

**451. American Art through 1875**  
*Spring of even years. 3(3-0) Interdepartmental with History of Art. Administered by History of Art. P: (HA 250) or (HA 120 and HA 121) and Completion of Tier I writing requirement.*  
Artistic production in North America from colonial times to 1875, in its cultural context.  
SA: HA 438, HA 348

**453. American Art, 1875-1940**  
*Fall of even years. 3(3-0) Interdepartmental with History of Art. Administered by History of Art. P: (HA 250) or (HA 120 and HA 121) and Completion of Tier I writing requirement.*  
Artistic production in North America from 1875 to 1940, in its cultural context.  
SA: HA 458, HA 358

**491. Perspectives in American Studies**  
*Fall. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Not open to freshmen or sophomores.*  
Methods and significant works in American Studies. Topics vary.

**492. Seminar in American Studies**  
*Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to students in the College of Arts and Letters or James Madison College or Lyman Briggs School.*  
Selected topics in American life emphasizing interdisciplinary approaches. Topics vary.

**855. Seminar in American Art**  
*Spring of odd years. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with History of Art. Administered by History of Art. R: Approval of department.*  
Intensive investigation of a topic in the history of American art.

**881. American Studies Theory, Methods, and Bibliography**  
*Fall. 3(3-0)*  
Methods and bibliographical sources of American Studies research. Interdisciplinary approaches to studying American culture.

**890. Independent Study**  
*Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of college.*  
Special projects, directed reading, and research arranged by an individual graduate student and a faculty member in areas supplementing regular course offerings.

**891. Special Topics in American Studies**  
*Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of college.*  
Special topics supplementing regular course offerings proposed by faculty for graduate students on a group study basis.

**899. Master's Thesis Research**  
*Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of college.*  
Directed research leading to a master's thesis in partial fulfillment of Plan A master's degree requirements.

**999. Doctoral Dissertation Research**  
*Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 30 credits in all enrollments for this course. R: Approval of college.*

## AMERICAN THOUGHT AND LANGUAGE ATL

### Department of American Thought and Language College of Arts and Letters

**0102. Preparation for College Writing**  
*Fall, Spring. 0 credit. [1(0-2) See page A-2, item 3.] P: Designated score on English placement test. C: ATL 1004 concurrently.*  
Practice in applying the principles of English grammar, syntax, and word usage to writing.

**1004. Preparation for College Writing**  
*Fall, Spring. 3(3-0) P: Designated score on English placement test. C: ATL 0102 concurrently.*  
Composing, revising, and editing. Active reading and pre-writing strategies. Style, mechanics, and usage. Organization and proofreading.

**110. Writing: Science and Technology**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 120, ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on American science and technology to develop skills in narration, persuasion, analysis, and documentation.

**115. Writing: Law and Justice in the United States**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 120, ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on American law and justice to develop skills in narration, persuasion, analysis and documentation.

**120. Writing: American Philosophy, Literature, and the Arts**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on American philosophy, literature, and the arts to develop skills in narration, persuasion, analysis, and documentation.

**125. Writing: The American Ethnic and Racial Experience**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on the experience of American ethnic and racial groups to develop skills in narration, persuasion, analysis, and documentation.

**130. Writing: American Radical Thought**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on American radical thought to develop skills in narration, persuasion, analysis, and documentation.

**135. Writing: Public Life in America**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 130 or ATL 140 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on American civic tradition and community service-learning experiences to develop skills in narration, persuasion, analysis, and documentation.

**140. Writing: Women in America**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 130 or ATL 135 or ATL 145 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on women in America to develop skills in narration, persuasion, analysis, and documentation.

**145. Writing: Men in America**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 150 or ATL 195H.*  
Drafting, revising, and editing compositions derived from readings on men in America to develop skills in narration, persuasion, analysis, and documentation.

**150. Writing: The Evolution of American Thought**  
*Fall, Spring. 4(4-0) P: (ATL 1004) or designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 195H.*  
Drafting, revising, and editing compositions derived from American historical, social, and cultural texts to develop skills in narration, persuasion, analysis, and documentation.

## Descriptions—American Thought and Language of Courses

### 195H. Writing: Major Topics in American Thought

Fall, Spring. 4(4-0) P: Designated score on English placement test. Not open to students with credit in MC 111 or MC 112 or LBS 133 or AL 192 or AL 192H or ATL 110 or ATL 115, ATL 120 or ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150.

Drafting, revising, and editing compositions derived from readings on major topics in American thought to develop advanced skills in narration, persuasion, analysis, and documentation.

### 290. Independent Study

Fall, Spring, Summer. 1 to 4 credits. R: Open only to freshmen or sophomores. Approval of department.

Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.

## ANATOMY

### Department of Anatomy College of Human Medicine College of Osteopathic Medicine College of Veterinary Medicine

#### 316. General Human Anatomy

Spring. 3(3-0) P: BS 110 or BS 111 or approval of department.

Human structure. Major systems of the human body.

#### 480. Special Problems in Anatomy

Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 15 credits in all enrollments for this course. R: Approval of department.

Topics from an anatomical field such as gross anatomy, histology, tissue culture, cytology, neurology, or embryology.

#### 515. Comparative Veterinary Gross Anatomy

Fall. 6(2-10) R: Open only to graduate-professional students in the College of Veterinary Medicine.

Canine anatomy. Comparisons with ruminant, porcine, and equine anatomy.

#### 516. Veterinary Histology and Cell Biology

Fall. 4(3-2) R: Open only to graduate-professional students in the College of Veterinary Medicine.

Principles of developmental, cellular, and molecular biology as related to veterinary medicine.

#### 517. Veterinary Neuroanatomy

Spring. 1(1-0) R: Completion of 1 semester of the graduate-professional program in the College of Veterinary Medicine.

Introduction to the anatomy of the nervous system using the canine species as a model.

#### 551. Medical Gross Anatomy

Fall. 6(4-6) R: Graduate-professional students in colleges of Human Medicine and Osteopathic Medicine.

Gross anatomy of the human body using dissections, medical imaging, clinical correlations, case studies, video tapes, and computer aided instruction.

#### 552. Medical Neuroscience

Spring. 4(3-2) Interdepartmental with Physiology; Radiology. R: Graduate-professional students in colleges of Human Medicine and Osteopathic Medicine.

Correlation of normal structure and function of the human nervous system with clinical testing, classical lesions, and common diseases.

#### 562. Medical Histology

Spring. 3(2-2) R: Graduate-professional students in colleges of Human Medicine and Osteopathic Medicine.

Histology of the human body.

#### 585. Human Gross Anatomy Dissection

Fall, Spring, Summer. 2 to 7 credits. A student may earn a maximum of 15 credits in all enrollments for this course. P: ANT 551. R: Graduate-professional students in colleges of Human Medicine and Osteopathic Medicine.

Dissection of selected regions of the human body.

#### 610. Veterinary Gross Anatomy Dissection

Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: ANT 515. R: Open only to graduate-professional students in College of Veterinary Medicine.

Dissection and prosection of selected regions of domestic animals.

#### 611. Research Problems in Veterinary Anatomy

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate-professional students in the College of Veterinary Medicine. Approval of department.

Veterinary gross anatomy, cell biology, histology, or neurobiology.

#### 802. Clinical Surgical Anatomy

Spring. 4(2-4) Interdepartmental with Surgery. Administered by Surgery. R: Open only to Master's students in Surgery.

Review of surgical anatomy. Detailed anatomical information through lecture and dissection sessions. Clinical interpretation of anatomy and surgical approaches.

#### 813. Problems in Anatomy

Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Approval of department.

Fields such as gross anatomy, histology, tissue culture, cytology, neurology and embryology.

#### 814. Graduate Seminar

Spring of even years. 1 to 3 credits. R: Open only to graduate students in Anatomy.

Supervised practice in evaluating abstracts and delivering oral presentations of anatomical sciences. Organization, timing and effective illustrations.

#### 820. Advanced Neuroanatomy

Summer of odd years. 1 to 5 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.

Current topics in anatomy and physiology and processes of central nervous system cells.

#### 839. Systems Neuroscience

Spring of odd years. 4(4-0) Interdepartmental with Pharmacology and Toxicology; and Physiology. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Agriculture and Natural Resources, Natural Science, and Veterinary Medicine.

Anatomy, pharmacology, and physiology of multicellular neural systems. Sensory, motor, autonomic, and chemo-regulatory systems in vertebrate brains.

#### 885. Vertebrate Neural Systems

Spring of odd years. 3(2-2) Interdepartmental with Physiology.

Comparative analysis of major component systems of vertebrate brains. Evolution, ontogeny, structure, and function in fish, amphibians, reptiles, birds and mammals.

#### 899. Master's Thesis Research

Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open only to graduate students in Anatomy.

#### 999. Doctoral Dissertation Research

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Open only to graduate students in Anatomy.

## ANIMAL SCIENCE

## ANS

### Department of Animal Science College of Agriculture and Natural Resources

#### 110. Introductory Animal Agriculture

Fall, Spring. 4(3-2)

History of animal agriculture and its relationship to human needs, production systems, marketing, and environmental considerations. Current goals of and limitations affecting U.S. farm animal production.

SA: ANS 112

#### 200A. Introductory Judging of Livestock or Carcasses

Spring. 1 to 2 credits. A student may earn a maximum of 3 credits in all enrollments for this course. P: ANS 211. R: A student may earn a maximum of 8 credits from ANS 200A, ANS 200B, ANS 300A, ANS 300B, ANS 300C and ANS 300D.

Evaluation of functional conformation of beef cattle, sheep and swine and their carcasses. Preparation for intercollegiate competition. Field trips required.

#### 200B. Introductory Judging of Dairy Cattle or Horses

Spring. 1 to 2 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: A student may earn a maximum of 8 credits from ANS 200A, ANS 200B, ANS 300A, ANS 300B, ANS 300C and ANS 300D.

Evaluation of functional conformation of dairy cattle or horses. Preparation for intercollegiate competition. Field trips required.