permission. Co-requisite or Prerequisite: ITN 260.* Lecture 3 hours per week. Typically offered spring; occasionally summer.

Information Technology Programming (ITP)

ITP 100 Software Design (3 Cr.)

Introduces principles and practices of software development. Course content includes instruction in critical thinking, problem solving skills and essential programming logic in structured and object-oriented design using contemporary tools. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

ITP 112 Visual Basic.NET I (4 Cr.)

Concentrates instruction in fundamentals of object-oriented programming using Visual Basic.NET and the .NET framework. Course content emphasizes program construction, algorithm development, coding, debugging and documentation of graphical user interface applications. *Prerequisites: Readiness to enroll in ENG 111 and ITP 100.* Lecture 3 hours per week. Typically offered fall.

ITP 120 Java Programming I (4 Cr.)

Entails instruction in fundamentals of object-oriented programming using Java. This course emphasizes program construction, algorithm development, coding, debugging and documentation of console and graphical user interface applications. *Prerequisite: Readiness to enroll in ENG 111 and ITP 100.* Lecture 4 hours per week. Typically offered fall.

ITP 160 Intro to Game Design & Development (3 Cr.)

Introduces object-oriented game design and development. Provides overview of the electronic game design and development process and underlines the historical context, content creation strategies, game careers, and future trends in the industry. Utilizes a game language environment to introduce game design, object-oriented paradigms, software design, software development and product testing. Teaches skills of writing a game design document and creating a game with several levels and objects. Integrate 2D animations, 3D models, sound effects, and background music as well as graphic backgrounds. *Prerequisites: Readiness to enroll in ENG 111 and ITP 100.* Lecture 3 hours per week. Typically offered fall or spring.

ITP 212 Visual Basic.NET II (4 Cr.)

Includes instruction in application of advanced object-oriented techniques to application development. Course content emphasizes database connectivity, advanced controls, Web forms and Web services using Visual Basic.NET. *Prerequisites: Readiness to enroll in ENG 111 and ITP 112.* Lecture 4 hours per week. Typically offered spring.

ITP 220 Java Programming II (4 Cr.)

Imparts instruction in application of advanced object-oriented techniques to application development using Java. Emphasizes database connectivity, inner classes, collection classes, networking, and threads. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 4 hours per week. Typically offered spring.

Course Descriptions

ITP 225 Web Scripting Languages (3 Cr.)

Introduces students to the principles, systems and tools used to implement Web applications. Provides students with a comprehensive introduction to the programming tools and skills required to build and maintain interactive Web sites. Students will develop Web applications utilizing client-side and server-side scripting languages along with auxiliary tools needed for complete applications. *Prerequisites: Readiness to enroll in ENG 111, and ITD 110 and ITP 100.* Lecture 3 hours per week. Typically offered spring.

ITP 251 Systems Analysis and Design (4 Cr.)

Focuses on application of information technologies (IT) to system life cycle methodology, systems analysis, systems design and system implementation practices. Methodologies related to identification of information requirements, feasibility in the areas of economic, technical and social requirements and related issues are included in course content. Software applications may be used to enhance student skills. *Prerequisite: Successful completion of a minimum of 9 IT credit hours.* This is intended to be a fourth semester capstone course; as such, proficiency in Internet and network fundamentals, database management and software design is required. *Prerequisites: Readiness to enroll in ENG 111. Students must complete any four (4) of the IT core courses (ITN 100, ITN 107, ITP 100, ITD 110, ITD 130, ITE 120) or receive instructor permission prior to enrolling in ITP 251.* Lecture 4 hours per week. Typically offered spring.

ITP 295 Topics in Python Coding for Cybersecurity

Course teaches scripting techniques for automating security tasks such as network monitoring and penetration testing using the Python programming language. Students will also learn how to write their own custom tools and the basics of developing software exploits. Prior knowledge of Python is recommended, but not essential. This course can be used to satisfy the programming or security elective in the Cybersecurity AAS. Check with your faculty advisor. *Prerequisite: ITN 100-Software Design.* Lecture 4 hours per week.

Interpreter Education (INT)

INT 105-106 Interpreter Education (3 Cr. each)

Develops fundamental skills of interpreting, including cognitive processes and intralingua language development in English and ASL. Reviews models of interpreting and uses one to analyze interpretations. Develops feedback skills essential to the team interpreting process. Lecture 3 hours per week. Typically offered summer.

INT 130 Interpreting: An Introduction to the Profession (3 Cr.)

Introduces basic principles and practices of interpreting, focusing on the history of the profession, logistics of interpreting situations, regulatory and legislative issues, resources and the code of ethics. Describes the state quality assurance screening and national certification exam systems, including test procedures. Lecture 3 hours per week. Typically offered fall.

Japanese (JPN)

JPN 101 Beginning Japanese I (4-5 credits)

Develops the understanding, speaking, reading, and writing of Japanese, and emphasizes the structure of the language. Part I of II. Lecture 4-5 hours per week. May include one additional hour of oral practice per week.

JPN 102 Beginning Japanese II (4-5 Cr.)

Develops the understanding, speaking, reading, and writing of Japanese, and emphasizes the structure of the language. Part II of II. Lecture 4-5 hours per week. May include one additional hour of oral practice per week.

JPN 201 Intermediate Japanese I (3-4 Cr.)

Continues the development of the skills of understanding, speaking, reading, and writing of Japanese. Classes conducted in Japanese. *Prerequisite: JPN 102.* Part I of II. Lecture 3-4 hours per week. May include one additional hour of oral practice per week.

JPN 202 Intermediate Japanese II (3-4 Cr.)

Continues the development of the skills of understanding, speaking, reading, and writing of Japanese. Classes conducted in Japanese. *Prerequisite: JPN 102.* Part II of II. Lecture 3-4 hours per week. May include one additional hour of oral practice per week.

Legal Administration (LGL)

LGL 115 Real Estate Law for Legal Assistants (3 Cr.)

Studies law of real property and gives in-depth survey of the more common types of real estate transactions and conveyances such as deeds, contracts, leases and deeds of trust. Focuses on drafting these various instruments and studies the system of recording and search of public documents. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

Course Descriptions

LGL 117 Family Law (3 Cr.)

Studies elements of a valid marriage, grounds for divorce and annulment, separation, defenses, custody, support, adoptions and applicable tax consequences. Includes property settlement, pre- and ante-nuptial agreements, pleadings and rules of procedure. May include specific federal and Virginia consumer laws. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week.

Typically offered fall.

LGL 125 Legal Research (3 Cr.)

Provides an understanding of various components of a law library and emphasizes research skills through the use of digests, encyclopedias, reporter systems, codes, Shepard's Citations, ALR and other research tools. May include overview of computer applications and writing projects. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered summer and fall.

LGL 126 Legal Writing (3 Cr.)

Studies proper preparation of various legal documents, including case and appeal briefs, legal memoranda, letters and pleadings. Involves practical applications. Requires competence in English grammar. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall and spring.

LGL 130 Law Office Administration & Management (3 Cr.)

Introduces management principles and systems applicable to law firms, including record keeping, disbursements, escrow accounts, billing and purchasing. May include accounting methods and software packages applicable to law firms. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring

LGL 200 Ethics for the Legal Assistant (1 Cr.)

Examines general principles of ethical conduct applicable to legal assistant. Includes the application of rules of ethics to the practicing legal assistant. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 1 hour per week. Typically offered spring.

LGL 215 Torts (3 Cr.)

Studies fundamental principles of the law of torts, including preparation and use of pleadings and other documents involved in the trial of a civil action. Emphasizes personal injury and medical malpractice cases. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

LGL 216 Trial Preparation and Discovery Practice (3 Cr.)

Examines the trial process, including the preparation of a trial notebook, pretrial motions, and orders. May include preparation of interrogatories, depositions, and other discovery tools used in assembling evidence in preparation for the trial or an administrative hearing. *Prerequisite:*

Readiness to enroll in ENG 111. Lecture 3 hours per week. Typically offered spring.

LGL 217 Trial Practice and the Law of Evidence (3 Cr.)

Introduces civil and criminal evidence; kinds, degrees and admissibility of evidence; and methods and techniques of its acquisition. Emphasizes Virginia and federal rules of evidence. Focuses on elements of a trial and various problems associated with the trial of a civil or criminal case. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

LGL 218 Criminal Law (3 Cr.)

Focuses on major crimes, including their classification, elements of proof, intent, conspiracy, responsibility, parties and defenses. Emphasizes Virginia law. May include general principles of applicable constitutional law and criminal procedure. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

LGL 225 Estate Planning and Probate (3 Cr.)

Introduces various devices used to plan an estate, including wills, trust, joint ownership and insurance. Considers various plans in light of family situations and estate objectives. Focuses on practices involving administration of an estate including taxes and preparation of forms. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Occasionally offered spring.

LGL 230 Legal Transactions (3 Cr.)

Presents an in-depth study of general contract law, including formation, breach, enforcement, and remedies. May include an overview of UCC sales, commercial paper, and collections. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring

LGL 234 Intellectual Property Law (3 Cr.)

Presents outline of federal copyright and federal and state trademark law. Examines the functions of legal assistants in preparing registrations as well as infringement litigation. Covers related areas of law including trade secrecy and differences between various types of intellectual property. Examines the basics of patent law. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Occasionally offered summer.

LGL 235 Legal Aspects of Business Organizations (3 Cr.)

Studies fundamental principles of agency law and the formation of business organizations. Includes sole proprietorships, partnerships, corporation, limited liability companies, and other business entities. Reviews preparation of the documents necessary for the organization and operation of businesses. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

Course Descriptions

LGL 236 Elder Law (3 Cr.)

Explores the legal issues affecting the elderly population such as Social Security, Supplemental Security Income (SSI), Medicare, Medicaid, long-term care insurance, retirement housing and long-term care options, age discrimination, elder abuse and neglect, and estate and planning issues related to incapacity, guardianship, advanced medical directives, power-of-attorney, and end of life decisions. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Occasionally offered summer.

LGL 238 Bankruptcy (3 Cr.)

Provides a practical understanding of non-bankruptcy alternatives and the laws of bankruptcy including Chapters 7, 11, 12 and 13 of the Bankruptcy Code. Emphasizes will be placed on preparing petitions, schedules, statements, and other forms. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Occasionally offered summer.

LGL 250 Immigration Law (3 Cr.)

Provides an introduction to immigration law and policy, giving an overview of the United States legal system that regulates the admission, exclusion, removal and naturalization of immigrants. Includes issues concerning refugees, asylum seekers, illegal immigrants, and undocumented aliens. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Occasionally offered summer.

LGL 298 Seminar and Project (3 Cr.)

Requires completion of a project or research report related to the students' occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Occasionally offered summer.

Marketing (MKT)

MKT 100 Principles of Marketing (3 Cr.)

Presents principles, methods and problems involved in the marketing of goods, services and ideas to consumers and organizational buyers. Discusses present-day problems and policies connected with distribution and sale of products, pricing, promotion and buyer motivation. Examines variations of the marketing mix and market research, plus legal, social, ethical and international considerations in marketing. Lecture 3 hours per week. Typically offered fall and spring.

MKT 228 Promotion (3 Cr.)

Presents an overview of promotion activities including advertising, visual merchandising, publicity and sales promotion. Focuses on coordinating these activities into an effective campaign to promote sales for a particular product, business, institution, or industry. Emphasizes budgets, selecting media and analyzing the effectiveness of the

campaign. Lecture 3 hours per week. Typically offered spring.

MKT 229 - Marketing Research (3 Cr.)

Introduces the marketing research process to include methodology, data collection, sampling, and analysis. Focuses on planning basic research studies and applying the findings to marketing decisions. Lecture 3 hours per week.

MKT 271 Consumer Behavior (3 Cr.)

Examines the various influences affecting consumer buying behavior before, during and after product purchase. Describes personal, societal, cultural, environmental, group and economic determinants on consumer buying. Lecture 3 hours per week. Typically offered summer.

MKT 282 Principles of E-Commerce (3 Cr.)

Studies online business strategies and the hardware and software tools necessary for Internet commerce. Includes the identification of appropriate target segments, the development of product opportunities, pricing structures, distribution channels and execution of marketing strategies. Lecture 3 hours per week. Typically offered fall.

Math Essentials MTE)

MTE 1 Operations-Positive Fractions (1 Cr.)

Includes operations and problem solving with proper fractions, improper fractions, and mixed numbers without the use of a calculator. Emphasizes applications and includes U. S. customary units of measure. Credit is not applicable toward graduation. *Prerequisite: Qualifying placement score.* Lecture 1 hour per week. Typically offered all semesters.

MTE 2 Operations-Positive Dec & Percents (1 Cr.)

Includes operations and problem solving with positive decimals and percents. Emphasizes applications and includes U. S. customary and metric units of measure. Credit is not applicable toward graduation. *Prerequisite(s): MTE 1 or qualifying placement score.* Lecture 1 hour per week. Typically offered all semesters.

MTE 3 Algebra Basics (1 Cr.)

Includes basic operations with algebraic expressions and solving simple algebraic equations using signed numbers with emphasis on applications. Credit is not applicable toward graduation. *Prerequisite: MTE 2 or qualifying placement score.* Lecture 1 hour per week. Typically offered all semesters.

Course Descriptions

MTE 4 First Degree Equations and Inequalities in One Variable (1 Cr.)

Includes solving first degree equations and inequalities containing one variable, and using them to solve application problems. Emphasizes applications and problem solving. Credit is not applicable toward graduation. *Prerequisite:* MTE 3 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

MTE 5 Linear Equations, Inequalities and Systems of Linear Equations in Two Variable (1 Cr.)

Includes finding the equation of a line, graphing linear equations and inequalities in two variables and solving systems of two linear equations. Emphasizes writing and graphing equations using the slope of the line and points on the line, and applications. Credit is not applicable toward graduation. *Prerequisite:* MTE 4 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

MTE 6 Exponents, Factoring and Polynomial Equations (1 Cr.)

The student will learn to perform operations on exponential expressions and polynomials. Students will also learn techniques to factor polynomials and use these techniques to solve polynomial equations. Emphasis should be on learning all the different factoring methods, and solving application problems using polynomial equations. Credit is not applicable toward graduation. *Prerequisite:* MTE 5 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

MTE 7 Rational Expressions and Equations (1 Cr.)

Includes simplifying rational algebraic expressions, solving rational algebraic equations and solving applications that use rational algebraic equations. Credit is not applicable toward graduation. *Prerequisite:* MTE 6 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

MTE 8 Rational Exponents and Radicals (1 Cr.)

Includes simplifying radical expressions, using rational exponents, solving radical equations and solving applications using radical equations. Credit is not applicable toward graduation. *Prerequisite:* MTE 7 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

MTE 9 Functions, Quadratic Equations and Parabolas (1 Cr.)

Includes an introduction to functions in ordered pair, graph, and equation form. Also introduces quadratic functions, their properties and their graphs. Credit is not applicable toward graduation. *Prerequisite:* MTE 8 or qualifying placement score. Lecture 1 hour per week. Typically offered all semesters.

Mathematics (MTH)

MTH 120 Introduction to Mathematics (3 Cr.)

Introduces number systems, logic, basic algebra, systems of equations and descriptive statistics. *Prerequisite:* Competency in Basic Skills BSK 1 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required BSK unit or equivalent. (Intended for occupational/ technical programs.) Lecture 3 hours per week. Typically offered all semesters.

MTH 126 Mathematics for Allied Health (3 Cr.)

Presents scientific notation, precision and accuracy, decimals and percents, ratio and proportion, variation, simple equations, techniques of graphing, use of charts and tables, logarithms and the metric system. *Prerequisite:* Competency in Basic Skills BSK 1 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required BSK unit or equivalent. Lecture 3 hours per week. Typically offered all semesters.

MTH 154 Quantitative Reasoning (3 Cr.)

Presents topics in proportional reasoning, modeling, financial literacy and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem and applying what is learned to the original situation. *Prerequisite:* Competency in MTE 1-5 as demonstrated through placement or unit completion or equivalent or Corequisite: MCR 4: Learning Support for Quantitative Reasoning. Lecture: 3 hours per week.

MTH 155 – Statistical Reasoning (3 Cr.)

Course Description: Presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. *Prerequisite:* Competency in MTE 1-5 as demonstrated through placement or unit completion or equivalent or Co-requisite: MCR 5 Learning Support for Statistical Reasoning. (Credit will not be awarded for both MTH 155 Statistical Reasoning and MTH 245: Statistics I.) Lecture: 3 hours per week.

MTH 157 Elementary Statistics (3 Cr.)

Presents elementary statistical methods and concepts including descriptive statistics, estimation, hypothesis testing, linear regression, and categorical data analysis. (Credit will not be awarded for both MTH 157 and MTH 240 or MTH 241.) *Prerequisites:* Competency in Math Essentials MTE 1-5 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or equivalent. Lecture 3 hours per week. Typically offered all semesters.

Course Descriptions

MTH 158 College Algebra (3 Cr.)

Covers the structure of complex number systems, polynomials, rational expressions, graphing, systems of equations and inequalities and functions, quadratic and rational equations and inequalities. *Prerequisite: Competency in Math Essentials MTE 1-6 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or equivalent* Lecture 3 hours per week. Typically offered all semesters.

MTH 163 Precalculus I (3 Cr.)

Presents college algebra, matrices and algebraic, exponential and logarithmic functions. *Prerequisite: Competency in Math Essentials MTE 1-9 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or MTE 1-6 and MTH 158.* Lecture 3 hours per week. Typically offered all semesters.

MTH 164 Precalculus II (3 Cr.)

Presents trigonometry, analytic geometry and sequences and series. *Prerequisite: MTH 163 or equivalent.* Lecture 3 hours per week. Typically offered all semesters.

MTH 166 Precalculus with Trigonometry (5 Cr.)

Presents college algebra, analytic geometry, trigonometry, and algebraic exponential, and logarithmic functions. *Prerequisite: Competency in Math Essentials MTH 1-9 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or equivalents.* Lecture 5 hours per week. (Credit will not be awarded for both MTH 163 and MTH 166). Typically offered fall.

MTH 173 Calculus with Analytic Geometry I (5 Cr.)

Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials and introduction to integration along with their applications. Designed for mathematical, physical and engineering science programs. *Prerequisites: Placement recommendation for MTH 173 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent.* Lecture 5 hours per week. Typically offered fall and spring.

MTH 174 Calculus with Analytic Geometry II (5 Cr.)

Continues the study of analytic geometry and the calculus of algebraic and transcendental functions including rectangular, polar and parametric graphing, indefinite and definite integrals, methods of integration and power series along with applications. Designed for mathematical, physical and engineering science programs. *Prerequisite: MTH 173 or equivalent.* Lecture 5 hours per week. Typically offered spring.

MTH 177 Introductory Linear Algebra (2 Cr.)

Covers matrices, vector spaces, determinants, solutions of systems of linear equations, and Eigen values. Designed for mathematical, physical, and engineering science programs. *Prerequisite: MTH 173.* Lecture 2 hours per week. Offered spring only.

MTH 240 Statistics (3 Cr.)

Presents an overview of statistics, including descriptive statistics, elementary probability, probability distributions, estimation, hypothesis testing, and correlation and regression. *Prerequisites: a placement recommendation for MTH 240 and successful completion of MTH 158, MTH 163, MTH 166, or equivalent.* Lecture 3 hours per week. Typically offered all semesters.

MTH 271 Applied Calculus I (3 Cr.)

Presents limits, continuity, differentiation of algebraic and transcendental functions with applications and an introduction to integration. *Prerequisite: MTH 163 or MTH 166 or equivalent.* Lecture 3 hours per week. Typically offered all semesters.

MTH 272 Applied Calculus II (3 Cr.)

Covers techniques of integration; multivariable calculus and an introduction to differential equations. *Prerequisite: MTH 271 or equivalent.* Lecture 3 hours per week. Typically offered spring.

MTH 275 Multivariable Calculus and Linear Algebra (4 Cr.)

Presents vector valued functions, partial derivatives, multiple integrals, matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension eigenvalues and eigenvectors. Designed for mathematical, physical and engineering science programs. *Prerequisite: MTH 174 or equivalent.* Lecture 4 hours per week. Typically offered all semesters.

MTH 277 Vector Calculus (4 Cr.)

Presents vector valued functions, partial derivatives, multiple integrals and topics from the calculus of vectors. Designed for mathematical, physical and engineering science programs. *Prerequisite: MTH 174 or equivalent.* Lecture 4 hours per week. Typically offered all semesters.

MTH 285 Linear Algebra (3 Cr.)

Covers matrices, vector spaces, determinants, solutions of systems of linear equations, basic and dimension, eigenvalues and eigenvectors. Designed for mathematical, physical and engineering science programs. *Prerequisite: MTH 174 or equivalent.* Lecture 3 hours per week. Typically offered all semesters.

Course Descriptions

MTH 286 Discrete Mathematics (4 Cr.)

Presents topics in discrete mathematical structures which are basic tools used in computer science. Covers sets, Boolean algebra, counting methods, generating functions and recurrence relations, graph theory, trees, and an introduction to finite state automata. Designed for mathematical, physical, and engineering science programs. *Prerequisite: MTH 174 or equivalent.* Lecture 4 hours per week.

MTH 291 Differential Equations (3 Cr.)

Introduces first order differential equations, linear differential equations, numerical methods, and applications. Designed for mathematical, physical, and engineering science programs. *Prerequisite: MTH 174 or equivalent.* Lecture 3 hours per week. Typically offered fall.

Mechanical Engineering Technology (MEC)

MEC 111 Materials for Industry (3 Cr.)

Studies the nature, structure, properties, and typical applications of metallic, polymeric, ceramic, and composite materials. Focuses on applications of materials as well as the behavior of materials subjected to external stresses. Addresses as required the earth's limited material resources, energy efficient materials, dependence on foreign sources of materials, material systems, thermal processing, and electronic-related materials. Lecture 3 hours per week. Typically offered fall.

MEC 112 Processes of Industry (3 Cr.)

Analyzes the processes of manufacturing products from materials for industry/engineering. Includes machining, casting, forming, molding, hot/cold working, chipless machining, and welding. Addresses quality assurance and inspection procedures. Lecture 3 hours per week. Typically offered spring.

MEC 120 Principles of Machine Technology (3 Cr.)

Studies fundamental machine operations and practices, including layout, measuring devices, hand tools, drilling, reaming, turning between corners, cutting tapers and threads and milling; fabrication of mechanical parts on drill press, lathe and mill. Lecture 2 hours per week. Laboratory 2 hour per week. Total 4 hours per week. Typically offered spring.

Medical Assisting (MDA)

MDA 203 Medical Office Procedures (3 Cr.)

Instructs the student in the practice of the management of medical offices in areas such as receptionist duties, telephone techniques, appointment scheduling, verbal and written communications, medical and non-medical record management. Explains library and editorial duties, inventory, care of equipment and supplies, security, office maintenance, management responsibilities, placement and professional ethics and professionalism. *Prerequisite:*

Readiness to enroll in ENG 111. Lecture 3 hours per week. Typically offered spring.

MDA 206 Medical Office Bookkeeping and Insurance (4 Cr.)

Instructs the student in the practice of bookkeeping and insurance programs, laws, and the processing of claim forms. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. Typically offered summer.

MDA 207 Medical Law and Ethics (2 Cr.)

Instructs the student in the legal relationships of the physician, patient and medical assistant; professional liabilities, Medical Practice Acts, professional attitudes and behavior and the types of medical practice. Also includes a basic history of medicine. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 2 hours per week. Typically offered fall and spring.

Medical Laboratory (MDL)

MDL 101 Introduction to Medical Laboratory Techniques (3 Cr.)

Introduces the basic techniques, including design of the health care system, ethics, terminology, calculations, venipuncture and routine urinalysis. *Prerequisite: Must be enrolled in the AAS Medical Laboratory Technology Program.* Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered fall.

MDL 105 Phlebotomy (3 Cr.)

Introduces basic medical terminology, anatomy, physiology, components of health care delivery and clinical laboratory structure. Teaches techniques of specimen collection, specimen handling, and patient interactions. Lecture 3 hours. Typically offered summer and fall.

MDL 106 Clinical Phlebotomy (4 Cr.)

Focuses on obtaining blood specimens, processing specimens, managing assignments, assisting with and/or performing specified tests, performing clerical duties and maintaining professional communication. Provides supervised learning college laboratory/and or cooperating agencies. *Prerequisite: MDL 105.* Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week. Typically offered fall and spring.

Course Descriptions

MDL 110 Urinalysis and Body Fluids (3 Cr.)

Studies the gross, chemical, and microscopic techniques used in the clinical laboratory. Emphasizes study of clinical specimens which include the urine, feces, cerebrospinal fluid, blood, and body exudates. Introduces specimen collection and preparation. *Prerequisite: Must be enrolled in the AAS Medical Laboratory Technology Program.* Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered spring.

MDL 126 Clinical Immunohematology/Immunology I

Incorporates basic principles of antigen and antibody reactions included in blood grouping and typing, compatibility testing, and serological procedure.

MDL 195 Advanced Phlebotomy Techniques

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours.

MDL 227 Clinical Immunohematology/Immunology II

Emphasizes ability to apply theories and procedures utilized in immunohematology for routine transfusion and donor services. Correlates theories with practical application in order to assess cellular and immune mechanisms in specific disease states.

MDL 290 Coordinated Internship (5 Cr.)

Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Students will complete 25 hours of clinical rotations per week for 15 weeks.

MDL 298 Seminar and Project (3 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

Music (MUS)

MUS 111 Music Theory I (4 Cr.)

Discusses elements of musical construction of scales, intervals, triads, and chord progressions. Develops ability to sing at sight and write from dictation. Introduces the analysis of the Bach chorale style. Expands facility with harmonic dictation and enables the student to use these techniques at the keyboard. Part I of II. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week. Typically offered fall.

MUS 112 Music Theory II (4 Cr.)

Discusses elements of musical construction of scales, intervals, triads, and chord progressions. Develops ability to sing at sight and write from dictation. Introduces the analysis of the Bach chorale style. Expands facility with harmonic dictation and enables the student to use these techniques at

the keyboard. Part II of II. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week. Typically offered spring.

MUS 121-122 Music Appreciation I-II (3 Cr. each)

Increases the variety and depth of the student's interest, knowledge, and involvement in music and related cultural activities. Acquaints the student with traditional and twentieth century music literature, emphasizing the relationship music has as an art form with man and society. Increased the student's awareness of the composers and performers of all eras through listening and concert experiences. Lecture 3 hours per week. Typically offered fall and spring.

MUS 136 Applied Music-Voice (1-2 Cr.)

Teaches singing, proper breath control, diction, and development of tone. Studies the standard vocal repertoire. Prerequisite divisional approval. Private lessons are available for either 1 or 2 hours of credit per semester. The length of the lessons will be 1/2 hour for 1 hour credit and 1 hour for 2 hours credit per semester. All courses in applied music may be repeated for a total of 8 hours for the major and 4 hours for the minor. One or two half-hour lessons per week. Four to eight hours practice required. Laboratory 4-8 hours per week. Typically offered fall and spring.

MUS 137 Chorus Ensemble (1-2 Cr.)

Ensemble consists of performance from the standard repertoires, including study of ensemble techniques and interpretation. *Divisional approval required.* May be repeated for credit. Laboratory 3-6 hours per week. Typically offered fall and spring.

MUS 145 Applied Music - Keyboard (1-2 Cr.)

Teaches piano, organ, harpsichord, or synthesizer. Studies the standard repertoire. Prerequisite divisional approval. Private lessons are available for either 1 or 2 hours of credit per semester. The length of the lessons will be 1/2 hour for 1 hour credit and 1 hour for 2 hours credit per semester. All courses in applied music may be repeated for a total of 8 hours for the major and 4 hours for the minor. 1-2 half-hour lessons per week, 4-8 hours practice (laboratory) required. Laboratory 4-8 hours per week. Offered periodically.

MUS 163 Guitar Theory and Practice I (3 Cr.)

Studies the fundamentals of sound production, music theory, and harmony as they apply to guitar. Builds proficiency in both the techniques of playing the guitar and in the application of music fundamentals to these techniques. Presents different types of guitars and related instruments. Emphasizes music as entertainment and as a communication skill. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered fall and spring.

Course Descriptions

MUS 164 Guitar Theory and Practice II (3 Cr.)

Studies the fundamentals of sound production, music theory, and harmony as they apply to guitar. Builds proficiency in both the techniques of playing the guitar and in the application of music fundamentals to these techniques. Presents different types of guitars and related instruments. Emphasizes music as entertainment and as a communication skill. Part II of II. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered spring.

MUS 165 Applied Music - Strings (1-2 Cr.)

Teaches fundamentals of string instruments, harp, or guitar. Studies the standard repertoire. *Prerequisite: divisional approval.* Private lessons are available for either 1 or 2 hours of credit per semester. The length of the lessons will be 1/2 hour for 1 hour credit and 1 hour for 2 hours credit per semester. All courses in applied music may be repeated for a total of 8 hours for the major and 4 hours for the minor. 1-2 half-hour lessons per week, 4-8 hours practice (laboratory) required. Laboratory 4-8 hours per week. Typically offered fall and spring; periodically summer.

MUS 185 Applied Music - Percussion (1-2 Cr.)

Teaches fundamentals of percussion instruments. Studies the standard repertoire. *Prerequisite: divisional permission.* Private lessons are available for either 1 or 2 hours of credit per semester. The length of the lessons will be 1/2 hour for 1 hour credit and 1 hour for 2 hours credit per semester. All courses in applied music may be repeated for a total of 8 hours for the major and 4 hours for the minor. 1-2 half-hour lessons per week, 4-8 hours practice (laboratory) required. Laboratory 4-8 hours per week. Offered fall and spring.

Natural Science

NAS 125 Meteorology (4 Cr.)

Presents a non-technical survey of fundamentals meteorology. Focuses on the effects of weather and climate on humans and their activities. Serves for endorsement or recertification of earth science teachers. Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week. Typically offered all semesters.

NAS 160 Field Ornithology (3 Cr.)

Students will study anatomy, physiology, reproduction, and taxonomy, with special attention to bird families and behavior through the use of preserved specimens, as well as live observation. Includes identifying birds in the wild through sight and songs/calls and explores the interrelationships between wildlife, plants, habitats and humans. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Offered occasionally fall.

NAS 195 Topics In

Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours. Typically offered fall and spring.

Nursing (NUR)

NUR 27 Nurse Aide I (4 Cr.)

Teaches care of older patients with emphasis on the social, emotional and spiritual needs. Covers procedures; communication and interpersonal relations; observations, charting and reporting; safety and infection control; anatomy and physiology; personal care, nutrition and patient feeding; and death and dying. May include laboratory or clinical hours per week. *Prerequisites: MTE 1-3 and readiness to enroll in ENG 111.* Lecture 2 hours per week. Laboratory 6 hours per week. Total 6 hours per week. Typically offered all semesters.

NUR 31 Advanced Skills for Nurse Aides (3 Cr.)

Teaches advanced level skills for Certified Nurse Aides. Lecture 1-2 hours. Laboratory 3-6 hours. Total 4-7 hours per week. Typically offered fall.

NUR 106 Nursing Principles and Health Assessment (5 Cr.)

Introduces principles of nursing, health and wellness concepts, and the nursing process. Identifies nursing strategies to meet the needs of individuals across the lifespan based on Maslow's Hierarchy of Needs. Content includes basic principles of medication administration, math computation skills, nutrition, sleep and rest, growth and development, documentation, elimination, oxygenation and communication. Acquisition of a health history and physical assessment are taught incorporating lifespan concepts. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. *Prerequisite: Acceptance into ADN program.* Lecture 3 hours per week. Laboratory 6 hours per week. Total 9 hours per week. Typically offered fall.

NUR 115 LPN Transition (5 Cr.)

Introduces the role of the registered nurse through concepts and skill development in the discipline of professional nursing. This course serves as a bridge course for licensed practical nurses and is based upon individualized articulation agreements, mobility exams or other assessment criteria as they relate to local programs and service areas. Includes math computational skills and basic computer instruction related to the delivery of nursing care. (This course has been approved by the vice chancellor as an exception to the variable credit policy.) *Prerequisite: Acceptance into ADN program.* Lecture 4 hours. Laboratory 3 hour. Total 7 hours per week. Typically offered summer.

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NUR 116 Selected Nursing Concepts (2 Cr.)

Introduces selected basic skills and concepts in the discipline of nursing and their incorporation into care to meet the changing standards of nursing practice. Intended as a transition/refresher course for transfer and returning students. Lecture 0-2 hour per week. Laboratory 2 hours per week. Laboratory 0-6 hours per week. Total 1-6 hours per week. Typically offered summer and fall.

NUR 120 Nursing Terminology and Charting (2 Cr.)

Focuses on basic terminology used in nursing. Emphasizes combining word forms and applications to nursing situations and the patient's record. *Prerequisite: Acceptance into ADN program.* Lecture 2 hours per week. Typically offered fall.

NUR 136 Principles of Pharmacology I (2 Cr.)

Teaches principles of medication administration which include dosage calculations, major drug classifications, drug legislation, legal aspects of medication administration, drug action on specific body systems and basic computer applications. Lecture 2 hours per week. Typically offered spring.

NUR 180 Essentials of Maternal/Newborn Nursing (3 Cr.)

Utilizes the concepts of the nursing process in caring for families in the antepartum, intrapartum and postpartum periods. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Typically offered fall.

NUR 199 Supervised Study (1 Cr.)

Assigns problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Occasionally offered fall.

NUR 200 Essentials of Mental Health Nursing (3 Cr.)

Utilizes the concepts of the nursing process in caring for individuals, families, and/or groups with mental health needs across the life span. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Prerequisites to be determined by local college. *Prerequisite: Acceptance into ADN program.* Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. Typically offered spring semester.

NUR 212 Second Level Nursing II (7 Cr.)

Emphasizes complex nursing care of individuals, families, and/or groups in various stages of development who are experiencing alterations related to their biopsychosocial needs. Uses all components of the nursing process with

increasing degrees of skill. Includes math computation skills, basic computer instruction related to the delivery of nursing care; neurological cardiovascular; respiratory; eye, ear, nose and throat disorders. May also include: emergency, renal and digestive disorders. Provides supervised learning experience in college nursing and/or cooperating agencies. Lecture 4 hours. Laboratory 9 hours. Total 13 hours per week. Typically offered spring.

NUR 213 Second Level Nursing III (8 Cr.)

Emphasizes complex nursing care of individuals, families, and/or groups in various stages of development who are experiencing alterations related to their biopsychosocial needs. Uses all components of the nursing process with increasing degrees of skill. Includes math computation skills, basic computer instruction related to the delivery of nursing care; cardiovascular, respiratory, endocrine, neurological and renal disorders. Provides supervised learning experience in college nursing laboratories and/or cooperating agencies. Lecture 4 hours. Laboratory 4 hours. Total 8 hours per week. Typically offered spring.

NUR 214 Second Level Nursing IV (7 Cr.)

Emphasizes complex nursing care of individuals, families, and/or groups in various stages of development who are experiencing chronic disorders related to their biopsychosocial needs. Uses all components of the nursing process with increasing degrees of skill. Includes math computation skills, basic computer instruction related to the delivery of nursing care related to chronic disorders throughout the lifespan including immunological; hematological; infectious, sensory; burn; integumentary; sensory, and neurological disorders. Provides supervised learning experience in college nursing laboratories and/or cooperating agencies. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week. Typically offered fall.

NUR 255 Nursing Organization and Management (2 Cr.)

Addresses management and organizational skills as they relate to nursing. Emphasizes group dynamics, resolution of conflicts and leadership styles. Lecture 2 hours per week. Total 2 hours per week. Typically offered spring.

Philosophy (PHI)

PHI 100 Introduction to Philosophy (3 Cr.)

Presents an introduction to philosophical problems and perspectives with emphasis on the systematic questioning of basic assumptions about meaning, knowledge, reality and values. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

PHI 112 Logic II (3 Cr.)

Evaluates deductive arguments utilizing methods of symbolic logic. Lecture 3 hours. Typically offered all semesters.

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PHI 115 Practical Reasoning (3 Cr.)

Studies informal logic and language techniques as they relate to reasoning and argument. Provides practice in analyzing arguments and constructing sound arguments. Lecture 3 hours per week. Typically offered all semesters.

PHI 200 The History of Western Philosophy (3 Cr.)

Offers a brief historical survey of major philosophers from the pre-Socratics to the present. Lecture 3 hours per week. Typically offered fall.

PHI 220 Ethics (3 Cr.)

Provides a systematic study of representative ethical systems. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

PHI 227 Bio-Medical Ethics (3 Cr.)

Examines the ethical implications of specific biomedical issues in the context of major ethical systems. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered spring.

PHI 265 Philosophy of Religion (3 Cr.)

Examines problems raised by arguments for and against the existence of God and discusses such topics as the nature of God, the nature of religious experience, the problem of evil, religious truth and language, immortality, miracles, spirituality, and the relation between philosophy and theology. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall every other year.

Photography (PHT)

PHT 101-102 Photography I-II (3 Cr. each)

Teaches principles of photography and fundamental camera techniques. Requires outside shooting and lab work. Lecture 1 hour per week. Laboratory 4 hours per week. Total 5 hours per week. Typically offered fall and spring.

PHT 107 Nature Photography (3 Cr.)

Teaches fundamentals of color photography of natural objects. Emphasizes selection and use of equipment simple digital workflow, format selection for professional imaging, compositional techniques and color theory. Lecture 2 hours. Total 4 hours per week. Typically offered fall and spring.

PHT 135 Electronic Darkroom (3 Cr.)

Teaches students to create and manipulate digital photographs. Covers masking, color corrections, and merging of illustrations with photographs. Examines the ethical and property-rights issues which are raised in the manipulation of images. Lecture 1 hour. Laboratory 4 hours. Total 5 hours per week. Offered periodically.

PHT 164 Introduction to Digital Photography (3 Cr.)

Teaches the fundamentals of photography including camera function, composition, and image production as they apply to digital imagery. Lecture 1 hour. Laboratory 4 hours. Total 5 hours per week. Typically offered fall.

PHT 201-202 Advanced Photography I-II (3 Cr. each)

Provides weekly critiques of students' work. Centers on specific problems found in critiques. Includes working procedures and critical skills in looking at photographs. *Prerequisite: PHT 102 or equivalent.* Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Offered periodically.

PHT 211-212 Color Photography I-II (3 Cr. each)

Introduces theory, materials and processes of modern color images. Includes additive and subtractive theory, color filtration and negative and positive printing techniques. *Prerequisite: PHT 101 or equivalent. Prerequisite for 212: PHT 211.* Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Offered periodically.

PHT 216 Wildlife Photography (3 Cr.)

An advanced course in the photography of natural objects. Emphasis will be placed on critiquing the student's photographic work. Use of natural lighting, flash photography and diffusion techniques will be emphasized. Offers seminars on specific subject areas such as animals, plants, birds, insects and wilderness scenes. *Prerequisite: PHT 107 or instructor approval.* Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week. Offered periodically.

PHT 227 Photographic Careers (3 Cr.)

Teaches the techniques of small photographic business operations. Includes portfolio preparation and presentation and basic marketing techniques. Covers theory of marketing, costing procedures and problems, legal accounting problems, copyright and fundamentals of small photographic business operation. Lecture 3 hours per week. Offered periodically.

PHT 264 Digital Photography (3 Cr.)

Teaches theory and practice of digital photography. Emphasizes use of digital cameras in studio and on location. Teaches advanced techniques of image editing. Provides training in digital image transmission from remote locations. Extensive work in Adobe Photoshop. *Prerequisites: PHT 101 and ART 283.* Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week. Offered periodically.

PHT 270 Digital Imaging I (3 Cr.)

Introduces students to the tools and techniques used by professionals in the electronic imaging field. Focuses on current trends within the photographic, prepress and

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internet industries. Includes image capture, manipulation, and out-put. Exposes students to the hardware and software used by today's creative professionals in a combination of lectures, demonstrations and class projects. Part I of II. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. Typically offered fall.

Physical Education and Recreation (PED)

PED 101 Fundamentals of Physical Activity I (2 Cr.)

Presents principles underlying the components of physical fitness. Utilizes conditioning activities involving cardiovascular strength and endurance, respiratory efficiency, muscular strength, and flexibility. May include fitness assessment, nutrition and weight control information, and concepts of wellness. Part I of II. Lecture 1 hours. Laboratory 2 hours. Total 3 hours per week. Offered periodically.

PED 103 Aerobic Fitness I (1 Cr.)

Develops cardiovascular fitness through activities designed to elevate and sustain heart rates appropriate to age and physical condition. Part I of II. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Offered periodically.

PED 107 Exercise and Nutrition (2 Cr.)

Provides for the study and application of fitness and wellness and their relationship to a healthy lifestyle. Defines fitness and wellness, evaluates the student's level of fitness and wellness. Students will incorporate physical fitness and wellness into the course and daily living. A personal fitness/wellness plan is required for the 2 credit course. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Offered periodically.

PED 109 Yoga (2 Cr.)

Focuses on the forms of yoga training emphasizing flexibility. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered all semesters.

PED 111 Weight Training I (2 Cr.)

Focuses on muscular strength and endurance training through individualized workout programs. Teaches appropriate use of weight training equipment. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered fall and spring.

PED 113 Lifetime Activities I (1 Cr.)

Presents lifetime sports and activities. Teaches skills and methods of lifetime sports and activities appropriate to the local season and facilities available. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Typically offered all semesters.

PED 116 Lifetime Fitness and Wellness (1 Cr.)

Provides a study of fitness and wellness and their relationship to a healthy lifestyle. Defines fitness and wellness, evaluates the student's level of fitness and wellness and motivates the student to incorporate physical fitness and wellness into daily living. Laboratory 2 hours per week. Total 2 hours per week. Typically offered all semesters.

PED 117 Fitness Walking (1 Cr.)

Teaches content and skills needed to design, implement and evaluate an individualized program of walking, based upon fitness level. Laboratory 2 hours per week. Total 2 hours per week. Typically offered fall and spring.

PED 120 Yoga II (2 Cr.)

Focuses on the forms of yoga training emphasizing flexibility. *Prerequisite:* PED 109. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. Typically offered spring.

PED 123 Tennis I (1 Cr.)

Teaches tennis skills with emphasis on stroke development and strategies for individual and team play. Includes rules, scoring, terminology, and etiquette. Part I of II. Laboratory 2 hours per week. Total 2 hours per week. Offered summer at Fauquier.

PED 127 Cycling (1 Cr.)

Introduces cycling techniques, equipment selection, care and maintenance, safety, and physical conditioning. Laboratory 2 hours. Total 2 hours per week. Offered periodically.

PED 133 Golf I (1 Cr.)

Teaches basic skills of golf, rules, etiquette, scoring, terminology, equipment selection and use and strategy. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Typically offered fall and spring.

PED 141 Swimming I (1 Cr.)

Introduces skills and methods of swimming strokes. Focuses on safety and physical conditioning. Part I of II. Lecture 0 hours. Laboratory 2 hours. Total 2 hours per week. Typically offers all semesters.

PED 142 Swimming II (1 Cr.)

Introduces skills and methods of swimming strokes. Focuses on safety and physical conditioning. Part II of II. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Typically offers all semesters.

PED 147 Hiking (1 Cr.)

Introduces physical and mental benefits of walking or hiking as a form of physical exercise. Skills developed include how to plan for a hike, what to take, and how to select a trail relative to individual abilities. Provides hiking opportunities to explore local regions. Develops awareness of safety,

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weather, and ecological considerations. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Typically offered fall.

PED 154 Volleyball (1 Cr.)

Introduces skills, techniques, strategies, rules, and scoring. Laboratory 2 hours. Total 2 hours per week.

PED 160 Modern Dance (1 Cr.)

Teaches the basic techniques of creative dance. Skills include self-expression, contemporary routines, dance forms, and basic choreography. Laboratory 2 hours. Total 2 hours per week. Offered periodically.

PED 161 Dance Production I (1 Cr.)

Focuses on creating a dance performance. Teaches the basic skills in creating and producing a dance. Includes lighting, costumes, music, and choreography. Laboratory 2 hours per week. Total 2 hours per week. Offered at Fauquier only.

PED 171 Ballroom Dance I (1 Cr.)

Presents the basic step patterns, rhythmic patterns, and positions in ballroom dance. Includes techniques based upon traditional steps with basic choreographic patterns. Part I of II. Laboratory 2 hours. Total 2 hours per week. Offered at Fauquier only.

PED 172 Ballroom Dance II (1 Cr.)

Presents the basic step patterns, rhythmic patterns, and positions in ballroom dance. Includes techniques based upon traditional steps with basic choreographic patterns. Part II of II. Laboratory 2 hours. Total 2 hours per week. Offered at Fauquier only.

PED 187 Backpacking (1 Cr.)

Focuses on the preparation for backpacking trip, equipment and clothing selection, personal and group safety, ecology and physical conditioning. Includes field experience. Laboratory 2 hours per week. Total 2 hours per week. Typically offered fall and spring.

PED 198 Seminar and Project (1-5 Cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

PED 199 Supervised Study in Ballroom Dancing (1 Cr.)

This course will focus on continuing ballroom technique and performance, step memorization and identification. Continued development of choreographic principles related to ballroom dance. Composition of pair dances required. Lecture 0 hours. Laboratory 2 hours per week. Total 2 hours per week. Offered at Fauquier only.

Physics (PHY)

PHY 101-102 Introduction to Physics I-II (4 Cr. each)

Surveys general principles of physics. Includes topics such as force and motion, energy, heat, sound, light, electricity and magnetism and modern physics. *Prerequisite: Readiness to enroll in ENG 111. PHY 101 prerequisite to PHY 102.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered all semesters.

PHY 150 Elements of Astronomy (4 Cr.)

Covers history of astronomy and its recent developments. Stresses the use of astronomical instruments and measuring techniques and includes the study and observation of the solar system, stars, and galaxies. Lecture 3 hours per week. Laboratory 3 hours. Total 6 hours per week. Typically offered all semesters.

PHY 201-202 General College Physics I-II (4 Cr. each)

Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism and selected topics in modern physics. *Prerequisites: Readiness to enroll in ENG 111 and MTH 163 or MTH 115. PHY 201 prerequisite to PHY 202.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered fall and spring.

PHY 241-242 University Physics I-II (4 Cr. each)

Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity and nuclear physics. *Prerequisite: Readiness to enroll in ENG 111. Prerequisite or co-requisite for PHY 241 is MTH 173. Prerequisite or co-requisite for PHY 242 is MTH 174. PHY 241 prerequisite to PHY 242.* Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Typically offered fall and spring.

PHY 243 Modern Physics (4 Cr.)

Teaches principles of modern physics. Includes in-depth coverage of relativity, quantum physics, solid state and nuclear physics. For major requiring calculus-based physics. *Prerequisites: Readiness to enroll in ENG 111 and PHY 241-242 or equivalent.* Lecture 3 hours per week. Laboratory 2-3 hours per week. Total 5-6 hours per week. Typically offered fall and spring.

Political Science (PLS)

PLS 135 American National Politics (3 Cr.)

Teaches political institutions and processes of the national government of the United States, focuses on the Congress, presidency and the courts and on their inter-relationships. Gives attention to public opinion, suffrage, elections, political parties, interest groups, civil rights, domestic policy and foreign relations. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

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PLS 211-212 U.S. Government I-II (3 Cr. each)

Teaches structure, operation and process of national, state and local governments. Includes in-depth study of the three branches of the government and of public policy. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

PLS 241 International Relations I (3 Cr.)

Teaches geographic, demographic, economic, ideological and other factors conditioning the policies of countries and discusses conflicts and their adjustments. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

PLS 242 International Relations II (3 Cr.)

Teaches foreign policies of the major powers in the world community with an emphasis on the role of the United States in international politics. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

Practical Nursing (PNE)

PNE 136 Care of Maternal Newborn and Pediatric Patients (4 Cr.)

Uses a family-centered approach; studies normal and common complications in pregnancy, childbirth, postpartum, the neonate, and children through adolescence. Covers milestones in all aspects of growth and development and common childhood disorders at various ages. Lecture 4 hours per week. Typically offered spring.

PNE 143 Applied Nursing Skills (1 Cr.)

Applies principles and procedures essential to the basic nursing care of patients. Laboratory 3 hours per week. *Instructor permission required.* Typically offered fall.

PNE 145 Trends in Practical Nursing (1 Cr.)

Studies the role of the Licensed Practical Nurse. Covers legal aspects, organizations and opportunities in practical nursing. Assists students in preparation for employment. *Prerequisite: PNE 162.* Lecture 1 hour per week. Typically offered summer.

PNE 158 Mental Health and Psychiatric Nursing (2 Cr.)

Recognizes emotional needs of patients. Provides knowledge of the role that emotions play. Enables students to understand their own behavior as well as patient behavior. *Prerequisite: PNE 162.* Lecture 2 hours per week. Typically offered summer.

PNE 161 Nursing in Health Changes I (6 Cr.)

Focuses on nursing situations and procedures necessary to assist individuals in meeting special needs related to human functions. *Prerequisite: Admission to Practical Nursing Program.* Lecture 3 hours per week. Laboratory 9 hours per week. Total 12 hours per week. Typically offered fall.

PNE 162 Nursing in Health Changes II (11 Cr.)

Continues the focus on nursing situations and procedures necessary to assist individuals in meeting special needs related to human functions. *Prerequisites: ENG 111, BIO 100, PNE 161, PNE 174, PSY 230, SDV 101.* Lecture 5 hours per week. Laboratory 16 hours per week. Total 21 hours per week. Typically offered spring.

PNE 164 Nursing in Health Changes IV (10 Cr.)

Continues the focus on nursing situations and procedures necessary to assist individuals in meeting special needs related to human functions. *Prerequisite: PNE 162.* Lecture 6 hours per week. Laboratory 12 hours per week. Total 18 hours per week. Typically offered summer.

PNE 174 Applied Pharmacology for Practical Nurses (2 Cr.)

Applies problem-solving skills in preparing and administering medications. *Prerequisite: Admission to Practical Nursing Program.* Lecture 1 hour per week. Laboratory 3 hours per week. Total 4 hours per week. Typically offered fall.

PNE 175 Introduction to Supervision and Management for Practical Nurses (1 Cr.)

Presents principles of leadership and management theory to assist the practical nurse graduate in assuming leadership roles within their scope of practice. Provides an interactive format to enhance the learning concepts such as group dynamics, effective communication, organization, prioritization, and delegation. Emphasizes skills necessary for first-line management. *Prerequisite: PNE 162.* Lecture 15 hours per semester. Typically offered summer.

Psychology (PSY)

PSY 116 Psychology of Death and Dying (3 Cr.)

Focuses on psychological aspects of death and dying. Teaches the meaning of death and ways of handling its personal and social implications. Includes psychological, sociological, cultural, and religious views of death. Lecture 3 hours per week. Typically offered spring.

PSY 200 Principles of Psychology (3 Cr.)

Surveys the basic concepts of psychology. Covers the scientific study of behavior, behavioral research methods and analysis and theoretical interpretations. Includes topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy and social psychology. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

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PSY 205 Personal Conflict and Crisis Management (3 Cr.)

Studies the effective recognition and handling of personal and interpersonal conflicts. Discusses cooperative roles of public and private agencies, management of family disturbances, child abuse, rape, suicide and related cases. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

PSY 215 Abnormal Psychology (3 Cr.)

Explores historical views and current perspectives of abnormal behavior. Emphasizes major diagnostic categories and criteria, individual and social factors of maladaptive behavior and types of therapy. Includes methods of clinical assessment and research strategies. *Prerequisites: Readiness to enroll in ENG 111 and PSY 200, 201, or 202.* Lecture 3 hours per week. Typically offered all semesters.

PSY 216 Social Psychology (3 Cr.)

Examines individuals in social contexts, their social roles, group processes and intergroup relations. Includes topics such as small group behavior, social behavior, social cognition, conformity, attitudes and motivation. *Prerequisites: Readiness to enroll in ENG 111 and PSY 200, 201, or 202.* Lecture 3 hours per week. Offered periodically.

PSY 230 Developmental Psychology (3 Cr.)

Studies the development of the individual from conception to death. Follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

PSY 235 Child Psychology (3 Cr.)

Studies development of the child from conception to adolescence. Investigates physical, intellectual, social and emotional factors involved in the child's growth. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

PSY 236 Adolescent Psychology (3 Cr.)

Studies development of the adolescent. Investigates physical, intellectual, social and emotional factors of the individual from late childhood to early adulthood. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

PSY 245 Educational Psychology (3 Cr.)

Explores human behavior and learning in the educational context. Investigates the nature of various mental characteristics such as intelligence, interest, and knowledge. Examines their measurement and appraisal and their significance for educational goals. *Prerequisite: PSY 200.* Lecture 3 hours per week. Offered periodically.

PSY 255 Psychological Aspects of Criminal Behavior (3 Cr.)

Studies psychology of criminal behavior. Includes topics such as violent and nonviolent crime, sexual offenses, insanity, addiction, white collar crime, and other deviant behaviors. Provides a background for law enforcement occupations. *Prerequisites: Readiness to enroll in ENG 111 and PSY 200 or instructor approval.* Lecture 3 hours per week. Offered periodically.

PSY 265 Psychology of Men and Women (3 Cr.)

Examines the major determinants of sex differences. Emphasizes psychosexual differentiation and gender identity from theoretical, biological, interpersonal, and sociocultural perspectives. Includes topics such as sex roles, socialization, rape, abuse, and androgyny. *Prerequisite: PSY 200.* Lecture 3 hours per week. Offered periodically.

PSY 270 Psychology of Human Sexuality (3 Cr.)

Focuses on scientific investigation of human sexuality and psychological and social implications of such research. Considers socio-cultural influences, the physiology and psychology of sexual response patterns, sexual dysfunctions, and development of relationships. *Prerequisite: PSY 200.* Lecture 3 hours per week. Typically offered fall and spring.

Recreation and Parks (RPK)

RPK 100 Introduction to Recreation, Parks & Leisure Studies (3 Cr.)

Includes history and philosophy of the Recreation and Parks movement. Discusses the theory of leisure and play. Analyzes leisure service delivery systems and career opportunities. Emphasizes the commercial, non-profit and public sectors, Armed Forces, therapeutic recreation as well as volunteer service. Lecture 3 hours per week.

RPK 120 Outdoor Recreation (3 Cr.)

Includes history and philosophy of conservation, preservation, and the development of outdoor recreation in the United States. Emphasizes development of practical skills in planning, instructing, and managing outdoor recreation programs and facilities, including youth resident camps, R.V. campgrounds, as well as resources in the urban setting. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

RPK 135 Program Planning (3 Cr.)

Includes principles of program planning in the recreation setting. Analyzes participants' needs and demands, as well as social, physical, and psychological characteristics. Explains how to organize and lead programs. Includes a leadership practicum. *Prerequisite: Completion of concurrent enrollment in RPK Leadership & Supervision.* Lecture 3 hours. Laboratory 2 hours. Total 4 hours per week.

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RPK 141 Leadership and Supervision (3 Cr.)

Introduces leadership and supervision in the leisure services industry. Assesses leadership styles, traits and leadership theories and provides the opportunity for students to assess their own individual styles. Addresses group dynamics, conflict, and issue relating specifically to leadership of volunteers. Includes a leadership practicum. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

RPK 265 Risk Management (3 Cr.)

Discusses the law and liability as they relate to the delivery of leisure services. Teaches practitioners legal principles necessary to analyze programs and facilities with respect to safety, emergency preparedness, and accident reporting protocols. Review hiring procedures, ADA compliance, national (CPSC, ASTM, OSHA) and professional standards (NRPA, ACA), certification and training standards (CPRP, CTRS), supervision and the role of maintenance and insurance. Uses case law and national compliance standards to illustrate legal principles. *Prerequisite: Advanced standing.* Lecture 3 hours per week.

Religion (REL)

REL 100 Introduction to the Study of Religion (3 Cr.)

Explores various religious perspectives and ways of thinking about religious themes and religious experience. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

REL 200 Survey of the Old Testament (3 Cr.)

Surveys books of the Old Testament, with emphasis on prophetic historical books. Examines the historical and geographical setting and place of the Israelites in the ancient Middle East as background to the writings. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

REL 210 Survey of the New Testament (3 Cr.)

Surveys books of the New Testament, with special attention upon placing the writings within their historical and geographical setting. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

REL 215 New Testament and Early Christianity (3 Cr.)

Surveys the history, literature and theology of early Christianity in the light of the New Testament. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

REL 217 Life and Letters of Paul (3 Cr.)

Studies the journeys and religious thought of the apostle Paul. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

REL 230 Religions of the World (3 Cr.)

Introduces the religions of the world with attention to origin, history and doctrine. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

REL 237 Eastern Religion (3 Cr.)

Studies major religious traditions of the East, including Hinduism, Buddhism, Confucianism, Taoism, and Zen Buddhism. Includes an analysis of Eastern philosophy and approach to life. Lecture 3 hours per week. Offered periodically.

REL 240 Religions in America (3 Cr.)

Surveys various manifestations of religion in the American experience. Emphasizes concepts, problems, and issues of religious pluralism and character of American religious life. Lecture 3 hours per week. Offered periodically.

Russian (RUS)

RUS 101 Beginning Russian I (4-5 Cr.)

Develops the understanding, speaking, reading, and writing of Russian, and emphasizes the structure of the language. May include oral drill and practice. Part I of II. Lecture 4-5 hours per week. May include one additional hour of oral practice per week.

RUS 102 Beginning Russian II (4-5 Cr.)

Develops the understanding, speaking, reading, and writing of Russian, and emphasizes the structure of the language. May include oral drill and practice. Part II of II. Lecture 4-5 hours per week. May include one additional hour of oral practice per week.

RUS 201 Intermediate Russian I (3-4 Cr.)

Continues the development of the skills of understanding, speaking, reading, and writing of Russian. Class conducted in Russian. *Prerequisite: RUS 102* or equivalent. May include oral drill and practice. Part I of II. Lecture 3-4 hours per week.

RUS 202 Intermediate Russian II (3-4 Cr.)

Continues the development of the skills of understanding, speaking, reading, and writing of Russian. Class conducted in Russian. *Prerequisite: RUS 102* or equivalent. May include oral drill and practice. Part II of II. Lecture 3-4 hours per week.

Sociology (SOC)

SOC 200 Principles of Sociology (3 Cr.)

Introduces fundamentals of social life. Presents significant research and theory in areas such as culture, social structure, socialization, deviance, social stratification and social institutions. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered all semesters.

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SOC 210 Survey of Physical and Cultural Anthropology (3 Cr.)

Examines physical characteristics and lifestyles of human ancestors and present populations. Explores cultures from around the world to study diverse adaptations made by humans. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Offered periodically.

SOC 211-212 Principles of Anthropology I-II (3 Cr. each)

Inquiries into the origins, development, and diversification of human biology and human cultures. Includes fossil records, physical origins of human development, human population genetics, linguistics, cultures' origins and variation, and historical and contemporary analysis of human societies. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall and spring.

SOC 215 Sociology of the Family (3 Cr.)

Studies topics such as marriage and family in social and cultural context. Addresses the single scene, dating and marriage styles, child-rearing, husband and wife interaction, single parent families, alternative lifestyles. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week.

SOC 225 Sociology of Gender (3 Cr.)

Analyzes influence of major social institutions and socialization in shaping and changing sex roles in contemporary society. Examines differential access to positions of public power and authority for men and women. Ability to read in English at the college level. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours.

SOC 266 Race and Ethnicity (3 Cr.)

Considers race and ethnicity as social constructs that deeply affect our personal experience and our social institutions. Examines the relationships of racial and ethnic groups with each other and with the larger society, and the ways in which these relationships are constantly changing. Explores the experience of different groups and examines ideas of racial justice and equality. Introduces significant theoretical approaches to the study of race and ethnicity. Ability to read in English at the college level. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours. Total 3 hours per week.

SOC 268 Social Problems (3 Cr.)

Applies sociological concepts and methods to analysis of current social problems. Includes delinquency and crime, mental illness, drug addiction, alcoholism, sexual behavior, population crisis, race relations, family and community disorganization, poverty, automation, wars and disarmament. *Prerequisite: Readiness to enroll in ENG 111.* Lecture 3 hours per week. Typically offered fall.

Spanish (SPA)

SPA 16 Spanish for Business (2 Cr.)

Introduces the student to Spanish used in business transactions. Lecture 2 hours per week. Offered periodically.

SPA 101-102 Beginning Spanish I-II (4 Cr.) (4 Cr.)

Introduces understanding, speaking, reading and writing skills and emphasizes basic Spanish sentence structure. May include an additional hour of oral drill and practice per week. *Prerequisite: SPA 101 for SPA 102.* Lecture 4 hours per week. Typically offered all semesters.

SPA 103 Basic Spoken Spanish I (3 Cr.)

Teaches oral communication and introduces cultural mores and customs to students with no prior instruction in the language. Part I of II. Lecture 3 hours per week. Typically offered spring and fall.

SPA 195 Spanish for Health Professionals-Study Abroad Program (4 Cr.)

This is a beginning Spanish Study Abroad course geared for students pursuing a career in the healthcare profession. This course will take place in Salamanca, Spain.

SPA 201-202 Intermediate Spanish I-II (3 Cr.) (3 Cr.)

Continues to develop understanding, speaking, reading and writing skills. May include oral drill and practice. *Prerequisite: SPA 102 or equivalent for SPA 201, SPA 201 for SPA 202.* Lecture 3 hours per week. Typically offered all semesters.

SPA 211 Intermediate Spanish Conversation I (3 Cr.)

Emphasizes the spoken language, stressing fluency and correctness of structure, pronunciation, and vocabulary. *Prerequisite: SPA 202.* Typically offered periodically.

SPA 271-272 Intro to Latin American Civ. Literature I-II (3 Cr. each)

Introduces the student to Latin American culture and literature. Readings and discussions conducted in Spanish. *Prerequisites: Readiness to enroll in ENG 111 and SPA 202 or equivalent.* Lecture 3 hours per week. Offered periodically.

Student Development (SDV)

SDV 100 College Success Skills (1 Cr.)

Assists students in transition to colleges. Provides overviews of college policies, procedures, curricular offerings. Encourages contacts with other students and staff. Assists students toward college success through information regarding effective study habits, career and academic planning and other college resources available to students. May include English and Math placement testing. Strongly recommended for beginning students. Required for graduation. Lecture 1 hour per week. Typically offered all semesters.

Course Descriptions

SDV 101 Orientation to Education Professions (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered fall and spring.

SDV 101 Orientation to Health Information Management (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered fall.

SDV 101 Orientation to Health Professions (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered all semesters.

SDV 101 Orientation for International and Adult Immigrant Students (3 Cr.)

Introduces international students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college, including the learning resource center; counseling and advising listening, test taking and study skills. Lecture 3 hour per week. Typically offered all semesters.

SDV 101 Orientation to IT Professions (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. *Prerequisite: Enrollment in IST degree or one of the IT-related career studies certificates. Students not currently enrolled in either the IST degree or one of the IT-related career studies certificates, may enroll with instructor permission.* Lecture 1 hour per week. Typically offered all semesters.

SDV 101 Orientation to Office Assistants (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. *This class is for PluggedIn VA student cohort in the Medical Office Assistant Program.* Lecture 1 hour per week. Typically offered all semesters.

SDV 101 Orientation to Trades (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered all semesters.

SDV 101 Orientation to Virtual Assistant (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered fall.

SDV 101 Orientation to Visual Arts (1 Cr.)

Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking and study skills; and topical areas which are applicable to their particular discipline. Lecture 1 hour per week. Typically offered fall and spring.

Surgical Tech (SUR)

SUR 130 Introduction to Central Services (3 Cr.)

Introduces central processing with a focus on skills necessary to perform central services competently and safely. Includes aseptic technique, patient-centered theories, decontamination, preparation and packaging for sterilization, sterilization processes, and sterile storage. *Prerequisite: Qualifying Placement Test scores.* Lecture 2 hours. Lab 3 hours. Total 5 hours per week. Typically offered fall.

Course Descriptions

SUR 135 Infection Control (2 Cr)

Introduces the fundamentals of surgical microbiology. Topics include: historical development of microbiology, cell structure and theory, microbial function, human and pathogen relationships, infectious process, blood borne and airborne pathogens, defense microorganisms, infection control and microbial control and destruction. *Prerequisites: Admission into the program; SUR 93.* Lecture 2 hours per week. Typically offered fall.

SUR 140 Introduction to Surgical Care (4 Cr.)

Introduces the study of the surgical process, including aspects of the operating room environment. Highlights preparing the patient for surgery, including transporting, positioning and special preparation procedures. Presents physical, psychological and spiritual needs of the patient including ethical and legal rights of the patient. *Prerequisite: Admission into the program. Corequisite: BIO 141.* Lecture 2 hours per week. Laboratory 3-6 hours per week. Total 5-6 hours per week. Typically offered fall.

SUR 145 Fundamentals of Surgical Care (4 Cr.)

Introduces principles of aseptic technique, sterilization, disinfection and antisepsis including environmental safety and control, CDC and OSHA requirements. Presents packaging, storing, and dispensing surgical supplies, principles of wound healing including types, stages, and complications; types, preparation and care of surgical supplies, packing, dressings, catheters, drains, tubes, supplies, and equipment; classifications of instruments, sutures and needles. Describes responsibilities related to the scrub and circulating roles. Provides students practical experience in the operating room. *Prerequisite: NUR 140. Co-requisite: BIO 141.* Lecture 2 hours. Laboratory 3-6 hours. Total 5-8 hours per week. Typically offered fall.

SUR 210 Surgical Procedures (8 Cr.)

Introduces the surgical specialties of general gastroenterology, gynecology; genitourinary, ophthalmology; EENT; dental; oral and maxillofacial; plastic and reconstructive; pediatrics; oncology; neurosurgery; orthopedics; cardiac; thoracic; vascular; transplant; and trauma in a laboratory and clinical experience. *Prerequisite: SUR 140, SUR 145. Co-requisites: BIO 141, BIO 142.* Lecture 4 hours per week. Laboratory 12-15 hours per week. Total 16-19 hours per week. Typically offered spring.

SUR 230 Clinical Applications (5 Cr.)

Provides extensive clinical experience in all central sterilization areas, in addition to instruction and practice in areas such as selecting instruments, equipment, and supplies; using proper procedures; identifying regulations, standards, and safety. Lecture 1 hour. Lab 12 hours. Total 13 hours per week.

SUR 235 Fundamentals of Central Services (3 Cr.)

Builds upon introductory concepts and skills to include areas such as cleaning, disinfection, sterilization of instruments and equipment, instrument processing, inventory management, safety and quality assurance, professional development and healthcare trends. *Prerequisite: Admission into the program.* Lecture 2 hours. Lab 3 hours. Total 5 hours per week. Typically offered spring.

SUR 250 Surgical Pharmacology (2 Cr.)

Introduces pharmacology as it relates to surgical intervention in the operating room. Includes medication calculations, measurements, administration, terminology and handling and a review of certain drug classifications as they relate to surgical patients. (Note: Previously listed as HLT 250, General Pharmacology). *Prerequisite: SUR 140.* Lecture 2-3 hours per week. Typically offered spring.

SUR 260 Surgical Technology Clinical Practicum (6 Cr.)

Provides continued study and extensive clinical experience in all surgical specialties. Emphasis is on clinical practice thereby further enhancing theoretical and practical knowledge of select procedures, surgical instrumentation, supplies and equipment. The scrub and circulating roles of the surgical technologist including aseptic technique and case preparation for select surgical procedures continue to be emphasized. *Prerequisite: SUR 140, SUR 145, SUR 210. Corequisite: BIO 141-142, HIM 111.* Laboratory 18 hours per week. Typically offered summer.

SUR 296 On-site Training (3 Cr.)

Specializes in career orientation and training program without pay in selected business and industry, supervised and coordinated by the college. Credit/work ration not to exceed 1:5 hours. May be repeated for credit. Typically offered spring.

Welding (WEL)

WEL 120 Introduction to Welding (3 Cr.)

Introduces history of welding processes. Covers types of equipment and assembly of units. Stresses welding procedures such as fusion, non-fusion and cutting oxyacetylene. Introduces arc welding. Emphasizes procedures in the use of tools and equipment. Lecture 1-2 hours per week. Laboratory 2-3 hours per week. Total 3-5 hours per week. Typically offered fall semester.

WEL 130 Inert Gas Welding (3 Cr.)

Introduces practical operations in use of inert gas shielded arc welding. Studies equipment operation, setup, safety and practice of Gmaw (Mig) and Gtaw (Tig). Lecture 1 hour per week. Laboratory 3 hours per week. Total 4 hours per week. Typically offered spring semester.