

462. Agricultural and Rural Development in Developing Nations
Fall. 3(3-0) PAM 201 or EC 201; PAM 260 recommended. Interdepartmental with Public Affairs Management and Food Systems Economics and Management and administered by Food Systems Economics and Management.
 Traditional agricultural systems and the incentive environment for economic growth in rural areas. Adjustment to technological, institutional and human change. Strategies for rapid agricultural transformation.

475. International Studies in Agriculture and Natural Resources
Spring, Summer. 3 to 9 credits. Approval of college. Interdepartmental with Natural Resources.
 Study-travel experience emphasizing contemporary problems affecting agriculture in the world, national, and local communities. Field trips, case studies, interviews with leading experts, government officials, community leaders. Supervised individual study.

IDC. The Impact of Animal Resource Management Upon the World's Developing Nations
For course description, see Interdisciplinary Courses.

AMERICAN STUDIES AMS

College of Arts and Letters

301. Issues in American Civilization
Fall, Winter, Spring. 3(3-0) May reenroll for a maximum of 9 credits. Not applicable to major requirements.
 Selected issues in American life past and present, with materials drawn from such disciplines as history, social sciences, philosophy, literature and the arts. Topics vary.

410. Perspectives in American Studies
Fall. 3 credits. Juniors in American Studies or approval of American Studies Committee.
 Methods and significant works for majors in the American Studies program. Offered by members of the relevant departments.

411. Problems in American Civilization
Winter, Spring. 3 credits. Majors must reenroll for a maximum of 6 credits. AMS 410, Juniors in American Studies or approval of American Studies Committee.
 Seminar approach to selected problems in American life employing the objectives and approaches of interdisciplinary studies. Offered by members of relevant departments, for majors in the American Studies program.

AMERICAN THOUGHT AND LANGUAGE ATL

University College
 To satisfy the University General Education requirement, a student must take one course in each of the following groups. Additional courses may be taken for elective credit.
 1. 121 or 121E, 131, 141, 151, 161, 171, 181, 191H
 2. 122 or 122E, 132, 142, 152, 162, 172, 182, 192H
 3. 123 or 123E, 133, 143, 153, 163, 173, 183, 193H

101A. Comprehensive English
Fall, Winter, Spring, Summer. 3(3-1) Admission by examination or approval of department. Students may not receive credit in more than one of the following courses: ATL 101A, ATL 101B, ATL 101E.
 Instruction and practice in reading and writing. Emphasis upon mastery of fundamental skills needed for a variety of reading and writing assignments.

101B. Comprehensive English
Fall, Winter, Spring, Summer. 3(3-1) Admission by examination or approval of department. Students may not receive credit in more than one of the following courses: ATL 101A, ATL 101B, ATL 101E.
 Instruction and practice in reading and writing. Instruction in reading is emphasized.

101E. Comprehensive English - Experimental
Fall. 3 credits. Admission by examination or approval of department. Students may not receive credit in more than one of the following courses: ATL 101A, ATL 101B, ATL 101E.
 Instruction and practice in reading and writing. Approved through Spring 1981.

102. Comprehensive English
Fall, Winter, Spring, Summer. 3(3-1) ATL 101A or ATL 101B or approval of department. Students may not receive credit in both ATL 102 and ATL 102E.
 Continuation of ATL 101 with emphasis on writing and reading.

102E. Comprehensive English - Experimental
Winter. 3 credits. ATL 101E or approval of department. Students may not receive credit in both ATL 102 and ATL 102E.
 Continuation of ATL 101E. Approved through Spring 1981.

103. Comprehensive English
Fall, Winter, Spring, Summer. 3(3-1) ATL 102 or approval of department. Students may not receive credit in both ATL 103 and ATL 103E.
 Continuation of ATL 102 with emphasis on reading and writing on American cultural topics.

103E. Comprehensive English - Experimental
Spring. 3 credits. ATL 102E or approval of department. Students may not receive credit in both ATL 103 and ATL 103E.
 Continuation of ATL 102E. Approved through Spring 1981.

117. Use of Libraries
Fall, Winter. 1(1-0)
 The use of libraries, with emphasis on MSU Library. Course will stress knowledge and use of bibliographic and reference resources.

121. American Expression
Fall, Winter, Spring, Summer. 3(3-0) Satisfactory grade on English proficiency examination or in Comprehensive English. Students may not receive credit in both ATL 121 and ATL 121E.
 Aims to improve the student's ability to read and write and to acquaint him with his American heritage. Selected reading and theme topics.

121E. American Expression - Experimental
Fall. 3 credits. Admission by examination or approval of department. Students may not receive credit in both ATL 121 and ATL 121E.
 Approved through Spring 1981.

122. American Expression
Fall, Winter, Spring, Summer. 3(3-0) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English. Students may not receive credit in both ATL 122 and ATL 122E.
 Aims to improve the student's ability to read and write, and to acquaint him with his American heritage. Selected reading and theme topics.

122E. American Expression - Experimental
Winter. 3 credits. Completion of ATL 121E or approval of department. Students may not receive credit in both ATL 122 and ATL 122E.
 Approved through Spring 1981.

123. American Expression
Fall, Winter, Spring, Summer. 3(3-0) Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English. Students may not receive credit in both ATL 123 and ATL 123E.
 Aims to improve the student's ability to read and write, and to acquaint him with his American heritage. Selected reading and theme topics.

123E. American Expression - Experimental
Spring. 3 credits. Completion of ATL 122E or approval of department. Students may not receive credit in both ATL 123 and ATL 123E.
 Approved through Spring 1981.

131. Major Currents in American Experience
Fall, Winter, Spring, Summer. 3(3-0) Satisfactory grade on English proficiency examination or in Comprehensive English.
 Investigation into the significance Americans place on individual search for meaning and its effect on our American heritage. Subject matter is the focus for improving reading and writing abilities.

132. Major Currents in American Experience
Fall, Winter, Spring, Summer. 3(3-0) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
 The dreams and realities by which Americans have been inspired and betrayed are emphasized. Subject matter is the focus for improving reading and writing abilities.

133. Major Currents in American Experience
Fall, Winter, Spring, Summer. 3(3-0) Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
 Literary and historical study of the major cultural confrontations among groups and subcultures in American's heterogeneous society. Subject matter is the focus for improving reading and writing abilities.

**Descriptions – American Thought and Language
of
Courses**

- 141. American Humanities**
Fall, Winter, Spring, Summer. 3(3-0)
Satisfactory grade on English proficiency examination or in Comprehensive English.
Aims to acquaint the student with his American heritage with emphasis on artistic and literary expression; and to improve his ability to read and write.
- 142. American Humanities**
Fall, Winter, Spring, Summer. 3(3-0)
Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with his American heritage with emphasis on artistic and literary expression; and to improve his ability to read and write.
- 143. American Humanities**
Fall, Winter, Spring, Summer. 3(3-0)
Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with his American heritage with emphasis on artistic and literary expression and to improve his ability to read and write.
- 151. American Minorities**
Fall. 3(3-0) Satisfactory grade on English proficiency examination or in Comprehensive English.
Aims to acquaint the student with the experience of minorities in America, and to improve his ability at reading and writing. Selected readings and theme topics.
- 152. American Minorities**
Winter. 3(3-0) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with the experience of minorities in America, and to improve his ability at reading and writing. Selected readings and theme topics.
- 153. American Minorities**
Spring. 3(3-0) Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with the experience of minorities in America, and to improve his ability at reading and writing. Selected readings and theme topics.
- 161. American Radical Thought**
Fall. 3(3-0) Satisfactory grade on English proficiency examination or in Comprehensive English.
Aims to acquaint the student with ideas concerning radical social change, and to improve his ability at reading and writing. Selected readings and theme topics.
- 162. American Radical Thought**
Winter. 3(3-0) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with ideas concerning radical social change, and to improve his ability at reading and writing. Selected readings and theme topics.
- 163. American Radical Thought**
Spring. 3(3-0) Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with ideas concerning radical social change, and to improve his ability at reading and writing. Selected readings and theme topics.
- 167. American Utopianism: Contemporary**
Spring. 3(3-0)
Utopian and communitarian urge in contemporary American thought and experience; improvement of the student's reading, writing, and speaking abilities.
- 171. America on Film**
Fall. 3(3-2) Satisfactory grade on English proficiency examination or in Comprehensive English.
Aims to acquaint the student with cinematic and fictional representation of experience, and to improve his ability at reading and writing. Selected readings and theme topics.
- 172. America on Film**
Winter. 3(3-2) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with cinematic and fictional representation of experience, and to improve his ability at reading and writing. Selected readings and theme topics.
- 173. American on Film**
Spring. 3(3-2) Three credits in the second term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with cinematic and fictional representation of experience, and to improve his ability at reading and writing. Selected readings and theme topics.
- 181. Women in America**
Fall. 3(3-0) Satisfactory grade on English proficiency examination or in Comprehensive English.
Aims to acquaint the student with women's experience in America, and to improve the student's ability at reading and writing. Selected readings and theme topics.
- 182. Women in America**
Winter. 3(3-0) Three credits in the first term of any ATL sequence numbered ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with women's experience in America, and to improve the student's ability at reading and writing. Selected readings and theme topics.
- 183. Women in America**
Spring. 3(3-0) Three credits in the second term of any ATL sequence numbered from ATL 121 or above; or satisfactory performance in Comprehensive English.
Aims to acquaint the student with women's experience in America, and to improve the student's ability at reading and writing. Selected readings and theme topics.
- 191H. Honors Work in American Experience**
Fall. 3(3-0) Satisfactory grade in entrance examination.
Students read and write on selected topics to improve their knowledge of the American heritage and their ability at reading and writing.
- 192H. Honors Work in American Experience**
Winter. 3(3-0) Satisfactory grade in the first term of any ATL sequence numbered ATL 121 or above.
Students read and write on selected topics to improve their knowledge of the American heritage and their ability at reading and writing.
- 193H. Honors Work in American Experience**
Spring. 3(3-0) Satisfactory grade in the second term of any ATL sequence numbered ATL 121 or above.
Students read and write on selected topics to improve their knowledge of the American heritage and their ability at reading and writing.
- 205. Reading for University-Level Understanding**
Fall, Winter, Spring. 2(0-4) May reenroll for a maximum of 4 credits.
Individualized instruction in techniques for improving vocabulary, comprehension, rate, study skills and test taking skills in order to achieve a better understanding of university-level materials.
- 232. American Humor**
Winter. 4(4-0) Sophomores.
An interdisciplinary study of the relationship between American humor and the developing American experience, especially of the nineteenth and twentieth centuries.
- 300. Supervised Individual Study**
Fall, Winter, Spring, Summer. 2 to 4 credits. May reenroll for a maximum of 12 credits. 9 credits in a composition course; approval of department.
Selected students requesting individual study of interdisciplinary problems will work under supervision of University College professors. Variable elective credit will be determined when the student secures instructor, adviser, and department approval.
- 350. Contemporary American Film and Society**
Winter. 4(4-0) Sophomores.
Contemporary American films as reflections of and influences on American society. Term topics: Violence and Crime or Women.
- 380. The Role of Women in America: Arts and Self**
Winter of even-numbered years. 4(4-0) Juniors.
Various art forms by women and the exploration of a feminine sensibility; sex, race, and class interactions, sexual stereotypes; male views of women and themselves; the impact of the media.
- 381. The Role of Women in America: Movements and Ideology**
Spring of odd-numbered years. 4(4-0) Juniors.
Key personalities and philosophical currents in the women's movement; biological and cultural myths and realities; the historical role of the family, The Culture of Romance.
- 439. Writing the Research Report**
Winter, Spring. 4(4-0) Juniors.
Advanced methods and organization of written research reports will be taught by providing examples, exercises, and writing practice based on research submitted by the students.

449. Technical Report Writing
Winter, Spring. 4(4-0) Completion of ATL requirement, Juniors or approval of instructor.
 Use and understanding of language through writing and editing clear, concise, purposeful technical reports, letters, instructions, proposals.

ANATOMY

ANT

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

216. Applied Human Anatomy
Fall, Spring. 5(4-3) HPR major or minor.
 Structural anatomy of the various systems of the human body. Concepts of kinesiological applications.

316. General Anatomy
Fall, Spring. 5(5-0) BS 211 or BS 212 or approval of department.
 Designed to impart the basic concepts of the broad field of anatomy. Special requirements of the various disciplines will be met in their respective laboratories.

420. Microscopic Anatomy
Winter. 5(2-8) Medical Technology students or approval of department.
 Microscopic study of the structure of cells, tissues and organs.

480. Special Problems
Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 15 credits. Approval of department.
 Individual study or project under the direction of a faculty member in biomedical research, gross anatomy, histology, neurology, or embryology.

505A. Anatomy in Physical Diagnosis
Fall. 1 to 3 credits. H M 505 concurrently.
 Exercises in which students study systemic anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

505B. Anatomy in Physical Diagnosis
Winter. 1 to 3 credits. ANT 505A or approval of department.
 Exercises in which students study regional anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

505C. Anatomy in Physical Diagnosis
Spring. 1 to 3 credits. ANT 505B or approval of department.
 Exercises in which students study regional anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

510. Veterinary Gross Anatomy
(521.) Summer. 6(3-9) Admission to professional veterinary program.
 Gross anatomy of a representative animal, the dog, is studied. Lecture, dissection of embalmed specimen, study of prosections, slides, models and living animals.

511. Veterinary Histology
(520.) Summer. 4(2-6) First-term Veterinary Medicine students.
 A general histology course for veterinary students which includes a survey of the tissue of the animal body.

512. Veterinary Neuro Anatomy
Summer. 2(2-0) First-term Veterinary Medicine students.
 Gross anatomy of the central nervous system in animals emphasizing functional and dysfunctional aspects of pathways and nuclei in dogs as a foundation for clinical neurology.

513. Veterinary Microscopic Anatomy
(522) Fall. 5(3-6) Second-term Veterinary Medicine students.
 Microscopic anatomy of the digestive, urinary, respiratory, male and female reproductive systems, integumentary system, central nervous system and special sense organs of domesticated animals.

514. Veterinary Comparative Anatomy
(523.) Fall, 4(2-6) Second-term Veterinary Medicine students.
 Lecture, dissection of embalmed specimens and the study of prosections, models and live animals related to the anatomy of the domestic animals.

540. Cross Biomedical Structure
Winter. 1 to 15 credits. May reenroll for a maximum of 15 credits. Admission to a college of medicine; graduate students with approval of department.
 Regional gross anatomy of the back, thorax, abdomen, pelvis and perineum.

541. Cross Biomedical Structure
Spring. 1 to 15 credits. Admission to a college of medicine; graduate students with approval of department.
 Regional gross anatomy of the head and neck.

542. Cross Biomedical Structure
Fall. 1 to 15 credits. Admission to a college of medicine; graduate students with approval of department.
 Regional gross anatomy of the limbs.

543. Microscopic Anatomy
Winter. 3(1-3) Human Medicine students; approval of department for graduate students.
 The principles of microscopic anatomy, utilizing self-instructional units and laboratory experience with organ sections viewed through the light microscope.

544. Human Ontogenesis
Fall. 3(3-0) Admission to a college of medicine; graduate students with approval of department.
 Formal lectures, class conferences and student reports on the normal and abnormal organogenesis of the human embryo and fetus with emphasis on clinical correlations.

545. Neuroanatomy
Spring. 3(4-0) Admission to medical school or approval of Neuroscience Committee.
 Introduction to gross and microscopic anatomy of the human nervous system, to related basic neurophysiologic concepts and to a problem-solving approach to the diagnosis of nervous system disease.

560. Medical Histology
Summer. 4(3-4) Admission to a college of medicine or approval of department.
 Structural and functional characteristics of basic cells, tissues and organ systems. Emphasis on core concepts and visual discrimination.

563. Osteopathic Medical Neuroanatomy
Fall. 4(3-4) Admission to a college of medicine; graduate students with approval of department.
 Medically oriented problem-solving neuroanatomy with laboratory. Structure of the human nervous system is correlated with normal function, clinical testing and classical lesions encountered in medical practice.

565. Introduction to Human Gross Anatomy
Summer. 6(4-6) Admission to a college of medicine or approval of department.
 Core concepts in regional, systemic and topographical human gross anatomy: Prosection, discussion and lecture methods using audiovisual aids and frequent review.

580. Special Problems
Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 15 credits. Admission to professional program in the College of Human Medicine, College of Osteopathic Medicine or the College of Veterinary Medicine, and approval of department.
 Biomedical research, gross anatomy, histology, neurology, immunology or embryology.

813. Problems in Anatomy
Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 15 credits. Basic disciplines in various areas and approval of department.
 Various anatomical fields such as gross anatomy, histology, hematology, tissue culture, cytology, neurology and embryology will be studied.

815. Anatomy of the Nervous System
Fall. 5(3-5) Approval of department.
 Developmental, gross and microscopic anatomy of the nervous system. Organizational and functional aspects of the peripheral and central nervous system are stressed. Gross demonstrations include brain and dog dissections.

816. Developmental Anatomy
Fall. 4(3-3) Graduate students or approval of department.
 Study of the normal and abnormal organogenesis of the human embryo and fetus.

891. Concepts in Tumorigenesis
Winter of even-numbered years. 2(2-0) Approval of instructor.
 In depth evaluation of the current concepts in tumorigenesis emphasizing the experimental results from which these concepts evolved.

899. Research
Fall, Winter, Spring, Summer. Variable credits. Majors.

999. Research
Fall, Winter, Spring, Summer. Variable credit. Majors.