

A schedule of course offerings which includes hours of meeting and instructors will be issued before each semester and session. These classes are not offered every semester or session. Students should check individual semester/session published class schedules. Course descriptions for any new courses to be offered by UNM-Los Alamos that have not been included in this catalog will be provided in class schedules.

An equivalency articulation guide for other state institutions is available at the UNM-Los Alamos Registrar's Office. Please contact UNM-Los Alamos academic advisors for more information.

UNM-Los Alamos reserves the right to cancel any course subject to budgetary requirements, enrollment figures, or availability of instructors.



## **Academics (ACAD)**

*Courses marked with an \* may be repeated for credit because subject matter varies.*

### **ACAD 107: College Survival Skills. (1)**

Information and skills necessary for success in college: University resources, learning styles, classroom communication, listening skills, test taking, memory aides, libraries and how to use them.

CR/NC.

### **ACAD 108: New Beginnings 1 - Life Skills. (1)**

A personalized outreach program that encourages the development of life and work skills, and supports the educational goals of students who are experiencing a challenging transition at home or work.

CR/NC.

### **ACAD 109: New Beginnings 2 -Career Skills. (1)**

A personalized outreach program that encourages the development of career and employability skills, re-enforces positive life style changes, and supports the educational goals of students who are experiencing a challenging transition at home or work.

CR/NC.

### **ACAD 110: New Beginnings 3 - Job Search & Career Skills Plus. (1)**

A personalized outreach program that encourages the development of career and employability skills, re-enforces positive life style changes, investigates community resources, and supports individualized educational goals of students who are experiencing a challenging transition at home or work.

CR/NC.

### **ACAD 111T: New Beginnings 4 - Advanced Career Skills. (1)**

A personalized outreach program that encourages the development of advanced career and employability skills, re-enforces positive life style changes, and supports individualized educational goals of students who are experiencing a challenging transition at home or work.

CR/NC

### **ACAD 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

### **ACAD 193\*: Topics. (1-3)**

Titles will vary.



## **American Studies (AMST)**

*Courses marked with an \* may be repeated for credit because subject matter varies.*

### **AMST 134: Creating a Sustainable Future: Introduction to Environmental, Social, and Economic Health. (3)**

(Also offered as ANTH, SUST 134.)

An introduction to creating a sustainable future that supports environmental health and restoration, social equity, and economic vitality. Examines challenges and examples of integrated, creative strategies on local, regional, national, and global levels.

### **AMST 180: Introduction to American Studies (3)**

Introduces 19th and 20th century American culture. Demonstrates interdisciplinary approaches to American culture studies. Content varies by semester and topics include popular culture, comparative studies of race and ethnicity, nationalism and citizenship, critical regionalism.

### **AMST 182: Introduction to Environment, Science, and Technology. (3)**

An introduction to the socially and politically constructed values directing Americans' attitudes toward nature, science, and technology and to the impacts of those attitudes on built and natural environments regionally, nationally and globally. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*

### **AMST 183: Introduction to Gender Studies. (3)**

This course focuses on the interdisciplinary study of the construction of gender as a category. Readings will span cross-cultural and historical materials, including literary, artistic and popular representations of masculinity and femininity in America.

### **AMST 184: Introduction to American Popular Culture. (3)**

Survey of basic concepts of popular culture and methods for its study. Source materials are drawn from diverse areas – television, film, fashion, comics, music and sports.

### **AMST 185: Introduction to Race, Class & Ethnicity. (3)**

An interdisciplinary introduction to the issues of race, class and ethnicity in American life and society. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*

### **AMST 186: Introduction to Southwest Studies. (3)**

Provides both an introduction to the complex history and culture of the Southwestern United States and a demonstration of the possibilities of the interdisciplinary study of regional American culture. It is multicultural in its content as it is multidisciplinary in its methodology. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Hum & Fine Arts.*

### **AMST 200\*: Topics in American Studies. (3 to a maximum of 6)**

The content of this course varies by semester. Topics include: America in the 50s; America in the 60s and 70s; the American family power and culture; schooling in America.

### **AMST 251: The Chicano Experience in the United States. (3)**

Investigation of the historical and social conditions that have shaped the development of Chicano life.

### **AMST 252: The Native American Experience. (3)**

Introductory survey of Native American history, culture, and contemporary issues. Students read literature by and about Native Americans covering a variety of topics including tribal sovereignty, federal policy, activism, economic development, education, and community life. *(Also offered as NATV 252.)*

### **AMST 285: American Life and Thought. (3)**

Examination of the development of American cultural values and attitudes from the 17th to the early 20th centuries. Demonstrates the use of interdisciplinary modes of inquiry.



## **Anthropology (ANTH)**

### **ANTH 101: Introduction to Anthropology. (3)**

Surveys the breadth of anthropology, introducing students to archaeology, biological anthropology, ethnology, human evolutionary ecology and linguistics. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences NMCCN 1113)*

### **ANTH 110: Language, Culture, and the Human Animal. (3)**

Fundamentals of anthropological linguistics. The biological, structural, psychological, and social nature of language; implications for cross-cultural theory, research, and applications. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*  
*(Also offered as LING 101)*

### **ANTH 121L: Archaeological Method and Theory. (4)**

Introduction to archaeological method and theory. Lectures cover basic concepts and strategy. Labs provide hands-on experience with methods of analyzing archeological remains.

### **ANTH 130: Cultures of the World. (3)**

Basic concepts and methods of cultural anthropology. Selected cultures, ranging from preliterate societies to aspects of urban civilization. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*

### **ANTH 134: Creating a Sustainable Future: Introduction to Environmental, Social, and Economic Health. (3)**

*(Also offered as AMST, SUST 134.)*

An introduction to creating a sustainable future that supports environmental health and restoration, social equity, and economic vitality. Examines challenges and examples of integrated, creative strategies on local, regional, national, and global levels.

### **ANTH 150: Evolution and Human Emergence. (3)**

Fundamentals of biological anthropology and principles of organic evolution, in relation to the biology, ecology and behavior of primates and fossil humans. Biological anthropology concentrators are required, and others are encouraged, to enroll concurrently in 151L. *Meets New Mexico Lower-Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences.*

### **ANTH 151L: Human Evolution Laboratory. (1)**

The factual basis of human evolution, from the comparative study of living and fossil primates to interpretation of recent human fossils. Recommended, but not required, that this be taken concurrently with 150. Two hours lab.

### **ANTH 160: Human Life Course. (3)**

Biology and behavior of the human life course, including the evolution of the life history patterns specific to humans and the impact of population growth and of adaptation to local conditions in promoting human diversity. Students are encouraged, but not required, to enroll concurrently in 161L.

### **ANTH 161L: Computer Laboratory in Human Evolutionary Ecology. (1)**

Introduces the computer as a tool in biological and social science research, provides first-hand experience in data collection, analysis and modeling behavior. No prior computer experience required. Pre- or corequisite: 160.

### **ANTH 220: World Archeology. (3)**

Introduces archeological theory, method, and technique by presenting the developmental history of human cultures.

### **ANTH 238. Cultures of the Southwest (3)**

Basic concepts of cultural anthropology, illustrated with overviews of social and cultural patterns of Southwest Indians and Hispanics. Interethnic relations of these with other American populations. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences. {Offered periodically}*

### **ANTH 251. Forensic Anthropology. (3)**

This course is designed to introduce students to the forensic investigation of death. Emphasis will be on current methods and techniques and include the role of the anthropologist as an integral member of the investigation process.



## **Art History (ARTH)**

*The following courses, 101, 251, 201, 202 and 250, are strongly recommended to all students in the study of art history and related studio areas.*

### **ARTH 101: Introduction to Art. (3)**

A beginning course in the fundamental concepts of the visual arts; the language of form and the media of artistic expression. Readings and slide lectures supplemented by museum exhibition attendance. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities & Fine Arts (NMCCN 1013.)*

### **ARTH 201: History of Art I. (3)**

Prehistoric, Near Eastern, Egyptian, Greek, Roman, Early Christian, Byzantine, Romanesque, and Gothic Art. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities & Fine Arts (NMCCN 2113.)*

### **ARTH 202: History of Art II. (3)**

Western Art from the Early Renaissance to Impressionism *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities & Fine Arts (NMCCN 2123.)*

### **ARTH 204: Greek Civilization. (3)**

An interdisciplinary introduction to the ancient world as the foundation of modern civilization. Lectures on classical art, history, literature, and philosophy. *(Also offered as CLST 204, HIST 204, PHIL 204)*

### **ARTH 205: Roman Civilization. (3)**

An interdisciplinary introduction to ancient Rome. Lectures on Roman literature, history, art and philosophy. *(Also offered as CLST 205, HIST 205, PHIL 205)*

### **ARTH 250: Modern Art. (3)**

Major stylistic developments of European and American painting and sculpture from Impressionism to approximately World War II.

### **ARTH 251: Artistic Traditions of the Southwest. (3)**

Interrelationships of Native American, Hispanic, and Anglo cultures from prehistoric times to the present, emphasizing the major forms of expression — pottery, textiles, jewelry, architecture, painting and photography. Slide lectures supplemented by museum exhibits.



## **Art Studio (ARTS)**

*[\* May be taken twice for credit.]*

### **Major Courses**

All 100-level studio courses carry no pre-requisites and are designed for both students who have a general interest in art as well as students who plan on majoring or minoring in art.

#### **ARTS 106: Drawing I. (3)**

Basic drawing concepts, including the expressive use of contour, value, perspective and composition while exploring both dry and wet media. Assigned problems may include still life, landscape, portraiture or the figure.

#### **ARTS 121: Two-Dimensional Design. (3)**

Emphasis on elements of line, form, value, color theory, painting principles and visual vocabulary. Particular attention will be placed on a disciplined approach toward design and development of perceptual skills.

#### **ARTS 122: Three-Dimensional Design. (3)**

Emphasis on materials, processes and vocabulary. Particular attention will be placed on traditional and contemporary approaches to sculpture through the consideration of spatial concepts and making three-dimensional objects.

#### **ARTS 123: Shop Foundations. (2)**

Familiarizes the art student with the safe practice and maintenance of wood and metal shop tools and machinery.

Offered on a CR/NC basis only.

#### **ARTS 130: Introduction to Electronic Art. (3)**

Introduction to the computer as a medium and fine art tool. Course will explore history, theory and contemporary art issues associated with computer-based art practice, as well as introducing students to basic tools and technologies.

#### **ARTS 157: Small Scale Metal Construction I. (3 to a maximum of 6))**

Introduction to basic fabrication methods as they relate to object-making and small-scale sculpture.

#### **ARTS 168: Introduction to Ceramics. (3)**

Comprehensive introduction to the terms, concepts, historical, and technical information that support creative development. Includes hand building and throwing, basic clay bodies, slip and glaze, oxidation, reduction, and atmospheric firing.

#### **ARTS 187: Introduction to Photography. (3)**

Hands-on course introducing students to the basic techniques of digital, black and white, and color photography. Students are strongly encouraged to enroll in ARTS 188 the following semester

#### **ARTS 188: Visualizing Ideas Using Photography. (3)**

This course will help students to develop their ideas conceptually. Students will work in digital, color, and black & white processes, and experiment with cameras, scanners, and other technology to further their ideas.

*Prerequisite:* ARTS 187.

#### **ARTS 205: Drawing II. (3)**

Further concentration on basic drawing concepts with a greater emphasis on descriptive and perceptual drawing skills using both dry and wet media. Assigned problems explore aspects of still life, landscape, portraiture and/or the figure.

*Prerequisites:* ARTS 106 and ARTS 121.

#### **ARTS 207: Painting I. (3)**

Painting materials and techniques, integrating basic drawing concepts with color theory and composition. Emphasis on descriptive and perceptual skills through assigned problems which explore aspects of still life, landscape, portraiture and/or the figure.

*Prerequisites:* ARTS 106 and ARTS 121

#### **ARTS 213: Sculpture I. (3)**

A further exploration into the concepts presented in Three-Dimensional Design. Will investigate, through specific assignments, issues that are central to producing sculpture.

*Prerequisite:* ARTS 123

#### **ARTS 216: Raku - A Ceramic Low-Firing Reduction Process. (3)**

Students will be introduced to the principles of Raku Firing including simple glaze formulation, firing techniques, and designing-building the kiln.

*Prerequisite:* ARTS 168

#### **ARTS 257\*: Small Scale Metal Construction II. (3 to a maximum of 6)**

A continuation of ARTS 157. Fabrication skills are further developed and refined. Emphasis is on developing a deeper understanding of form/content as it relates to intimate scale.

*Prerequisites:* ARTS 157.

### **ARTS 268\*: Ceramics: Materials and Aesthetics. (3 to a maximum of 6)**

Continuation of ARTS168 with emphasis placed on the mastery of foring, surfacing, and firing processes, expanded critical awareness, and the development of a personal aesthetic. Open-ended and self-selected projects. Individual and group critiques.

*Prerequisites:* ARTS 168

### **ARTS 287. Black & White Photography. (3)**

Concentrates on black and white photographic techniques: film processing and fine black and white printing.

*Prerequisite:* ARTS 187 and 188. {Offered upon demand}

### **ARTS 288: Color Techniques in Photography [Introduction to Color Photography] (3)**

The techniques and aesthetics of color photographic imaging.

*Prerequisites:* ARTS 187; ARTS 188. .

### **ARTS 289: Digital Imaging Techniques (3)**

Techniques and aesthetics of digital imaging using a variety of software programs and hardware.

*Prerequisite:* ARTS 187; ARTS 188

### **ARTS 298\*: Topics. (1-3)**

Titles will vary.

CR/NC

## **Arts and Sciences (ARSC)**

### **ARSC 198: Freshman Seminar Topics. [Introduction to Undergraduate Study.] (3)**

Variable content in an academic discipline. Through study of topic, develops academic skills including scholarship, research, comprehension, analysis, synthesis, evaluation, application, critical thinking, and communication of ideas. Most sections require coregistration in a specified "linked" course. Corequisite: some sections may require coregistration in another specified course. Restriction: freshman standing.

## **Arts and Sciences**

## **Cooperative Education Program (ASCP)**

### **ASCP 105: Cooperative Work Phase. (0)**

A mechanism for registered work phase students from the College of Arts and Sciences as full time students while working.

CR/NC.

## **ASTRONOMY (ASTR)**

*Listed in the UNM-Albuquerque catalog as the Department of Physics and Astronomy. See also "Physics."*

### **ASTR 101: Introduction to Astronomy. (3))**

Conceptual description of our fascinating universe: early astronomy, Newtonian, synthesis, Earth, Moon, planets, asteroids, comets, the Sun, our solar system, stars, black holes, galaxies, dark matter, dark energy and cosmological mysteries. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114).*

### **ASTR 101L: Astronomy Laboratory. (1)**

Intended as an adjunct to ASTR 101, this course deals with elementary techniques in astronomical observations. *Meets New Mexico Lower Division General Education Common Core Area III: Science (NMCCN 1114).*

*Pre-or Corequisite:* ASTR 101. Two hours lab.

## **Automotive Technology (AUTT)**

### **AUTT 193T: Topics. (1-6)**

Titles will vary.

### **AUTT 293T: Topics. (1-6)**

Titles will vary



## **Biology (BIOL)**

Biology 121, 122, 219 and 221 can substitute for Biology 201, 202, 203L and 204L as prerequisites for upper-division courses.

### **BIOL 105: Current Issues in Human Biology (3)**

Intended for the student with minimum previous exposure to science. The concepts and methodology of biology are developed as a basis for a discussion of current issues in areas such as reproduction, cloning, heredity, human genome, diet, exercise physiology, emerging diseases, human ecology.

### **BIOL 110: Biology for Non-Majors. (3)**

Biological principles important for the non-major in today's world. Ecological, evolutionary, and molecular topics.

(Credit not allowed for both BIOL 110 and BIOL 123/124L) *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114).*

### **BIOL 112L: Biology Laboratory for Non-Majors. (1)**

An optional laboratory which may be taken concurrently with or subsequent to BIOL 110. One 3-hour lab per week including plant and animal diversity, techniques and investigation of current issues. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114).*

*Pre- or corequisite:* BIOL 110.

### **BIOL 123: Biology for Health Related Sciences and Non-Majors. (3)**

Principles of cell biology, genetics and organismic biology.

(Credit not allowed for both BIOL 123 and BIOL 110. Not accepted toward a Biology major.)

### **BIOL 124L: Biology for Health Related Sciences and Non-Majors Lab. (1)**

One credit optional laboratory to accompany BIOL 123.

*Pre- or corequisite:* BIOL 123.

### **BIOL 201: Molecular and Cell Biology. (4)**

The scientific method, the role of water in cell biology, carbon and molecular diversity, macromolecules, introduction to metabolism, tour of cell structures and functions, membrane structure and function, cellular respiration, photosynthesis, cell communication, and the cell cycle.

*Pre- or Corequisite:* CHEM 121 and CHEM 123L or CHEM 131L. (Credit not allowed for both BIOL 201 and 219)

*Note: At UNM-LA, this class includes a two hour lab instead of the discussion required at UNM-Albuquerque.*

### **BIOL 202: Genetics. (4)**

Mitosis, meiosis, Mendelian genetics, chromosomes and inheritance, molecular basis of inheritance, genes to proteins, genetic models (viruses and bacteria), eukaryotic genomes, genetic basis of development, and overview of genomes.

*Prerequisites:* BIOL 201 and (CHEM 121 and CHEM 123L or CHEM 131L.)

*Pre- or Corequisite:* CHEM 122 and CHEM 124L or CHEM 132L. (Credit not allowed for both BIOL 202 and 221)

### **BIOL 203L: Ecology and Evolution. (4)**

Darwinian principles, origin of the earth, the fossil record and diversification of ancient life, evolution of populations, origin of species, phylogenetics, introduction to ecology and the biosphere, behavioral ecology, population ecology, community ecology, ecosystem ecology and conservation biology. Lab material includes a survey of the diversity of life. Three hours lab.

*Prerequisites:* BIOL 202, and (CHEM 122 and CHEM 124L, or CHEM 132L).

*Pre- or Corequisite:* MATH 162 or MATH 180.

### **BIOL 204L: Plant and Animal Form and Function. (4)**

Introduction to plant systems including: structure, growth, transport, nutrition, reproduction, development, and control systems. Introduction to animal systems including: nutrition, circulation, reproduction, development; and immune, control and nervous systems. Three hours lab.

*Prerequisites:* BIOL 202 and (CHEM 122 and CHEM 124L or CHEM 132L)

*Pre- or corequisites:* BIOL 203L and (MATH 180 or MATH 162).

### **BIOL 227L: Human Anatomy and Physiology Lab I. (1)**

Laboratory work using cats. Anatomy stressed with appropriate physiological work. Topics integrated with BIOL 237.

*Pre- or co-requisite:* BIOL 237. Three hrs. lab.

### **BIOL 228L: Human Anatomy and Physiology Lab II. (1)**

Continuation of BIOL 227L. Topics integrated with BIOL 238.

*Pre- or corequisite:* BIOL 238. Three hrs. lab.

### **BIOL 237: Human Anatomy and Physiology I for the Health Sciences. (3)**

An integrated study of human structure and function to include histology, skeletal, muscular, and nervous systems. *Prerequisites:* BIOL (123 and 124L) or BIOL 201 and (CHEM 111L or CHEM 121 and CHEM 123L.).

### **BIOL 238: Human Anatomy and Physiology II for the Health Sciences. (3)**

A continuation of BIOL 237 to include cardiovascular, respiratory, digestive, excretory, reproductive, and endocrine systems.

*Prerequisite:* BIOL 237.

### **BIOL 239L: Microbiology for Health Sciences and Non-Majors. (4)**

Introduction to microbiology with emphasis on principles of infection and immunity. Not accepted toward a Biology major or minor. Credit not allowed for both BIOL 239L and BIOL 351L–BIOL 352L.

*Prerequisites:* BIOL (123 and 124L) and (CHEM 111L or CHEM 121 and CHEM 123L) or BIOL 201 and (CHEM 111L or CHEM 121 and CHEM 123L).



## **Business Technology (BSTC)**

### **BSTC 113: Introduction to Project Management. (1)**

The course introduces and applies the concepts, techniques, and tools of project management.

### **BSTC 114: Customer Service and Relations. (1)**

Examines techniques for successful customer service, how to handle difficult and irate customers, customer complaints, and to build relationships with internal and external clients.

### **BSTC 115: Time Management. (1)**

Examines methods of managing personal and professional time during the workday.

### **BSTC 116: Stress Management for the Workplace. (1)**

Examines techniques and tips for managing stress in the work environment.

### **BSTC 117: Organization Skills for the Workplace. (1)**

Examines techniques for organizing workplace space and filing systems.

### **BSTC 118: Conflict Resolution for the Workplace. (1)**

Examines techniques for identifying and resolving conflict in the work environment.

### **BSTC 192\*: Topics. (1-3)**

Titles will vary  
CR/NC.

### **BSTC 193\*: Topics. (1-3)**

Titles will vary.

### **BSTC 202: Microcomputer Accounting (3)**

Course uses accounting software applications to record, classify and report business activities.

*Prerequisites:* MGMT 101.

### **BSTC 203: Business Communication. (3)**

Course emphasizes theory and application of customer contact skills, questioning and listening techniques, business etiquette, multicultural awareness, letter and memorandum writing, the job application process and interviewing, and conflict resolution.

### **BSTC 204: Human Relations in Business. (3)**

Human relations in the work environment will be studied, including the psychological implications of business practices as they apply to individual employees and supervisors.

### **BSTC 212: Introduction to Income Tax. (3)**

IRS code and regulations as they pertain to the individual. Includes capital gains and losses, accounting methods, income, deductions, social security, installment sales and alternative tax methods.

### **BSTC 213: Auditing. (3)**

Concepts and standards of independent auditing, integrating them with contemporary audit methods and with the judgment and decision processes common to audit procedure.

*Prerequisite:* MGMT 102.

### **BSTC 214: Governmental/Not for Profit Accounting. (3)**

Theory and practice of accounting in not for profit organizations, municipalities, federal government, public schools, universities, and health organizations. Fund accounting, zero-based budgeting, financial audits and operations audit.

*Prerequisite:* MGMT 102 and MGMT 102L

### **BSTC 218: Business Law. (3)**

Introduction to the basic principles of business law and their applications to typical business situations. Topics include an introduction to the legal environment, contracts, regulatory agencies, negotiable instruments, and the sale of goods and real property.

*Prerequisite:* MGMT 113

**BSTC 220: Management Accounting. (3)**

Course includes the role of accounting in the management information system, collection and processing of data for management decisions.

*Prerequisites:* MGMT 101 and MGMT 102, or MGMT 202 and MGMT 113.

**BSTC 292L\*: Topics. (1-3)**

Titles will vary.

CR/NC.

**BSTC 293L\*: Topics. (1-4)**

Titles will vary.

**BSTC 296: Business Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local businesses to give students a practical experience in a business environment.

*Prerequisites:* Third or fourth semester standing and permission of the Business Curriculum Coordinator.

CR/NC.

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

**Chemistry (CHEM)****CHEM 111L: Elements of General Chemistry. (4)**

One-semester course in general Chemistry, especially for non-science majors in the health sciences except premedicine and medical technology. (Credit not allowed for both CHEM 111L and CHEM 121 and CHEM 123L.) *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114). 3 Hrs Lecture and 3 Hrs. demo lab/recitation.*

*Prerequisite:* ACT  $\geq$  22 or SAT  $\geq$  510 or MATH 120 or MATH 121 or MATH 150 or MATH 162 or MATH 163 or MATH 180 or MATH 181 or MATH 264.

**CHEM 121: General Chemistry I. (3)**

Introduction to the chemical and physical behavior of matter. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1214).*

*Prerequisite:* MATH 121 or MATH 123 or MATH 150 or Math 162 or MATH 163 or MATH 180 or MATH 181 or MATH 264

*Corequisite:* CHEM 123L.

**CHEM 122: General Chemistry II. (3)**

Continuation of CHEM 121. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1224).*

*Prerequisite:* CHEM 121 and CHEM 123L or CHEM 131L.

**CHEM 123L: General Chemistry I Laboratory (1)**

Introduction to basic chemical laboratory principles and techniques.

*Prerequisite:* MATH 121 or MATH 123 or MATH 150 or Math 162 or MATH 163 or MATH 180 or MATH 181 or MATH 264

*Corequisite:* CHEM 121.

**CHEM 124L: General Chemistry II Laboratory (1)**

Experiments illustrating the fundamental principles and techniques of chemistry. 3 Hr. Lab

*Prerequisite:* CHEM 121 and CHEM 123L or CHEM 131L

*Corequisite:* CHEM 122

**CHEM 212: Integrated Organic Chemistry and Biochemistry. (4)**

Survey interrelating the major principles of organic chemistry and biochemistry with special emphasis toward interests of students in the health sciences.

*Prerequisite:* CHEM 111L or CHEM 121 and CHEM 123L. (Credit not allowed for both CHEM 212 and CHEM 301.)

**CHEM 253L: Quantitative Analysis. (4)**

Theory and techniques of chemical analysis. 3 Hrs. lecture and 4 Hrs. lab.

*Prerequisite:* CHEM 122 and CHEM 124L. (Students should make every effort to complete CHEM 253L within two semesters of completion of CHEM 122 and CHEM 124L.)



## Classics (CLST)

### CLST 107: Greek Mythology. (3)

Introduction to mythology: primary readings in stories about the gods and heroes, usually including Homer, Hesiod, Homeric Hymns and Tragedies. All text will be in English.

*Also offered as ENGL 107.*

*Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts.*

### CLST 204: Greek Civilization. (3)

An interdisciplinary introduction to the ancient world as the foundation of modern civilization. Lectures on classical art, history, literature, and philosophy.

*Also offered as ARTH 204, HIST 204, PHIL 204*

*Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts.*

### CLST 205: Roman Civilization. (3)

An interdisciplinary introduction to ancient Rome. Lectures on Roman literature, history, art, and philosophy.

*Also offered as ARTH 205, HIST 205, PHIL 205*

*Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts.*



## Communications and Journalism (CJ)

*Courses marked with an \* may be repeated for credit because subject matter varies.*

### CJ 101L: Introduction to Communication. (3)

Principles and concepts of various types of human communication, including interpersonal, small group, organizational, public and mass communication. 2 hrs. lecture, 1 hr. Lab.

### C J 110: Introduction to Mass Communication. (3)

The development of the mass media with emphasis on television in the areas of programming, policy, regulations, economics and technology. Examination of the social, cultural, and political impact of the mass media on contemporary society. 2 hrs. lecture. 1 hr. Lab.

*Also offered as MA 110*

### CJ 115: Communication Across Cultures. (3)

An introduction to communication among people from different cultural backgrounds, emphasizing intercultural relations. The class seeks to identify, honor and enhance the strengths of different cultural perspectives.

*Also offered as AFST 115.*

### CJ 130: Public Speaking. (3)

A performance course that deals with analysis, preparation, and presentation of speeches.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area I: Communications (NMCCN 1113.)*

### CJ 171L: Writing for Media. (3)

Practical introduction to journalism, emphasizing journalistic conventions and the gathering and writing of news for the print and broadcast media. Language and typing skills required.

*Prerequisites: 15 hours, 2.00 gpa, ENGL 102.*

### CJ 220: Communication for Teachers. (3)

Concepts and practices of interpersonal, small group and public communication pertinent to classroom teachers at the elementary, middle and secondary levels of education.

### CJ 221: Interpersonal Communication. (3)

Analysis of a variety of interpersonal communication concepts with special emphasis on the application of communications skills in different situations.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area I: Communications*

### CJ 225: Small Group Communication. (3)

Basic characteristics and patterns of communication in small groups. Includes attention to role theory, conflict resolution, and creative decision-making methods.

### CJ 292. Beginning Internship in Communication and Journalism. (1 to a maximum of 6)

Internships and service projects for students at the lower level. Restriction: permission of instructor.

### CJ 293\*: Topics. (1-3 to a maximum of 6 credit hours)

Topics will vary.



## Community and Regional Planning (CRP)

### CRP 203: Society and the Environment. (3)

Introduction to environmental and natural resource issues of both global and local scale. Investigates basic causes and consequences of environmental problems, including interrelated physical and social science dimensions.

*Also offered as ECON 203*



## Comparative Literature (COMP)

*Courses marked with an \* may be repeated for credit because subject matter varies.*

### COMP 222: Fairy and Folk Tales (3)

An exploration of fairy and folk tales from a variety of cultures. The course introduces methods of analysis while exploring historical and contemporary roles and interrelationships of the tales.

### COMP 224: Literary Questions (3)

Examination of basic questions in comparative literature studies: themes, movements, modes, interaction of literature with other disciplines, etc. Work will be comparative and reading list will represent cross-section of Western European, American, Russian, and Classical literatures. Titles will vary as content varies.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Hum & Fine Art*



## Computer Science (CS)

### CS 101: Introduction to Computing Science. (4)

An Introductory course covering the computer terminology, applications, and characteristics that a student would encounter in a CS degree. Students will learn introductory UNIX and how to run existing programs.

### CS 102: Introduction to LINUX/UNIX. (1)

For the computer novice. Students will be shown the UNIX commands needed in a computer-programming course. UNIX topics: electronic mail, file manipulation and creation, line/screen editors, and program compilation.

CR/NC

### CS 103: Advanced LINUX/UNIX. (1)

Focuses on shell scripts and shell programming, processes and job control; user tools; UNIX networking concepts; simple system administration; introduction to Perl scripting  
*Prerequisites:* CS 102 or CS 101, (a programming course or previous programming experience is recommended).

CR/NC

### CS 110: Introduction to C++ for Experienced Programmers. (1)

Intended to teach the beginning syntax of C++ to students who already have programming experience with another structured programming language such as FORTRAN, PASCAL, or C. Covers simple and enumerated types, I/O, looping, branching, functions and parameter passing, single and multi-dimensional arrays, structures. CLASSES and OOP will not be covered.

*Prerequisite:* CS 152L or CS 160 or CS 170 or CS 180.

CR/NC

### CS 130: Introduction to Problem Solving Strategies. (3)

Presents a wide variety of problem solving strategies to build skill in problem solving. Emphasizes creative/lateral thinking techniques and good communication skills. Uses both technical and non-technical problems to practice skill development.

*Prerequisite:* CS 101

### CS 131L. Introduction to Unix® and the World Wide Web.(2)

An introduction to Unix®-based computing resources. Topics include: elements of a computer system, elementary Unix® commands and file system structure, e-mail, a visual editor, browsing the World Wide Web and construction of simple Web pages using HTML.

### CS 132L. Introduction to Unix® and the World Wide Web.(1)

Continuation of CS 131L.

*Prerequisite:* 131L.

### **CS 148: Introduction to Programming in C++ (for Game Developers). (3)**

Beginning syntax of C++ and introductory programming techniques. Covers simple and enumerated types, I/O, looping, branching, functions, single/multi-dimensional arrays, and structures. General programming concepts: software development life cycle, top-down design, documentation, testing, debugging.

*Prerequisite:* Math 150 and either CS101 or CS102

### **CS 150L. Computing for Business Students. (3)**

Students will use personal computers in campus laboratories to learn use of a word processor, a spreadsheet and a database management program. The course will also cover access to the World Wide Web and other topics of current importance to business students. Course cannot apply to major or minor in Computer Science.

*Prerequisite:* MATH 120 or MATH 121 or MATH 123 or MATH 150 or MATH 162 or MATH 163 or MATH 180 or MATH 181.

### **CS 151L: Computer Programming Fundamentals for Non-Majors [MAT LAB] (3)**

An introduction to the art of computing. Not intended for Computer Science majors or minors. The objective of the course is an understanding of the relationship between computing and problem solving. (*Main campus course; 3 hrs lecture; 1 hr recitation*)

*Prerequisites:* MATH 150 and (CS 101 or CS 102)

### **CS 152L: Computer Programming Fundamentals for Computer Science Majors [in Java]. (3)**

An introduction to the art of computing. Intended for Computer Science majors or minors. The objective of the course is an understanding of the relationship between computing and problem solving. Programs will be written in Java. (Main campus course; 3 hrs lecture; 1 hr recitation.)

*Prerequisites:* MATH 150 and (CS 101 or CS 102)

### **CS 160: Introduction to Java. (3)**

This course introduces writing object-oriented programs with the JAVA language. It introduces JAVA applications and the writing of JAVA applets.

*Prerequisite:* CT 102.

### **CS 170: Introduction to Visual Basic. (3)**

Introduces how to program in a Windows environment using Visual Basic. Fundamental programming techniques will be discussed. Students will learn procedural programming, how to develop a graphical user interface in Windows, and how to work with events and objects.

*Prerequisite:* CT 102.

### **CS 180: Introduction to PERL. (3)**

This introductory course introduces PERL, practical extraction report language. It will focus on the following topics: Scalar data, Control structures, Basic I/O, Directory Access, File and Directory Manipulation, Process Management, System Database Access, and CGI Scripting.

### **CS 184. Unix® Administration and Tools. (3)**

An introduction to Unix® services, tools, organization and administration. System management: files, processes, user

accounts, configuration, file system organization, networking and security.

Programming tools: sh, sed, awk, perl and C.

Network services: NFS, NIS, DNS, sendmail, ftp.

### **CS 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

### **CS 193\*: Topics. (1-3)**

Titles will vary.

### **CS 220: Systems Analysis and Design. (3)**

An overview of the system development lifecycle. Emphasis on current system documentation through the use of classical, structured, and object-oriented tools/techniques for describing program specifications.

*Prerequisite:* CS 151L or CS 152L or CS 160 or a full semester of programming.

### **CS 241L: Data Organization. (3)**

Data representation, storage and manipulation. Covers the memory organization of data storage and its relation to computation and efficiency. Topics include: linked vs. contiguous implementations, memory management, the use of indices and pointers, and an introduction to issues raised by the memory hierarchy. Programming assignments in C provide practice with programming styles that yield efficient code and computational experiments investigate the effect of storage design choices on the running time of programs. (Main campus course.)

*Prerequisite:* CS 151L or CS 152L.

### **CS 251L: Intermediate Programming. (3)**

An introduction to the methods underlying modern program development. Specific topics will include object-oriented design and the development of graphical user interfaces. Programming assignments will emphasize the use of objects implemented in standard libraries. (Main campus course. 3 hour lecture. 1 hour recitation.)

*Prerequisite:* CS 151L or CS 152L.

### **CS 258: Introduction to Object Oriented Programming. (2)**

Focuses on applying the advanced features of JAVA including exceptions, threads, inheritance, and polymorphism. This projects course stresses the design (using UML), development, and testing of larger programs using the Object paradigm.

*Prerequisite:* CS 251L

### **CS 260: Introduction to Applied Software Engineering. (2)**

An introduction to the methodologies and tools used in a disciplined life-cycle approach to the development of large software systems. Design goals and principles will be emphasized and current methodologies such as data flow, structured design, and object-oriented design will be explored. Team programming.

*Prerequisites:* CS 220 and CS 251L.

### **CS 261: Mathematical Foundations of Computer Science. (3)**

Introduction to the formal mathematical concepts of computer science for the beginning student. Topics include elementary logic, induction, algorithmic processes, graph theory, and models of computation. (Main Campus course.)

*Prerequisites:* (CS 151L or CS 152L) and MATH 162

### **CS 290\*: Topics (1-3)**

Titles will vary

### **CS 292\*: Topics. (1-3)**

Titles will vary.

CR/NC.

### **CS 293: Social and Ethical Issues in Computing. (1)**

Overview of philosophical ethics, privacy and databases, intellectual property, computer security, computer crime, safety and reliability, professional responsibility and codes, electronic communities and the Internet, and social impact of computers. Students make oral presentations and produce written reports.



## **Computer Technology (CT)**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

### **CT 101: Introduction to Computing on Microcomputers. (1)**

Fundamentals of using microcomputers; Logging on, saving work to disks, operating system basics, using software, using the UNM-LA network.

### **CT 102: Introduction to Microcomputers on the PC. (4)**

An overview of the use of computers and data processing in today's society. Discusses PC history, terminology, and applications. Introduces the rudiments of a word processor (Word), a PC database (Access), and a PC spreadsheet (Excel).

### **CT 103: Introduction to Spreadsheets. (1)**

Basic terminology and practical applications of spreadsheets: moving around the spreadsheet, commands, formatting, function operations, printing, and graphing.

CR/NC

### **CT 104: Introduction to Relational Databases. (1)**

Introduces fundamentals of relational databases and database software; basics of database creation, entering and editing data, creating and using forms, creating and printing reports, customizing fields and tables, and integrating with other data sources and the Internet.

CR/NC

### **CT 106: Introduction to WORD (3)**

Introduces advanced word processing techniques using Microsoft Word. The class content involves document design and formatting as well as file management. A great emphasis will be put on efficiency in applications.

### **CT 111: Introduction to Computer Aided Design and Drafting. (3)**

Entry-level course intended for the technician or draftsman interested in the use of computer aided design in an engineering environment. . (3 hour lecture. 1 hour lab)

*Prerequisite:* C T 101 or C T 102, and a basic knowledge of drafting techniques.

**CT 119: Intermediate Computer-Aided Design and Drafting. (3)**

Topics will include two and three-dimensional drafting, three-dimensional wireframe and hidden line modeling, and basic system automation utilizing script files, menu customization, and the AutoLISP programming language.

*Prerequisite:* C T 111. (3 hour lecture. 1 hour lab.)

**CT 121: Introduction to Appleworks. (1)**

Provides an understanding of an integrated system for word processing, spreadsheets, databases and communication programs.

*Prerequisite:* CT 125. (Previously CT 105LT)

**CT 122: Introduction to Microcomputers on the Macintosh. (3)  
(Previously CT 120LT)**

Course introduces the student to Macintosh computers, computer terminology, hardware and software. Topics covered include using the Macintosh operating system, Microsoft Word, Microsoft Excel, and basic Internet applications.

**CT 125: Introduction to the Macintosh. (1) (Previously CT 105LT)**

Overview and demonstration of Macintosh and its programs. Topics include the Macintosh operating system (file and folder management, using disks, system preferences settings), and the basics of typical applications such as word processing, spreadsheets, desktop publishing, databases, and web browsing.

**CT 126: Microsoft Word on the Macintosh. (1) (Previously CT 106LT)**

The use of Microsoft Word for the Macintosh computer.

*Prerequisite:* CT 125. (Previously CT 105LT)

**CT 127: Microsoft Excel on the Macintosh. (1) (Previously CT 107LT)**

The use of Microsoft Excel on the Macintosh computer.

*Prerequisite:* CT 125 (Previously CT 105LT)

**CT 128: Introduction to Internet on Macintosh. (1) (Previously CT 142LT)**

Introduces the student to the fundamentals of using the Internet from a Macintosh computer in the UNM-Los Alamos local area network. This course will cover the local area network, the background of the Internet, and the many resources available to the Internet user, such as electronic mail, FTP file transfer, Usenet news groups, and World Wide Web sites. A fundamental knowledge of using the Macintosh is assumed.

**CT 129: Desktop Publishing on the Macintosh. (1) (Previously CT 109LT)**

Introduces page layout software for desktop publishing. Topics include placing text and graphics on the page, type manipulation and formatting, graphics placement and text flow, basic drawing tools, and plug-ins.

*Prerequisite:* CT 125 (Previously CT 105LT)

**CT 131: Introduction to Windows. (1)**

Provides a practical approach to using Microsoft's most popular operating systems. Emphasis will be on the basic structure of Windows, file types and hierarchy, and how to find things on the system. Troubleshooting of the operating system will also be covered.

**CT 140: Introduction to PowerPoint. (1)**

Students learn the rudiments of PowerPoint to create slide shows, graphs, and organizational charts; work with text, drawings, clip art, templates, and special effects.

**CT 143: Microsoft Word on the PC. (1)**

Designed to introduce students to using Microsoft Word. Students will learn to create and save documents, using existing documents and how to edit their text. Students will also learn to delete selected text and undo margins and tabs.

**CT 144: Introduction to HTML. (1)**

Introduction to creating web pages using hypertext Markup Language (HTML). Students learn to edit HTML in a text editor, create basic web pages, and learn the functions of basic HTML tags for formatting text, linking pages, placing graphics, making tables, and using frames.

**CT 148: Microsoft Outlook. (2)**

Fundamentals of Microsoft Outlook: sending and receiving messages, managing schedules, arranging meetings, creating contact lists, recording tasks, making journal and notes entries, and integrating and customizing Microsoft Outlook.

**CT 165: Introduction to Web Authoring. (3)**

This course is an introduction to making and designing web pages using HTML generating software. Students learn how to make well-designed web pages from simple to the complex. Site creation with text, graphics, tables, Cascading Style Sheets, and simple animation effects are included. Design principles as they apply to the World Wide Web are also presented. No knowledge of HTML is required.

*Also offered as IT 165*

**CT 170: Introduction to INTERNET. (1)**

Designed to introduce students to fundamentals of working in the INTERNET from a PC, UNM-Los Alamos local network. Covers local area network, background of INTERNET, and services available and electronic mail.

*Prerequisite:* CT 101 or CT 102

**CT 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

**CT 193\*: Topics. (1-3)**

Titles will vary.

**CT 201: Applications of Relational Databases. (4)**

A basic understanding of the hierarchical, network and relational database models, with emphasis placed on relational model. Introduces fundamentals of relational databases and database software. Students will construct a relational database using current UNM-LA microcomputer software.

*Prerequisite:* C T 102 or CT 104 or CS150.

**CT 202: Applications of Spreadsheets. (3)**

Introduces fundamentals of spreadsheets and spreadsheet software; formatting, formulas and functions, charts and objects, sorting and filtering, data validation, consolidated views and reports, pivot tables and charts, software auditing and collaborative tools, and integrated spreadsheet applications.

*Prerequisite:* CT 102 or CT 103 or CS150.

**CT 203: Introduction to DeskTop Publishing. (3)**

Introduction to Desktop Publishing software and page design concepts on the personal computer. Topics: importing files, interaction with word processor/text editor, creating/using style sheets, editing/manipulating text, simple graphics, desktop publication. (*Also offered as DMA 203*)

*Prerequisite:* none

**CT 220: Intermediate Microsoft Windows. (2)  
(Previously CT 210LT)**

Operating techniques such as system back ups, security and communications are the primary focus. Discussions of advanced techniques such as the registry and troubleshooting will be included.

*Prerequisite:* CT 102 or CT 101 or C T 131.

**CT 292\*: Topics. (1-3)**

Titles will vary.

CR/NC.

**CT 293\*: Topics. (1-3)**

Titles will vary.

**CT 296: Microcomputer Technology  
Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisites:* Third or fourth semester standing and permission of the Information Technology Curriculum Coordinator.

CR/NC.



## Cooperative Education Program (E Coop)

**E Coop 105: Cooperative Education Work Phase. (0)****E Coop 109: Evaluation of Cooperative Education Work Phase 1. (1)**

CR/NC

**E Coop 110: Evaluation of Cooperative Education Work Phase 2. (1)**

CR/NC.

**E Coop 209: Evaluation of Cooperative Education Work Phase 3. (1)**

CR/NC.

**BSTC 296: Business Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisites:* Third or fourth semester standing and permission of the Business Curriculum Coordinator.

CR/NC.

**CT 296: Microcomputer Technology Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisites:* Third or fourth semester standing and permission of the Information Technology Curriculum Coordinator.

CR/NC.

**ELCT 296: Electronics Technology Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisite:* Third or fourth semester standing and permission of Applied Technologies Curriculum Coordinator.

CR/NC.

**IT 109: Information Technology Cooperative Education. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment doing technology work.

*Prerequisite:* Third or fourth semester standing and permission of Information Technology Curriculum Coordinator.

**MST 296: Materials Science Technology Cooperation Work Phase (1)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisite:* Third or fourth semester standing and permission of the Applied Technologies Curriculum Coordinator.

CR/NC.



**Dance (DANC)**

*Courses marked with an \* may be repeated for credit because subject matters varies.*

**DANC 105\*: Dance Appreciation (3 to a maximum of 6)**

A lecture and discussion course introducing the study of dance as technique, spectacle and ritual for today's audience. *Meets New Mexico Lower-Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1113)*

**DANC 132\*: Jazz I (3 to a maximum of 9)**

Fundamental work for the adult beginner in technique and styles of jazz dance.

**DANC 149\*: Ballet I (3 to a maximum of 9)**

Fundamental work for the adult beginner in vocabulary, technique and styles of ballet.

**DANC 169\*: Flamenco I (3 to a maximum of 9)**

Fundamental work for the adult beginner in techniques and styles of Flamenco.

**DANC 170\*: Hip Hop I (3 to a maximum of 12)**

An introduction to Hip Hop, its movement, style and culture.

**DANC 232\*: Jazz II (3 to a maximum of 12)**

Jazz techniques and styles at the intermediate level.

**DANC 249\*: Ballet II (3 to a maximum of 12)**

Ballet techniques and styles at the lower intermediate level.

**DANC 269\*: Flamenco II (3 to a maximum of 12)**

Flamenco techniques and styles at the intermediate level.

**DANCE 295\*: Special Topics in Dance (1-3 to a maximum of 12)**

Lecture courses and workshops on various topics in dance.



**Digital Media Arts (DMA)**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

**DMA 101: Introduction to Digital Imaging & Scanning. (1)**

Students learn to make images with a computer and scanner, as well as study basic concepts of digital imaging/digital photography. This leads to an understanding of the requirements for achieving image quality as it applies to screen display (world wide web) or for printed output.

*Prerequisite:* none

### **DMA 102: Beginning Digital Photography. (1)**

This course concentrates on raster imaging as it pertains to digital photography. A survey of digital still cameras and other hybrid imaging devices, and the preparation of imagery for print via color management procedures are also covered.

*Prerequisite:* none. (Basic computer literacy is assumed.) A digital camera is required for this course.

### **DMA 165: Introduction to Digital Media Arts I (Photoshop). (3)**

This course serves as an introduction to the computer as an image-making device using raster-imaging software (Adobe Photoshop). It includes the making and manipulating of images derived from photography and other traditional media. Included also is the digital preparation of imagery for printed and display (Web) output.

*Prerequisite:* none

### **DMA 166: Digital Media Arts II (Illustrator). (3)**

This course is an introduction to the computer as an image-making device using vector-imaging software (Adobe Illustrator). It includes the creation and manipulation of digital imagery derived from traditional graphic design, including typography and illustration graphics. Students will design logo art and other projects aimed for printed and screen display.

*Prerequisite:* none

### **DMA 168: Multiple Image Graphics (Photoshop). (1-3)**

Students who have introductory experience in Photoshop concentrate making imagery that requires the use of selection tools, masks, alpha channels, layers and blending modes. Such examples include selective alterations to individual images and multiple-image montage. While photography is the most common source material for these techniques, students are also encouraged to use these Photoshop techniques for digital painting and printmaking.

*Prerequisite:* DMA 165.

### **DMA 175: Digital Imaging and Photography (Photoshop). (3)**

This course concentrates on raster imaging as it pertains to digital photography. A survey of digital still cameras and other hybrid imaging devices, the preparing of imagery for print via color management procedures, and immersive Imaging are included in this course. This course also advances techniques and issues introduced in DMA 165.

*Prerequisite:* DMA 165.

### **DMA 193\*: Topics. (1-3)**

Titles will vary.

### **DMA 203: Introduction to Desktop Publishing. (3)**

Introduction to Desktop Publishing software and page design concepts on the personal computer. Topics: importing files, interaction with word processor/text editor, creating/using style sheets, editing/manipulating text, simple graphics, and desktop publication. Also offered as CT 203

*Prerequisite:* none

### **DMA 240: Audio/Video for the Web (3)**

This course serves as an introduction to digital video (with audio) and its unique aesthetic criteria. This class' focus is the creation and use of video projects for integration into interactive projects, either for a single participant or for mass Internet presentations, or for the creation of a standalone project.

### **DMA 250: Web Animation and Interactive Multimedia Design. (3)**

This course will introduce tools for making interactive multi-media projects in combination with animation (moving image). It will focus on design issues relative to non-linear interactive web sites, games, books, training modules, or experimental projects. Basic Theories and techniques of Animation will also be covered. These projects will be designed primarily for the World Wide Web, however options will be presented for non-web applications. May be repeated for credit.

### **DMA 270: Special Projects in Web/Multimedia. (3)**

Students enrolled in this course to concentrate on a specific project, a specific area of multi-media, or to refine their techniques in making well designed web or interactive projects. This course will introduce critical thinking about web aesthetics and culture. Students will research well-designed or aesthetically experimental sites and present their findings as well as work toward utilizing these principles to improve their own projects. May be repeated for credit.

*Prerequisites:* DMA 250 and IT 165.



## **Drafting Technology (DRFT)**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

### **DRFT 103: Introduction to Drafting. (3)**

Intended as a first course for students with no previous exposure to drafting. The class will include hands-on drawing in class and will introduce basic topics in drafting methods.

**DRFT 119: Drafting/Blueprint Reading. (3)**

Fundamentals of technical industrial communication: drafting, sketching, blueprint reading, layout work in specialized areas; visualization and interpretation of blueprints and sketches of parts, assemblies, and processes.

Prerequisite: DRFT 103

**DRFT 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

**DRFT 193\*: Topics. (1-3)**

Titles will vary.

**DRFT 220: Fundamentals of Geometric Dimensioning and Tolerancing. (3)**

An introduction to geometric dimensioning and tolerancing (GD & T), according to the American Society of Mechanical Engineers (ASME) Y14.5 standard for engineering drawings. This course will develop an understanding to specify or interpret GD & T per industry blueprints, the effects on part function, and the inspection procedures to verify those specifications.

*Prerequisites:* DRFT 103 and DRFT 119

*Other education or job experience may be substituted for prerequisites.*

  
**Early Childhood Multicultural Education (ECME)****ECME 101: Child Growth, Development, and Learning. (3)**

This basic course in the growth, development, and learning of young children, provides foundational knowledge of how young children grow, develop and learn.

**ECME 103: Health, Safety, and Nutrition. (2)**

This course provides information related to standards and practices that promote children's physical and mental well being, sound nutritional practices, and maintenance of safe learning environments.

**ECME 111: Family and Community Collaboration I. (3)**

This basic course examines the involvement of families from diverse cultural and linguistic backgrounds in early childhood programs. Ways to establish collaborative relationships with parents and others involved with children in early childhood settings are discussed.

**ECME 115: Guiding Young Children. (3)**

This course explores theories of child guidance and practical applications. It provides developmentally appropriate methods for guiding children, effective strategies and suggestions for facilitating positive social interactions.

**ECME 117: Curriculum Development and Implementation I. (3)**

This beginning curriculum course focuses on developmentally appropriate content in early childhood programs and developmentally appropriate curriculum integration into teaching and learning experiences.

*Corequisite:* ECME 117L.

**ECME 117L: Curriculum Development and Implementation Practicum I. (2)**

This course provides opportunities for students to apply knowledge gained from ECME 117 and develop skills in planning developmentally appropriate learning experiences for young children including children with special needs. *Corequisite:* ECME 117.

**ECME 202: Introduction to Reading and Literacy Development. (3)**

This is a basic course in children's emergent literacy and reading development: Ways to foster phonemic awareness, literacy problem solving skills, fluency, vocabulary, comprehension, and language development are explored.

**ECME 217: Curriculum Development and Implementation II. (3)**

This basic course focuses on the learning environment and the implementation of curriculum in early childhood programs. Various curriculum models and teaching and learning strategies are explored.

*Corequisite:* ECME 217L.

**ECME 217L: Curriculum Development and Implementation Practicum II. (2)**

This course provides opportunities to apply knowledge gained in ECME 217 and develop skills in planning learning environments and implementing curriculum for young children including those with special needs.

*Corequisite:* ECME 217.

### **ECME 220: Assessment of Children and Evaluation of Programs I. (3)**

This basic course familiarizes students with a variety of culturally appropriate assessment methods and instruments, and the development and use of formative and summative program evaluation to ensure quality.

### **ECME 230: Professionalism. (2)**

This course provides a broad-based orientation to the field of early care and education. Early childhood history, philosophy, ethics and advocacy are introduced.



## **Earth and Planetary Science (EPS)**

### **EPS 101: How the Earth Works - An Introduction to Geology. (3)**

A fascinating tour of our active planet. Explore earth materials (rocks and minerals), the continents' motions and related origins of earthquakes, volcanoes, mountain building, oceans, landscapes, natural energy and economic resources, global warming and other topics. Students are encouraged but not required to enroll concurrently in EPS 105L. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science. (NMCCN 1114)*

### **EPS 105L: Physical Geology Laboratory. (1)**

Minerals, rocks, and topographic and geological maps; field trips. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science. (NMCCN 1114)*

*Pre- or Corequisite:* EPS 101.

### **EPS 110: Topics in Earth Sciences. (1-3 to a maximum of 3)**

Eight to sixteen week course on selected topics relating directly to the human experience, e.g., Volcanoes, Extinctions, Weather, Earthquakes, New Mexico's Water, Soils, Nuclear Hazards, Geomagnetism, Albuquerque's Field Geology and the Geology of Everyday Life.

### **EPS 115: Geological Disasters. (3)**

Causes and effects of disastrous geological events, including earthquakes, volcanic eruptions, tsunamis, landslides and floods.

### **EPS 201L: Earth History (4)**

Origin and history of the earth including age of the planet and dating of rocks, changing configurations of oceans and continents as a result of plate tectonics, records of climate change, history of formation and erosion of mountain chains, origin and evolution of life and causes of extinction. Required field trip and lab exercises permit understanding of how Earth history is interpreted from the geologic rock record. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science*

*Prerequisite:* EPS 101 or ENVS 101; *Pre- or corequisite:* EPS 105L or ENVS 102L.

### **EPS 203: Earth Resources and Environment (3)**

Geologic context for the occurrence of metals, industrial minerals, water, and energy resources on Earth, Environmental ramifications of resource exploration, exploitation and use and local, national and global environmental laws and treaties governing those activities.

*Prerequisite:* EPS 101 or ENVS 101 recommended.

### **EPS 251: Meteorology. (3)**

(Also offered as GEOG 251) Description of weather phenomena, principles of atmospheric motion, weather map analysis and weather prediction.



## **Economics (ECON)**

### **ECON 105: Introductory Macroeconomics. (3)**

Economics on a national scale; determination of national income, employment level, inflation, and impact of policies affecting money supply, interest rates and government programs. Current macroeconomic issues and problems.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences (NMCCN 2113) - Prerequisite for most upper-division courses.*

### **ECON 106: Introductory Microeconomics. (3)**

Exploration of individual consumer behavior, production decisions by the firm, and supply and demand relationships in the marketplace. Examination of the international dimension of production and consumption choices.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences (NMCCN 2123) - Prerequisite for most upper-division courses.*

### **ECON 203: Society and the Environment. (3)**

Introduction to environmental and natural resource issues of both global and local scale. Investigates basic causes and consequences of environmental problems, including interrelated physical and social science dimensions.

*(Also offered as CRP 203)*

### **ECON 212: Personal Investing. (3)**

Investment options available to the individual will be analyzed in terms of economic theories of capital markets. Risk, value, returns and portfolio analysis.



## **Electro Mechanical Technology (ELCT)**

### **ELCT 101: DC Circuit Analysis (4)**

Basic elements of DC electrical and electronic circuits, circuit analysis, measurement, and circuit design. Study of circuit network theorems and their applications to design techniques. Study of conductors and insulators.

*Prerequisite:* MATH 120 and MATH 106 or equivalent

### **ELCT 102: AC Circuit Analysis. (4)**

AC electrical and electronic components, including inductance, capacitance, resonance, filters, RC and LR time constants. Study of reactance, impedance, complex numbers, AC network analysis, magnetism, and simple power supplies. Introduction to rotating electrical machines, both AC and DC.

*Prerequisite:* A grade of C or better in ELCT 101.

*Pre- or Corequisite:* MATH 123.

### **ELCT 103 Mechanical Systems (3)**

This course covers vacuum, cryogenic, and hydraulic technologies and systems. Provide basic understanding of the design, assembly, and operations of mechanical systems typically found in industrial applications.

### **ELCT 105L: Industrial Shop Practice. (3)**

Principles of and practice with hand and machine tools used by electromechanical technicians. Includes operation of lathe and milling machines, drilling, welding, sawing, grinding, soldering, brazing, measurements, sheet metal work, benchwork, or other appropriate operations.

### **ELCT 112L: RF/Power Lab. (1)**

Study of RF energy and its applications. Topics include plasma, physics, RF applications, safety, RF generators, transmission lines and RF interference. Topics also include wireless and antennas.

*Prerequisite:* ELCT 102.

### **ELCT 114: Vacuum Systems. (1)**

Study of vacuum technologies and vacuum systems. Topics include gas laws and properties, operation and applications of vacuum pumps, gauges and valves, and systems leak detection. Applies vacuum technologies and vacuum systems.

### **ELCT 137: Digital Electronics I (Combinational Logic). (3)**

An introduction to the analysis and synthesis of combinational logic circuits. Boolean algebra, logic gates, Karnaugh maps, MSI and LSI integrated circuits. Interpretation of logic diagrams. Techniques of troubleshooting digital circuits.

*Prerequisite:* ELCT 101.

### **ELCT 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

### **ELCT 193\*: Topics. (1-3)**

Titles will vary.

### **ELCT 203: Electronic Devices. (4)**

Study of amplifiers, oscillators, integrated circuits, and operational amplifiers. Computer solutions of electronic circuits.

*Prerequisite:* C or better in ELCT 102.

### **ELCT 204L: Electronics Lab. (2)**

Advanced laboratory measurements and design. Measurements using AC and DC meters, ohmmeters, oscilloscopes, signal generators, and pulse generators. Computer circuit stimulation.

*Prerequisite:* C or better in ELCT 203

### **ELCT 205: Mechatronics. (4)**

Mechatronics is a combination of mechanical and electronic components into an integrated system. Includes a study of basic electronic theory, digital systems, introductory control theory, operational amplifiers, transducers, temperature measurement, motors, and data acquisition.

*Prerequisites:* ELCT 101 and ELCT 102. (ELCT 203 recommended)

**ELCT 292\*: Topics. (1-3)**

Titles will vary.  
CR/NC.

**ELCT 293\*: Topics. (1-3)**

Titles will vary.

**ELCT 296: Electronics Technology Cooperative Work Phase 1, 2, or 3. (1-3)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisites:* Third or fourth semester standing and permission of the Science/Applied Technologies Curriculum Coordinator.  
CR/NC.

  
**Emergency Medicine (EMS)****EMS 104 [108]: Land Navigation. (3)**

Teaches the basics of land navigation, map interpretation, GPS, and compass use in a wilderness environment.

*Prerequisite:* EMS 107

**EMS 105 [107]: Wilderness Survival. (3)**

Teaches the basics of survival in wilderness environment. Topics include finding food and water and constructing temporary shelters. Two overnight field trips are included in the course.

**EMS 110 First Responder (4)**

A 72-hour course consisting of 40 hours of didactic instruction which includes the minimum standard Department of Transportation curriculum to prepare the student for pre-hospital field techniques and 32 hours of lab instruction which includes individual instruction in airway management and patient assessment skills. Students must obtain current certification in American Heart Association Basic Life Support for Healthcare Providers CPR before the first class session.

**EMS 113 EMT–Basic (6)**

Meets the 1998 EMT-Basic National Standard Curriculum requirements and incorporates New Mexico EMT-B scope of practice. Includes lecture instruction to prepare the student to sit for New Mexico and National Registry testing.

*Restriction:* Program Permission

*Corequisite:* EMS 142.

**EMS 114 EMT–Basic I (3)**

First half of a 2-semester option for EMT-Basic based on the National Standard Curriculum and New Mexico EMT-B scope of practice. Provides lecture instruction to prepare the student for EMS 115, EMT–Basic II.

*Restriction:* Program permission

*Corequisite:* EMS 140.

**EMS 115 EMT–Basic II (3)**

Second half of a 2-semester option for EMT-Basic based on the National Standard Curriculum and New Mexico EMT-B scope of practice. Provides instruction to prepare the student to sit for New Mexico and National Registry testing.

*Restriction:* Program permission

*Prerequisites:* EMS 114 and EMS 140

*Corequisite:* EMS 141

**EMS 140 EMT–Basic Lab I (1)**

First half of a 2-semester option for EMT-Basic based on the National Standard Curriculum and New Mexico EMT-B scope of practice. Provides lab instruction to prepare the student for EMS 141, EMT–Basic Lab II.

*Restriction:* Program permission

*Corequisite:* EMS 114

**EMS 141 EMT–Basic Lab II (1)**

Second half of a 2-semester option for EMT-Basic based on the National Standard Curriculum and New Mexico EMT-B scope of practice. Provides lab instruction to prepare the student to sit for New Mexico and National Registry testing.

*Restriction:* Program permission

*Prerequisites:* EMS 114 and EMS 140

*Corequisite:* EMS 115

## **EMS 142. EMT-Basic Lab (2)**

Meets the 1998 EMT-Basic National Standard Curriculum requirements and incorporates New Mexico EMT-B scope of practice. Provides lab instruction to prepare the student to sit for New Mexico and National Registry testing.

*Restriction:* Program Permission

*Corequisite:* EMS 113.

## **EMS 193\*: Emergency Medicine Topics. (1-3)**

Titles will vary.



# **Engineering**

## **ENG 116: Introduction to Engineering (1-3 to a maximum of 6)**

Description of the engineering profession, orientation to engineering education, introduction to the engineering design process. Does not count toward degree credit in the College of Arts and Sciences or in the School of Engineering. Two hours lecture and demonstrations.

## **Chemical and Nuclear Engineering (CHNE)**

### **CHNE 101: Introduction to Chemical and Nuclear Engineering (1)**

An introduction to the professions of chemical engineering and nuclear engineering; current research in these fields; career choices; guidance and advice on curricular matters and effective study techniques for chemical and nuclear engineering students

## **Civil Engineering (CE)**

### **CE 160L Civil Engineering Design (3)**

Introduction to engineering graphics (Autocad), computer-aided design; introduction to civil engineering and construction.

### **CE 202: Engineering Statics. (3)**

Statics of particles and rigid bodies in two and three dimensions using vector algebra as an analytical tool; centroids; distributed loads; trusses, frames; friction.

*Prerequisites:* PHYC 160 and MATH 163

## **Electrical and Computer Engineering (ECE)**

### **ECE 101 Introduction to Electrical and Computer Engineering (1)**

Insight into electrical engineering is gained through videos, "hands-on" experiments, use of computer software to learn basic problem-solving skills and team-oriented design project.

### **ECE 131: Programming Fundamentals. (3)**

Fundamental programming concepts, including consideration of abstract machine models with emphasis on the memory hierarchy, basic programming constructs, functions, parameter passing, pointers and arrays, file I/O, bit-level operations and interfacing to external devices.

### **ECE 203: Circuit Analysis I. (3)**

Basic elements and sources. Energy and power. Ohm's law and Kirchhoff's laws. Resistive networks, node and loop analysis. Network theorems. First-order and second-order circuits. Sinusoidal sources and complex representations: impedance, phasors, and complex power. Three-phase circuits.

*Prerequisites:* MATH 163 and CS 151L.

*Corequisites:* MATH 316 and PHYC 161.

**Note:** Please check with advisor to register at UNM-Los Alamos.

### **ECE 213: Circuit Analysis II. (3)**

General transient analysis of electrical circuits. Laplace transform with application to circuit analysis. State-space equations. Fourier series analysis. The network function; convolution; frequency response.

*Prerequisites:* ECE 203L & MATH 316.

*Corequisite:* MATH 314.

### **ECE 238L: Computer Logic Design. (4)**

Binary number systems. Boolean algebra. Combinational, sequential and register transfer logic. VHDL Arithmetic/logic unit. Memories, computer organization. Input-Output. Microprocessors.

*Prerequisite:* CS 151L

## **Mechanical Engineering (ME)**

### **ME 160L: Mechanical Engineering Design I. (3)**

Introduction to engineering graphics, the design process, computer aided design, engineering ethics, design economics and project management. 2 hrs lecture, 3 hrs. lab.

*Prerequisite:* eligibility for admission to MATH 150.

### **ME 260L: Mechanical Engineering Design II. (3)**

The design process, project management, shop practice CNC and rapid prototyping, design economics and engineering ethics. 2 hrs. lecture, 3 hrs lab.

*Prerequisites:* ME 160L, and MATH 162.

\*This course will be occasionally offered through Extended University but will be taught by UNM–Albuquerque and carry UNM main campus tuition rates.

## **Engineering (General) (ENGF)**

### **ENGF 130: Introduction to Environmental Science I (3)**

This course presents an overview of the earth's ecosystems and various threats to the environment resulting from our way of living. Problems of pollution of our ground and surface water, ozone depletion, gaseous and particulate pollution of our atmosphere, and production of hazardous wastes of all types are discussed; groundwork is laid for study of possible alleviation of the problem.

### **ENGF 131: Introduction to Environmental Science II. (3)**

A continuation of ENGF 130. The sources of energy, their use and misuse, are studied. Environmental and human health problems associated with air, water and land pollution are discussed in detail.

### **ENGF 193\*: Topics. (1-3)**

Titles will vary.

### **ENGF 201: Fundamentals of Hazardous Materials. (3)**

An introductory study of chemical and radiological materials that are potentially threatening to human safety or health, and procedures to use in working around and with them. Topics include identification of such materials and their particular threat. Practices to follow to avoid occurrences in incidents or to mitigate the damage; and an overview of federal and state standards and regulations.

*Prerequisites:* CHEM 121 and CHEM 123L.

### **ENGF 202: Introduction to Hazardous Waste Management. (3)**

Environmental legislation and classification and categorization of hazardous waste are presented. Waste minimization and chemical, physical, and biological treatment methods are discussed, making abundant use of case studies.

### **ENGF 222: Introduction to Radioactive Materials. (3)**

Elementary concepts of atomic and nuclear structure. Radioactive decay, radiation effects and shielding, radiation detection and measurement techniques, and special problems in waste management presented by radioactive materials are covered.

*Prerequisites:* CHEM 121 and CHEM 123L and MATH 150.

### **ENGF 293\*: Topics. (1-3)**

Titles will vary.



## **English (ENGL)**

*Students placing into English 099 [IS-E 010] or English 100 [IS-E 100] must also take ARSC 198, Introduction to Undergraduate Study as a pre- or corequisite.*

### **ENGL 099: Developmental English II (1-4 credit hours)**

An intensive study of fundamental writing skills, focusing upon paragraph development, fluency, and introducing the essay. .

**Note:** At UNM-LA this course is offered for 4 credit hours with A, B, C, CR, NC grading, has a co-requisite of ISE 020, and includes a skills laboratory.

### **ISE 020: Reading I. (1)**

Reading for accuracy and understanding in short expository passages. Vocabulary, sequence and discussion skills are emphasized.

ABC/NC or CR/NC.

### **ISE 021: Reading II. (1)**

Reading for analysis in short expository/academic passages. Vocabulary, outlining, note-taking, distinguishing among fact, assertion, evidence, and implication are emphasized.

ABC/NC or CR/NC.

### **ENG 100: Writing Standard English (1-4 cr hrs)**

Developmental writing course providing concentrated practice writing and reviewing basic essays, as well as intensive study of grammar, punctuation, and usage.

*Prerequisites:* Successful completion of ISE 010 (A, B, C, CR), or ENGL 099 (A, B, C, CR) or minimum placement test score.

**Note:** At UNM-LA this course is offered for 4 credit hours with ABC/NC, CR/NC grading, has a co-requisite of ISE 021, and includes a skills laboratory.

### **ENGL 101: Composition I: Exposition. (3)**

Expository writing and reading. Concentrates on organizing and supporting ideas in writing. *Meets New Mexico Lower Division General Education Common Core Curriculum for Area 1: Communications (NMCCN 1113.)*

*Prerequisite:* A grade of C (not C-) or better in ENGL 100 or appropriate placement score. (See Freshman English at UNM: A Student Handbook or UNM-LA's English Composition Handbook.)

### **ENGL 102: Composition II: Analysis and Argument. (3)**

Practice writing analytic and argumentative essays based on expository and literary readings. Some research required. *Meets New Mexico Lower Division General Education Common Core Curriculum Area 1: Communications (NMCCN 1123.)*

*Prerequisite:* C or better in 101 or verbal ACT of 29 or verbal SAT of 650. (See Freshman English at UNM: A Student Handbook or UNM-LA's Composition Handbook.)

### **ENGL 107: Greek Mythology. (3)**

Introduction to mythology: primary readings in stories about the gods and heroes, usually including Homer, Hesiod, Homeric Hymns and Tragedies. All texts will be in English.

*Also offered as CLST 107*

### **ENGL 119: Technical Communications (3)**

Introductory study of written and verbal communications used in the technical professions for students in technology and degree programs.

*Prerequisite:* ENGL 101

### **ENGL 150: The Study of Literature. (3)**

An introduction to the study and appreciation of literature for non-English majors. Shows how understanding writer's techniques increases the enjoyment of their works; relates these techniques to literary conventions; teaches recognition, analysis, and discussion of important themes. *UNM core curriculum Area 5: Humanities*

### **ENGL 211\*: Topics in Literature. (3 to a maximum of 6)**

Surveys a specific type or area of literature, e.g., the American novel, the satiric novel, southern fiction, the western novel, American poetry, feminist literature, Chicano literature, Native American literature, African-American literature, Medieval and Viking literature. Primarily for non-majors.

*Prerequisite:* ENGL 150 or permission of the instructor.

### **ENGL 217: Editing. (3)**

This course focuses on using editing business/technical documents for organization, reader-centered style, and graphics and visual design of graphics. Also covered is fundamentals document project management and production and basic proofreading marks and skills. Editing will be learned primarily by editing.

### **ENGL 219: Technical and Professional Writing. (3)**

Practice in the writing and editing of workplace documents, including correspondence, reports and proposals. *UNM core curriculum for area 1: Writing and Speaking.*

*Prerequisite:* 101 with a B or better, or 102 with C or better, or ACT  $\geq$  29 or SAT  $\geq$  650.

### **ENGL 220: Expository Writing. (3 to a maximum of 6)**

An intermediate course with emphasis on rhetorical types, structure and style. *UNM core curriculum for area 1: Writing and Speaking.*

*Prerequisite:* 101 with a B or better, or 102 with C or better, or ACT  $\geq$  29 or SAT  $\geq$  650.

### **ENGL 221: Introduction to Creative Writing: Fiction. (3)**

A beginning course in fiction, emphasizing process over product. Introduces issues of craft, workshop vocabulary, strategies for revision and the habit of reading as a writer. A \$20.00 workshop fee is required. For those going into a Creative Writing degree at UNM, this course will transfer as an elective. English 224 is the preferred class for Creative Writing Majors.

*Prerequisite:* ENGL 101 or its equivalent.

### **ENGL 222: Introduction to Creative Writing: Poetry. (3)**

A beginning course in poetry, emphasizing process over product. Introduces issues of craft, workshop vocabulary, strategies for revision and the habit of reading as a writer. A \$20.00 workshop fee is required. For those going into a Creative Writing degree at UNM, this course will transfer as an elective. English 224 is the preferred class for Creative Writing Majors.

*Prerequisite:* ENGL 101 or its equivalent.

### **ENGL 223: Introduction to Creative Writing: Creative Nonfiction. (3 to a maximum of 6)**

A beginning course in nonfiction, emphasizing process over product. The course introduces issues of craft, workshop vocabulary, strategies for revision and the habit of reading as a writer. A \$20.00 workshop fee is required. For those going into a Creative Writing degree at UNM, this course will transfer as an elective. English 224 is the preferred class for Creative Writing Majors.

*Prerequisite:* ENGL 101 or its equivalent.

**ENGL 224. Introduction to Creative Writing. (3)**

A beginning course in the writing of fiction, poetry, and creative nonfiction. Emphasis on process over product. Introduces issues of craft, workshop vocabulary, strategies for revision, and the habit of reading as a writer.

*Prerequisite:* ENGL 101

**ENGL 240: Traditional Grammar. (3)**

A study of the basic analysis of English sentences offered by traditional grammar. Presents terminology and methods for identifying parts of speech, functional units of sentences, and basic sentence patterns.

**ENGL 245: Grant and Proposal Writing. (3)**

This course focuses on the rhetoric strategies, organization, and development of proposals and grants. Topics include researching for grant/proposal opportunities, following proposal guidelines, using effective visuals, and writing for conciseness, clarity and persuasive appeal.

**ENGL 246: Public Relations Writing. (3)**

This course focuses on fundamental public relations/marketing skills used to promote business and non-profit organizations. Skills covered will include advanced audience analysis, persuasive techniques, media relations, visual design, and research methods. Genres to be covered include newsletters, press kits, annual reports, radio scripts, and presentations. (Not a main campus course)

**ENGL 250. The Analysis of Literature. (3)**

First course required of all English majors. Concentrates on methods of literary analysis and critical writing.

*Prerequisite:* 102 or its equivalent.

**ENGL 264: Survey of Native Literatures and Rhetorics. (3)**

A general overview of the history and diversity of the literatures and rhetorics of Native peoples, oral tradition, film, autobiography, fiction, poetry, art, drama and ceremony. Focus on American Indian texts.

**ENGL 265: Introduction to Chicana/o Literature. (3)**

A survey of Chicana/o novels, short stories, essays, poetry and drama from the 19th century to the present, with emphasis on major themes such as history, culture, identity, language and region.

**ENGL 290: Introduction to Professional Writing (3).**

Introductory course in the professional writing concentration. Study of technical writing, public information and public relations writing, and freelance nonfiction writing.

*Prerequisite:* ENGL 102 or its equivalent.

**ENGL 292: World Literatures: Ancient World through the 16th Century. (3)**

Survey of key texts in world literature from the ancient world through the 16th century. *UNM core curriculum for area V: Humanities.*

**ENGL 293: World Literature: 17th Century through the present. (3)**

Survey of key texts in world literature from the 17th century through the present. *UNM core curriculum for area V: Humanities*

**ENGL 294: Survey of Earlier English Literature. (3)**

From Old English to 1798. A study of the principal literary and intellectual movements, and selected writers and literary works from Beowulf through Johnson.

**ENGL 295: Survey of Later English Literature. (3)**

From 1798 to present. Study of principal literary and intellectual movements, and selected writers and literary works.

**ENGL 296: Earlier American Literature. (3)**

A general survey of American Literature to the mid 19th century.

**ENGL 297: Later American Literature. (3).**

A general survey of American Literature from the mid 19th century to the present.

**ENGL 298\*: Workshop in Literature or Writing. (1 - 3 to a maximum of 6)**

Various topics in literature, language, and writing.

  
**Environmental Science (ENVS)****ENVS 101: The Blue Planet. (3)**

To understand global change and environmental concerns, this course weaves together an understanding of Earth's lithosphere, atmosphere and oceans and how ecosystems are linked to the physical environment. *Students are encouraged, but not required, to enroll concurrently in 102L.*

### **ENVS 102L: The Blue Planet Laboratory (1)**

Introductory environmental earth science laboratory. Includes minerals, rocks, and rock cycle, topographic maps, local geology and groundwater, weather and climate.

*Pre- or corequisite:* ENVS 101.



## **Fine Arts (FA)**

*Courses marked with an \* may be repeated for credit because subject matter varies*

### **FA 229\*: Topics (1-3 to a maximum of 12)**

Interdisciplinary topics in the arts.

### **FA 284: Experiencing the Arts. (3)**

Explores fundamental connections and differences among artistic media through readings, lectures, attendance at artistic exhibits and events, and discussions with creators of collaborative works of art.



## **Foreign Languages & Literatures**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

### **Chinese (CHIN)**

#### **CHIN 101: Elementary Chinese I. (3)**

### **French (FREN)**

#### **FREN 101: Elementary French. (3)**

Conducted in French.

#### **FREN 102: Elementary French. (3)**

Conducted in French

#### **FREN 103: Elementary French Conversation. (1)**

Supplementary course to FREN 101-102 for students interested in additional practice in speaking.

### **FREN 108: Elementary French Reading. (1)**

Continuation and enrichment of elementary curriculum, conducted entirely in French.

### **German (GRMN)**

#### **GRMN 101: Elementary German I. (3)**

#### **GRMN 102: Elementary German II. (3)**

Language course sequence for all beginning students, providing a foundation in reading, writing, listening and speaking skills for all subsequent courses.

### **Russian (RUSS)**

#### **RUSS 101: Elementary Russian. (3)**

Elementary Russian for students with no previous exposure to the language. Development of all four-language skills: reading, speaking, writing and listening comprehension. Can be taken in conjunction with RUSS 103.

#### **RUSS 102: Elementary Russian II. (3)**

Elementary Russian for students who have completed RUSS 101 or equivalent. Continued development of all four skills. Can be taken in conjunction with RUSS 104.

#### **RUSS 103-104: Beginnings: Speaking Russian. (1,1)**

Practice in basic conversation and training in acquiring a good accent. The courses are supplemental to RUSS 101-102 and stress the patterns and forms introduced in the main courses.

#### **RUSS 201-202: Intermediate Russian I–Intermediate Russian II. (3, 3)**

*Prerequisites:* RUSS 101-102 or the equivalent.

### **Signed Language (SIGN)**

#### **SIGN 201: Introduction to Signed Language. (3)**

Overview of signed language studies and related issues. Introduction to American Sign Language (ASL); signed communication systems most frequently used by deaf and hard of hearing individuals, the study of fingerspelling.

## Spanish (SPAN)

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

### SPAN 101: Elementary Spanish I. (3)

Beginning Spanish for students with no previous exposure to Spanish. Development of all four language skills, with emphasis on listening and speaking.

### SPAN 102: Elementary Spanish II. (3)

Beginning Spanish for students who have completed SPAN 101 or equivalent. Continued development of four skills with emphasis on listening and speaking.

### SPAN 103-104: Elementary Spanish Conversation. (1, 1)

Supplementary courses to SPAN 101-102 for students interested in additional practice in speaking.  
CR/NC.

### SPAN 201: Intermediate Spanish I. (3)

Intermediate Spanish for students who have completed SPAN 102 or equivalent. Review of grammar and further development of all four skills.

### SPAN 202: Intermediate Spanish II. (3)

Intermediate Spanish for students who have completed SPAN 201 or equivalent. Continued development of all four skills with emphasis on reading.

### SPAN 203: Spanish Conversation. (3)

For students who have completed or are currently enrolled in SPAN 201, SPAN 202, or SPAN 276. Small classes designed to increase skills in speaking Spanish. Not for native speakers.

*Pre- or corequisite:* SPAN 201 or 202.

### SPAN 293T\*: Topics. (1-3)

Titles will vary.

## GAME (GAME)

*Courses marked with an \* may be repeated for credit because the subject matter varies*

### GAME 100: Introduction to Game Project (3)

Introductory game development concepts and techniques. Topics common to all game development: history of modern games, player considerations, game elements, storytelling and narrative, character development, gameplay experience, levels, interface design, audio, strategy, and project management.

### GAME 150: Game Project I (3)

Create computer games utilizing game development tools that require no programming including 2D graphics, 3D modeling, music and sound effects. Tasks include: game setup, development studio, manipulating graphic images, creating sounds/music, pictures and animation.

*Prerequisites:* GAME 100

### GAME 200: Game Project II (3)

Create more complex two-dimensional games utilizing C++ and the Windows environment. Topics include algorithms, multithreading, artificial intelligence (AI) and physics modeling. Tasks include creating several games, using advanced data structures and AI.

*Prerequisites:* GAME 150, CS148, and CS241

### GAME 250: Game Project III (3)

Focus on creating 3D games. Topics include 3D models of players, vehicles, items, and structures; audio and music; GUI and menus; UV wrapped textures and skins; environmental effects; and outdoor terrain. Uses C++ and Torque.

*Prerequisite:* GAME 200

## General Studies (GNST)

*Courses marked with an \* may be repeated for credit because the subject matter varies*

### GNST 192\*: Topics. (1-3)

Titles will vary.

CR/NC

**GNST 193\*: Topics. (1-3)**

Titles will vary.

**GNST 292\*: Topics. (1-3)**

Titles will vary.

CR/NC

**GNST 293\*: Topics. (1-4)**

Titles will vary.



## **Geography (GEOG)**

**GEOG 101: Physical Geography. (3)**

World geography; physical elements. Use of maps and globes for a systematic analysis of world climates, vegetation, soils, and landforms, their distribution, interrelation, and significance to humans. *UNM core curriculum for area III: Physical and Natural Sciences.*

**GEOG 102: Human Geography. (3)**

World Geography; human elements. A systematic analysis of world population, demographic factors, ethnic groups, predominant economies, and political units, their distribution, interrelation, and interaction with the physical earth.

**GEOG 105L: Physical Geography Laboratory. (1)**

Exercises designed to complement GEOG 101. Applied problems in the spatial processes of the physical environment. Map construction and reading, weather and climatic analysis, classification of vegetative and soil associations, landform distribution analysis. *UNM core curriculum for area III: Physical and Natural Sciences.*

*Pre- or Corequisite:* GEOG 101. Two hrs. lab.

**GEOG 140: World Regional Geography. (3)**

The regional geography of the world. Both physical and human aspects are studied along with current economic and political problems.

**GEOG 195: Humans Role in Changing the Face of the Earth [Survey of Environmental Issues.] (3)**

Survey of environmental issues related to the degradation of land, air and water resources.

**GEOG 195: Survey of Environmental Issues. (3)**

Survey of environmental issues related to the degradation of land, air, and water resources.

**GEOG 251: Meteorology. (3)**

Description of weather phenomena, principles of atmospheric motion, weather map analysis and weather prediction.

Also offered as EPS 251.

**GEOG 281L: Computer Mapping. [Survey of Geographic Information Science.] (4)**

Examination of the spatial framework of geographical analysis and mapping tools used in the spatial sciences. Introduction to spatial methodology and concepts in Geographic Information Systems (GIS), Remote Sensing and Image Processing (RS/IP) and Global Positioning Systems (GPS). Fees required. Two hours lab.



## **History (HIST)**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

**HIST 101L: Western Civilization to 1648. (3)**

Ancient times to 1648. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1053.)*

**HIST 102L: Western Civilization Post 1648. (3)**

1648 to present. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1063.)*

**HIST 161L: History of the United States to 1877. (3)**

Survey of the economic, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs from 1607 to 1877.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN1113.)*

### **HIST 162L: History of the United States Since 1877. (3)**

Survey of the economic, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs from 1877 to the present. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1123.)*

### **HIST 204: Greek Civilization. (3)**

An interdisciplinary introduction to the ancient world as the foundation of modern civilization. Lectures on classical art, history, literature, and philosophy. Also offered as ARTH 204, PHIL 204.

### **HIST 205: Roman Civilization. (3)**

An interdisciplinary introduction to ancient Rome. Lectures on Roman literature, history, art, and philosophy.

*Also offered as: ARTH 205, PHIL 205,*

### **HIST 220: Studies in History. \* (1-3, no limit)**

Will vary from instructor to instructor but will offer a review of particular historical issues designed for the nonspecialist. For content of particular courses, see Schedule of Classes and contact Department. Course may be repeated without limit provided the topics vary.

### **HIST 260: History of New Mexico. (3)**

Introduction to New Mexico history from earliest human settlement to the present day.



## **Information Technology (IT)**

### **IT 109: Information Technology Cooperative Education. (1-3)**

The student works in an IT-related job for one semester and gains on-the-job insight into a technology field. Student must write projected goals for the semester's work, midterm summaries of work completed thus far, and an end of the term report summarizing work completed during the semester. Students must also get a supervisor evaluation.

*Prerequisite:* Third or fourth semester standing and permission of Information Technology Curriculum Coordinator.

### **IT 119: Networking Core Concepts. (3) (Previously IT 120LT)**

This course serves as a general introduction in current networking technology for local area networks (LANs), wide-area networks (WANs), and the Internet. *Leads to CompTIA Network+ Certification.*

### **IT 124: Windows Client Operating Systems. (3) (Previously IT 121LT)**

This class covers the skills necessary to implement, administer, and troubleshoot information systems that incorporate Windows client operating systems.

*Leads to MCP: MCTS Exam 70-620 TS: Configuring Windows Vista.*

*Prerequisite:* IT 119.

### **IT 126: Windows Server Operating Systems. (3) (Previously IT 122LT)**

This class covers the skills necessary to implement, administer, and troubleshoot information systems that incorporate Windows server operating systems.

*Leads to MCP: MCSA Exam 70-290 Managing and Maintaining a Microsoft Windows Server 2003 Environment.*

*Prerequisite:* IT 119.

### **IT 131: Introduction to Hardware Installation. (3)**

The purpose of this course is to prepare students to take and pass the CompTIA national certification test. Students will learn function, structure, operations, file management, and memory management. Students will also practice proper safety procedures, scheduled preventative maintenance, and installation of computer components. In addition, students will configure, diagnose, and troubleshoot stand-alone computers. Finally, students will learn and apply industry accepted customer service skills.

*Leads to A+ Certification Hardware.*

### **IT 132: Microcomputer Operating Systems. (3)**

This class covers the skills necessary to install, upgrade, diagnose, and repair PC-based operating systems and common software. It focuses on the functionality of PC DOS, Windows and NT operating systems. (A+ Software)

*Leads to CompTIA A+ Essentials.*

### **IT 141L: Help Desk I. (3)**

The student is enrolled in a 3-credit course which has two parts: a normal weekly lecture plus a mandatory service time manning the Help Desk Service Phone. In this course, students are taught how to assist other students, faculty, and staff with answering computer-related questions. Skills for running the Help Desk are taught, along with technical skills related to commonly asked questions. Working at the Help Desk phone is mandatory for a fixed number of hours per week. Students will be required to log all questions with appropriate answers to those questions.

*Prerequisites:* CS 101, CT 102, CT 140, CT 201, CT 202, IT 131.

**IT 145: Web Design Fundamentals: HTML and Style Sheets. (3)**

Hands-on course in designing and developing World Wide Web pages using HTML (HyperText Markup Language) and CSS (Cascading Style Sheets). The course will cover HTML tags for text, images, links, lists, simple layouts, complex layouts, tables, frames, style, internal style sheets, and external style sheets. Basic issues in using graphics on the Web will also be covered.

*Prerequisite:* CT 102

**IT 147: Web Usability. (3)**

Course in applying the principles of usability to the design, development, and improvement of World Wide Web pages. The course will include an introduction to usability and will focus on the principles of usability applied to page design, content design, site design, Intranet design, design for users with disabilities, and design for international users. Throughout the course, the principles of usability will be supported with facts and data obtained from real users.

*Prerequisite:* IT 145 or CT 165/IT 165.

**IT 148: Web Design: Introduction to JavaScript and DHTML. (3)**

Hands-on course in designing and developing World Wide Web pages that include JavaScript. The course will cover scripts for detecting characteristics of the user's computer, adding dynamic elements to Web pages, such as image rollovers and cycling banners; controlling characteristics of the browser window and the frames that appear in the browser window; adding dynamic events such as date, time, countdowns, and time-specific messages; adding cookies. The course will also include an introduction to DHTML (a combination of HTML, Cascading Style Sheets, and JavaScript) and tips on how to debug JavaScript.

*Prerequisite:* IT 145.

**IT 152: Advanced Cascading Style Sheets. (3)**

Cascading Style Sheets (CSS) are essential to modern Web development, allowing for the separation of presentation from content. This course explores the more advanced features of CSS and the power of separating presentation from content.

*Prerequisites:* IT 145

**IT 165: Introduction to Web Authoring. (3)**

This course is an introduction to making and designing web pages using HTML generating software. Students learn how to make well-designed web pages from simple to the complex. Site creation with text, graphics, tables, Cascading Style Sheets, and simple animation effects are included. Design principles as they apply to the World Wide Web are also presented. No knowledge of HTML is required.

*Also offered as CT 165*

**IT 193\*: Topics (1-3)**

Titles will vary.

**IT 210: Introduction to Geographic Information Systems (GIS). (3)**

Introductory course in geographic information systems covering a general overview of the uses of GIS, hardware and software requirements, and manipulation of data sets. Students get hands-on experience with map production and GIS application development.

*Prerequisite:* CT 102.

**IT 225: TCP/IP. (3)**

This class covers the skills necessary to implement, administer, and troubleshoot information systems that incorporate TCP/IP.

*Prerequisite:* IT 119. (Previously IT 120LT)

**IT 226: Web Server Technology. (3)**

This class covers the skills necessary to implement, administer, and troubleshoot information systems that incorporate Apache and Microsoft IIS. (Was Microsoft Internet Information Server)

*Prerequisite:* IT 119. (Previously IT 120L)

**IT 235L: Windows Systems Administration. (3)**

Topics in Windows system administration, this is an introduction to system administration of Windows Server with a focus on security and reliability. Topics covered will include Windows Server system configuration, available tools, file system and registry structure, auditing and automation of tasks.

*Prerequisite:* IT 119. (Previously IT 120LT)

**IT 237: LINUX/UNIX System Administration I. (3) (Previously IT 230LT)**

An introduction to Unix system administration, with special attention to Internet related issues. Topics covered include UNIX organization, tools, and system configuration.

*Prerequisites:* (CS 101 or CS 102) and CS 103 and CS 148.

**IT 238: LINUX/UNIX System Administration II. (3) (Previously IT 231LT)**

Advanced topics in UNIX system administration, with a more in-depth look at UNIX tools and system configuration, with focus on network service installation, as well as computer and network security. Students will be provided with knowledge and tools necessary to administer UNIX systems in a heterogeneous Internet environment.

*Prerequisites:* IT 119 (previously IT 120LT) and IT 237 (previously IT 230LT).

### **IT 240: Help Desk II. (3)**

A continuation of Help Desk I. In this course, students assist Help Desk I students in providing assistance to users over the dedicated Help Desk Service Phone. Students are required to update the Help Desk manual.

*Prerequisite:* IT 141 and (CS148 or CS151L or CS152L or CS160 or CS170 or CS180)

### **IT 241: Web Design: Introduction to XML. (3)**

Hands-on course in designing and developing dynamic World Wide Web sites using XML (Extensible Markup Language). Students will learn how to use XML, which enables designers to represent the content - or semantic characteristics - of information on Web pages, in conjunction with HTML, which enables designers to represent the appearance - or formatting characteristics - of information on Web pages. They will learn how to use XML to create Web sites that enable information to be shared among servers, clients, and databases.

*Prerequisites:* IT 145 (a semester of programming is highly recommended).

### **IT 242: Web Design: Introduction to Forms. (3)**

Hands-on course in designing and developing interactive World Wide Web sites that include forms and allows users to perform transactions. Students will learn how to create forms using HTML, how to write scripts for forms using JavaScripts, and how to write CGI (Common Gateway Interface) scripts in Perl. These techniques will enable students to create transactional Web sites that allow users to enter information and enable Web servers to get, process, and return the information.

*Prerequisite:* IT 145.

### **IT 243: Introduction to PHP. (3)**

A hands-on course in designing and developing dynamic Web pages using PHP, a free, open-source, multi-platform middle-ware. Covers basic programming concepts, Web programming considerations, and building a web interface using forms to access a database.

*Prerequisites:* IT 145

### **IT 244: Information Architectures for Complex WebSites. (3)**

Course in information architectures for large-scale informational or transactional Web sites. Students will learn how Web architects organize information; design navigation systems, design labeling systems, design search systems, create Web site blueprints, and apply those blueprints to the development of Web sites. Students will create information architectures for their own Web sites.

*Prerequisite:* IT 145. Recommended IT 148 (previously IT 149)

### **IT245: Introduction to MySQL. (3)**

This course provides a basic introduction to Structured Query Language (SQL) and relational databases, with an emphasis on accessing the database through a Web interface using middle-ware. MySQL is a free, open-source, multi-platform database.

*Prerequisites:* IT 145 and IT 243

### **IT 246: Web Design: Creating a Portfolio. (3)**

Course in creating portfolios of Web designs. Students will design and develop examples of informational and/or transactional Web site, using HTML, CSS, JavaScript, DHTML, XML, Perl and/or other Web Technologies.

*Prerequisites:* IT 145 and IT 148 (previously IT 149) and IT 242.

### **IT 260: Network Security Practices. (3)**

The primary goal of the course is a general introduction to “defense-in-depth” perimeter security on both Windows and LINUX/UNIX networks and an in-depth study of the step-by-step approach used in computer/network attacks. Leads to CompTIA Security+ Certification.

*Prerequisite:* IT 119.

### **IT 293\*: Topics. (1-3)**

Titles will vary.

## **Introductory Studies**

*Introductory Studies courses do not count toward UNM-Los Alamos associate degrees or certificates.*

### **IS- ENGLISH**

*A student who wishes to enroll in a course requiring a prerequisite must earn a grade of C (not C-) or better in the prerequisite course.*

### **ENGL 099: Developmental English II (1-4 )**

An intensive study of fundamental writing skills, focusing upon paragraph development, fluency, and introducing the essay.

**Note:** At UNM-LA this course is offered for 4 credit hours with A, B, C, CR , NC grading, has a co-requisite of ISE 020, and includes a skills laboratory.

### **ISE 020: Reading I. (1)**

Reading for accuracy and understanding in short expository passages. Vocabulary, sequence and discussion skills are emphasized.

ABC/NC or CR/NC.

### **ISE 021: Reading II. (1)**

Reading for analysis in short expository/academic passages. Vocabulary, outlining, note-taking, distinguishing among fact, assertion, evidence, and implication are emphasized.

ABC/NC or CR/NC.

### **ENGL 100: Writing Standard English (1-4)**

Developmental writing course providing concentrated practice writing and reviewing basic essays, as well as intensive study of grammar, punctuation, and usage.

*Prerequisites:* Successful completion of ENGL 099 minimum grade of C (previously 010) or minimum placement test score.

**Note:** At UNM-LA this course is offered for 4 credit hours with ABC/NC, CR/NC grading, has a co-requisite of ISE 021, and includes a skills laboratory.

## **IS- MATHEMATICS**

*A student who wishes to enroll in a course requiring a prerequisite must earn a grade of C (not C-) or better in the prerequisite course.*

### **MATH 099: Pre-Algebra. (1-4)**

A pre-college mathematics course. Emphasis is placed on basic operations, fractions, decimals, percents, ratios, and introductory algebra and includes a skills laboratory.

Grade options: A, B, C, CR/NC

**Note:** At UNM-Los Alamos this course is offered for 4 credit hours

### **MATH 100 : Introduction to Algebra. (1-4)**

Topics covered include linear equations, polynomials, factoring, formulas, graphing, and application problems and includes a skills laboratory. Grade option: A,B, C, CR/NC.

*Prerequisites:* Successful completion of MATH 099 (A,B,C, CR) or minimum placement test score.

**Note:** At UNM-Los Alamos this course is offered for 4 credit hours

## **Linguistics (LING)**

### **LING 101: Introduction to the Study of Language. (3)**

Broad overview of the nature of language: language structure, biology of language, language learning, language and thought, bilingualism, social and regional variation, and educational implications. Intended to fulfill breadth requirements in any college. *Meets New Mexico Lower Division General Education Core Curriculum Area IV: Social and Behavioral Science*

Also offered as ANTH 110. LING 101 and ANTH 110 may not both be counted for credit.

### **LING 295: Special Topics in Current Language Issues. (3 to maximum of 12)**

Special topics motivated by expertise of instructor and interest of students. Topics such as language and gender, language and politics, animal communication, language and aging and languages of the world. May be repeated for credit as topic varies.

### **SIGN 201: Introduction to Signed Language. (3)**

Overview of signed language studies and related issues. Introduction to American Sign Language (ASL); signed communication systems most frequently used by deaf and hard of hearing individuals, the study of fingerspelling.

## **Management (MGMT)**

### **MGMT 101: Fundamentals of Accounting I. (3)**

The development of the accounting cycle, special journals and financial statements.

**Note:** Completion of MGMT 101 and MGMT 102 is accepted by Anderson Schools of Management in lieu of MGMT 202.

*Corequisite:* MGMT 101L

### **MGMT 101L: Fundamentals of Accounting I Lab. (1)**

To provide additional problem solving necessary for the students to master accounting basics.

*Corequisite:* MGMT 101.

**MGMT 102: Fundamentals of Accounting II. (3)**

Continuation of MGMT 101, including corporation and manufacturing accounting and decision making.

**Note:** Completion of MGMT 101 and MGMT 102 is accepted by Anderson Schools of Management in lieu of MGMT 202.

*Prerequisite:* MGMT 101

*Corequisite:* MGMT 102L

**MGMT 102L: Fundamentals of Accounting II Lab. (1)**

To provide additional problem solving necessary for students to master accounting basics.

*Corequisite:* MGMT 102

**MGMT 105. Business Co-op Work Phase. (3)**

**Offered on a CR/NC basis only.**

**MGMT 113: Management: An Introduction. (3)**

Modern concepts of organizations and their management in a dynamic world. An overview of managerial activities within business and other organizations.

**MGMT 158. Ethics in Organizations. (3)**

Introduction to ethical issues in business, government, and nonprofit organizations and how to deal with those issues.

Emphasis on ethical reasoning and cases of ethical and unethical behavior in management and the professions.

**MGMT 190. Special Topics in Management. (3)**

Selected offering of management topics not represented in the regular curriculum.

**MGMT 202: Principles of Financial Accounting. (3)**

An examination of the conceptual framework of accounting and the functions of accounting in a business-oriented society. Topics include valuation theory and its applications to assets and liabilities, concepts of business income, funds-flow analysis, and problems of financial reporting.

*Prerequisite:* None

**MGMT 222: Introduction to Marketing. (3)**

A complete overview of the system for assessing customer needs, allocation of scarce resources to fulfill those needs, transmittal of market related information, completion of exchange processes, and profit maximization in free markets. Emphasis on interdisciplinary tools for management, decision-making and developing marketing strategies in domestic and international market applications.

(Credit not applicable toward BBA degree.)

**MGMT 290: Introduction to Business Statistics (3)**

An overview of the use of statistics in business, descriptive statistics and numerical characteristics of data, introduction to probability, statistical inference including t-tests and regression, confidence intervals; application to business problems will be emphasized.

*Prerequisite:* MATH 180.

  
**Manufacturing Technology****MFGT 101 Introduction to Technology (1)**

A general topics course on subjects relevant to electro-mechanical technology, manufacturing technology, and nanotechnology. Students will learn about the differences and similarities of the three technologies.

**MFGT 105 Manufacturing Materials and Processes (3)**

This course provides a modern, quantitative approach to manufacturing, with a balanced coverage of the three basic engineering materials--metals, ceramics, polymers, as well as composites. Discuss recently developed manufacturing processes and electronics manufacturing technologies.

*Prerequisite:* ELCT 105L.

*Corequisite:* MFGT 105L

**MFGT 105L Manufacturing Materials and Processes Lab (1)**

Emphasize manufacturing science and quantitative analysis of manufacturing processes through laboratory procedures. Establish relationships among the material properties and the process variables in a given manufacturing process.

*Corequisite:* MFGT 105

### **MFGT 150 Introduction to Maintenance Concepts (3)**

In this course, an overview will be provided for each phase of Lean Maintenance implementation providing examples, checklists and methodologies of lean manufacturing and quality approach.

### **MFGT 210 Metrology (3)**

Theoretical and practical applications of measurement principles as applied to various physical properties. Introduction to measurement methods of pressure, mass, force, torque, temperature, humidity, flow, and rotational motion.

*Prerequisite: MATH 121*

### **MFGT 215 Mechanical Behavior of Materials (3)**

Introduction to mechanical behavior of metals, ceramics, and polymers: mechanical properties of materials and their limitations in engineering design by the study of stresses, strains, torsion forces, shear forces, and deflections placed upon these materials.

*Prerequisite: MFGT 105*

### **MFGT 217 Mechanical Design Processes (3)**

Focus on the early stages of conceptual design through the first proof-of-concept demonstration. Demonstrate ways identify customer needs, develop product specification, apply structured methods to generate and evaluate product concepts.

*Prerequisite: MFGT 215.*



## **Materials Science Technology (MST)**

### **MST 101: Introduction to Materials Science Technology I. (4)**

The course will introduce fundamental concepts in materials science and engineering, as applied to engineering disciplines. Students will learn about the structure of metals, ceramics, polymers, and composite materials and how engineering properties are derived from structure. Students will also learn how processing can be used to change the structure and therefore properties and uses of materials.

*Prerequisites: high school diploma or GED; MATH 121 or higher; ENGL 101 or higher; CHEM 111L or higher.*

### **MST 102: Introduction to Materials Science Technology II. (4)**

The course will build upon the fundamental concepts in materials science and engineering, as applied to engineering disciplines, and as introduced in Introduction to Materials Science I. Students will learn about the structure of ceramics, polymers, and composite materials and how corrosion resistance and other properties are derived from structure. Students will also learn about materials selection and design considerations, and the economic, environmental, and societal issues in materials science and engineering.

*Prerequisite: MST 101L*

### **MST 104: Introduction to Microscopy and Microstructures. (3)**

Microstructural characterization is the study of the interrelationship between structural characteristics and the physical and mechanical properties of metals, alloys and nonmetallic materials such as ceramics, polymers and composites. This course provides an overview of various techniques and their underlying principles. These include: optical microscopy; electron microscopy and related analytical techniques; X-ray, electron and neutron diffraction; and surface analysis. The students will also gain an understanding of the nature and origins of microstructural features, preparation techniques and differentiation between the true microstructure and preparation artifacts.

*Prerequisites: MATH 123, MST 101, MST 102, or equivalent.*

### **MST 109: Materials Processing and Manufacturing. (3)**

Processing of materials plays a large role in determining their properties and performance. The objective of this course is to review processing and manufacturing techniques for metals, ceramics, polymers and composite materials. Topics to be covered include metal casting, processing of polymers and polymer matrix composites, powder processing of metals and ceramics, metal forming, machining and grinding, heat treatment of metals, joining processes, processing of integrated circuits, and electronics assembly and packaging.

*Prerequisites: MST 102L*

### **MST 110: Introduction to Mechanical Behavior of Materials. (3)**

Origin of mechanical properties of metals and polymers and the concepts are used to explain how various methods are used to strengthen materials. Property measurement and data interpretation. This course is designed to introduce the student to the basic mechanical behavior of metals and polymers. The origin of mechanical properties in engineering materials is discussed from a fundamental viewpoint and the concepts are used to explain how various methods used to strengthen materials actually work. Properties such as tensile strength, ductility, elastic modulus, hardness, fatigue life, and toughness are covered in this seminar.

*Prerequisite: MATH 123*

### **MST 112: Introduction to Phase Transformations. (3)**

Phase transformations strongly influence microstructural development. The objective of this course is to introduce students to important concepts associated with phase transformations. The course will review topics of thermodynamics and kinetics of phase transformations as well as diffusion and nucleation and growth. The course will also introduce the topics of precipitation, martensitic transformations and ordering reactions.

*Prerequisite:* MST 102. *Corequisite:* MST 104.

### **MST 296: Materials Science Technology Cooperative Work Phase. (1)**

A work-study program with local industry to give the student practical experience in an industrial environment.

*Prerequisite:* Third or fourth semester standing and permission of the Applied Technologies Curriculum Coordinator.

CR/NC



## **Mathematics (MATH) and Statistics (STAT)**

*Note: A student who wishes to enroll in a course requiring a prerequisite must earn a grade of C (not C-) or better in the prerequisite course.*

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

#### **Restrictions**

1. MATH 099, MATH 100, MATH 118 may not be counted towards graduation.
2. Credit not allowed for both MATH 162 and MATH 180.
3. Credit not allowed for both MATH 163 and MATH 181.
4. Students who have credit for any courses numbered MATH 121 and above may not take MATH 100, or MATH 120 for credit.
5. Students who have credit for any courses numbered MATH 162 and above may not take MATH 120, 121, 123, or 150 for credit. (Students with MATH 180/181 may take MATH 123 for credit.)
6. A student normally may not take an examination to validate credit in mathematics courses.
7. Mathematics or Statistics course work dating back more than five years cannot automatically be counted as fulfillment of a prerequisite. Students with older course work who feel they have retained subject knowledge are encouraged to take the COMPASS placement tests offered through Student Services.

### **MATH 099: Pre-Algebra. (4)**

A pre-college mathematics course. Emphasis is placed on basic operations, fractions, decimals, percents, ratios, and introductory algebra and includes a skills laboratory.

Grade options: A, B, C, CR/NC

*Note: At UNM-Los Alamos this course is offered for 4 credit hours*

### **MATH 100 : Introduction to Algebra. (4)**

Topics covered include linear equations, polynomials, factoring, formulas, graphing, and application problems and includes a skills laboratory. Grade option: A,B, C, CR/NC.

*Prerequisites:* Successful completion of MATH 099 (A,B,C, CR) or minimum placement test score.

*Note: At UNM-Los Alamos, this course is offered for 4 credit hours.*

### **MATH 106: Problems in Intermediate Algebra. (1)**

Study session for MATH 120 with an emphasis on problem solving.

Offered on a CR/NC basis only.

### **MATH 107: Problems in College Algebra. (1)**

Study session for MATH 121 with an emphasis on problem solving.

*Corequisite:* MATH 121.

Offered on a CR/NC basis only.

### **MATH 109: Graphing Calculator Workshop. (1)**

Explores calculator skills needed for algebra, trigonometry, pre-calculus, calculus, and/or science courses. Topics include logic, calculations, scientific notation, tables, scatter plots and regression equations, programs, polar graphing, matrices, use of instruction manual.

Offered on a CR/NC basis only.

### **MATH 110: Problems in Elements of Calculus (1)**

Study session for MATH 180 with an emphasis on problem solving.

Offered on a CR/NC basis only.

### **MATH 111: Mathematics for Elementary and Middle School Teachers I. (3)**

The intuitive and logical background of arithmetic; properties of sets; algorithms of arithmetic in base ten and other bases; properties of the integers, mathematical terminology; elements of number theory; problem solving.

*Prerequisite:* ACT  $\geq 19$  or SAT  $\geq 450$  or MATH 100 or MATH 120 or MATH 121 or MATH 123 or MATH 150 or MATH 162 or MATH 180 or STAT 145 or Compass Pre-Algebra  $> 56$  or Algebra  $> 33$ .

### **MATH 112: Mathematics for Elementary and Middle School Teachers II. (3)**

The properties of the rational number system; extension to the irrationals; decimal and fractional representation of real numbers; geometry.

*Prerequisite:* C (not C-) or better in MATH 111.

### **MATH 118: Algebra. (4)**

This course covers approximately the first half of MATH 120. Topics covered include properties of real numbers, linear equations and inequalities; properties of exponents; solving systems of linear equations and polynomials.

Students must pass MATH 118 before continuing to the second half of the course.

*Prerequisite:* Adequate score on placement test or MATH 100.

### **Math 120: Intermediate Algebra. (3)**

Preparation for MATH 121, 129, and STAT 145. Covers linear equations and inequalities, polynomials, factoring, exponents, radicals, fractional expressions and equations, quadratic equations, perimeters and areas of simple geometric shapes, and logarithms. Emphasis on problem solving skills. Acceptable as credit toward graduation, but not acceptable to satisfy UNM core or group requirements

*Prerequisites:* ACT  $\geq 19$  or SAT  $\geq 450$  or MATH 100 or COMPASS Pre-Algebra  $>56$  or Algebra  $>33$ .

*Corequisite:* MATH 106 (UNM-LA Only)

### **MATH 121: College Algebra. (3)**

Preparation for MATH 150 and 180. The study of equations, functions and graphs, especially linear and quadratic functions. Introduction to polynomial, rational, exponential and logarithmic functions. Applications involving simple geometric objects. Emphasizes algebraic problem solving skills. *Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics (NMCCN 1113).*

*Prerequisite:* ACT  $\geq 22$  or SAT  $\geq 510$  or MATH 120 or COMPASS Algebra  $>54$  or College Algebra  $>33$ .

*Corequisite:* MATH 107 (UNM-LA Only)

### **MATH 123: Trigonometry. (3)**

Definition of the trigonometric functions, radian and degree measure, graphs, basic trigonometric identities, inverse trigonometric functions, complex numbers, polar coordinates and graphs, vectors in 2 dimensions. May be taken concurrently with MATH 150.

*Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics (NMCCN 1113).*

*Prerequisite:* ACT  $\geq 25$  or SAT  $\geq 570$  or MATH 121 or COMPASS College Algebra  $>54$ .

### **MATH 129: A Survey of Mathematics. (3)**

An introduction to some of the great ideas of mathematics, including logic, systems of numbers, sequences and series, geometry and probability. Emphasizes general problem-solving skills. *Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics.*

*Prerequisite:* ACT  $\geq 22$  or SAT  $\geq 510$  or MATH 120 or 121 or 123 or 150 or 162 or 180 or 181 or 264 .

### **MATH 150: Pre-Calculus Mathematics. (3)**

In-depth study of polynomial, rational, exponential and logarithmic functions and their graphs. Includes the fundamental theorem of algebra, systems of equations, conic sections, parametric equations and applications in geometry. Exploration of the graphing calculator. May be taken concurrently with MATH 123. *Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics.*

*Prerequisite:* ACT  $\geq 25$  or SAT  $\geq 570$  or MATH 121 or COMPASS College Algebra  $> 54$ .

### **MATH 162: Calculus I. (4)**

Derivative as a rate of change, intuitive, numerical, and theoretical concepts, applications to graphing, linearization and optimization. Integral as a sum, relation between integral and derivative, and applications of definite integral. *Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics (NMCCN 1614).*

*Prerequisite:* (ACT =28-31 or SAT = 640-700 or MATH 150 or COMPASS College Algebra  $>66$ ) and (MATH 123 or COMPASS Trig  $> 59$ ) or (ACT  $\geq 32$  or SAT  $\geq 720$ )

### **MATH 163: Calculus II. (4)**

Transcendental functions, techniques of integration, numerical integration, improper integrals, sequences and series with applications, complex variables and parameterization of curves.

*Prerequisite:* MATH 162.

### **MATH 180: Elements of Calculus I. (3)**

Limits of functions and continuity, intuitive concepts and basic properties; derivative as a rate of change, basic differentiation techniques; application of differential calculus to graphing and minima-maxima problems; exponential and logarithmic functions with applications. *Meets New Mexico Lower Division General Education Common Core Curriculum Area II: Mathematics (NMCCN 1613).*

*Prerequisite:* ACT  $\geq 26$  or SAT  $\geq 600$  or MATH 121 or MATH 150 or COMPASS College Algebra  $> 66$ .

*Corequisite:* MATH 110 (UNM-LA Only)

### **MATH 181: Elements of Calculus II. (3)**

Includes the definite integral, multivariate calculus, simple differential equations, basic review of trigonometry and its relation to calculus.

*Prerequisites:* MATH 180 .

### **MATH 192\*: Topics. (1-3)**

Titles will vary.

CR/NC.

### **MATH 215: Mathematics for Elementary and Middle School Teachers III. (3)**

Topics from probability and statistics, coordinate geometry and measurement, and algebra; some applications of mathematics; elements of logic; enrichment topics for the classroom.

*Prerequisite:* MATH 112.

### **MATH 264: Calculus III. (4)**

Vector operations, vector representation of planes and curves, functions of several variables, partial derivatives, gradient, tangent planes, optimization, multiple integrals in Cartesian cylindrical and spherical coordinates, vector fields, line integrals and Green's theorem.

*Prerequisite:* A grade of C (not C-) or better in 163.

### **MATH 292\*: Topics. (1-3)**

Titles will vary.

CR/NC

### **Math 293\*: Topics. (1-3)**

Titles will vary.

### **STAT 145: Introduction to Statistics. (3)**

Techniques for the visual presentation of numerical data, descriptive statistics, introduction to probability and basic probability models used in statistics, introduction to sampling and statistical inference, illustrated by examples from a variety of fields. *Meets New Mexico Lower Division General Education Common Core Area II: Mathematics.*

*Prerequisite:* ACT  $\geq 22$  or SAT  $\geq 510$  or MATH 120 or 121 or 123 or 150 or 162 or 163 or 180 or 181 or 264.



## **Mechanical Technology (MCHT)**

### **MCHT 101: Basic Welding. (4)**

This course focuses on the fundamental techniques employed in the welding field. It is a laboratory approach to understanding and building skills in welding related areas including shop safety, hand and portable power tool usage, and welding—including gas welding, brazing and cutting (oxy-acetylene), stick (SMAW), MIG (GMAW), TIG (GTAW), and plasma arc cutting (PAC). Students may opt to specialize in one or more of the areas after required exercises in all areas are satisfied.

### **MCHT 120: GTAW Welding. (3)**

Focuses on the advanced techniques employed in the Gas Tungsten Arc Welding (GTAW) field. Provides hands on welding practice and knowledge with the GTAW process in various Positions and Joint Configurations. Students may opt to specialize in one or more of the areas after learning all. Course prepares student to take the GTAW welding tests outside of UNM-Los Alamos.

*Prerequisite:* MCHT 101

### **MCHT 192\*: Topics (1-3)**

Titles will vary.

CR/NC

### **MCHT 193\*: Topics (1-3)**

Titles will vary.



## **Media Arts (MA)**

### **MA 110: Introduction to Mass Communication. (3)**

The study of the development of the mass media with emphasis on television in the areas of programming, policy, regulations, economics and technology. Examination of the social, cultural, and political impact of the mass media on contemporary society.

*Also offered as C J 110*



## Music (MUS)

*\*May be repeated for credit with permission of Fine Arts Curriculum Coordinator.*

### **MUS 102: Music Theory for the Non Major. (3)**

Students will develop an awareness of basic elements of melody, rhythm, harmony, form and expression through involvement as singers, players, creators, movers, listeners, and readers of music. Designed for students with little or no musical training.

### **MUS 109: Group Voice I. (1) \***

Open to beginners in voice except voice performance majors.

### **MUS 110: Group Voice II. (1) \***

Music education students in the vocal track must continue to enroll in this course until a grade of C or better is obtained. *Prerequisite:* MUS 109.

### **MUS 111: Group Piano I. (1, no limit)**

Beginning repertoire and sight-reading, basic scale and chord patterns in major keys. For the complete beginner. Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

### **MUS 112: Group Piano II. (1, no limit)**

Late elementary repertoire, sight-reading moving out of the five-finger position, minor scale and chord patterns. Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

*Prerequisite:* MUS 111.

### **MUS 113: Mexican Guitar. (1)**

Group Instruction.

### **MUS 114: Mexican Guitar. (1)**

Continuation of MUS 113.

### **MUS 116: Group Guitar I. (2)**

Students will learn to read music and play melodies, chords, and simple songs. Emphasis on classical curriculum, supplemented with instruction in other styles, including rock, blues, and jazz. Students must supply instrument (classical, nylon-string guitar).

### **MUS 117: Group Guitar II. (2)**

For students who have completed 116 or have some basic guitar skills. Emphasis on classical curriculum, supplemented with instruction in other styles, including rock, blues, and jazz. Students must supply instrument (classical, nylon-string guitar).

### **MUS 139: Music Appreciation. (3)**

Designed to expand the student's ability to listen actively to Western classical art music: a survey of the various genres including chamber music, symphonic, and vocal repertoire. Includes live guest performances. Attendance at several on campus concerts required. No musical background necessary. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1113.)*

### **MUS 150: Music Theory I. (4)**

Fundamentals, part-writing and harmonic analysis: introduction to diatonic theory. *Corequisite:* MUS 150L.

### **MUS 150L: Music Theory I Aural Lab. (0)**

Perception through sound of diatonic materials, with special emphasis on melodic, rhythmic and harmonic dictation and the singing of simple melodies, rhythms and intervals.

*Corequisite:* MUS 150.

### **MUS 172: Jazz History. (3)**

A study of the evolution of jazz in the United States from its beginnings to the present. *Meets New Mexico Lower Division General Education Core Curriculum Area V: Humanities and Fine Arts*

### **MUS 211: Group Piano III. (1, no limit)**

Intermediate repertoire, reading skill, chord and scale patterns. Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

*Prerequisites:* MUS 112

### **MUS 212 : Group Piano IV. (1, no limit)**

Later intermediate to early advanced repertoire and sight-reading. Review of scales and chords. Not open to keyboard majors. Primarily for music majors and minors, but open to all students who are music education majors must continue to enroll in this course until the piano proficiency examination is passed.

*Prerequisites:* MUS 211.

### **MUS 271: Music Today. (3)**

A survey of how Western art music and popular music developed during the 20th century especially with regard to the effect that social and economic forces had upon the art. Attendance at several on-campus concerts is required; discussion and live performance by guest musicians is included. *Meets New Mexico Lower Division General Education Core Curriculum Area V: Humanities and Fine Arts.*

### **MUS 292\*: Topics. (3)**

Titles will vary.  
CR/NC.

### **MUS 293\*: Topics. (1-3)**

Titles will vary.



## **Music Education (MUSE)**

### **MUSE 298: Music for the Elementary Teacher. (3)**

Will prepare elementary classroom teachers to teach music education in a self-contained classroom in traditional and open situations.



## **Nanotechnology (NANO)**

### **NANO 101 Introduction to Nanotechnology (3)**

This course provides an overview of nanotechnology with regard to various principles, applications, industry, ethics, and careers. Other topics will include a survey of various materials and their applications, fabrication, and characterization.

### **NANO 105 Microscopy and Microstructures (3)**

Study the interrelationship between the structural characteristics and the physical and mechanical properties of metals, alloys, and nonmetallic materials such as ceramics, polymers, and composites.

### **NANO 130 Introduction to Nanomaterials and Coatings (3)**

The course will cover the major processes used in coating continuous webs, emphasizing precision application technology for the high performance coatings required by many high-tech products.

*Prerequisites:* CHEM 111L and ELCT 105L and NANO 105.

*Corequisite:* NANO 130L.

### **NANO 130L Micro and Nano Fabrication Lab (1)**

Introduction to the basic concepts of micro and nano fabrication techniques and to the fundamental principles of surface finishing, small part manufacture, part-masking, etching, and safety.

### **NANO 210 Nanomaterials (3)**

Fabrication, property measurement, and compound formulation of carbon nanotubes. Creation of nanomaterials, particles, and crystals by various processes. Properties and measurement techniques of nanomaterials and interactions between organic and inorganic materials. *Prerequisite:* NANO 130.

### **NANO 250 Manufacturing Measurements and Process Control (3)**

Investigate measurements using mechanical, electronic, optical, microscopic, and interferometric methods of measuring linearity from 1/64ths to nanometers, statistical process control methods, standard charting, vendor certification, and standards such as ISO 9000 are covered.

*Prerequisites:* ELCT 105L and DRFT 119



## **Native American Studies (NATV)**

### **NATV 150: Introduction to Native American Studies. (3)**

This course surveys the significance of Native American Studies through an interdisciplinary approach to four major areas of academic concentrations; Arts and Literature, Education and Language, Cultural Studies and Environment, and Leadership and Self-determination.

### **NATV 247. Politics of Native American Art. (3)**

Native American art and artists within political, social and cultural contexts are introduced through an examination of the history of representations of Native art.

### **NATV 252: The Native American Experience. (3)**

Introductory survey of Native American history, culture, and contemporary issues. Students read literature by and about Native Americans covering a variety of topics including tribal sovereignty, federal policy, activism, economic development, education, and community life.

*Also offered as AMST 252*



## **Natural Science (NTSC)**

### **NTSC 261L: Physical Science. (4)**

For pre-service K-8 teachers only. A broad, interdisciplinary introduction to the science of geology, Chemistry, physics, and astronomy, with emphasis on the science processes, inquiry and the integration of technology. The course is activity-based, utilizing a problems-and-issues based approach; various teaching methods are modeled, and practiced by students; some field trips may be required.

### **NTSC 262L: Life Science. (4)**

For pre-service K-8 teachers only. An activity-based study of science topics including botany, cell biology, genetics, microbiology, and zoology with emphasis on science processes, inquiry, and the integration of technology. Various teaching methods are modeled and practiced by students; some field trips may be required.

### **NTSC 263L: Environmental Science. (4)**

For pre-service K-8 teachers only. An activity-based interdisciplinary study of major issues in environmental science with emphasis on science process, scientific investigations, and field-based activities and the integration of technology. Course topics include current issues on population, healthy ecosystems, and natural resources. Various teaching methods are modeled and practiced by students.



## **Nutrition (NUTR)**

### **NUTR 120: Nutrition for Health. (3)**

General concepts of nutrition applied to food choices that support health. Cultural, psychological and economic implications of food choices

### **NUTR 244: Human Nutrition. (3)**

This course provides an overview of all the nutrients including function in the body and food sources. Dietary guidelines intended to promote long term health are stressed.

*Prerequisites:* BIOL 123 or BIOL 201 or CHEM 111L or CHEM 121 AND CHEM 123L.



## **Organizational Learning and Instructional Technologies (OLIT)**

### **OLIT 293: Topics. (1-3)**

Titles will vary.



## **Philosophy (PHIL)**

### **PHIL 101: Introduction to Philosophy. [Introduction to Philosophical Problems] (3)**

Philosophical issues and methodology illustrated through selected problems concerning values, knowledge, reality; and in social political, and religious philosophy. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN 1113.)*

### **PHIL 102. Current Moral Problems. (3)**

Ethical issues arising in contemporary society, e.g., sexual morality, preferential treatment, racism, punishment, war, world food distribution.

### **PHIL 111: Humanities I. (3)**

Comparative introduction to the development of human civilizations emphasizing philosophic thought, religious practice, and artistic expression.

\*This course is no longer transferable to UNM-A.

### **PHIL 156: Reasoning and Critical Thinking. (3)**

The purpose of this course is to help students learn how to analyze, critique, and construct arguments in context, in other words, how to read and write argumentative essays. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts*

**PHIL 201: Greek Philosophy. (3)**

An introductory survey of early and classical Greek philosophy. Figures: the Presocratics, Socrates, Plato, and Aristotle. Topics: beginnings of scientific thought; theories of the self; the concept of being; ethical relativism, happiness, theories of justice.

**PHIL 202: From Descartes to Kant [Modern Philosophy] (3)**

An historical study from the Renaissance through Kant

**PHIL 204: Greek Civilization. (3)**

An interdisciplinary introduction to the ancient world as the foundation of modern civilization. Lectures on classical art, history, literature, and philosophy.

*Also offered as ARTH 204, HIST 204*

**PHIL 205: Roman Civilization. (3)**

An interdisciplinary introduction to ancient Rome. Lectures on Roman literature, history, art, and philosophy.

*Also offered as ARTH 205, HIST 205*

**PHIL 244: Introduction to Existentialism. (3)**

An examination of the works of writers such as Kierkegaard, Nietzsche, Kafka and Sartre who emphasize such issues as death, decision, rebellion, and faith.

**PHIL 245: Professional Ethics. (3)**

Examination of social and ethical problems associated with the business, engineering, medical, and legal professions. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts*



## Physical Education Non-professional (PENP)

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

**PENP 101: Beginning Swimming. (1, no limit) \***

Instruction for students who have not been in the water or have a fear of water.

**PENP 102: Intermediate Swimming. (1, no limit) \***

Instruction in all basic strokes. For students who can swim.

**PENP 114. [160.] Weight Training and Physical Conditioning. (1, no limit)\***

Individual training programs for development of general strength, tone, endurance and weight control. Fitness Test Fee.

**PENP 115. [163.] Intermediate Weight Training. (1, no limit) \***

Instruction in advanced weight-lifting principles and techniques as well as fitness related topics. Fitness Test Fee.

**PENP 124: Ballroom Dance. (1, no limit)\***

Instruction in the basic movements of social dances such as fox trot, waltz, lindy, rumba, tango and cha-cha.

**PENP 128: Beginning Country Western Dance. (1, no limit)\***

Instruction in the basic movements of the Waltz, Two-Step, Swing, and Polka.

**PENP 130.–131. T'ai Chi Ch'uan. (1, no limit) \***

Instruction and practice in techniques to enhance body awareness, reduces stress, improve balance and increase strength.

**PENP 132. Beginning Tae Kwon Do. (1, no limit) \***

Instruction in the basic skills, blocks, strikes and kicks of Tae Kwan Do.

**PENP 133. Intermediate Tae Kwon Do. (1, no limit) \***

Advanced instruction in the basic skills, blocks, strikes and kicks of Tae Kwan Do.

**PENP 134. Beginning Kung Fu. (1, no limit) \***

Instruction in basic skills, blocks, strikes, and kicks of Kung Fu.

**PENP 136. Personal Defense. (1, no limit) \***

Instruction in the basic skills needed to defend oneself against assault.

**PENP 138.–139. Karate. (1, no limit) \***

Instruction in the basic skills, blocks, strikes, and kicks of Japanese karate.

**PENP 143: Beginning Tennis. (1, no limit)\***

Instruction in the basic skills and rules of tennis.

**PENP 144: Intermediate Tennis. (1, no limit) \***

Instruction dependent upon experience and skills of students in basic fundamentals. Perfection of strokes.

**PENP 152: Racquetball. (1, no limit) \***

Instruction and practice in the skills and rules of racquetball.

**PENP 155.–156. Pilates. (1, no limit) \***

Instruction in movements that increase balance, core fitness and cardiorespiratory endurance.

**PENP 158: Aerobic Dance I. (1, no limit) \***

Instruction in continuous movement using basic dance steps for improved cardiorespiratory endurance.

**PENP 160: Weight Training and Physical Conditioning. (1, no limit)\***

Individual training programs for development of general strength, tone, endurance, and weight control.

**PENP 165: Yoga. (1, no limit)\***

Introduction to the five areas of yoga which are particularly significant to the Western World.

**PENP 166: Intermediate Yoga. (1, no limit) \***

Instruction in more advanced techniques of Yoga emphasizing the physical aspects of Hatha Yoga.

**PENP 167: Basketball. (1, no limit)\***

Instruction and practice of basic skills.

**PENP 177–178: Fundamentals of Stretching and Relaxation Techniques. (1, no limit) \***

Instruction and practice of various techniques to enhance flexibility and reduce stress.

**PENP 193\*: Topics. (1-2)**

Titles will vary.



**Physics (PHYC)**

*Listed in the UNM-Albuquerque catalog as the Department of Physics and Astronomy. See also "Astronomy."*

**PHYC 102: Introduction to Physics. (3)**

Designed to introduce non-science majors to basic concepts, laws and skills in physics, in various applications to ordinary life. Energy, momentum, force, wave phenomena, electric charge and photons are discussed, also basic properties of gravitational, electromagnetic and nuclear forces. Selections from relativity, quantum theory, atoms and molecules will be included. See PHYC 102L for an optional laboratory. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science.*

**PHYC 102L: Physics Laboratory. (1)**

Students involve themselves in experiments and projects showing basic concepts related to the atom, the environment and the universe. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science.*

*Pre- or corequisite:* PHYC 102. Two hours lab.

**PHYC 105: Physics and Society. (3)**

Designed to introduce non-science majors to basic concepts, laws and skills in classical and quantum physics as a basis to discuss the interrelationships of society and physics. Examples where energy, momentum, special relativity, thermal physics, quantum and nuclear physics have important roles are discussed; these could include meteorology, aviation weather, fission and fusion reactors, science policy and ethics, alternative energy sources.

**PHYC 110: Introduction to Applied Physics (3)**

Preparatory course to review skills needed for PHYC 151/160. Reviews math skills (vectors, trigonometry, word problems, solving equations, etc.) through applications of physics principles to examples such as cell phones, musical instruments, CD players, driving, tools, projectiles, athletics, and electrical circuits.

*Prerequisite:* MATH 121 or SAT  $\geq 570$  or ACT  $\geq 25$ .

**PHYC 151: General Physics. (3)**

Mechanics, sound, heat, fluid, waves.. The sequence (151, 151L, 152, 152L) is required of pre-medical, pre-dental, and pre-optometry students. Only 151 and 152 are required of pharmacy students. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114).*

*Prerequisites:* MATH 150 or MATH 180 or ACT  $>27$ , SAT  $>630$ .

**PHYC 151L: General Physics Laboratory. (1)**

Mechanics, sound, heat. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1114).*

*Pre- or corequisite:* PHYC 151. Three hours lab.

**PHYC 152: General Physics. (3)**

Electricity, magnetism, optics. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1124).*

*Prerequisite:* PHYC 151.

**PHYC 152L: General Physics Laboratory. (1)**

Electricity, magnetism, optics. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1124).*

*Pre- or corequisite:* PHYC 152. Three hrs. lab.

**PHYC 157: Problems in General Physics. (1)**

Problem solving and demonstrations related to PHYC 151.

*Corequisite:* PHYC 151.

Offered on a CR/NC basis only.

**PHYC 158: Problems in General Physics. (1)**

Problem solving and demonstrations related to PHYC 152.

*Corequisite:* PHYC 152.

Offered on a CR/NC basis only..

**PHYC 160: General Physics. (3)**

Mechanics, sound. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1214).*

*Pre- or corequisite:* MATH 162.

**PHYC 160L: General Physics Laboratory. (1)**

Mechanics, sound. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1214).*

*Prerequisite: Pre- or corequisite:* PHYC 160. Three hrs. lab.

**PHYC 161: General Physics. (3)**

Heat, electricity, magnetism. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1224)*

*Prerequisite:* PHYC 160; *Pre- or corequisite:* MATH 163.

**PHYC 161L: General Physics Laboratory. (1)**

Electricity and magnetism. *Meets New Mexico Lower Division General Education Common Core Curriculum Area III: Science (NMCCN 1224)*

*Pre- or corequisite:* PHYC 161. Three hrs. lab.

**PHYC 167: Problems in General Physics. (1)**

Problem solving and demonstrations related to PHYC 160.

*Corequisite:* PHYC 160.

Offered on a CR/NC basis only

**PHYC 168: Problems in General Physics. (1)**

Problem solving and demonstrations related to 161.

*Corequisite:* PHYC 161.

Offered on a CR/NC basis only.

**PHYC 262: General Physics. (3)**

Optics, modern physics.

*Prerequisite:* PHYC 161; *Pre- or corequisite:* MATH 264.

**PHYC 262L: General Physics Laboratory. (1)**

Optics, modern physics.

*Pre- or corequisite:* PHYC 262. Three hrs. lab.

**PHYC 267: Problems in General Physics. (1)**

Problem solving and demonstrations related to PHYC 262.

*Corequisite:* PHYC 262.

Offered on a CR/NC basis only.

  
**Political Science (POLS)****POLS 110: The Political World. (3)**

An introduction to politics, with emphasis on the ways people can understand their own political systems and those of others. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*

Students who have already had courses in political science may not count POLS 110 toward a major

### **POLS 200: American Politics. (3)**

Survey of American politics, including political behavior of the American electorate, the theory of democracy, the structure and function of American political institutions, and contemporary issues. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences.*

### **POLS 220: Comparative Politics. (3)**

Designed to give students the ability to understand and evaluate political regimes by focusing on the political history, socio-economic structure, and contemporary political institutions and behavior. Includes consideration of European, and developing systems.

### **POLS 240: International Politics. (3)**

Analyzes significant factors in world politics, including nationalism, "national interest," ideology, international conflict and collaboration, balance of power, deterrence, international law, and international organization.



## **Psychology (PSY)**

### **PSY 105: General Psychology. (3)**

Overview of the major content areas in psychology. Topics to be covered include learning, cognition, perception, motivation, biological systems, social and abnormal psychology, development, personality, and approaches to psychotherapy. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences*

### **PSY 200: Statistical Principles. (3)**

Presentation of the basic principles of the description and interpretation of data. Provides an acquaintance with statistical principles appropriate to a liberal arts education, as well as a basis for further work in data analysis. Students planning graduate study in any field are advised to take 300 and 302 as well.

*Prerequisite:* PSY 105.

### **PSY 220: Developmental Psychology. (3)**

Overview of the physical, perceptual, motor, cognitive, emotional and social development of children from infancy through adolescence.

*Prerequisite:* PSY 105.

### **PSY 231: Psychology of Human Sexuality. (3)**

Exploration of the physiological, cultural, social and individual factors that influence sexual behavior sex roles, and sex identity.

*Also offered as Wm St 231.*

*Prerequisite:* PSY 105.

### **PSY 240: Brain and Behavior. (3)**

A general survey of the biological foundations of behavior. Emphasis is on the central nervous system.

*Prerequisite:* PSY 105 or BIOL 110 or BIOL 123

### **PSY 250: Special Topics in Psychology. (1-3, no limit) \***

Study of any psychological topic not otherwise included in the curriculum upon expression of mutual interest by students and faculty. May be repeated for credit provided the subject matter varies.

### **PSY 260: Psychology of Learning and Memory. (3)**

Survey of the variety of laboratory learning situations, with an emphasis on the application of principles to practical situations. Topics range from simple processes such as conditioning to complex processes such as transfer, memory, and concept formation.

*Prerequisite:* PSY 105.

### **PSY 265: Cognitive Psychology. (3)**

Study of the cognitive processes involved in the encoding, storage, retrieval and use of knowledge including attention, memory, comprehension, categorization, reasoning, problem solving and language.

*Prerequisite:* PSY 105.

### **PSY 271: Social Psychology. (3)**

Study of social influence: perception of oneself and others, attitudes, conformity, attraction, altruism, aggression, groups.

*Prerequisite:* PSY 105.

### **PSY 280: Health Psychology. (3)**

This course introduces Health Psychology. The course will cover the role of stress in illness, coping with chronic illness, stress, and pain, and the role of health behavior in health and disease.

*Prerequisite:* PSY 105.



## Religious Studies (RELG)

### RELG 103: Introduction to the Bible. (3)

Survey of the Bible in historical context.

### RELG 105: Religion and the Arts. (3)

Introduction to the relationship between religion and culture as reflected in the arts.

### RELG 107: Living World Religions. (3)

Introduction to major living world religions, such as Buddhism, Christianity, Hinduism, Islam, and Judaism.

### RELG 247: Studies in Religions. (3)

Elementary topics in the study of world religions. Course may be repeated up to three times provided the topics vary.

### RELG 263: Eastern Religions. (3)

A study of major Asian traditions, such as Taoism, Hinduism and Buddhism.

### RELG 264: Western Religions. (3)

A study of major Western traditions, such as Christianity, Islam, and Judaism.



## Russian (RUSS)

### RUSS 101: Elementary Russian. (3)

Elementary Russian for students with no previous exposure to the language. Development of all four-language skills: reading, speaking, writing and listening comprehension.

Can be taken in conjunction with RUSS 103.

### RUSS 102: Elementary Russian II. (3)

Elementary Russian for students who have completed RUSS 101 or equivalent. Continued development of all four skills.

Can be taken in conjunction with RUSS 104.

### RUSS 103-104: Beginnings: Speaking Russian. (1,1)

Practice in basic conversation and training in acquiring a good accent. The courses are supplemental to RUSS 101-102 and stress the patterns and forms introduced in the main courses.

### RUSS 201-202: Intermediate Russian I–Intermediate Russian II. (3, 3)

*Prerequisites:* RUSS 101-102 or the equivalent.



## Sociology (SOC)

### SOC 101: Introduction to Sociology. (3)

Basic concepts, topics, and theories of contemporary sociology. Prerequisite for more advanced courses in sociology. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences (NMCCN 1113.)*

### SOC 200: Foundations of Social Welfare. (3)

Overview of social welfare institutions in Western societies related to social change, stratification, economy, politics, dependency, poverty, wealth, and unemployment in U.S. and other countries; examines social work and related human service occupations.

*Prerequisite:* SOC 101.

### SOC 205: Crime, Public Policy and the Criminal Justice System. (3)

The study of crime, the criminal justice system and crime-related public policy. Discussion of key criminological concepts, measurement of crime and delinquency, its distribution in society, victimization, public opinion, the criminal justice system, crime control strategies and policies.

*Prerequisite:* SOC 101.

### SOC 211: Social Problems. (3)

Description and analysis of major social problems facing American society. Foci may include: poverty, homelessness, alcohol and drug problems, race and ethnic relations, aging and mental illness.

*Prerequisite:* SOC 101.

### **SOC 213: Deviance. (3)**

Survey of major forms of norm-violating behavior in American society, such as drug and alcohol abuse, mental illness, criminal behavior, and sexual deviance. Discussion of sociological explanations of the causes of, and attempts to address, these behaviors.

*Prerequisite:* SOC 101.

### **SOC 216: The Dynamics of Prejudice. (3)**

The study of prejudice and discrimination, including their historical and contemporary sources and prospects for their reduction, with applications to American institutions.

*Prerequisite:* SOC 101.

### **SOC 221: Global Issues. (3)**

The global context of patterns of development in nation states with an emphasis on industrializing countries. Selected topics of social, economic and cultural change. Inequality, war, reform and revolution in global perspective. *Meets New*

*Mexico Lower-Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences.*

*Prerequisite:* SOC 101.

### **SOC 225: Marriage, Family and Their Alternatives. (3)**

Comparative analysis of contemporary family and household forms such as dual-worker, single-parent and homosexual couple households. Focus on links between large-scale social changes and changing family composition and interaction patterns. *Meets New Mexico Lower Division General Education Common Core Curriculum Area IV: Social/Behavioral Sciences (NMCCN 2213.)*

*Prerequisite:* SOC 101.

### **SOC 230: Society and Personality. (3)**

The social psychology of personalities, relationships, small groups, and organizations.

*Prerequisite:* SOC 101.

### **SOC 280. Introduction to Research Methods. (3)**

A survey of the major methods of social research: foundations of social research, research design, sampling and measurement, quantitative and qualitative research methods and data analysis.

*Prerequisite:* SOC 101.



## **Spanish (SPAN) and Portuguese**

*Courses marked with an \* may be repeated for credit because the subject matter varies.*

### **SPAN 101: Elementary Spanish I. (3)**

Beginning Spanish for students with no previous exposure to Spanish. Development of all four language skills, with emphasis on listening and speaking.

### **SPAN 102: Elementary Spanish II. (3)**

Beginning Spanish for students who have completed Span 101 or equivalent. Continued development of four skills with emphasis on listening and speaking.

### **SPAN 103-104: Elementary Spanish Conversation I–Elementary Spanish Conversation II. (1, 1)**

Supplementary courses to SPAN 101-102 for students interested in additional practice in speaking.

CR/NC.

*Pre or corequisite:* SPAN 101 or 102

### **SPAN 201: Intermediate Spanish I. (3)**

Intermediate Spanish for students who have completed 102 or equivalent. Review of grammar and further development of all four skills.

### **SPAN 202: Intermediate Spanish II. (3)**

Intermediate Spanish for students who have completed SPAN 201 or equivalent. Continued development of all four skills with emphasis on reading.

### **SPAN 203: Spanish Conversation. (3)**

For students who have completed or are currently enrolled in SPAN 201, SPAN 202, or SPAN 276. Small classes designed to increase skills in speaking Spanish. Not for native speakers.

*Pre or corequisite:* SPAN 201 or 202.

### **SPAN 275: Accelerated Beginning Spanish. (6)**

Intensive one semester course designed for language enthusiasts who want a review or can devote the time required to cover two semesters in one. Equivalent to 101 and 102.

### **SPAN 293\*: Topics. (1-3)**

Titles will vary.



## Statistics (STAT)

### STAT 145: Introduction to Statistics. (3)

Techniques for the visual presentation of numerical data, descriptive statistics, introduction to probability and basic probability models used in statistics, introduction to sampling and statistical inference, illustrated by examples from a variety of fields. *Meets New Mexico Lower Division General Education Common Core Area II: Mathematics.*

*Prerequisite:* ACT  $\geq 22$  or SAT  $\geq 510$  or MATH 120.



## Theatre (THEA)

### THEA 120: Acting Foundations I. (3)

Beginning acting. The basic fundamentals of acting including analytical and physical skills of the actor, personal work habits, and taking responsibility for the actor's craft.

### THEA 121: Acting Foundations II. (3)

Continuation of 120 with emphasis on textual material.

*Prerequisite:* THEA 120.

### THEA 122: Theatre Appreciation. (3)

For non-majors. Issues of performance, spectatorship and criticism vis-<sup>^</sup>-vis theatre and other forms of performance including (but not limited to) dance, ritual, sports, and the performance of everyday life. Attendance at various performances required.. *Meets New Mexico Lower Division General Education Common Core Curriculum Area V: Humanities and Fine Arts (NMCCN1113)*



## University Honors (UHON)

### UHON 121-122: Freshman University Honors Seminar. (3 to maximum of 9)

Surveys of major ideas basic to the intellectual, historical and artistic traditions of Western Culture.



## Women Studies (WMST)

### WMST 200: Women: Social & Historical Perspectives. (3)

Women's status in society: Women's socialization by sex, class, race and culture; the economics of discrimination, and role of education and family. Historical and social perspectives.

### WMST 231: Psychology of Human Sexuality. (3)

Exploration of the physiological, cultural, social and individual factors that influence sexual behavior, sex roles and sex identity.

*Prerequisite:* PSY 105.

*(Also offered as PSY 231.)*

### WMST 233: Native American Women. (3)

An interdisciplinary course that focuses on the historical, cultural, economic and political issues that affect the changing roles of Native American Women.

### WMST 279: Interdisciplinary Topics. (1-3, repeatable to a maximum of times)

Can be repeated for credit three times by students earning a major or minor in Women Studies.



## Woodworking (WW)

*Courses marked with an \* may be repeated for credit because subject matters varies.*

### WW 101: Basic Wood Working. (3)

This course introduces students to the wonderful world of wood and related materials, the use and misuse of hand and power tools, and shop safety procedures. The course also demonstrates professional construction techniques and the magic of joinery. This class is half lecture and half shop time, during which students create individual projects. Lab fee. (Does not include student materials).

**WW 110: Furniture Design and Construction. (3)**

An introduction to creating furniture from conception to completed work. Course will include the history of furniture design, the drawing of furniture, various woods, joinery and construction techniques. Tools equipment and shop safety will be included. (Does not include student materials.)

**WW 114: Spanish Colonial Carving. (3)**

Instruction is traditional methods of carving using the designs, tools and techniques of Spanish Colonial wood working. (Does not include student materials.)

**WW 120: Wood Working Shop. (3)**

This advanced course is for students who have completed a basic wood working course and are prepared to work on individual projects. Student is required to design project. Course will include a refresher on safety, tools, equipment, design, and stock preparation prior to students beginning their project. (Does not include student materials.)

**WW 193\*: Topics**

Titles will vary.