

**489 Integrated Approaches to Agriculture and Natural Resources Problems (W)**  
Fall, Spring. 3(2-2) P:M: (MTH 110 or MTH 116) and (EC 201 or EC 202) and completion of Tier I writing requirement. R: Open only to seniors in Agriculture and Natural Resources.

Holistic solutions to resource management and allocation: an integrated, multidisciplinary team approach to case study problems.

**490 Independent Study in Agriculture and Natural Resources**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to sophomores or juniors or seniors or graduate students in the College of Agriculture and Natural Resources.

Supervised individual study in topics related to agriculture and natural resources.

**491 Selected Topics**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Not open to freshmen or sophomores.

Special topics in agriculture and natural resources.

**493 Professional Internship in Agriculture and Natural Resources**

Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to juniors or seniors in the College of Agriculture and Natural Resources. Approval of department; application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CSS 493, FIM 493, FW 493, HRT 493, PKG 493, PRM 493, PRR 493, and RD 493.

Supervised professional experiences in agencies and businesses related to a student's major field of study.

## AMERICAN STUDIES

AMS

### Program in American Studies College of Arts and Letters

**250 American Art**  
Spring. 3(3-0) Interdepartmental with History of Art; American Studies. Administered by Department of History of Art.

Major developments and themes in non-indigenous American art (painting, sculpture, architecture, material culture) from its colonial origins through the 20th century.

**332 Technology and Culture**

Fall. 4(4-0) Interdepartmental with Lyman Briggs School. Administered by Lyman Briggs School. P:M: Completion of Tier I writing requirement. R: Open only to juniors or seniors in the American Studies major in Lyman Briggs School.

History of technology with special emphasis on the interaction of technical innovation and other elements of culture.

**335 The Natural Environment: Perceptions and Practices**  
Spring. 4(4-0) Interdepartmental with Lyman Briggs School. Administered by Lyman Briggs School. P:M: Completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors in the American Studies major or in Lyman Briggs School.

American attitudes toward the natural environment and related public and private institutions.

**451 American Art through 1875**

Spring of even years. 3(3-0) Interdepartmental with History of Art. Administered by Department of History of Art. P:M: (HA 120 or HA 121 or HA 250) and completion of Tier I writing requirement. SA: HA 438

Artistic production in North America from colonial times to 1875, in its cultural context.

**453 American Art, 1875-1940**

Fall of even years. 3(3-0) Interdepartmental with History of Art. Administered by Department of History of Art. P:M: (HA 120 or HA 121 or HA 250) and completion of Tier I writing requirement. SA: HA 458, HA 358

Artistic production in North America from 1875 to 1940, in its cultural context.

**480 Seminar in American Material Folk Culture**

Spring of odd years. 3(3-0) RB: Coursework in arts, humanities and cultural studies.

Understanding American material folk culture and folklife as sources for analysis and appreciation. Methodological approaches and fieldwork techniques.

**491 Perspectives in American Studies**

Fall. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.

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 Department of 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.

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.

Doctoral dissertation research.

## AMERICAN THOUGHT AND LANGUAGE ATL

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

**0102 Preparation for College Writing**

Fall, Spring. 0(0-2) P:M: 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:M: 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:M: (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 115 or ATL 120 or 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:M: (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 or 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.

## American Thought and Language—ATL

- 120 Writing: American Philosophy, Literature, and the Arts**  
Fall, Spring. 4(4-0) P:M: (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 or 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:M: (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 or 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:M: (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 or 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:M: (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 or 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:M: (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 or 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:M: (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 or 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:M: (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 or 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.

- 195H Writing: Major Topics in American Thought**  
Fall, Spring. 4(4-0) P:NM: 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 or 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

College of Human Medicine  
College of Osteopathic Medicine  
College of Veterinary Medicine

- 802 Clinical Surgical Anatomy**  
Spring. 4(2-4) Interdepartmental with Surgery. Administered by Department of 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.

## ANT

- 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; 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.

Master's thesis research.

- 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.

Doctoral dissertation research.

## HUMAN ANATOMY ANTR

College of Human Medicine

- 316 General Human Anatomy**  
Spring, Summer. 3(3-0) P:NM: (BS 110 or BS 111) or approval of department. SA: ANT 316

Human structure. Major systems of the human body.

- 350 Human Gross Anatomy and Structural Biology**  
Fall, Spring. 3(4-0) P:M: (BS 111) or (BS 149H) or (LBS 145) R: Open only to students in the B.S. Degree in Nursing or approval of department. SA: ANT 316, ANTR 316

Survey of human systemic gross anatomy with clinical illustrations. Introduction to the language of medicine. Structural basis of physiological principles. Designed for pre-professional students entering health-care disciplines.

- 381 Human Gross Anatomy Laboratory**  
Spring, Summer. 2(0-6) P:M: (ANTR 350) R: Approval of department. Not open to students with credit in KIN 217 or ZOL 328.

Structured survey of human regional gross anatomy using prosections, cross-sections, medical imaging, multimedia, and hypermedia.