145. Writing: Men in America
Fall, Spring. 4(4-0)
P: Designated score on English placement test or ATL 1004. R: Not open to students with credit in MC 111, MC 112, LBS 133, ATL 110, ATL 120, ATL 125, ATL 130, ATL 140, ATL 150, ATL 195H.
Drafting, revising, and editing compositions derived from readings on men in America to develop skills in narration, persuasion, and analysis, and documentation.
QP: MC 111, MC 112, LBS 133 QA: ATL 1154, ATL 1164, ATL XY2, ATL XY3

150. Writing: The Evolution of American Thought
Fall, Spring. 4(4-0)
P: Designated score on English placement test or ATL 1004. R: Not open to students with credit in MC 111, MC 112, LBS 133, ATL 110, ATL 120, ATL 125, ATL 130, ATL 140, ATL 145, ATL 195H,ATL 195H.
Drafting, revising, and editing compositions derived from American historical, social, and cultural texts to develop skills in narration, persuasion, analysis, and documentation.
QA: ATL XY2, ATL XY3, ATL 1154, ATL 1164

195H. Writing: Major Topics in American Thought
Fall, Spring. 4(4-0)
P: Designated score on English placement test. R: Not open to students with credit in MC 111, MC 112, LBS 133, ATL 110, ATL 120, ATL 125, ATL 130, ATL 140, ATL 145, 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.
QA: ATL 192H, ATL 193H

290. Independent Study
Fall, Spring, Summer. 1 to 4 credits.
R: Open only to freshmen and sophomores. Approval of department.
Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.

ANATOMY ANT

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.
QP: BS 211, BS 212 QA: ANT 316

515. Comparative Veterinary Gross Anatomy
Fall. 6(2-0)
R: Open only to graduate-professional students in the College of Veterinary Medicine.
Canine anatomy. Comparisons with ruminant, porcine, and equine anatomy.
QA: ANT 514

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.
QA: ANT 511

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.
QA: ANT 512

551. Medical Gross Anatomy
Fall. 7(4-6)
R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Gross anatomy of the human body using prosections, medical imaging, clinical correlations, case studies, video tapes, and computer aided instruction.

552. Medical Neuroscience
Spring. 4(3-2) Interdepartmental with Physiology and Radiology.
R: Graduate-professional students in colleges of Human 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 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 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.

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.
QA: ANT 813

814. Graduate Seminar
Spring of odd-numbered 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.
QA: ANT 814

820. Advanced Neuroanatomy
Summer of odd-numbered 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.
QA: ANT 820

839. Systems Neuroscience
Spring of even-numbered 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 even-numbered 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.
QA: ANT 885, ANT 886

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.

QA: ANT 899

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.

QA: ANT 999

ANIMAL SCIENCE ANS

Department of Animal Science
College of Agriculture and Natural Resources

110. Introductory Animal Agriculture
Fall. 3(2-2)
History of animal agriculture and its relationship to human needs, production systems, marketing, environmental considerations. Current goals of and limitations affecting U.S. animal production.
QP: ANS 211

112. Introductory Animal Management
Spring. 3(2-2)
P: ANS 110.
Principles of managing beef and dairy cattle, horses, poultry, sheep and swine throughout their life cycles. Topics include genetics, nutrition, reporduction, health, care, and economically efficient production.

210. Animal Products
Fall. 4(3-3)
P: ANS 112. R: Not open to freshmen.
Edible animal products. Processing, preservation, storage and distribution of dairy, meat, and egg products.
QP: ANS 110, ANS 211 QA: ANS 156, FSC 300

211. Animal and Product Evaluation
Spring. 3(1-6)
Fundamentals of animal and product evaluation. Skeletal and muscular anatomy of animals and its relation to function. oral and written defense of decisions regarding evaluation.

212. Merchandising Purebred Livestock
Spring of even-numbered years. 2(1-2)
R: Open only to sophomores, juniors, and seniors.
Purebred livestock industry. Private treaty and auction sales. Advertising, animal selection and budgeting of purebred livestock sales. Field trips required.
QA: ANS 318

262. Sheep Management
Spring. 3(2-2)
R: Open only to sophomores, juniors, and seniors.
Principles of sheep management: genetics, reproduction, nutrition, marketing, and economics. Field trips required.
QA: ANS 472

300A. Livestock Judging
Fall of even-numbered years. 2 credits.
P: ANS 211. R: Not open to freshmen.
Evaluation of conformation and performance records of beef cattle, swine and sheep. Represent MSU in intercollegiate competition. Field trips required.
QP: ANS 357A, ANS 357B QA: ANS 357C

300B. Meat Evaluation and Grading
Fall of odd-numbered years. 2 credits.
P: ANS 211. R: Not open to freshmen.
Evaluation of beef, pork, and lamb carcasses and wholesale cuts according to industry standards. Federal grading standards. Field trips to meat packing operations required. Represent MSU in intercollegiate competition.
QP: ANS 257A QA: ANS 257B