

# east central junior college

1979/80-1980/81

## catalog

East Central Junior College is publicly supported, comprehensive community/junior college established to serve the residents of the Junior College District of East Central Missouri, including the major portion of Franklin County and smaller portions of Crawford, Gasconade, St. Charles, Warren and Washington Counties.

East Central Junior College is committed to a policy of non-discrimination on the basis of race, age, sex, religion, color, national origin, creed, handicap, marital or parental status, in admissions, educational programs or activities and employment, as specified by federal and state laws and regulations. Inquiries may be addressed to: Dr. Donald D. Shook, President, East Central Junior College.

The College is accredited by the North Central Association of Colleges and Schools.

**East Central Junior College**  
**P.O. Box 529, Highway 50 at Prairie Dell Road**  
**Union, Missouri 63084**  
**(314) 583-5193**

## Anthropology

### Ant 103 3 hours Introduction to Cultural Anthropology (Hg. 2202)

An introductory course in cultural anthropology emphasizing the use of the cultural perspective in gaining understanding in the areas of social structure, political systems, economic systems, religious systems, and human communication.

*Prerequisite: none*

### Ant 113 3 hours Introduction to Physical Anthropology and Archeology (Hg. 2202)

An introduction to the study of physical anthropology and archeology, with special emphasis on the connection between cultural and human development, human variability, major concepts in archeological analysis, and some practical experience in archeological method.

*Prerequisite: none*

### Ant 123 3 hours General Anthropology (Hg. 2202)

A survey course providing an introduction to the basic concepts of archeology, cultural anthropology, and physical anthropology.

*Prerequisite: none*

### Ant 271,2,3 1-3 hours Directed Studies (Honors) in Anthropology (Hg. 2225)

Course content and hours arranged by instructor.

*Prerequisite: Consent of the instructor*

## Art

### Art 103 3 hours Crafts (Hg. 1009)

A course designed to allow the student to explore a number of different craft areas such as: mosaics, basketry, printmaking, etc. Individual projects will be developed in those areas in which the student has special interests. The course is especially well suited to teachers, parents, and other non-art majors who are interested in developing creative hobbies.

*Prerequisite: none*

### Art 113 3 hours Design I (Hg. 1002)

A course in representational, abstract, non-objective drawing and painting. Includes the study of space and volume relations; movement and direction of planes in development of visual units of design and their integration in the whole organization; introduction to perspective, light, and shape.

*Prerequisite: none*

### Art 114 3 hours Design II (Hg. 1002)

The exploration of space, line, color, shape, and texture as the basic elements in visual expression. The application of elements is stimulated by a wide variety of projects stressing creative ability.

*Prerequisite: Art 113 or consent of the instructor*

### Art 123 3 hours Art Appreciation I (Hg. 1003)

A general survey of the artistic activities of man from prehistoric to modern times. Slides and 16mm films are used in conjunction with the course.

*Prerequisite: none*

### Art 124 3 hours Art Appreciation II (Hg. 1003)

A survey of art history from 1900 to the present, with some studio applications. Selected art movements and techniques will be discussed.

*Prerequisite: none*

### Art 133 3 hours Introduction to Art (Hg. 1002)

An introduction to art through various media and techniques such as design, drawing, printmaking, color, shading, sculpture, space relationship. Media used include ink, cray-pas, plaster, and watercolor. This is a survey course and not recommended for art majors.

*Prerequisite: none*

### Art 143 3 hours Drawing I (Hg. 1002)

An introduction to drawing as an approach to space and form through a variety of methods, both traditional and contemporary. Emphasis will be placed upon analytical seeing as well as familiarization with and control of drawing material. Introduction to perspective and light and dark shades; some texture and other methods will be used for creative drawings.

*Prerequisite: Art 113 or consent of the instructor*

**Art 144** **3 hours**  
**Drawing II (Hg. 1002)**

A course in the drawing of the human figure in charcoal, crayon, ink, and other media. Representational, abstract, and non-objective drawings; space and volume relations; movement and direction of planes in space; development of visual units of design and their integration in the whole organization.

*Prerequisite: Art 143 or consent of the instructor*

**Art 153** **3 hours**  
**Painting I (Hg. 1002)**

An introduction to the material and techniques of oil and acrylic painting. Intended to develop technical and expressive abilities. Forms, colors, line, texture, and organization of painting will be studied, plus practical application of framing techniques.

*Prerequisite: Art 143, 144, or consent of the instructor*

**Art 154** **3 hours**  
**Painting II (Hg. 1002)**

A course in theory and practice of painting using oil and acrylics. Development of form through color and appropriate emphasis on texture. Objective appearance conditioned to meet the requirements of a controlled composition and aesthetic concept. While working with a variety of media, the student will be encouraged to emphasize individual expression.

*Prerequisite: Art 153*

**Art 203** **3 hours**  
**Watercolor I (Hg. 1002)**

The study of watercolor painting with emphasis upon color and composition and pictorial expression; experimentation with varied methods of watercolor painting. Studies will include washes and brush control.

*Prerequisite: Art 113 or consent of the instructor*

**Art 204** **3 hours**  
**Watercolor II (Hg. 1002)**

A continuation of the study of watercolor painting with emphasis upon color and composition and pictorial expression; experimentation with varied methods of watercolor painting. Studies will include washes and brush control.

*Prerequisite: Art 203 or consent of the instructor*

**Art 213** **3 hours**  
**Printmaking I (Hg. 1009)**

An introduction to printmaking. Lecture and laboratory exercises dealing with history and techniques of print-

making, including the making of prints from materials such as wood blocks, cardboard, and linoleum by using surface printing techniques.

*Prerequisite: Art 133 or consent of the instructor*

**Art 214** **3 hours**  
**Printmaking II (Hg. 1009)**

A continuation of Printmaking I. Laboratory exercises dealing with the techniques of lithography, silkscreen, and dry point as a fine printing medium. Emphasis is on individual exploration with materials.

*Prerequisite: Art 133, 213, or consent of the instructor*

**Art 223** **3 hours**  
**Photography I (Hg. 1011)**

A non-major course dealing with the basics and principles of photography, primarily black and white, including the mechanical and visual aspect for beginning photographers. Darkroom skills of black and white film developing and printing are taught.

*Prerequisite: none*

**Art 224** **3 hours**  
**Photography II (Hg. 1011)**

A non-major course approaching photography primarily from the creative visual aspect. The course is meant to increase the photographer's awareness and sensitivity, and at the same time, refine his basic mechanical skills.

*Prerequisite: Art 223 or consent of the instructor*

**Art 233** **3 hours**  
**Ceramics I (Hg. 1009)**

A course in hand construction, throwing on the potter's wheel, glazing, and decorating processes of ceramics.

*Prerequisite: none*

**Art 234** **3 hours**  
**Ceramics II (Hg. 1009)**

An advanced study of the principles of ceramics with emphasis on handbuilt techniques. As the student progresses, there will be study on the kick wheel and extensive experimentation with glazes and oxides.

*Prerequisite: Art 233 or consent of the instructor*

**Art 243** **3 hours**  
**Life Drawing and Anatomy (Hg. 1002)**

A study of line, shape, value, pattern, and movement as related to the human figure. Includes the study of the skeletal and muscular structure as related to drawing.

*Prerequisite: Art 143, 144, or consent of the instructor*

**Art 253** **3 hours**  
**Art for the Elementary Teacher** (Hg. 0831)  
 A study of the types of art activities related to various age groups in the elementary school, including experience with art materials used in the classroom.  
*Prerequisite: Art 133 or consent of the instructor*

**Art 263** **3 hours**  
**Sculpture I** (Hg. 1002)  
 An introduction to sculpture through the use of various media: cardboard sculpture, plastic sculpture, and wood or stone sculpture. Some drawing and research of sculptors and sculpture techniques is required.  
*Prerequisite: none*

**Art 264** **3 hours**  
**Sculpture II** (Hg. 1002)  
 An examination and analysis of traditional and contemporary sculpture. Sculptural design as related to material and techniques such as clay, wood, stone, plaster, and metal.  
*Prerequisite: Art 263 or consent of the instructor*

**Art 271** **1 hour**  
**Directed Studies (Honors) in Art** (Hg. 1021)  
 The opportunity provides two alternatives. An exceptional art student may: (1) study or develop independently a specific prearranged topic or project within the field of art, (2) develop experience in procedures, processes, and actual presentations of gallery displays.  
*Prerequisite: Consent of the instructor*

## Biological Science

**Bio 102** **2 hours**  
**Elements of Health Education** (Hg. 0837)  
 A course in health education for teachers. Considers health as it relates to the child and the school.  
*Prerequisite: none*

**Bio 103** **3 hours**  
**Ecology of Wildlife and Man** (Hg. 0420)  
 The study of principles of ecology as they apply to such problems as pollution and wildlife, park, urban, and resource management. Historical and political implications will be examined. Methods of coping with problems will be evaluated. Three hours lecture per week.  
*Prerequisite: none*

**Bio 112** **2 hours**  
**Medical Terminology** (Hg. 0401)  
 A course in biomedical terminology. The student learns to pronounce, to spell, and to interpret the meaning of word parts and how they fit together in modern biomedical terminology. The student studies some 1,500 words and learns the basics for expanding their own biomedical vocabulary. Two hours lecture per week.  
*Prerequisite: none*

**Bio 115** **5 hours**  
**General Biology** (Hg. 0401)  
 An introductory course involving fundamental biological principles of both plant and animal life. It is designed to be used as a general education requirement. Not open to students with credit in botany or zoology or students expecting to major in the biological sciences. Three hours of lecture and two two-hour laboratory periods per week. This course is intended as a general education course and not recommended for a life science major.  
*Prerequisite: none*

**Bio 145** **5 hours**  
**General Zoology** (Hg. 0407)  
 A survey of the animal kingdom, animal structure, life processes, development, ecology, and the evolution of animals. Laboratory will include structure and taxonomic relationships as shown by dissection of representatives of the various animal groups. Three one-hour lecture recitation periods and two two-hour laboratory periods per week. This course should be taken by people majoring in the life sciences.  
*Prerequisite: none*

**Bio 155** **5 hours**  
**General Botany** (Hg. 0402)  
 An introduction to the plant kingdom, structure, physiology, life histories, economic importances, and the evolution of plants. Laboratory will include experimentation and observation to verify and enhance classroom lecture and recitation. Three one-hour lecture recitation periods and two two-hour laboratory periods per week.  
*Prerequisite: Bio 115 or 145 or consent of the instructor*

**Bio 203** **3 hours**  
**Genetics** (Hg. 0422)  
 A study of the principles of heredity and biological evolution as applied to plants and animals.  
*Prerequisite: Bio 115, 145, or 155*

**Bio 234** **4 hours**  
**Human Anatomy and Physiology I**  
(Hg. 0410)

Part one of a two-semester course where gross micro and macroscopic anatomy and the function of the respective structures are studied. The normal state is studied and the abnormal state is studied only to explain points in the normal state of the human body. The first semester includes integument, skeletal, muscular, and nervous systems. Two lectures and two two-hour laboratory periods per week.

*Prerequisite: Bio 115 or 145. College courses in math and chemistry are useful.*

**Bio 235** **5 hours**  
**Human Anatomy and Physiology II**  
(Hg. 0410)

Part two of a two-semester study. Systems studied are digestive, respiratory, circulatory, and urogenital. Sequencing of courses I and II is not important. The student may take Human Anatomy and Physiology II first. Two lectures and three two-hour laboratory periods per week.

*Prerequisite: Bio 115 or 145. College courses in math and chemistry are useful.*

**Bio 245** **5 hours**  
**Comparative Anatomy** (Hg. 0412)

A study of the comparative anatomy of vertebrate animals, including both embryological development and adult structure. Dissection includes a representative from each major vertebrate class. Includes classification of vertebrates, embryology, skeleton, muscles, coelom, digestive and respiratory systems, circulatory system, urogenital system, and nervous system. Two lectures and six hours laboratory per week.

*Prerequisite: Bio 145 or consent of the instructor*

**Bio 254** **4 hours**  
**Microbiology** (Hg. 0411)

An introduction to microorganisms, their morphology, physiology, classification, and importance. Two hours lecture and four hours laboratory per week.

*Prerequisite: Bio 115, 145, or 155*

**Bio 265** **5 hours**  
**General Ecology** (Hg. 0420)

Involves the mathematical and descriptive principles of ecosystem structure, trophic dynamics, population regulation, and evolutionary ecology. Three lectures and two two-hour laboratory periods per week.

*Prerequisite: Bio 115, 145, or 155*

**Bio 271,2,3** **1-3 hours**  
**Directed Studies (Honors) in Biology**  
(Hg. 0437)

A biology internship which provides two alternatives. A student may pursue: (1) investigation or studying independently a specific prearranged topic within the field of biological science, or (2) assisting primarily in the laboratory or in lecture when peer groupings are being utilized.

*Prerequisite: Consent of the instructor*

**Bio 272** **2 hours**  
**Practicum in Biology** (Hg. 0401)

Biology practicum provides two types of learning experiences: (1) assisting students in laboratory sessions of life science courses, and (2) participating in a weekly biology topics seminar. One seminar period and four hours laboratory assisting per week.

*Prerequisite: Successful completion of course in which student will assist or consent of the instructor*

---

## Business

---

**Bus 103** **3 hours**  
**Introduction to Business** (Hg. 0501)

A survey course designed to give the student a general knowledge of the modern business world and a better basis for choosing concentrated business offerings.

*Prerequisite: none*

**Bus 113** **3 hours**  
**Principles of Marketing** (Hg. 0509)

A course designed to introduce the student to the managerial area of marketing. Although consumer and institutional behavior patterns and the overall role of marketing in the economy are covered, the major emphasis will be concerned with the types of problems confronting those involved in marketing management.

*Prerequisite: none*

**Bus 123** **3 hours**  
**Accounting I** (Hg. 0502)

The study of the basic principles and procedures of business accounting, including debits and credits, journals and ledgers, accruals, deferrals, depreciation, determination, voucher system, payroll, the balance sheet, and income statements.

*Prerequisite: High school bookkeeping or Acc 103*

**Bus 133** **3 hours**  
**Accounting II** (Hg. 0502)

A continuation of the study of accounting principles, including cash and investments, receivables, inventory, fixed assets, liabilities, accounting principles, manufacturing operations, partnerships, corporations, and the analysis of financial data concerning these items.

*Prerequisite:* Bus 123

**Bus 223** **3 hours**  
**Business Communications** (Hg. 0501)

A study of communication needs in the office, both oral and written, with emphasis on inter-office communication, letters, and reports. Special attention is given to organization, mechanics, and the business vocabulary.

*Prerequisite:* Eng 123

**Bus 233** **3 hours**  
**Fundamentals of Management** (Hg. 0515)

An evaluation and comparison of private and public personnel practices and techniques of recruiting, selecting, transferring, promoting, classifying, and training workers.

*Prerequisite:* none

**Bus 263** **3 hours**  
**Business Law** (Hg. 0501)

A study of those areas of the law which affect most businesses: sales and credit, contracts, insurance, agency and employment, commercial paper, and personal property and bailments.

*Prerequisite:* none

## Chemistry

**Chm 105** **5 hours**  
**Introduction to Chemistry** (Hg. 1905)

An introduction to the basic principles of chemistry, including inorganic, analytical, physical, and organic chemistry. Environmental and practical applications are emphasized with one lab session per week being used for small group discussions of current topics. Three hours of lecture and two two-hour laboratory periods per week. This course is designed for the student with no background in chemistry.

*Prerequisite:* Mth 173 or consent of the instructor

**Chm 115** **5 hours**  
**General Chemistry I** (Hg. 1905)

The study of atomic and molecular structure, bonding, chemical equations, stoichiometry, gases, solutions, and an introduction to organic chemistry. Three one-hour lecture periods and two two-hour laboratory periods per week, emphasizing quantitative techniques.

*Prerequisite:* A satisfactory score on the MMPT and either Chm 105 or high school chemistry

**Chm 125** **5 hours**  
**General Chemistry II** (Hg. 1905)

A continuation of Chm 115, including the study of chemical equilibria, acid-base chemistry, complex ions, thermodynamics, oxidation-reduction reactions, and qualitative analysis. Three one-hour lecture and recitation periods and two two-hour laboratory periods per week.

*Prerequisite:* Chm 115

**Chm 234, 5** **4-5 hours**  
**Quantitative Analysis** (Hg. 1909)

A study of the fundamental principles of quantitative analytical chemistry, including gravimetric, volumetric, and spectrophotometric determinations. Two hours lecture and two or three three-hour laboratory periods per week.

*Prerequisite:* Chm 125

**Chm 245** **5 hours**  
**Organic and Biological Chemistry** (Hg. 1907)

A survey of major topics of organic and biological chemistry, including aliphatic and aromatic hydrocarbons, carbohydrates, lipids, amino acids, the vitamins, and steroids. The course relates chemical applications to human metabolism, agriculture, home economics, and medical technology programs. Four hours lecture and three hours laboratory per week.

*Prerequisite:* Chm 105 or 115

**Chm 255** **5 hours**  
**Organic Chemistry I** (Hg. 1907)

A study of the structure, nomenclature, stereochemistry, physical properties, and chemical properties of the important classes of organic compounds. Three hours of lecture and two three-hour laboratory periods per week.

*Prerequisite:* Chm 125 or consent of the instructor

**Chm 265** **5 hours**  
**Organic Chemistry II (Hg. 1907)**

A rigorous study of the mechanism, scope and limitations, and synthetic utility of organic reactions, and survey of the chemistry of natural products. Three hours lecture and six hours laboratory per week.

*Prerequisite: Chm 255*

**Chm 271, 2, 3, 4** **1-4 hours**  
**Directed Studies (Honors) in Chemistry**  
(Hg. 1930)

The student enrolled for directed studies has two alternatives: (1) investigate a specific topic within the field of chemistry, (2) assist in the laboratory, stockroom, or with individualized instruction under the supervision of an instructor.

*Prerequisite: Consent of the instructor*

---

## Data Processing

---

**DP 103** **3 hours**  
**Introduction To Data Processing (Hg. 0701)**

An introduction to basic theory and methodology of electronic data processing.

*Prerequisite: none*

**DP 113** **3 hours**  
**Computer Programming - Fortran IV**  
(Hg. 0704)

A study of basic programming techniques and program structure, debugging and verification of programs, data representation, and computer solution of problems using the FORTRAN IV language.

*Prerequisite: Mth 183*

---

## Economics

---

**Ecn 213** **3 hours**  
**Principles of Macroeconomics (Hg. 2204)**

An introduction to the total level of economic activity — the rate of production, employment, income. Topics include unemployment, inflation, the banking system and monetary policy, government spending and fiscal policy, international economics.

*Prerequisite: none*

**Ecn 223** **3 hours**  
**Principles of Microeconomics (Hg. 2204)**

An introduction to how prices are determined. Topics include how prices are set in markets of varying degrees of competition; how income is distributed: wages, interest, profits, and rent; unions; non-market economies.

*Prerequisite: none*

**Ecn 271, 2, 3, 4** **1-4 hours**  
**Directed Studies in Economics (Hg. 2225)**

Course content and hours arranged by instructor.

*Prerequisite: Consent of the instructor*

---

## Education

---

**Ed 101** **1 hour**  
**Career Decisions (Hg. 0801)**

A course designed to assist students in self inventory, to help the student see and understand his interests, aspirations, needs, personal assets, and liabilities. Students will gain experience in exploring the world of work, finding information on jobs, and learning to use that information. Students will learn how to make decisions regarding themselves and their relationship to the world of work.

*Prerequisite: none*

**Ed 112, 3** **2-3 hours**  
**Perspectives in Education (Hg. 0801)**

An introduction to the many facets of American education designed to give the student accurate information about education and to provide him with opportunities to determine his interest and aptitude for pursuing an educational profession.

*Prerequisite: none*

**Ed 223** **3 hours**  
**Educational Psychology (Hg. 0822)**

A study of the theories and issues that relate both to learning and teaching as applied to the educational process. Designed to help the student gain an understanding of those processes that facilitate both student learning and instruction.

*Prerequisite: Psy 113 or consent of the instructor*

## Engineering

### Egr 113 3 hours Engineering Drawing and Descriptive Geometry (Hg. 0901)

A study of the graphic analysis and solution of typical three dimensional space problems through the application of the principles of multi-view projections. Fundamental problems are related to points, lines, planes, intersections, and developments of plane and curved surfaces, revolutions, and vector geometry.

*Prerequisite: none*

### Egr 203 3 hours Engineering Mechanics—Statics (Hg. 0901)

A study of the application of the principles of mechanics to engineering problems of equilibrium. Topics include resultants, equilibrium, friction, trusses, center of gravity, and moment of inertia.

*Prerequisite: Phy 215*

*Corequisite: Mth 225*

### Egr 233 3 hours Introduction to Circuit Theory (Hg. 0909)

An introduction to electrical circuits, electronic devices, nodal methods, steady state, and transient circuits. Resistors, capacitors, voltage sources, and current sources are included.

*Prerequisites: Mth 215 and Phy 215*

*Corequisites: Mth 225 and Phy 225*

## English

### Eng 002 2 hours Developmental Reading (Hg. 1599)

A developmental course in reading, designed for students whose reading level is too low for college work. Comprehension, vocabulary, and phonetics are stressed.

*Prerequisite: none*

### Eng 102 2 hours Speed Reading (Hg. 1599)

A programmed course in reading improvement stressing comprehension and vocabulary development while emphasizing speed. The student uses pacing machines to

build speed and answers questions to measure comprehension of material read at particular speeds.

*Prerequisite: none*

### Eng 105 5 hours Developmental English (Hg. 1599)

An individualized, self-paced course covering grammar and language usage, reading, vocabulary, spelling, and writing paragraphs. This course will fulfill the English requirement for the technical education student or will prepare an A.A. student to enter English 123.

*Prerequisite: none*

### Eng 111 1 hour Study Skills I—Systems of Study (Hg. 1599)

A programmed course designed to orient the student to college, emphasizing such basic study skills as listening and note-taking, time-scheduling, preparing for and taking examinations, using the library, writing a term paper, and studying science and mathematics.

*Prerequisite: none*

### Eng 121 1 hour Study Skills II—Listening and Note- Taking (Hg. 1599)

A programmed course which develops skills in listening and note-taking. The program presents a series of exercises which provide practice in listening to spoken information and in taking notes and answering questions on the material heard.

*Prerequisite: none*

### Eng 122 2 hours Spelling (Hg. 1599)

A programmed course in spelling designed to review the basic spelling problems. The course reviews the basic phonics' rules and goes through 85 units dealing with specific areas of weaknesses in spelling.

*Prerequisite: none*

### Eng 123 3 hours English Composition I (Hg. 1501)

A course dealing with the principles of composition, including rhetoric, grammar, and usage. The course emphasizes the development of ideas through the use of various rhetorical patterns.

*Prerequisite: Demonstrated proficiency on the MCET or Eng 105*



**Eng 126** **3-6 hours**  
**English Composition (Honors) (Hg. 1501)**

An intensified composition course open only to students who demonstrate a high degree of proficiency in English, demonstrated by high school ranks, placement test scores, and writing samples. The student who earns a grade of A or B will receive six hours of credit in composition and will not be required to take English 133; however, the student will be required to take a literature course to fulfill the English requirement. (Any literature course taught at ECJC is acceptable in fulfilling this requirement except Children's Literature.) While emphasis in this course is on the development of ideas through the use of various rhetorical patterns, as is the case in Eng 123, the student is required to write a research paper and a critical paper, and grading standards are higher in Honors than in English 123.

*Prerequisite: Demonstrated high proficiency on the MCET and on a writing sample*

**Eng 131** **1 hour**  
**Study Skills III—Library Skills (Hg. 1599)**

A programmed course designed to introduce the student to the library, making it possible for him to use its resources effectively.

*Prerequisite: none*

**Eng 133** **3 hours**  
**English Composition II (Hg. 1501)**

A second course in composition which provides practice in writing longer units of exposition than does Eng 123, and includes the writing of a research paper and of a critical paper.

*Prerequisite: Eng 123*

**Eng 143** **3 hours**  
**Technical Writing (Hg. 1501)**

An introduction to the practical aspects of preparing reports. The emphasis is on the techniques of collecting and presenting scientific data by means of formal and informal reports. Also included are other elements of communication concerning science and industry.

*Prerequisite: Eng 105 or 123*

**Eng 153** **3 hours**  
**Poetry (Hg. 1501)**

A study of literature concentrating on the forms, techniques, and themes of poetry; emphasis is placed on analysis and interpretation.

*Prerequisite: Eng 105, 123, or consent of the instructor*

**Eng 163** **3 hours**  
**Fiction (Hg. 1501)**

A study of literature concentrating on the forms, techniques and themes of prose fiction. The course includes the study of novels, but the emphasis is placed on the analysis of the short story.

*Prerequisite: Eng 105 or 123*

**Eng 173** **3 hours**  
**Drama (Hg. 1501)**

A study of the forms, techniques, and themes of drama through reading and discussing plays destined for the theater. Film and television drama may also be considered.

*Prerequisite: Eng 105, 123, or consent of the instructor*

**Eng 183** **3 hours**  
**Art of the Novel (Hg. 1503)**

English and American novels, selected to give a fair sampling of 18th, 19th, and 20th century writers, are read, with emphasis placed on how to read the novel. The course is an introduction to the pleasure of the novel and not just a survey.

*Prerequisite: Eng 105 or 123*

**Eng 193** **3 hours**  
**Children's Literature (Hg. 0802)**

A study of children's literature from pre-school to sixth grade to acquaint the student with the best foreign literature for children and to develop standards of judgment in the selection of reading materials for children. Recommended for elementary education majors.

*Prerequisite: Eng 123*

**Eng 202** **2 hours**  
**Vocabulary (Hg. 1599)**

A programmed course in vocabulary that teaches vocabulary by letting the student hear and see the words in use, thereby enabling him to improve his reading, writing, and speaking.

*Prerequisite: none*

**Eng 203** **3 hours**  
**English Grammar (Hg. 1501)**

A comprehensive study of the conventional and educated use of English.

*Prerequisite: Eng 105, 123, or consent of the instructor*

**Eng 213 3 hours**  
**English Literature I (Hg. 1502)**

A survey of English literature from the Anglo-Saxon period through the Age of Reason.

*Prerequisite: Eng 123 and sophomore standing, or consent of the instructor*

**Eng 223 3 hours**  
**English Literature II (Hg. 1502)**

A survey of English literature from the romantic period to the present.

*Prerequisite: Eng 123 and sophomore standing, or consent of the instructor*

**Eng 233 3 hours**  
**American Literature I (Hg. 1502)**

A survey of American literature from the colonial period up to the Civil War.

*Prerequisite: Eng 123 and sophomore standing, or consent of the instructor*

**Eng 243 3 hours**  
**American Literature II (Hg. 1502)**

A survey of American literature from the Civil War to the present.

*Prerequisite: Eng 123 and sophomore standing, or consent of the instructor*

**Eng 253 3 hours**  
**Creative Writing (Hg. 1507)**

A course in imaginative writing involving student production of poems, stories, and plays.

*Prerequisite: Eng 123 or consent of the instructor*

**Eng 263 3 hours**  
**Literature of Fantasy (Hg. 1503)**

A study of the development of fantasy as a literary form, with emphasis on J.R.R. Tolkien. The course aims at defining fantasy in a basic way, and then showing, through an analysis of the works, the pleasures particular to the genre.

*Prerequisite: Eng 105 or 123*

**Eng 271, 2, 3, 4 1-4 hours**  
**Directed Studies in English (Hg. 1520)**

An intensive study of some specific topic in English to be determined by the instructor and student.

*Prerequisite: Consent of the instructor and a grade point average of 3.00 or better in the department*

**Eng 283 3 hours**  
**Literature of Science Fiction (Hg. 1503)**

A study of the development of science fiction, especially in the twentieth century. The emphasis is on reading the works themselves, for themselves, but an attempt is made to show the development of the form toward literary maturity.

*Prerequisite: Eng 105 or 123*

---

## Foreign Languages

---

### French

**Frn 115 5 hours**  
**Elementary French I (Hg. 1102)**

An introductory French course stressing basic language skills: listening comprehension, speaking, reading, and composition. Additional audio-lingual practice in the learning laboratory.

*Prerequisite: none*

**Frn 125 5 hours**  
**Elementary French II (Hg. 1102)**

A continuation of French 115.

*Prerequisite: Frn 115*

**Frn 213 3 hours**  
**French Readings (Hg. 1102)**

A study of selected readings in prose and poetry along with grammar review, vocabulary building, and additional audio-lingual practice.

*Prerequisite: Frn 115 or consent of the instructor*

### German

**Grn 115 5 hours**  
**Elementary German I (Hg. 1103)**

An introductory German course stressing basic language skills: listening comprehension, speaking, reading, and composition. Additional audio-lingual practice in the learning laboratory.

*Prerequisite: none*

**Grm 125** **5 hours**  
**Elementary German II** (Hg. 1103)

A continuation of German 115.  
*Prerequisite: Grm 115*

**Grm 213** **3 hours**  
**German Readings** (Hg. 1103)

A study of selected readings in prose and poetry along with grammar review, vocabulary building, and additional audio-lingual practice.  
*Prerequisite: Grm 125 or consent of the instructor*

## Spanish

**Spn 115** **5 hours**  
**Elementary Spanish I** (Hg. 1105)

An introductory Spanish course stressing basic language skills: listening comprehension, speaking, reading, and composition. Additional audio-lingual practice through use of the learning laboratory.  
*Prerequisite: none*

**Spn 125** **5 hours**  
**Elementary Spanish II** (Hg. 1105)

A continuation of Spanish 115.  
*Prerequisite: Spn 115*

**Spn 213** **3 hours**  
**Spanish Readings** (Hg. 1105)

A study of selected readings in prose and poetry along with grammar review, vocabulary building, and additional audio-lingual practice.  
*Prerequisite: Spn 125 or consent of the instructor*

**Spn 222** **2 hours**  
**Spanish Composition** (Hg. 1105)

A review of Spanish grammar with practice in composition.  
*Prerequisite: Spn 125 or consent of the instructor*

## Geography

**Geg 113** **3 hours**  
**Geography of the New World** (Hg. 2206)

A regional study of North America, South America, and

Australia, with emphasis on the natural resources, political conditions, economy, population, and cultural patterns of each area.

*Prerequisite: none*

**Geg 123** **3 hours**  
**Geography of the Old World** (Hg. 2206)

A regional study of Europe, Africa, and Asia with emphasis on the natural resources, political conditions, economy, population, and cultural patterns of each area.  
*Prerequisite: none*

## Geology

**Gel 115** **5 hours**  
**Introduction to Physical Geology**  
(Hg. 1914)

An introductory course in physical geology in which materials of the earth's crust, structures, and geologic features of the surface are studied. Field trips and the laboratory study of common minerals and rocks will be included. Three hours lecture and four hours laboratory per week.

*Prerequisite: none*

## History

**His 125** **5 hours**  
**American History** (Hg. 2205)

A survey of the cultural, economic, institutional, political, and social forces and events which have shaped the United States from the "Age of Discovery" to the present. American History 125 is designed to satisfy Section 170.011 Rs Mo., of the Missouri Statutes in regard to the study of State and Federal Constitutions.

*Prerequisite: none*

**His 213** **3 hours**  
**Foundations of World Civilization I (Europe)** (Hg. 2205)

An interdisciplinary study of the European people "from the Renaissance through the Age of Napoleon." Attention will be given to cultural, intellectual, diplomatic, and political movements. The course is designed for students of history and others desiring elective courses in the humanities.

*Prerequisite: none*

**His 223** **3 hours**  
**Foundations of World Civilization II**  
**(Europe) (Hg. 2205)**

An interdisciplinary study of European nations from the French Revolution to the present. Attention will be given to cultural, intellectual, social, diplomatic, and political movements of recent and contemporary Europe. The course is designed for students of history and others who desire an elective course in the humanities.

*Prerequisite: none*

**His 233** **3 hours**  
**Foundations of World Civilization III (Latin**  
**America) (Hg. 2205)**

An interdisciplinary topical study of the social, economic, political, cultural, and intellectual conditions of modern Latin America from 1800 to the present. The course is designed for students of history and others who desire an elective course in the humanities.

*Prerequisite: Sophomore standing or consent of the instructor*

**His 243** **3 hours**  
**Foundations of World Civilization IV**  
**(Africa and Asia) (Hg. 2205)**

An interdisciplinary study of Africa and Asia from 1800; including studies of the politics, culture, and people of both recent and contemporary Africa, China, Japan, India, and other selected nations of Asia. The course is designed for students of history and others who desire an elective course in the humanities.

*Prerequisite: Sophomore standing or consent of the instructor*

**His 271** **1 hour**  
**Directed Studies (Honors) in History**  
**(Hg. 2225)**

The student enrolled for directed studies has two alternatives: (1) investigate a specific topic within the field of history, (2) assist with tutorial history instruction under the supervision of an instructor.

*Prerequisite: Consent of the instructor*

## Home Economics

**HmE 113** **3 hours**  
**Nutrition (Hg. 1306)**

A study of the essential nutrients and their values in

various food groups, their functions in the body, and how to determine the food needs of the individual.

*Prerequisite: none*

**HmE 123** **3 hours**  
**Consumer Education (Hg. 1304)**

A study of the management of resources, consumer information, and decision making relative to selection and utilization of goods and services.

*Prerequisite: none*

## Mathematics

**Mth 101** **1 hour**  
**Metric System (Hg. 1701)**

An introduction to the use of metric quantities, designed for the person not familiar with the metric system of measurements. Metric units of length, mass, volume, and temperature will be presented, along with hands-on practice at approximating these quantities. Conversion of unit quantities from customary English to metric units is included.

*Prerequisite: none*

**Mth 103** **3 hours**  
**Developmental Mathematics I (Hg. 1799)**

An introductory course in arithmetic and algebra designed for any student scoring less than 35 on the Level I Math Placement Test. Developmental Mathematics I consists of the first thirteen topics of the "Basic Mathematics" textbook and a final exam over the first thirteen topics. Topics covered include whole numbers, fractions, decimals, percentage, exponents, directed numbers, solving linear equations, and applications of arithmetic and algebra.

*Prerequisite: None*

**Mth 113** **3 hours**  
**Developmental Mathematics II (Hg. 1799)**

A beginning course in arithmetic and algebra. Developmental Mathematics II consists of all twenty-two topics of the "Basic Mathematics" textbook and a final exam over the twenty-two topics. Credit for Developmental Mathematics II can also be received by passing a final exam over the first thirteen topics, a test on each topic, 14-22, and a final exam over all twenty-two topics. Direct entrance into Developmental Math II may be achieved by making a passing score on the Developmental Math I final. Topics covered include exponents, solving linear

equations, word problems, graphing, multiplying polynomials, factoring polynomials, fractions containing variables, radicals, and quadratic equations.

*Prerequisite:* A grade of "C" or better in Mth 103 or a satisfactory score on the Mth 103 Final Exam

**Mth 133** **3 hours**  
**Math for the Elementary Teacher I**  
(Hg. 1701)

A course designed for students who are potential elementary teachers. Topics covered include the following: sets, logic, venn diagrams, systems of numerations, system of whole numbers, system of integers, system of rational numbers, field properties, algorithms for whole numbers, and terminology of mathematics. As these topics are mastered, modern methods of teaching these topics will be investigated.

*Prerequisite:* Mth 103 or satisfactory score on Level I or Level II Math Placement Test

**Mth 143** **3 hours**  
**Math for the Elementary Teacher II**  
(Hg. 1701)

A course designed to familiarize the potential elementary teacher or the general education student with all topics which are taught in the math curriculum in grades K-8 and the modern approach of teaching these topics. Topics covered include the following: review of topics covered in Mth 133, number theory, decimals and real numbers, nonmetric geometry, metric geometry, statistics and probability, and modern methods of teaching the above mentioned topics.

*Prerequisite:* Mth 133 or consent of the instructor

**Mth 163** **3 hours**  
**Contemporary College Math** (Hg. 1701)

A course is designed to give the student an appreciation of mathematics and an understanding of the role of mathematics in today's society. Contemporary College Math will satisfy the math requirement at most four-year colleges but is not recommended for math or science majors. Topics covered include: history of mathematics, math in the humanities and social sciences, consumer math, logic, set theory, the computer, algebra, geometry, trigonometry, probability, statistics, linear programming, and calculus.

*Prerequisite:* Two years of high school algebra and a satisfactory score of 35 or above on the Level I Math Placement Test or Mth 113

**Mth 173** **3 hours**  
**Intermediate Algebra** (Hg. 1701)

A preparatory course covering the fundamental principles of algebra designed to prepare the student to take College Algebra and in the case of certain degrees to satisfy the mathematics requirement. Recommended for those students who have one or two years of high school algebra. Topics covered include the following: sets, factoring, linear and quadratic equations, fractions, and fractional equations, exponents and radicals, simple analytical geometry, and systems of equations.

*Prerequisite:* Mth 113 or satisfactory score on Level I Math Placement Test

**Mth 182** **2 hours**  
**Trigonometry** (Hg. 1701)

A study of trigonometric functions and their applications. Topics covered include the following: angles, length of arc, tables of trigonometric functions, interpolation, reference angles, graphic representation of trigonometric functions, law of cosines, law of sines, identities, trigonometric equations, inverse functions, complex numbers, logarithms, and polar coordinates.

*Prerequisite:* Mth 173

*Prerequisite or Corequisite:* Mth 183

**Mth 183** **3 hours**  
**College Algebra** (Hg. 1701)

A course designed to meet the needs of the student in transfer program. Topics covered include the following: sets, exponents, theory of equations, inequalities, complex number system, systems of equations, permutations, combinations, probability, radicals, sequences, graphing, and statistics.

*Prerequisite:* Mth 173 or satisfactory score on the MMPT Math Placement Test

**Mth 185** **5 hours**  
**Pre-Calculus Mathematics** (Hg. 1701)

A unified study of College Algebra and Trigonometry. Topics include sets, exponents, solutions of equations, inequalities, theory of equations, systems of equations, graphing, radicals, complex numbers, matrices and determinants, analytical geometry, solutions of right triangles, identities, solutions of oblique triangles, inverse functions, logarithms, and polar coordinates.

*Prerequisite:* Mth 173 or satisfactory score on the MMPT

**Mth 195** **5 hours**  
**Analytic Geometry and Calculus I**  
 (Hg. 1701)

A first course in a sequence of courses including analytic geometry, differential calculus, and integral calculus. This series is recommended for majors in engineering, the physical sciences, and mathematics. Topics include the following: properties of real numbers, introduction to analytic geometry, functions, limits, continuity, the derivative, differentiation of algebraic functions, applications of the derivative, antidifferentiations, and the definite integral.

*Prerequisite:* Mth 183 and 182, 185, or a satisfactory score on the MMPT

**Mth 204** **4 hours**  
**Finite Mathematics** (Hg. 1701)

An introduction to matrices, linear programming, probability, and mathematics of finance. Designed for non-physical science majors.

*Prerequisite:* Mth 183 or 185

**Mth 213** **3 hours**  
**Statistics** (Hg. 1702)

An introductory course in statistics with an emphasis upon the collection and presentation of the following data: averages, dispersion, introduction to statistical inference, index numbers, time series, correlation, and linear regression.

*Prerequisite:* Mth 173

**Mth 215** **5 hours**  
**Analytic Geometry and Calculus II**  
 (Hg. 1701)

A continuation of Mth 185 including the following topics: applications of the definite integral, logarithmic and exponential functions, trigonometric functions, techniques of integration, approximate integration, polar coordinates, conic sections, vectors, and parametric equations.

*Prerequisite:* Mth 195

**Mth 225** **5 hours**  
**Analytic Geometry and Calculus III**  
 (Hg. 1701)

A continuation of Mth 195 including the following topics: hyperbolic functions, indeterminate forms, improper integrals, vectors in three-dimensional space, solid analytic geometry, differential calculus of functions of several

variables, multiple integration, and infinite series.

*Prerequisite:* Mth 215

**Mth 233** **3 hours**  
**Differential Equations** (Hg. 1701)

The study of separable variables, homogeneous equations, exact equations, integrating factors, linear differential equations, LaPlace transform, and applications.

*Prerequisite:* Mth 225

**Mth 271, 2, 3, 4** **1-4 hours**  
**Directed Studies (Honors) in Mathematics**  
 (Hg. 1713)

The student enrolled for directed studies has two alternatives: (1) investigate a specific topic within the field of mathematics, (2) assist with tutorial mathematics instruction under the supervision of an instructor.

*Prerequisite:* Consent of the instructor

---

## Music

---

**Mus 103** **3 hours**  
**Fundamentals of Music** (Hg. 1005)

A basic study of music, including notation, scales, intervals, chords, and rhythms; intended for the elementary education major and those not majoring in music. Summer offering intended as a pre-music theory survey.

*Prerequisite:* none

**Mus 111, 211** **1 hour**  
**College Choir** (Hg. 1004)

A performance course open to all students, with consent of instructor, who have had previous chorus or choir experience. Credit will be given for participation each semester.

*Prerequisite:* none

**Mus 111, 211** **1 hour**  
**College Concert Band** (Hg. 1004)

A performance course open to all students, with consent of instructor, who have had previous experience. Credit will be given for participation each semester.

*Prerequisite:* none

**Mus 111, 211** **1 hour**  
**ECJC Singers** (Hg. 1004)

A select singing ensemble which performs popular and religious music of all ages. Open to all students with the consent of the instructor.

*Prerequisite:* none

**Mus 111, 211 1 hour**

**Stage Band (Hg. 1004)**

A studio band which prepares and presents concerts, while dealing primarily with music of the jazz idiom. Credit will be given for participation each semester. Open to all college students who are qualified instrumentalists by consent of the director.

*Prerequisite: none*

**Mus 112, 222 2 hours**

**Applied Music (Hg. 1004)**

Private lessons in the following areas: piano, voice, woodwind, and string instruments.

*Prerequisite: none*

**Mus 113 3 hours**

**Music Appreciation (Hg. 1006)**

A historical survey of the development of music, intended to provide a background for the understanding and application of music. Recommended for non-music majors.

*Prerequisite: none*

**Mus 115 5 hours**

**Music Theory I (Hg. 1004)**

A beginning course in music theory, study of intervals, triads, four-part diatonic harmony, connection of triads, and their inversions. Sight singing, dictation, and elements of music; aural recognition of all diatonic intervals; melodic phrases; and rhythms. Includes two hours laboratory per week.

*Prerequisite: none*

**Mus 123 3 hours**

**Music History I (Hg. 1006)**

A chronological survey of the development of music in western civilization from the Greek period to the nineteenth century. Emphasis will be placed on the growth of musical form and style as illustrated in the musical masterpieces from the various phases of musical beauty and a consideration of the extra-musical factors bearing upon the works of major composers.

*Prerequisite: none*

**Mus 125 5 hours**

**Music Theory II (Hg. 1004)**

A second course in music theory, extending into areas of seventh chords and non-harmonic tones. Includes two hours laboratory per week.

*Prerequisite: Mus 115*

**Mus 133 3 hours**

**Music History II (Hg. 1006)**

A continuation of Music History I surveying the development of music in western civilization from the nineteenth century to the present.

*Prerequisite: none*

**Mus 143 3 hours**

**Music Literature (Hg. 1006)**

A study of music through aural and visual perception. Music studied will include examples of the major musical forms used by composers from the Middle Ages into the 20th Century. In addition to listening assignments covered in class, supplementary listening assignments will be made on a weekly basis.

*Prerequisite: none*

**Mus 152 2 hours**

**Foreign Languages for Singing I (Hg. 1004)**

A course introducing the International Phonetics Alphabet and studying Italian and Latin diction. Emphasis is placed on oratorical rather than conversational pronunciation.

*Prerequisite: none*

**Mus 162 2 hours**

**Foreign Languages for Singing II**

(Hg. 1004)

A study of German and French diction. Emphasis is placed on oratorical rather than conversational pronunciation.

*Prerequisite: Mus 152 or consent of the instructor*

**Mus 203 3 hours**

**Music for Elementary Teachers (Hg. 0832)**

A course with an activities approach to classroom music for elementary teachers. The activities are approached through the ideas of Orff and Kodaly.

*Prerequisite: Mus 103*

**Mus 215 5 hours**

**Music Theory III (Hg. 1004)**

A third course in music theory. A study of chromatic harmony including secondary dominants, modulation, and altered chords. Two hours laboratory per week.

*Prerequisite: Mus 125*

**Mus 225 5 hours**

**Music Theory IV (Hg. 1004)**

A continuation of Mus 215 to more complex areas of

omatic, borrowed, and altered chords; and finally to the vigorous appearance of complex modern techniques. Includes two hours laboratory per week.  
*Prerequisite: Mus 215*

## Philosophy

### Phil 103 3 hours

#### Introduction to Philosophy (Hg. 1509)

A course which introduces the student to some of the major areas of philosophic inquiry concerning human experiences and the nature of the reality through the reading and discussion of representative selections from contemporary and classical writings.

*Prerequisite: none*

### Phil 113 3 hours

#### Introduction to Logic (Hg. 1509)

A study of techniques for distinguishing between adequate and inadequate arguments. The course will introduce several techniques that may be used to evaluate arguments. Primary emphasis will be on learning to use the techniques of propositional and monadic predicate calculi in evaluation arguments.

*Prerequisite: none*

### Phil 123 3 hours

#### History of Western Philosophy (Hg. 1509)

A study of the historical development in the awareness of solutions to philosophic problems from the beginning of Western Philosophy to the present time. The course is based upon the teachings of the great philosophers, with emphasis upon their importance for us today.

*Prerequisite: none*

### Phil 133 3 hours

#### Comparative World Religions (Hg. 1509)

An introductory survey course of the major Eastern and Western religions of the world today, with emphasis on the similarities and differences in their basic teachings and practices, historical backgrounds, and lives of their founders.

*Prerequisite: none*

### Phil 213 3 hours

#### Contemporary Ethical Problems (Hg. 1509)

A survey course in philosophy, designed to be problem oriented, using the writings of the philosophers as a

resource in understanding the issues raised by the contemporary ethical problems.

*Prerequisite: none*

### Phil 243 3 hours

#### Biblical Literature I: Old Testament (Hg. 1510)

A critical-historical survey of the Old Testament as literature. Special emphasis is placed upon the different modern approaches to Biblical understanding and criticism, and upon the many different literary types of writings found in the Old Testament itself. The course is designed to help the student appreciate the Bible as great literature from a critical point of view.

*Prerequisite: none*

### Phil 253 3 hours

#### Biblical Literature II: New Testament (Hg. 1510)

A critical-historical survey of the New Testament as literature. Special emphasis is placed upon the different modern approaches to Biblical understanding and criticism, and upon the different literary types of writings found in the New Testament itself, especially the Gospels and Letters of Paul. The course is designed to help the student appreciate the Bible as great literature from a critical point of view.

*Prerequisite: none*

### Phil 271, 2, 3 1-3 hours

#### Topics in Philosophy (Hg. 1520)

An intensive study of various topics in philosophy, individual philosophers, or philosophical schools. The study will include extensive reading, discussion, and an in-depth paper.

*Prerequisite: Consent of the instructor*

## Physical Education

### PE 101 1 hour

#### Coed Physical Activity (Hg. 0835)

Various beginning and intermediate level physical activity courses may be selected from the following group. Each one-hour activity course meets the equivalent of two hours per week. Refer to the schedule of classes for courses offered in a particular semester.

*Prerequisite: none*

List of activity courses will be found on the next page.



**Adventure Education/Outdoor Skills**

Archery  
Basketball  
Bowling  
Canoeing  
Fencing  
Field Hockey  
Flag Football  
Folk and Square Dance  
Golf  
Gymnastics

Karate  
Racquet Sports  
Physical Fitness  
Slinmnastics  
Soccer  
Softball  
Tennis  
Volleyball  
Weight Training  
Wrestling  
Yoga

**PE 101****1 hour****Adaptive Physical Activity (Hg. 0835)**

An individualized course designed to offer various physical activities to individuals with temporary or permanent physical disabilities or handicaps.

*Prerequisite: none*

**PE 101****1 hour****Varsity Sports (Hg. 0835)**

A course in individual skills, team strategy, and conditioning that is involved with preparing a team or individual for intercollegiate competition. Includes competition in the following sports: basketball, softball, baseball, golf, tennis, and volleyball.

*Prerequisite: Permission from coach of the sport involved*

**PE 102****2 hours****Officiating Sports (Hg. 0835)**

A course designed for physical education majors to teach them the techniques and rules of officiating football and basketball.

*Prerequisite: none*

**PE 122****2 hours****Introduction to Physical Education (Hg. 0835)**

A consideration of the principles of the basic theories of physical education. Course is designed for physical education majors and minors.

*Prerequisite: none*

**PE 132****2 hours****Introduction to Recreation (Hg. 0835)**

An introductory look at the field of recreation. Includes study in the history, development, principles, and facilities for recreation. The course is designed for physical education and recreation majors and minors.

*Prerequisite: none*

**PE 212****2 hours****Games of Low Organization (Hg. 0835)**

A course designed for physical education majors, for the learning of activities and games to be taught on the elementary level. The course involves eight weeks of practical teaching in the elementary grades.

*Prerequisite: none*

**PE 222****2 hours****First Aid and Athletic Training (Hg. 0835)**

A study of the treatment of wounds, shock, poisoning, fractures, unconsciousness, stoppage of breathing, and the care and prevention of athletic injuries.

*Prerequisite: none—PE majors*

**PE 271,2****1-2 hours****Directed Studies in Physical Education (Hg. 0835)**

Independent study (usually by physical education majors) in the various aspects of the physical education curriculum. This could include: (1) specialized study in one area of physical education, (2) assisting with instruction or administration of class, (3) assisting with operation of varsity sports, (4) assisting with organization or administration of intramural sports.

*Prerequisite: none*

**Physics****Phy 105****5 hours****Physical Science (Hg. 1901)**

A study of the basic concepts of matter and energy and their application in environmental and energy issues in modern society. Recommended for non-science majors. Four hours of lecture-discussion and one two-hour laboratory per week.

*Prerequisite: none*

**Phy 115****5 hours****Introductory Physics (Hg. 1902)**

A study of mechanics, heat, sound, light, electricity, and physical properties of matter. A non-calculus course which features problem solving and laboratory work. Three hours lecture and two lab periods per week.

*Prerequisite: Dft 163, Mth 173, or satisfactory score on MMPT*

**Phy 175** **5 hours**  
**College Physics I** (Hg. 1902)

A study of mechanics, properties of matter, and thermodynamics. Not recommended for math, physical science, or engineering students.

*Prerequisite:* Mth 182 and 183, 185, or equivalent

**Phy 185** **5 hours**  
**College Physics II** (Hg. 1902)

A continuation of Phy 175, including a study of electricity, magnetism, light, and atomic physics. Not recommended for math, physical science, or engineering students.

*Prerequisite:* Phy 175

**Phy 215** **5 hours**  
**General Physics I** (Hg. 1902)

A study of the mechanics of solids, liquids, and gases; and of heat and sound. A course intended for the student who plans to major in mathematics, the physical sciences, or engineering. Four hours lecture and one two-hour laboratory period per week.

*Corequisite:* Mth 215

**Phy 225** **5 hours**  
**General Physics II** (Hg. 1902)

A study of electricity, magnetism, light, and modern physics. Four hours lecture and one two-hour laboratory period per week.

*Prerequisite:* Phy 215

*Corequisite or Prerequisite:* Mth 225

**Phy 271** **1 hour**  
**Directed Studies (Honors) in Physics**  
 (Hg. 1930)

The student enrolled for directed studies has two alternatives: (1) investigate a specific topic within the field of physics, or (2) assist in the laboratory, stockroom, or with individualized instruction under the supervision of an instructor.

*Prerequisite:* Consent of the instructor

---

## Political Science

---

**PS 125** **5 hours**  
**American Government** (Hg. 2207)

An introduction to the basic principles and structures of American government. Emphasis will be placed on constitutional development and interpretation, the place of

government in the social process, the nature of political organization, the machinery of popular control in the processes of authority and freedom, and the function of the executive, legislative, and judicial branches. State-local relationships, state, county and municipal governments, and the growth and problems of metropolitan areas are also considered. Successful completion of Political Science 125 satisfies Section 170.011 Rs Mo., of the Missouri Statutes in regard to the study of State and Federal Constitutions.

*Prerequisite:* none

**PS 213** **3 hours**  
**International Relations** (Hg. 2210)

A study of the major factors underlying international relations: climate and geography, national concepts and institutions, and the development of foreign policy. Today's problems of developing nations, East vs. West, and nuclear potentials are considered.

*Prerequisite:* PS 125 or consent of the instructor

**PS 271** **1 hour**  
**Directed Studies (Honors) in Political Science** (Hg. 2225)

The student enrolled for directed studies has two alternatives: (1) investigate a specific topic in the field of political science, (2) assist with tutorial political science instruction under the supervision of an instructor.

*Prerequisite:* Consent of the instructor

---

## Psychology

---

**Psy 113** **3 hours**  
**General Psychology I** (Hg. 2001)

A study of behavior designed to present an account of the significant concepts and findings of contemporary psychology, and to provide a firm foundation for students who will take further courses in psychology or would like to study further on their own.

*Prerequisite:* none

**Psy 123** **3 hours**  
**General Psychology II** (Hg. 2001)

A study of behavior designed to deal with basic issues and problems in psychology. This course will give the student a basic understanding of how psychologists go about studying behavior so that he/she can form some of his/her own tentative judgements.

*Prerequisite:* Psy 113

**Psy 213** **3 hours**  
**Personal and Social Adjustment** (Hg. 2001)

A study of the basic nature of human beings, with the problems that confront us today, and with our quest for answers. The course will attempt to extend the applications to the achievement of more effective behavior and personal growth in our changing world.

*Prerequisite: Psy 113 or consent of the instructor*

**Psy 223** **3 hours**  
**Educational Psychology** (Hg. 0822)

A study of the theories and issues that relate both to learning and teaching as applied to the educational process. The student will gain an understanding of those processes that facilitate both student learning and instruction.

*Prerequisite: Psy 113 or consent of the instructor*

**Psy 233** **3 hours**  
**Child Psychology** (Hg. 2001)

A study of development from conception to adolescence emphasizing both current and historical approaches to research and theory, genetic and environmental influences on development, and the sequence and timing of physical, mental, and personality development throughout the years of childhood.

*Prerequisite: Psy 113 or consent of the instructor*

**Psy 253** **3 hours**  
**Adolescent Psychology** (Hg. 2001)

A study of development from puberty to adulthood emphasizing the critical issues involved in theorizing about adolescents, the biological changes, the various theories about adolescent development, the psychological and sociological effects that occur during adolescence, and the development of morality during the adolescent years.

*Prerequisite: Psy 113 or consent of the instructor*

**Psy 271, 2, 3** **1-3 hours**  
**Directed Studies in Psychology** (Hg. 2020)

Course content and hours arranged by instructor.

*Prerequisite: consent of the instructor*

---

## **Sociology**

---

**Soc 113** **3 hours**  
**General Sociology** (Hg. 2208)

An introductory course in the field of sociology with

special emphasis on the scientific study of social relations, social organizations, social institutions, and social dynamics.

*Prerequisite: none*

**Soc 123** **3 hours**  
**American Social Problems** (Hg. 2208)

A study of select social problems, including consideration of proposed lines of action in dealing with them. Problem areas include population, the affluent society, poverty, urban renewal, delinquency and crime, automation, the aging, ethnic and racial relations, and the role of the United States in the relationship to the underdeveloped areas of the world.

*Prerequisite: Soc 113*

**Soc 133** **3 hours**  
**Conflict Sociology** (Hg. 2208)

An introductory course to the principles of conflict sociology including a comparative analysis of conflict and structural-functional sociology, a conflict analysis of historical processes, and a conflict approach to selected sociological topics such as deviant behavior, social inequality, and bureaucracy.

*Prerequisite: none*

**Soc 213** **3 hours**  
**Human Relations** (Hg. 2208)

An introduction to the applied principles of sociology and psychology as they relate to human interaction and small groups. Major emphasis is placed on analysis of the interaction process with a view toward additional understanding of individual and group behavior and the problems attendant to leadership.

*Prerequisite: Psy 113*

**Soc 223** **3 hours**  
**Marriage and the Family** (Hg. 2208)

A study of the family, society, and the individual. Includes background to American family patterns; premarital behavior; marriage and variations in family forms; and problems of the family today.

*Prerequisite: Consent of the instructor*

**Soc 271, 2, 3** **1-3 hours**  
**Directed Studies (Honors) in Sociology** (Hg. 2225)

Course content and hours arranged by instructor.

*Prerequisite: Consent of the instructor*

## Speech

### **Spe 103** **3 hours** **Oral Communications (Hg. 1506)**

A fundamentals of speech course providing an introduction to the study of oral communication. The course is designed to develop student improvement in the critical understanding of ideas about communication as well as the critical issues of our time, and subsequently to improve individual communications skills.

*Prerequisite: none*

### **Spe 113** **3 hours** **Public Speaking (Hg. 1506)**

An introduction to the basic elements of public speaking. Assignments include the presentation of speeches, preparation of outlines, and the discussion of evaluation techniques.

*Prerequisite: Spe 103 or consent of the instructor*

### **Spe 123** **3 hours** **Oral Interpretation (Hg. 1506)**

A study in the basic techniques of oral interpretation. The recreation of literature is stressed through acquiring the skills and techniques necessary to convey the intellectual, emotional, and aesthetic values of literature to an audience. The course will include study in the oral interpretation of prose, drama, and poetry.

*Prerequisite: none*

### **Spe 133** **3 hours** **Theatre Appreciation (Hg. 1007)**

An appreciation course designed to give a comprehensive introduction to theatre, including theatre history and contributions made by directors, actors, designers, technicians, and playwrights to modern dramatic productions.

*Prerequisite: none*

### **Spe 271, 2, 3** **1-3 hours** **Directed Studies in Communication or Theatre Arts (Hg. 1021)**

Independent study in the many and varied aspects of the theatre for the advanced student. This could include study in acting, directing, costuming, make-up, scene design and construction, stage lighting, dramatic theory, and history. Experimental research and studies of the theories of communication are also possible.

*Prerequisite: Consent of the instructor*

### **Spe 281, 2, 3** **1-3 hours** **Theatre Practicum (Hg. 1007)**

A course designed to give interested students the opportunity to work in a controlled theatrical environment. Provides experience and training in the theatre arts under the direct supervision of a theatre instructor.

*Prerequisite: Consent of the instructor*

### **Spe 291, 2, 3** **1-3 hours** **Acting Practicum (Hg. 1007)**

A course designed to give interested students the opportunity to work in a controlled theatrical environment. Provides experience and training in the art of acting under the direct supervision of a theatre instructor.

*Prerequisite: Consent of the instructor*

## Accounting

### Acc 103 3 hours Applied Accounting (Hg. 5002)

A course designed to give the student extensive practice in working with basic accounts, records, and statements.

*Prerequisite: none*

### Acc 113 3 hours Accounting I (Hg. 5002)

A study of basic principles and procedures of business accounting, including debits and credits, journals and ledgers, accruals, deferrals, depreciation, determination, voucher system, payroll, the balance sheet, and income statements.

*Prerequisite: High School Bookkeeping or Acc 103*

### Acc 114 1 hour Accounting I Lab (Hg. 5002)

A laboratory period for Accounting I students to be able to work on assigned work under the supervision of an instructor, take examinations, and study the results of the examinations. To be taken concurrently with Accounting I.

*Prerequisite: none*

### Acc 123 3 hours Accounting II (Hg. 5002)

A continuation of the study of accounting principles, including cash and investments, receivables, inventory, fixed assets, liabilities, manufacturing operations, partnerships, corporations, and the analysis of financial data concerning these items.

*Prerequisite: Acc 113*

### Acc 125 1 hour Accounting II Lab (Hg. 5002)

A laboratory period for Accounting II students to be able to work on assigned work under the supervision of an instructor, take examinations, and study the results of the examinations. To be taken concurrently with Accounting II.

*Prerequisite: Acc 113*

### Acc 133 3 hours Intermediate Accounting I (Hg. 5002)

A review of the concepts and principles underlying accounting and their application in the accounting process. Valuation procedures and problems are considered for

each class of the assets, of the balance sheet, and their related effect upon income measurement.

*Prerequisite: Acc 123*

### Acc 143 3 hours Intermediate Accounting II (Hg. 5002)

A continuation of Intermediate Accounting I. Valuation procedures and problems are considered for each class of the liabilities and equity section of the balance sheets and their related effect upon income measurement. Various forms of financial statement analysis are also studied along with the opinions of the Accounting Principles Board.

*Prerequisite: Acc 133 or consent of the instructor*

### Acc 173 3 hours Introduction to Data Processing (Hg. 5002)

A study of basic data processing theory and methodology. Seeks to answer the questions: What is data processing? How is data processing accomplished in business today? Topics include historical development of data processing, impact of data processing on the business information cycle, the unit record principle, and data processing systems from simple sort-and-list to integrated decision-making systems.

*Prerequisite: none*

### Acc 231, 2 1-2 hours Accounting Practicum (Hg. 5002)

A course designed to give students a practical working experience through the complete accounting cycle by the use of practice sets.

*Prerequisite: Consent of the instructor*

### Acc 243 3 hours Tax Accounting (Hg. 5002)

A comprehensive study of the Federal tax structure and the application of the principles involved to specific individual and business tax problems.

*Prerequisite: Acc 123 or consent of the instructor*

### Acc 253 3 hours Cost Accounting (Hg. 5002)

A study of the job order, process, and standard cost systems and the flow of costs in the accounting for materials, labor, and overhead in the manufacturing process.

*Prerequisite: Acc 123 or consent of the instructor*

**Acc 263** **3 hours**  
**Payroll Accounting (Hg. 5002)**

A course structured to develop an appreciation and understanding of personnel and payroll records required for the operation of a payroll system. Includes a study of the Fair Labor Standards Act, basic payroll accounting systems and procedures, the Social Security Act as it relates to payroll, and an introduction to the various types of automated equipment and data processing systems common to payroll accounting.

*Prerequisite: none*

**Acc 273** **3 hours**  
**Managerial Accounting (Hg. 5002)**

A course designed to teach future managers ways to use, analyze, and interpret accounting data once it is available to them. Emphasis is placed on the analysis of data rather than the collecting and recording function. An interdisciplinary approach is provided through the mix of topics involving economics, finance, mathematics, and statistics.

*Prerequisite: Accounting I*

**Acc 283** **3 hours**  
**Public School Accounting (Hg. 5002)**

A course designed to help employees and prospective employees of Missouri schools understand the new Missouri schools accounting system. This course includes an introduction to double entry accounting, the development of an accrual system, explanations of encumbrances, changing from the old system to the new system, and a study of the reports to be developed for school boards and the State Department of Education.

*Prerequisite: none*

**Acc 291** **1 hour**  
**Accounting Placement (Hg. 5002)**

A course designed to assist accounting students in obtaining jobs suitable to their training and interests.

*Prerequisite: Consent of the instructor*

---

## **Agribusiness**

---

**Agr 103** **1 hour**  
**Introduction to Agricultural Occupations (Hg. 5402)**

An introduction to the many fields of Agribusiness including the opportunities for employment. Emphasis is

also placed on desirable characteristics of employees.

*Prerequisite: none*

**Agr 123** **3 hours**  
**Crop Science (Hg. 5402)**

A study of crop and soil sciences, the principles of agronomy, and the production and utilization of major crops.

*Prerequisite: Agr 173*

**Agr 133** **3 hours**  
**Animal Science I (Hg. 5402)**

A study of the principles of animal production including animal products, anatomy and carcass evaluation, genetics, and reproduction.

*Prerequisite: none*

**Agr 143** **3 hours**  
**Principles of Agriculture Economics (Hg. 5402)**

A study of the principles of production, supply, and demand as applied to economic problems of agriculture and related industries. Also includes emphasis on decisions in management, marketing, foreign trade, and policy for economic growth.

*Prerequisite: none*

**Agr 153** **3 hours**  
**Marketing Farm Commodities (Hg. 5402)**

A study of the perishable products that create problems for processors, retailers, and farmers; and the efficiency system and business operations necessary for farm products.

*Prerequisite: none*

**Agr 158** **8 hours**  
**Occupational Internship (Hg. 5402)**

Assignment to work in an agriculture related business for an eight-week period to develop experience skills. Students will meet in class session for one hour on alternating weeks to discuss problems and beneficial experiences.

*Prerequisite: Agr 103*

**Agr 163** **2 hours**  
**Animal Science II (Hg. 5402)**

A continuation of Agr 133 with the addition of topics on nutrition and animal diseases.

*Prerequisite: none*

## occupational courses

### **Agr 173** 3 hours **Soil Science** (Hg. 5402)

A study of interactions between water, air, organisms, and soil minerals important in consideration of land-use management. Up-to-date studies of plant nutrition and soil testing labs are also included.

*Prerequisite: Chm 115*

### **Agr 213** 3 hours **Farm Management** (Hg. 5402)

A study of the economic and management principles in operating agricultural businesses. Attention is given to problems of labor, management, mechanization, rental arrangements, contract farming, and credit financing.

*Prerequisite: none*

### **Agr 223** 3 hours **Pasture and Forage Management** (Hg. 5402)

A study of the principles of production for native and improved pastures and the usefulness of pastures as forage for livestock. Good math background desirable.

*Prerequisite: none*

### **Agr 233** 3 hours **Animal Feeds and Nutrition** (Hg. 5402)

A study of feed composition and utilization, ration formulation, feed evaluation and identification, and practical problems.

*Prerequisite: Chm 245*

### **Agr 242** 2 hours **Dairy and Poultry Production** (Hg. 5402)

A course designed to give information on the industry, breeding, feeding, housing, care, and management of dairy and poultry animals. Suitable for persons anticipating employment in dairy or poultry production or related fields.

*Prerequisite: none*

### **Agr 253** 3 hours **Agricultural Pesticides and Chemicals** (Hg. 5402)

A study of the uses and application of agricultural chemicals, insecticides, fungicides, herbicides, nematocides, rodenticides, and others.

*Prerequisite: none*

### **Agr 263** 3 hours **Entomology** (Hg. 5402)

An introduction to the study of insects with emphasis on species important to man and general principles of integrated insect control.

*Prerequisite: none*

### **Agr 273** 3 hours **Farm Water Management** (Hg. 5402)

Water management practices in maintaining soil productivity, farm surveying, design, and layout of ponds and pond dams.

*Prerequisite: Mth 183*

### **Agr 283** 3 hours **Beef, Sheep, and Swine Production** (Hg. 5402)

A study of the principles of breeding, feeding, housing care, and management of beef, sheep, and swine livestock enterprises. Considerable time is spent on disease protection and health care.

*Prerequisite: none*

### **Agr 291** 1 hour **Agricultural Placement** (Hg. 5402)

A course designed to assist agriculture students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

---

## **Air Conditioning and Refrigeration**

---

### **AR 103** 3 hours **Basic Electricity I** (Hg. 5317)

An introductory course stressing basic electrical theory and applied practical wiring for residential systems. Students will gain technical knowledge and develop skills required in the areas of installation, maintenance, and diagnosis of problems.

*Prerequisite: none*

### **AR 113** 3 hours **Theory of Refrigeration and Materials** (Hg. 5317)

A study of the theory of refrigeration, use, and safety of refrigeration hand tools and the commonly used materials.

*Prerequisite: none*

**AR 123** **3 hours**  
**Applied Electrical Fundamentals**  
(Hg. 5317)

A course which starts with the basic fundamentals and processes of electrical wiring for refrigeration components and motors. After the student acquires a working knowledge of electrical circuits, he applies this to laboratory tests on testing boards and refrigeration equipment.

*Prerequisite: none*

**AR 133** **3 hours**  
**Systems and Components** (Hg. 5317)

A study of the theory, construction, and applications of the basic components of refrigeration systems.

*Prerequisite: none*

**AR 136** **3 hours**  
**Basic Electricity II** (Hg. 5317)

An introductory course covering basic theory and applied application of electricity pertaining to industrial and commercial systems, motors, and components comprising these systems. Students will gain technical knowledge and develop skills required in the areas of installation, maintenance, and diagnosis of problems.

*Prerequisite: AR 103 or consent of the instructor*

**AR 143** **3 hours**  
**Refrigerants** (Hg. 5317)

A study of the various types of refrigerants and their characteristics, skills in handling refrigerants, pressure-temperature relationships, refrigerant oils, noncondensable gases, and their applications.

*Prerequisite: none*

**AR 153** **3 hours**  
**Domestic Refrigeration** (Hg. 5317)

A study of application and knowledge of the fundamentals of refrigeration and electricity by means of trouble-shooting and repairing domestic refrigerators and freezers.

*Prerequisite: none*

**AR 163** **3 hours**  
**Commercial Refrigeration** (Hg. 5317)

A study of the selection, installation, servicing, diagnosing, and repair of commercial equipment. The student will gain knowledge and experience in food preservation and processing equipment by using the types of equipment found in supermarkets, restaurants,

and other commercial installations.

*Prerequisite: AR 113, 123, 133, 143, and 153*

**AR 173** **3 hours**  
**Theory of Air Conditioning and Psychrometrics** (Hg. 5317)

A study of fundamental concepts of air conditioning and psychrometrics. Psychrometry is used to find and establish the conditions of air which will be the most comfortable for a specific situation.

*Prerequisite: AR 113, 123, 133, 143, and 153*

**AR 182** **2 hours**  
**Applied Air Distribution** (Hg. 5317)

A course designed to familiarize the student with the various factors involved in the distribution of air in an air conditioning system.

*Prerequisite: AR 113, 123, 133, 143, and 153*

**AR 194** **4 hours**  
**Air Conditioning Equipment and Installation** (Hg. 5317)

A study of the proper selection, installation of, and adjustments to various systems of air conditioning equipment, with special emphasis on human comfort. Consumerism and/or customer-service technician relationships are discussed.

*Prerequisite: AR 113, 123, 133, 143, and 153*

**AR 203** **3 hours**  
**Testing, Diagnosis, and Trouble-Shooting**  
(Hg. 5317)

A detailed study of the application of the technical knowledge and skills of air conditioning and refrigeration. The student will learn to utilize systematic analysis procedures for speed as well as accuracy in diagnosing and trouble-shooting equipment.

*Prerequisite: AR 113, 123, 133, 143, and 153*

**AR 213** **3 hours**  
**Applied Sheet Metal I** (Hg. 5317)

A course designed to provide a practical working knowledge and to develop skills required in the use of sheet metal in residential duct systems. After the student becomes familiar with the tools and equipment and the set of safety standards used, he will apply this knowledge to practical application. This will include applying patterns, fabricating sheet metal, soldering, and drawing simple patterns.

*Prerequisite: none*



**AM 291** **1 hour**  
**Air Conditioning and Refrigeration**  
**Placement (Hg. 5317)**  
 A course designed to assist air conditioning and refrigeration students in obtaining jobs suitable to their training and interests.  
*Prerequisite: none*

## Auto Mechanics

**AM 113** **5 hours**  
**Electrical Systems (Hg. 5306)**  
 An advanced study of automobile electrical systems. Beginning with a comprehensive study of direct-current theory, the module directs itself to application of the theory, the understanding of the automobile starting, charging, and ignition systems. Lab and shop work concentrates on trouble-shooting and repair of auto electrical systems and components.  
*Prerequisite: none*

**AM 122** **2 hours**  
**Fuel Systems (Hg. 5306)**  
 A detailed study of the principles and theory of carburetion and fuel systems of the modern automobile. Includes shopwork on overhauling, servicing, and adjustment of fuel system components. Special emphasis is placed on recent changes in fuel system design, manufacture, and servicing due to federal and state air pollution legislation.  
*Prerequisite: none*

**AM 131** **1 hour**  
**Tune-Up (Hg. 5306)**  
 A detailed study of the relationships between the carburetion system, ignition system, and the mechanical parts of the engine. Shop work includes the use of the Marquette analyzer.  
*Prerequisite: AM 113 and 122*

**AM 132** **2 hours**  
**Exhaust Systems and Emission Control (Hg. 5306)**  
 A study of automotive exhaust systems, and the various atmospheric pollution control systems installed on today's cars. Includes diagnosis, testing, and repair of automotive emission control systems, as well as use of the infrared exhaust gas analyzer.  
*Prerequisite: none*

**AM 162** **2 hours**  
**Steering and Suspension Systems (Hg. 5306)**  
 A comprehensive study of coil and leaf-spring type suspension systems and the various configurations of each. Steering and shock absorber designs are also covered, along with the diagnosis and repair of common steering and suspension components.  
*Prerequisite: none*

**AM 172** **2 hours**  
**Brake Systems (Hg. 5306)**  
 A study of hydraulic brake systems, both power-assisted and non-power assisted. Both disc and drum brake systems are covered in detail, along with brake repair procedures. Shop work includes brake servicing and replacement procedures, disc and drum reconditioning, and service to hydraulic master and wheel cylinder assemblies.  
*Prerequisite: none*

**AM 182** **2 hours**  
**Automatic Transmissions (Hg. 5306)**  
 A detailed study of the theory, operation, and repair of automatic transmissions. Begins with a complete study of planetary gear trains and their operation, hydraulic theory as applied to fluid couplings, and clutch theory and operation. Shop work concentrates on removal, disassembly, overhaul, and replacement of automatic transmission assemblies. Special emphasis is placed on diagnosis of automatic transmission problems.  
*Prerequisite: none*

**AM 191** **2 hours**  
**Standard Transmissions (Hg. 5306)**  
 A study of three- and four-speed standard transmissions including clutches and clutch designs. Shop work concentrates on clutch replacement, shift linkage design and adjustments, and transmissions disassembly and repair procedures. The theory of gear design and ratios is studied in detail.  
*Prerequisite: none*

**AM 201** **2 hours**  
**Drivelines and Differentials (Hg. 5306)**  
 A study of the transmission of power from the transmission to the wheels of the modern vehicle. Shop work concentrates on drive shaft service, adjustment and replacement of differential bearings and parts (including limited slip differentials), and diagnosis of vibration and axle noise problems.  
*Prerequisite: none*

**AM 211 1 hour****Air Conditioning (Hg. 5306)**

A study of refrigeration and cooling theory, with concentration on the diagnosis and repair of common automotive air conditioning problems. Shop work includes the checking and charging of air conditioning systems, as well as leak-detection procedures and correction of common compressor problems.

*Prerequisite: none*

**AM 233 3 hours****Engines (Hg. 5306)**

A detailed study of the gasoline-powered internal-combustion engine. Emphasis is placed on procedures for repair and replacement of engine parts and components, engine cooling systems, and valve train assemblies. Engine overhaul and machine procedures are discussed in detail, and shop work includes the disassembly, measuring, and reassembly of engine components.

*Prerequisite: AM 113 and 122*

**AM 291 1 hour****Auto Mechanics Placement (Hg. 5306)**

A course designed to assist auto mechanics students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

---

**Banking and Finance**

---

**BF 103 3 hours****Principles of Bank Operations (Hg. 5003)**

A descriptive orientation of bank operations including the various bank functions and an elementary description of their operation. An overview of the banking field.

*Prerequisite: none*

**BF 153 3 hours****Bank Management (Hg. 5003)**

A study of the principles of bank management and applications of these principles to practical problems. Case studies in bank management. Gives both new and experienced bankers a working knowledge of the principles of banking.

*Prerequisite: none*

**BF 163 3 hours****Law and Banking (Hg. 5003)**

An introduction to basic American law, presenting the rules of law which underlie banking. Topics include

jurisprudence, the court system and civil procedure, contracts, quasi-contracts, property, torts and crimes, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits and collections, documents of title, and secured transactions. Emphasis is on the Uniform Commercial Code.

*Prerequisite: none*

**BF 173 3 hours****Introduction to Data Processing (Hg. 5003)**

A study of basic data processing theory and methodology. Seeks to answer the questions: What is data processing? How is data processing accomplished in business today? Topics include historical development of data processing, impact of data processing on the business information cycle, the unit record principle, and data processing systems from simple sort-and-list to integrated decision-making systems.

*Prerequisite: none*

**BF 203 3 hours****Credit Administration (Hg. 5003)**

A study of methods of credit investigation and analysis, credit techniques, and specific credit problems relating to both regular and unusual types of loans. Directed to the executive level and includes factors influencing credit policy.

*Prerequisite: none*

**BF 213 3 hours****Home Mortgage Lending (Hg. 5003)**

A study of the picture of the mortgage market, the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and the obligations of the mortgage loan officer.

*Prerequisite: none*

**BF 223 3 hours****Money and Banking (Hg. 5003)**

A study of the practical aspects of money and banking with emphasis of the basic money theory, economic stabilization, types of spending, the role of gold, limitations of central bank control, government fiscal policy, balance of payments, and foreign exchange, showing their repercussions on the banking industry in affecting yield curves and construction of portfolios.

*Prerequisite: none*

**BF 233 3 hours****Installment Credit (Hg. 5003)**

A study of the techniques of installment lending. Em-

## occupational courses

emphasis on establishing credit, servicing a loan, collecting accounts due, and checking information. Scrutinizes each phase of the installment operation to be certain that most efficient methods are employed. Other topics studied include inventory financing, special loan programs, business development and advertising, and the public relations aspects of installment lending.

*Prerequisite: none*

### **BF 243 3 hours**

#### **Agriculture Finance (Hg. 5003)**

A study of the rapid growth of the off-farm agribusiness sectors (the suppliers of farm inputs.) Emphasizes the general principles associated with the evaluation of management and the use of capital, rather than the examination of land and labor resources, which are more closely related to production. An understanding of agriculture finance should help the banker in satisfying the credit needs of modern agriculture.

*Prerequisite: none*

### **BF 291 1 hour**

#### **Banking and Finance Placement (Hg. 5003)**

A course designed to assist banking/finance students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

---

## **Building and Site Maintenance**

---

### **BSM 113 3 hours**

#### **Concrete (Hg. 5317)**

A study of the basic theory and processes involving Portland cement, mixing cement, testing and design of concrete mixtures, curing concrete, tools for placing and finishing concrete, and estimating.

*Prerequisite: none*

### **BSM 114 4 hours**

#### **Blueprint Reading and Layout (Hg. 5317)**

A course in reading and interpretation of prints of the building, mechanical, and electrical trades. Preparation of a complete set of working drawings for a structure.

*Prerequisite: none*

### **BSM 115 3 hours**

#### **Home Maintenance (Hg. 5317)**

A study of tools, materials, and equipment used in the

repair and improvement of homes.

*Prerequisite: none*

### **BSM 116 3 hours**

#### **Repair and Construction of Farm Machinery and Buildings (Hg. 5317)**

A study of basic theory and application of farm building construction and equipment repairs.

*Prerequisite: none*

### **BSM 123 3 hours**

#### **Surveying and Layout (Hg. 5317)**

A study of the theory involving basic surveying equipment, chaining, differential leveling, grade operations, layout of buildings, and building construction layout.

*Prerequisite: none*

### **BSM 125 5 hours**

#### **Carpentry (Hg. 5317)**

A study of basic theory and application of building construction fundamentals including fabrication from architect's plans.

*Prerequisite: none*

### **BSM 135 5 hours**

#### **Electricity (Hg. 5317)**

A study of basic A.C. and D.C. circuits with emphasis in commercial and residential applications.

*Prerequisite: none*

### **BSM 144 4 hours**

#### **Plumbing (Hg. 5317)**

A study of basic theory involving materials, tools and calculations, drainage and disposal systems, fittings, fixtures, and layout of systems.

*Prerequisite: none*

### **BSM 153 3 hours**

#### **Welding (Hg. 5317)**

A study of basic theory and processes involving oxyacetylene and electric arc welding.

*Prerequisite: none*

### **BSM 163 3 hours**

#### **Preventive Building Maintenance (Hg. 5317)**

A study of basic building, mechanical, and electrical maintenance.

*Prerequisite: none*

**BSM 213** **3 hours**  
**Residential Construction Procedures**  
(Hg. 5317)

A study of basic theory and application of building construction fundamentals including concrete, carpentry, plumbing, and electricity.

*Prerequisite: none*

**BSM 271** **1 hour**  
**Directed Studies** (Hg. 5317)

Course content and hours arranged by instructor.

*Prerequisite: Consent of the instructor*

**BSM 291** **1 hour**  
**Building and Site Maintenance**  
**Placement** (Hg. 5317)

A course designed to assist building and site maintenance students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

---

## **Business Mid-Management**

---

**BuM 103** **3 hours**  
**Introduction to Business** (Hg. 5004)

A survey course designed to give the student a general knowledge of the modern business world, and a better basis for choosing concentrated business offerings.

*Prerequisite: none*

**BuM 113** **3 hours**  
**Principles of Marketing** (Hg. 5004)

A course designed to introduce the student to the managerial area of marketing. Although consumer and institutional behavior patterns and the overall role of marketing in the economy are covered, the major emphasis will be concerned with the types of problems confronting those involved in marketing management.

*Prerequisite: none*

**BuM 123** **3 hours**  
**Salesmanship** (Hg. 5004)

A study of proper sales techniques for presenting and selling merchandise to the consumer including methods of organization, training, and management of the sales force.

*Prerequisite: none*

**BuM 133** **3 hours**  
**Advertising and Display** (Hg. 5004)

A study of the aspects of advertising with emphasis on the development of a proper marketing mix, the planning of advertising strategy, the management of personnel, the control of advertising operations, advertising research, and development of display plans. Each student will be assigned an advertising project concerned with a marketing plan, advertising strategy, and an advertising budget.

*Prerequisite: none*

**BuM 143** **3 hours**  
**Principles of Finance** (Hg. 5004)

A study of how the business firm gets and uses funds it needs to carry on its operation. Topics include financing with bonds, financing working capital requirements, businesses and banks, business failures, and reorganization.

*Prerequisite: none*

**BuM 173** **3 hours**  
**Introduction to Data Processing** (Hg. 5004)

A study of basic data processing theory and methodology. Seeks to answer the questions: What is data processing? How is data processing accomplished in business today? Topics include historical development of data processing, impact of data processing on the business information cycle, the unit record principle, and data processing systems from simple sort-and-list to integrated decision-making system.

*Prerequisite: none*

**BuM 203** **3 hours**  
**Family Law** (Hg. 5004)

A survey course with objectives of familiarizing the student with the basic concepts of law. Includes the study of such areas as adoption, divorce, real estate transactions, credit transactions, basic familiarity with the criminal justice system, ownership of personal property, estates and trusts, and employer-employee relationships.

*Prerequisite: none*

**BuM 233** **3 hours**  
**Fundamentals of Management** (Hg. 5004)

An evaluation and comparison of private and public personnel practices and the techniques of recruiting, selecting, transferring, promoting, classifying, and training workers.

*Prerequisite: none*

## **BuM 241** **1 hour** **Display Project (Hg. 5004)**

A study of the types and the role of visual merchandising in the retail store including creation, color, and principles of design, and the incorporating of actual experience in preparing retail displays.

*Prerequisite: none*

## **BuM 263** **3 hours** **Business Law (Hg. 5004)**

A study of those areas of the law which affect most businesses: sales and credit, contracts, insurance, agency and employment, commercial paper, personal property, and bailments.

*Prerequisite: none*

## **BuM 271, 2, 3, 4** **1-4 hours** **Directed Studies (Hg. 5004)**

Course content and hours arranged by instructor.

*Prerequisite: Consent of the instructor*

## **BuM 281, 2, 3** **1-3 hours** **Internship (Hg. 5004)**

Actual work experience in a business or industry with periodic discussions of the problems involved in applying classroom principles to the job.

*Prerequisite: Enrollment in business mid-management program and consent of the instructor*

## **BuM 291** **1 hour** **Business Mid-Management Placement (Hg. 5004)**

A course designed to assist business mid-management students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

## **Criminal Justice**

### **CJ 103** **3 hours** **Introduction to Criminal Justice (Hg. 5505)**

An introduction to the criminal justice system in America. Stresses the inter-relatedness of the three components—police, courts, and corrections. Includes study of current national problems within the system with an examination of proposed changes. The course provides historical and philosophical insights into the system of criminal justice.

*Prerequisite: none*

### **CJ 113** **3 hours** **Criminal Law and Procedures (Hg. 5505)**

A study of criminal, common, and statutory law within the context of enforcement. Study includes substantive criminal law, its development, interpretation, and administration with emphasis on the criminal law and procedures in the state of Missouri.

*Prerequisite: none*

### **CJ 123** **3 hours** **Rules of Criminal Evidence (Hg. 5505)**

A study of basic rules of evidence applicable to criminal and other related police duties. Emphasis is placed on the question of admissibility of evidence and the practical application of procedural and substantive constitutional guaranties.

*Prerequisite: CJ 103*

### **CJ 133** **3 hours** **Police Patrol and Services (Hg. 5505)**

A study of the foundations of police operations, providing patrol coverage and called-for services, the principle of conspicuous presence as a means of crime prevention, and preservation of the peace.

*Prerequisite: CJ 103 and 133*

### **CJ 203** **3 hours** **Introduction to Corrections (Hg. 5505)**

A study which provides a basic knowledge of the correctional process as it proceeds from the time of arrest and incarceration, through the criminal justice system, and into the correctional institution or alternative program. Includes a description of various treatment modalities and philosophies.

*Prerequisite: CJ 103*

### **CJ 213** **3 hours** **Juvenile Procedures (Hg. 5505)**

A study of the organization, functions, and jurisdiction of juvenile agencies; the detention of juveniles; and the processing of neglected children. Study includes the intent, application, and procedures of the Missouri Juvenile Code: juvenile case disposition, crime prevention methods, and diversion programs.

*Prerequisite: CJ 103*

### **CJ 223** **3 hours** **Criminal Investigation I (Hg. 5505)**

A study of the criminal act and its investigation, including specific crimes against the person and against property, the process of fact-gathering, testing of

hypotheses, and the problem of proof.

*Prerequisite:* CJ 113 and 123

**CJ 233** **3 hours**  
**Police Administration** (Hg. 5505)

A study of the organization and administration of various police systems, the specialized characteristics of individual police organizations and police personnel, the relationship of police to other public agencies, and the control and responsibility of police departments. The most popular and prevalent ideals, principles, and assumptions pertaining to police administration are presented utilizing a multi-disciplinary orientation to analyze these concepts.

*Prerequisite:* nine credits in criminal justice

**CJ 243** **3 hours**  
**Criminal Investigation II** (Hg. 5505)

A study of the recognition, collection, identification, preservation, transportation, and development of criminal evidence. Includes narrative police report writing and the preparation of cases for prosecution.

*Prerequisite:* CJ 223

**CJ 291** **1 hour**  
**Criminal Justice Placement** (Hg. 5505)

A course designed to assist criminal justice students in obtaining jobs suitable to their training and interests.

*Prerequisite:* none

---

## Dental Assisting

---

**DA 124** **4 hours**  
**Dental Materials I** (Hg. 5202)

An introduction to lab procedures, identification of equipment and instruments, manipulation of dental materials used in the dental office, and the instruction in composition of materials and related subjects. Activities include pouring stone and plaster models; manipulation of amalgam composite; trimming models; boxing impressions; manipulation of rubber base, silicone and alginate; impression materials; and manipulation of different types of cements and bases.

*Corequisite:* DA 164

**DA 134** **5 hours**  
**Chairside Assisting I** (Hg. 5202)

An introduction to the profession of dentistry. Includes the use and care of dental equipment, functions of a

chairside assistant, common operative procedures, and preventive dentistry techniques. Activities include operating and cleaning dental equipment, performing four-handed sit-down instrument exchange, operating evacuator and air-syringe, operating an autoclave and preparing instruments for sterilization, taking alginate impressions for study models, placing topical anesthetic onto mucosa, handling of anesthetic syringes, charting procedures on a dental chart, giving P.O.H. instructions for home care, giving a fluoride treatment, assisting with placement and removal of rubber dam and cotton rolls, assisting with a class I and II amalgam procedure, and assisting with a class III, IV, and V composite procedure.

*Corequisite:* DA 164

**DA 144** **4 hours**  
**Dental Materials II** (Hg. 5202)

An emphasis on waxes, resins, and metals. Activities include taking wax bites, mounting models on an articulator, constructing custom-made trays, constructing base plate and bite rims, and repairing a broken denture.

*Prerequisite:* DA 124

**DA 164** **4 hours**  
**Dental Science I** (Hg. 5202)

A study of head and neck anatomy, oral embryology and histology, tooth morphology, nutrition, and dental office emergencies. Activities include carving teeth in wax, taking blood pressures, demonstration of ambubag and oxygen unit, handling of syringes and medications for I.V. and I.M. injections, C.P.R. training on manikins, conducting a dietary analysis and diet evaluation, performing and evaluating caries susceptibility tests (e.g., synder, lingual c), and performing a plaque index evaluation.

*Prerequisite:* Admission into the dental assisting program

**DA 165** **2 hours**  
**Dental Science II** (Hg. 5202)

A study of oral pathology, microbiology, and pharmacology. Activities include identification of common disorders.

*Prerequisite:* DA 164

**DA 204** **4 hours**  
**Dental Radiology** (Hg. 5202)

An introduction to radiographic procedures, basic terms and nomenclature, theory of x-radiation, bi-section and paralleling techniques, occlusal exposures, exposing and processing techniques, and mounting and evaluation of exposed radiographs. Activities include the same.

*Corequisite:* DA 164

## **DA 205 3 hours**

### **Anatomy and Physiology (Hg. 5202)**

A study of microscopic and macroscopic structure and function of the systems of the body and their physiology.

*Prerequisite: none*

## **DA 213 5 hours**

### **Chairside Assisting II (Hg. 5202)**

The concepts taught in Chairside Assisting I will be applied to the speciality areas of dentistry including theories of ortho, perio, endo, oral surgery, and pedo. Activities include setting-up armamentarium for basic procedures in each of the speciality areas in prerequisite order.

*Prerequisite: DA 134*

## **DA 242 3 hours**

### **Clinical Practice I (Hg. 5202)**

Eight hours per week assisting dental students at the Washington University School of Dentistry with rotation in the speciality areas.

*Corequisite: DA 164*

## **DA 252 2 hours**

### **Dental Office Procedures (Hg. 5202)**

A study of the principles of business management for the dental office including appointment control, filing, insurance forms, and supply inventory.

*Prerequisite: DA 213*

## **DA 275 5 hours**

### **Clinical Practice II (Hg. 5202)**

Assisting in dental offices on a rotational basis. Student is to gain proficiency in chairside skills and front office procedures.

*Prerequisite: DA 242*

## **DA 291 1 hour**

### **Dental Assisting Placement (Hg. 5202)**

A course designed to assist dental assisting students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

## **Drafting and Design Technology**

## **Dft 101 1 hour**

### **Blueprint Reading (Hg. 5303)**

A course designed to give the student a working

knowledge of standard drawing conventions and dimensioning practices. Areas covered include drafting and blueprint reading procedures, notes and title block information, and machining specifications.

*Prerequisite: none*

## **Dft 113 3 hours**

### **Engineering Drawing (Hg. 5303)**

A course designed to give the student a working knowledge of fundamental drawing practices and the geometric relationships of points, lines, and planes in space. Areas covered include the techniques of lettering, sketching, instrumental drawing of mechanical parts, sectional and auxiliary views, and conventional drafting practices.

*Prerequisite: none*

## **Dft 115 5 hours**

### **Technical Physics (Hg. 5303)**

A study of mechanics, heat, sound, light, electricity, and physical properties of matter. A noncalculus course which features problem solving and laboratory work. Three hours lecture and two laboratory periods per week.

*Prerequisite: Either Dft 163, Mth 173, or satisfactory score on the MMPT*

## **Dft 123 3 hours**

### **Descriptive Geometry (Hg. 5303)**

A study of the graphic analysis and solution of typical three-dimensional space problems through the application of the principles of multi-view projections. Fundamental problems are related to points, lines, planes, intersections, and developments of plane and curved surfaces, revolutions, and vector geometry.

*Prerequisite or Corequisite: Dft 113*

## **Dft 133, 5 3-5 hours**

### **Architectural Drawing (Hg. 5303)**

An introduction to the fundamental principles of residential design, including instruction on materials and methods of construction, design standards, and room arrangements. Emphasis is given to the development of complete residential plans.

*Prerequisite: Dft 113*

## **Dft 143 3 hours**

### **Technical Writing (Hg. 5303)**

Introduction to the practical aspects of preparing reports. Emphasis is on the techniques of collecting and present-

ing scientific data by means of formal and informal reports. Also included are other elements of communication concerning science and industry.

*Prerequisite: Eng 105, 123, or consent of the instructor*

**Dft 145** **5 hours**  
**Machine Drawing (Hg. 5303)**

A course dealing with problem solving situations involving the development of drawings of castings, forgings, machinings, and sheet metal layout. Methods of making working and assembly drawings are included, providing depth in the area of machine drawing. Dimensioning will be of primary importance.

*Prerequisite: Dft 113*

**Dft 152** **2 hours**  
**Modern Drafting Techniques (Hg. 5303)**

An exploratory course which has major emphasis on photography, film processing, model building, and their industrial applications. Students participate in the development of projects utilizing the latest available industrial techniques.

*Prerequisite: Dft 113*

**Dft 153** **3 hours**  
**Technical Computations I (Hg. 5303)**

A study of the treatment of measured data, significant figures, applications in geometry, basic algebra, and linear equations.

*Prerequisite: none*

**Dft 163** **3 hours**  
**Technical Computations II (Hg. 5303)**

A study of numerical trigonometry of the right angle, analytic trigonometry, oblique triangles, functions and graphs, logarithms, and application of numerical trigonometry and vectors.

*Prerequisite: Dft 153*

**Dft 165** **5 hours**  
**Materials and Processes (Hg. 5303)**

A survey of current engineering materials and the various processes used to shape them. Materials studied include a review of ferrous and nonferrous metals, plastics, rubbers, and ceramics. Emphasis is placed on the advantages and limitations of the various casting, forging, machining, grinding, forming, molding, welding, heat treating, and powder metallurgy processes used to shape materials.

*Prerequisite: none*

**Dft 173** **3 hours**  
**Principles of Power (Hg. 5303)**

A study of the principles of hydraulics and pneumatics fundamental to fluid power design. Other topics include principles of mechanical and electrical powered systems and power system schematics.

*Corequisite: Dft 153 or consent of the instructor*

**Dft 203** **3 hours**  
**Technical Illustration (Hg. 5303)**

A course to develop the understanding and skills to produce technical illustrations in the many forms required by industry. Includes an intensive study of the pictorial forms of isometric, dimetric, oblique, and perspective drawing, and the methods and media used in creating illustrations.

*Prerequisite: Dft 113*

**Dft 233** **3 hours**  
**Civil Drawing (Hg. 5303)**

A course encompassing the methods and conventions of engineering graphics as they are practiced in the civil engineering field and its allied industries. Primary focus is on drawing and detailing civil projects such as land division and subdivision, municipal utility facilities, contours, and land cut and fill.

*Prerequisite: Dft 113*

**Dft 243** **3 hours**  
**Machine Design (Hg. 5303)**

A course designed to bring together in practical applications the skill and knowledge developed in courses covering mechanics and drafting. Instruction provided permits logical organization of facts for economical solution of machine design problems. Emphasis is placed on standardization, the use of stock parts, and using manufacturers' catalogs.

*Prerequisite: Dft 145*

**Dft 253** **3 hours**  
**Statics and Strength of Materials (Hg. 5303)**

A study of statics and strength of materials as applied to structures, beam theory, beam design, and theory of column formulae. Includes study of stress and strain experienced by machine parts and structural members. Emphasis is placed on applications and problem solving.

*Prerequisite: Dft 163 or consent of the instructor*



## **Dft 263 3 hours** **Tool and Die Design (Hg. 5303)**

A combination of lectures, classroom discussions, and actual drawing board work coordinated to give the student knowledge necessary to design the less complicated tools used in modern manufacturing. The work consists of laying out simple jigs, fixtures, cutting tools, gauges, and dies. Mass production methods are discussed so that this knowledge may be applied in the practical work of tool designing.

*Prerequisite: Dft 145*

## **Dft 271 1 hour** **Directed Studies in Drafting and Design (Hg. 5303)**

An investigation in depth of a specific industrial problem or actual experience in related office practices.

*Prerequisite: Consent of the instructor*

## **Dft 273 3 hours** **Structural Drawing (Hg. 5303)**

A course which concentrates on detailing and delineating the structural systems encountered in architectural and civil construction. Systems included are those based on materials including wood, steel, and concrete components. Shop drawings and erection drawing are covered.

*Prerequisite: Dft 113 and 253*

## **Dft 291 1 hour** **Drafting Placement (Hg. 5303)**

A course designed to assist drafting students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

## **Fire and Fire Safety Technology**

### **FST 104 4 hours** **81-Hour Emergency Medical Technician Training (Hg. 5201)**

A course which provides training in emergency cases of the sick and injured. The course fulfills the requirements of Senate Bill No. 57. Those completing the course will be eligible for the Missouri State Licensure Examination and/or the National Registry Examination to become registered E.M.T. personnel.

*Prerequisite: 18 years of age*

### **FST 113 3 hours** **Basic Fire Protection and Alarm Systems (Hg. 5507)**

A study of modern fire protection including water supply and distribution systems, fire department organization, housing of equipment and personnel, private fire protection methods, chemical extinguishers, building construction, and a study of the various types of fixed and portable fire detection and alarm systems.

*Prerequisite: none*

### **FST 116 20 hours** **480-Hour Emergency Medical Technician — Paramedic Training (Hg. 5201)**

A course which provides advanced training in emergency care of the sick and injured. The course is commonly referred to as the advanced E.M.T. course or paramedic program.

*Prerequisite: Currently registered as 81-hour E.M.T., one recommendation from his/her ambulance supervisor or a licensed physician, a passing score on the prescribed pre-test and the MMPT, and acceptance into the program.*

### **FST 123 3 hours** **Architectural Structural Representation-Materials (Hg. 5507)**

A study of basic fundamentals of building plan layouts including the conventional representations, symbols and abbreviations for building materials, methods of showing floor plans, elevations, sections, and dimensions.

*Prerequisite: none*

### **FST 133 3 hours** **Fire Science Hydraulics (Hg. 5507)**

A study of the mechanics of liquids, particularly as pertains to water flow, hydrants, pumps, standpipes, hoses, nozzles, sprinkler systems, and other facets of liquid mechanics as it is adapted to fire fighting practices.

*Prerequisite: none; mathematics and physics advisable*

### **FST 143 3 hours** **Fire Department Apparatus (Hg. 5507)**

A study of the description and specifications of the various fire department apparatus found in the modern organization. Special emphasis is given to manufacturers' specifications, analysis of the various codes and standards of construction, and methods of writing specifications for various pieces of equipment.

*Prerequisite: none*

**FST 153** **3 hours**  
**Fire Department Organization and Supervision (Hg. 5507)**

Instruction in management and administration for the fire service including the functions of management, planning, organizing, directing, controlling, the management cycle, motivation, behavioral science, executive development, educational development, and labor relations.

*Prerequisite: none*

**FST 163** **3 hours**  
**Teaching Techniques for Fire Department Personnel (Hg. 5507)**

A study of the basic theories of learning and methods of instruction. The use of lectures, demonstrations, and visual aids as applied to the instruction of the fire department personnel is illustrated. Practice is provided in the use of lesson plans, visual aids, tests, and other teaching devices. Each student's application of a teaching procedure is critically discussed and evaluated.

*Prerequisite: none*

**FST 173** **3 hours**  
**Fire Characteristics (Hg. 5507)**

A study of the characteristics and behavior of fire found in ordinary materials such as oils and other combustible chemicals. A review of basic chemistry with emphasis on combustion, hazards of liquids and gases, and special techniques in regard to oxygen supplies.

*Prerequisite: none*

**FST 223** **3 hours**  
**Codes and Ordinances (Hg. 5507)**

A detailed study of national, state, and local ordinances applicable to the fire service and electrical, plumbing, and building codes.

*Prerequisite: none*

**FST 233** **3 hours**  
**Principles of Risk and Insurance (Hg. 5507)**

An analysis of the concepts and principles of risk and insurance, emphasizing its nature, degree, distinguishability, and terminology. Also review institutions, fundamentals, and structures of insurance contracts and regulations. Introduction to automobile, fire, inland and marine, personal theft and comprehensive, life, and workman's compensation.

*Prerequisite: none*

**FST 243** **3 hours**  
**Hazardous Materials (Hg. 5507)**

A second semester of the review of basic fundamentals of chemistry used in fire science with emphasis on less common special hazards. Topics covered include nuclear reactions, ionization, radiation detection equipment, peacetime uses of radioactive materials, and control of resulting hazards.

*Prerequisite: none*

**FST 253** **3 hours**  
**Inspection and Fire Prevention (Hg. 5507)**

Inspection surveying and mapping procedures associated with the organization and function of fire prevention. Opportunity is provided to make at least one complete inspection and report on an operation industry.

*Prerequisite: none*

**FST 263** **3 hours**  
**Fire Investigation (Hg. 5507)**

A study of methods determining point of origin, path of fire travel, and fire causes. Topics include motives and methods of fire setting, recognizing and preserving evidence, arson laws and types of arson fires, court testimony, reports, and records.

*Prerequisite: none*

**FST 273** **3 hours**  
**Fire Fighting Tactics and Strategy (Hg. 5507)**

Instruction in the fundamental strategy and methods of attack employed for various fire problems. Includes principles of fire fighting as applied to small and large scale fire problems and problems that are complex or unique in nature.

*Prerequisite: none*

**FST 283** **3 hours**  
**Rescue Practices and First Aid (Hg. 5507)**

A study of life saving practices pertaining to the fire company and fire department personnel. Includes the study of manual artificial respiration, inhalators, resuscitators, inspecting, cleaning and sterilizing equipment, and transportation of the injured.

*Prerequisite: none*

**FST 291** **1 hour**  
**Fire and Fire Safety Placement (Hg. 5507)**

A course designed to assist fire and fire safety students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

## Home Economics

### HE 113 3 hours Nutrition (Hg. 5405)

A study of the essential nutrients and their values in various food groups, their functions in the body, and how to determine the food needs of the individual.

*Prerequisite: none*

### HE 123 3 hours Consumer Education (Hg. 5405)

A study of the management of resources, consumer information, and decision making relative to selection and utilization of goods and services.

*Prerequisite: none*

## Horticulture

### Hrt 123 3 hours Environmental Horticulture (Hg. 5402)

A course with major emphasis on plant classification and identification. Trees and shrubs are special considerations; their practical landscape values are emphasized along with summer-winter identification. Other topics include introduction to the angiosperms and gymnosperms; their growth, development, and reproductive processes; and environmental factors of plant growth.

*Prerequisite: none*

### Hrt 135 5 hours Horticulture Botany (Hg. 5402)

An introduction to the plant kingdom, structure, physiology, and economic crop importances. Laboratory includes experimentation and observation to verify and enhance classroom lecture and recitation. Three one-hour lecture recitation periods and two two-hour laboratory periods per week.

*Prerequisite: none*

### Hrt 173 3 hours Soil Science (Hg. 5402)

A study of interactions between water, air, organisms, and soil minerals important in consideration of land use management. Up-to-date studies of new soil mixes and plant nutrition and soil testing labs are included.

*Prerequisite: none*

### Hrt 233 3 hours Greenhouse and Nursery Management (Hg. 5402)

A course with a greenhouse field/lab approach. Modern growing structures are studied. Containerized nursery stock is explored. Topics studied include systems of nursery production, bedding plants, bulbous crops, potted plants, and commercial cut flowers.

*Prerequisite: none*

### Hrt 234 4 hours Herbaceous and Woody Plants I (Hg. 5402)

A study of trees, shrubs, vines, and ground covers with regard to their identification, culture, growth habits, and landscape values. Major emphasis is given to the development of a functional use concept in planting design.

*Prerequisite: none*

### Hrt 243 3 hours Plant Propagation (Hg. 5402)

An introduction to the common methods of commercial plant reproduction including seeds, cuttings, layering, grafting, and division. The course makes use of the greenhouse propagation facilities. Pruning labs are included. Hormonal relationships and growth-promoting substances are explored.

*Prerequisite: none*

### Hrt 254 4 hours Principles of Landscape Design (Hg. 5402)

A detailed study of the functional uses of ornamental plants. Landscape design is introduced with concern for design development, site analysis, lettering, and plan graphics. Principles of landscape design are applied to residential design problems.

*Prerequisite: none*

### Hrt 264 4 hours Herbaceous and Woody Plants II (Hg. 5402)

A continuation of ornamental plant identification with emphasis on indoor tropicals and outdoor woody plants. Includes the study of turf grasses, diagnosis of pests and diseases, and the application of insecticides (including safety precautions which should be observed). Special segments are included on interior plantscaping, perennials, bulbs, and turf grasses.

*Prerequisite: none*

**Hrt 273 4 hours****Floral Design (Hg. 5402)**

A course which consists of lectures and laboratory sessions on the basics of floral design. Commercial interests are given special emphasis. Major design areas include principles of floral design, the corsage, the bouquet, the dried arrangement, and party work. Business clinic sessions are included with views into the floral industry, display techniques, retailing, and care and handling of cut flowers.

*Prerequisite: none*

**Hrt 284 4 hours****Advanced Landscape Design (Hg. 5402)**

A study in landscape plan, landscape surfaces, plant materials, construction and maintenance, and implementation of landscape plans. The process of design is given particular emphasis.

*Prerequisite: none*

**Hrt 291 1 hour****Horticulture Placement (Hg. 5402)**

A course designed to assist horticulture students in obtaining jobs suitable to their training and interests.

*Prerequisite: Sophomore level*

**Hrt 293 3 hours****Internship (Hg. 5402)**

On-the-job training at the campus growing center, the Missouri Botanical Garden's Arboretum (Gray Summit), and/or ornamental horticulture businesses to provide the student with opportunities to use competencies developed in the classroom and laboratory. Emphasis is on preparation for full-time employment. Independent project studies may be included in the internship studies.

*Prerequisite: Consent of the instructor*

---

**Real Estate**

---

**RE 113 3 hours****Principles of Real Estate (Salesman's Class) (Hg. 5001)**

The study of the nature of real estate and its ownership, titles, legal descriptions, uses contract, leases, taxation, and values.

*Prerequisite: none*

**RE 123 3 hours****Real Estate Finance (Hg. 5001)**

A course in the economics of financing real property,

legal considerations, sources of mortgage money and other funds, mortgage terms, and appraisals for financing purposes.

*Prerequisite: RE 113*

**RE 233 3 hours****Real Estate Law (Hg. 5001)**

A study of land descriptions, titles, deeds, sales escrow, insurance, ownership, wills, liens, mortgages, loans and closings, foreclosures, building regulations, zoning, taxes, and landlord-tenant relationship.

*Prerequisite: RE 113*

**RE 243 3 hours****Real Estate Appraisals (Hg. 5001)**

An introduction to real estate appraisals. Includes the study of the nature of real property, property values, general and local trends, site evaluation, building cost estimates, depreciation, and estimates on remodeling and modernization.

*Prerequisite: RE 113*

**RE 253, 4 3-4 hours****Real Estate Internship (Hg. 5001)**

Intern training to supplement classwork for practical experience in a chosen field. Faculty supervised jobs chosen for their educational value. Students are paid by their employers (15 to 20 hours per week) for 3 or 4 credits. If suitable jobs are not available, students will work on special projects.

*Prerequisite: RE 113 and BuM 113*

**RE 263 3 hours****Real Estate Investments (Hg. 5001)**

A study of the methods of evaluating investment opportunities in real estate.

*Prerequisite: RE 113*

**RE 273 3 hours****Real Property Management (Hg. 5001)**

A course in investment planning, market analysis, cost and income projections, budgeting, rental collection, insurance, maintenance and repair, and control systems.

*Prerequisite: RE 113*

**RE 283 3 hours****Real Estate Brokerage (Hg. 5001)**

A study of the brokerage function. Includes the role of the broker, organization and management of the office, selection of office personnel, recruiting and training of sales personnel, sales promotion, budgeting, records,

and record systems. This course also includes advanced real estate concepts.

*Prerequisite: RE 113*

## **RE 291 1 hour** **Real Estate Placement (Hg. 5001)**

A course designed to help real estate students in obtaining jobs suitable to their training and interests.

*Prerequisite: none*

## **Secretarial Science**

### **ScS 103 3 hours** **Business Mathematics (Hg. 5005)**

A course in commercial and financial applications of basic arithmetic and algebraic processes. Intended for students in office, business, and other A.A.S. degree programs. Individualized instruction.

*Prerequisite: none*

### **ScS 111 1 hour** **Personal Improvement for the Professional Woman (Hg. 5005)**

A study of personality and physical traits, poise, wardrobe, etiquette, personal grooming, etc. Special emphasis is placed on the above as they relate to the business world.

*Prerequisite: none*

### **ScS 112 2 hours** **Business Writing Skills (Hg. 5005)**

A course in the improvement of basic language skills through the study of sentence structure, punctuation, capitalization, spelling, and other grammatical areas as they pertain to the business world in particular. Emphasis will also be placed upon proofreading and building a larger vocabulary to enhance written as well as oral communication.

*Prerequisite: none*

### **ScS 113 3 hours** **Typewriting I (Hg. 5005)**

A study of the keyboard and techniques of touch typewriting, development of basic skills, and the arrangement of typewritten material. Individualized instruction.

*Prerequisite: none*

### **ScS 123 3 hours** **Typewriting II (Hg. 5005)**

A course in further development of typewriting skills, with special attention given to improving accuracy and increasing speed. Great emphasis in producing mailable copy on tables, letters, business forms, and rough draft manuscripts under timed conditions. Individualized instruction.

*Prerequisite: ScS 113 or speed of at least 40 wpm for five minutes with a maximum of five errors.*

### **ScS 133 3 hours** **Typewriting III (Hg. 5005)**

A continuation of ScS 123 with further development of accuracy and speed in typewritten work. Emphasis on higher production standards and more complex material for mailable copy under timed conditions. Individualized instruction.

*Prerequisite: ScS 123*

### **ScS 142 2 hours** **Machine Transcription (Hg. 5005)**

A course designed to provide training to develop a high degree of proficiency in machine transcription. Through study and supervised practice on transcribing equipment, both typing and transcribing skills are merged and further ability developed in proofreading, editing, spelling, punctuation, grammar, word usage, good judgement, and decision making as applied to business letters, memorandums, and reports. Mag Card and memory typewriters are used to teach word processing techniques.

*Prerequisite: ScS 112 and 113*

*Prerequisite or Corequisite: ScS 183 or consent of the instructor*

### **ScS 143 3 hours** **Shorthand I (Hg. 5005)**

A study of Gregg shorthand theory and shorthand dictation at moderate rates. Attention is given to punctuation, spelling, word usage, and reading shorthand notes rapidly. Beginning transcription is also introduced. Individualized instruction.

*Prerequisite or Corequisite: ScS 112 and 113*

### **ScS 153 3 hours** **Shorthand II (Hg. 5005)**

A course emphasizing the development of shorthand speed. Stenographic skills of punctuation, spelling, vocabulary, and transcribing techniques are stressed. Specifically designed for students who have completed

one semester of shorthand instruction, also suited for the student who wants to REVIEW Gregg Shorthand theory. Individualized instruction.

*Prerequisite:* ScS 143 or consent of the instructor  
*Prerequisite or Corequisite:* ScS 112

**ScS 163 3 hours**  
**Shorthand III (Hg. 5005)**

A course with emphasis on continued development of shorthand speed. The course is specifically designed for students who have completed at least one year of shorthand instruction. The student should be able to pass an 80 wpm speed-take comfortably. Stenographic skills of punctuation, spelling, vocabulary, and transcribing, etc. are stressed. Individualized instruction.

*Prerequisite:* ScS 123 and the ability to pass an 80 wpm speed-take comfortably  
*Prerequisite or Corequisite:* ScS 112

**ScS 173 3 hours**  
**Introduction to Data Processing (Hg. 5005)**

A study of basic data processing theory and methodology. Seeks to answer the questions: What is data processing? How is data processing accomplished in business today? Topics include historical development of data processing, impact of data processing on the business information cycle, the unit record principle, and data processing systems from simple sort-and-list to integrated decision-making systems.

*Prerequisite:* none

**ScS 183 3 hours**  
**Secretarial Machines (Hg. 5005)**

Basic training in the operation and use of electronic calculators, duplication machines, typewriter with proportional spacing, and Mag Card and memory typewriters. Acquaints students with machine terminology, office problems, and work standards.

*Prerequisite:* ScS 113

**ScS 192 2 hours**  
**Filing and Records Management (Hg. 5005)**

A study of filing rules and their application to alphabetic, numeric, subject, and geographic filing. Attention is given to the selection and organization of filing systems, equipment and suppliers, retention and disposition of records, and administrative duties.

*Prerequisite or Corequisite:* ScS 113

**ScS 213 3 hours**  
**Secretarial Procedures (Hg. 5005)**

A study of business information and office skills ap-

plicable to the secretarial or clerical profession. Special attention is given to human relations, organization and maintenance of an office, work efficiency, setting priorities, and employment standards.

*Prerequisite:* ScS 113

**ScS 223 3 hours**  
**Business Communications (Hg. 5005)**

A study of communication needs in the office, both oral and written, with emphasis on inter-office communication, letters, and reports. Special attention is given to organization, mechanics, and the business vocabulary.

*Prerequisite:* Either Eng 123 or 105, or ScS 112 plus ScS 123

**ScS 233 3 hours**  
**Legal Typewriting \* (Hg. 5005)**

A course specializing in the typing of a wide range of legal documents and correspondence into mailable form. Mag Card and memory typewriters will also be used. Individualized instruction.

*Prerequisite:* ScS 123 or consent of the instructor

\*A complete legal secretarial program is being developed. Additional information will be available from the secretarial science instructors.

**ScS 271 1 hour**  
**Directed Studies-Shorthand (Hg. 5005)**

Continued development of speed and accuracy in writing shorthand and improvement in transcription of mailable copy.

*Prerequisite:* ScS 143

**ScS 273 3 hours**  
**Shorthand IV (Hg. 5005)**

A transcription course designed to increase the quantity and quality of transcribing reports, memos, manuscripts, and letters in conformity with occupational standards. Continued attention to maintaining speed, punctuation, word usage, and spelling. Individualized instruction.

*Prerequisite:* ScS 153 or 163 and ScS 123

*Prerequisite or Corequisite:* ScS 112

**ScS 283 3 hours**  
**Legal Shorthand\* (Hg. 5005)**

A course specializing in the dictation and transcription of various legal documents and correspondence into mailable form. Legal terminology will be emphasized. Individualized instruction.

*Prerequisite:* ScS 273 or consent of the instructor

\*See note under ScS 233

**ScS 291** 1 hour  
**Secretarial Science Placement (Hg. 5005)**  
 A course designed to assist secretarial science students in obtaining jobs suitable to their training and interests.  
*Prerequisite: none*

**ScS 296** 6 hours  
**Internship and Seminar (Hg. 5005)**  
 Supervised work experience in an actual office situation putting to use the skills and related knowledge learned in previous courses. Supervision on the job will be by office personnel. Coordination of work experience to classroom learning will be done by the instructor. Time will be arranged. A one-hour seminar will be held each week to discuss work experiences and the latest trends in office equipment and techniques gathered through assigned readings in current publications.  
*Prerequisite: Enrollment in the secretarial science program and consent of the instructor*

## Teacher Aide

**TA 213** 3 hours  
**Teacher Aide Seminar (Hg. 5503)**  
 A seminar providing the opportunity for teacher aide students to discuss the field of teacher aide work, and to share the experiences and problems they have encountered in their role as teacher aide interns. Moderated by a college staff member, the seminar serves as the vehicle to tie coursework and experience together in a relevant manner.  
*Prerequisite: Sophomore standing*

**TA 271, 2, 3** 1-3 hours  
**Teacher Aide Internship (Hg. 5503)**  
 A supervised work experience in an actual educational setting coordinated with the student's regular classwork, to provide a realistic view of the varied duties of a teacher aide.  
*Prerequisite: Consent of the instructor*

**TA 291** 1 hour  
**Teacher Aide Placement (Hg. 5503)**  
 A course designed to assist teacher aide students in obtaining jobs suitable to their training and interests.  
*Prerequisite: none*

## Wastewater Treatment

**WWT 103** 3 hours  
**Basic Wastewater Treatment (Hg. 5408)**  
 An entry level water and wastewater training course to familiarize operators with the various types of facilities and their method of operation.  
*Prerequisite: none*

**WWT 113** 2 hours  
**Basic Wastewater Laboratory Procedures I (Hg. 5408)**  
 A course designed to train wastewater operators in selected wastewater testing parameters, basic laboratory skills, and wastewater analysis techniques.  
*Prerequisite: none*

**WWT 123** 3 hours  
**Advanced Wastewater Treatment (Hg. 5408)**  
 A course designed to train wastewater operators to become proficient to sit for the most advanced level license issued by the state of Missouri.  
*Prerequisite: WWT 113*

**WWT 133** 2 hours  
**Basic Wastewater Laboratory Procedures II (Hg. 5408)**  
 A second-level course designed to train wastewater operators in selected wastewater testing parameters, Level II of basic laboratory skills, and wastewater analysis techniques.  
*Prerequisite: WWT 113*