Descriptions—American Thought and Language of Courses

145. Writing: Men in America
Fall, Spring. 4(4-0)
P: Designed score on English placement test or ATL 1004; R: Not open to students with credit in MC 111, MC 112, LBS 123, ATL 119, ATL 120, ATL 125, ATL 130, ATL 140, ATL 150, ATL 159H.
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 123 QA: ATL 1154, ATL 1156, ATL X 120, ATL X 133

150. Writing: The Evolution of American Thought
Fall, Spring. 4(4-0)
P: Designed 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 159H, ATL 159H.
Drafting, revising, and editing compositions derived from American historical, social, and cultural texts to develop skills in narration, persuasion, analysis, and documentation.
QA: ATL X 120, ATL X 133, ATL 1154, ATL 1156

195H. Writing: Major Topics in American Thought
Fall, Spring. 4(4-0)
P: Designed 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 159H.
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 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 and 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 (1-0)
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, Spring. 3(2-0)
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(4-0) Interdepartmental with Physiology and Radiology
R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Correlation of nervous 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. 3 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: Only open to graduate-professional students in College of Veterinary Medicine.
Dissection and prosection of selected regions of domestic animals.

613. 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 513

814. Graduate Seminar
Spring of odd-numbered years. 1 to 3 credits.
R: Only open to graduate students in Anatomy.
Supervised practice in evaluating abstracts and delivering oral presentations on 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 nervous systems. Sensory, motor, autonomic, and chemo-regulatory systems in vertebrate brains.

885. Vertebrate Neural Systems
Spring of even-numbered years. 3(3-2)
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 6 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

Department of Animal Science
College of Agriculture and Natural Resources

110. Introductory Animal Agriculture
Fall. 3(2-2)
QP: ANS 211

112. Introductory Animal Management
Spring. 3(2-2)
P: ANS 110; 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 158, FSC 500

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

212. Marketing Purebred Livestock
Spring of even-numbered years. 3(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 freshmen.
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. Representative 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. Representative MSU in intercollegiate competition.
QP: ANS 257A QA: ANS 257B
300C. Dairy Cattle Judging  
Fall. 2 credits.  
P: ANS 311. R: Not open to freshmen.  
Evaluation of conformation of various breeds of dairy cattle. Represent MSU in intercollegiate competition. Field trips required.  
QP: ANS 211 QA: ANS 337  

300D. Horse Judging  
Fall. 2 credits.  
P: ANS 311. R: Not open to freshmen.  
QP: ANS 347A QA: ANS 347B  

310. Livestock and Product Marketing  
Fall, 3(2-2) Interdepartmental with Food Systems Economics and Management.  
P: ANS 112. R: Not open to freshmen.  
Movement of livestock and products into and through market channels. Market structures, futures, options. Current issues. Field trip required.  
QP: ANS 110, ANS 152 QA: ANS 138  

313. Principles of Animal Feeding and Nutrition  
Fall. 2 credits.  
P: BCH 110; PSL 250.  
QP: BCH 143, PSL 241 QA: ANS 313A, ANS 313B  

314. Genetic Improvement of Farm Animals  
Fall. 4(3-2)  
P: ANS 112, MTH 116.  
Qualitative and quantitative inheritance in domestic farm animals. Statistical concepts and probability related to animal breeding. Improvement of dairy cattle, livestock, and horses through genetics and mating systems. Temporary approval effective from Fall Semester 1992 through Fall Semester 1994.  
QP: ANS 110, MTH 109, MTH 110, MTH 111 QA: ANS 314  

315. Anatomy and Physiology of Farm Animals  
Spring. 4(3-2)  
P: ANS 112, PSL 250.  
QP: ANS 211, PSL 241 QA: ANS 315  

401. Issues in Animal Agriculture  
Spring. 3(2-2)  
P: ANS 313 or ANS 314 or ANS 315. R: Open only to juniors and seniors.  
Societal issues related to local, national and international animal agriculture.  
QP: ANS 313A, ANS 313B, ANS 314, ANS 315 QA: ANS 401  

405. Endocrinology of Reproduction  
Fall. 3(3-0)  
P: ANS 313. R: Not open to freshmen and sophomores.  
Endocrine regulation of reproduction, cellular and molecular aspects of gametogenesis, folliculogenesis, sexual cycles, fertilization, sex differentiation, gestation, and parturition.  
QP: PSL 241, BCH 200, BCH 401 QA: ANS 405  

407L. Toxicology Methods Laboratory  
Fall. 2(0-4) Interdepartmental with Food Science.  
P: ANS 407 or concurrently. R: Not open to freshmen and sophomores.  
Laboratory techniques for evaluating potential toxicity of chemicals to living systems. Field trip to industrial toxicology laboratories required.  
QP: ANS 413A QA: ANS 413B  

410. Critical Analysis of Issues in Animal Science  
Fall. 4(2-0)  
P: ANS 313 or ANS 314 or ANS 315. R: Open only to juniors and seniors.  
Traditional animal management practices and evolving technologies. Topics will vary each year.  
QP: ANS 313, ANS 314, ANS 315  

413. Non-Ruminant Nutrition  
Spring. 4(3-2)  
QP: ANS 313B QA: ANS 483, ANS 463  

414. Advanced Animal Breeding and Genetics  
Spring. 4(3-2)  
QP: ANS 314 QA: ANS 454, ANS 454  

415. Biology of Growth and Lactation  
Spring. 4(3-2)  
QP: ANS 315, BCH 200, BCH 401 QA: ANS 416, ANS 455  

416. Meat Science and Muscle Biology  
Fall. 2(0-0)  
QP: ANS 315 QA: ANS 456  

417. Topics in Toxicology  
Spring. 1(3-0) Interdepartmental with Food Science.  
P: ANS 407. R: Not open to freshmen and sophomores. Selected topics including regulatory toxicology, risk assessment, environmental toxicology, food safety, and safe handling of toxic substances.  
QP: ANS 413A QA: ANS 417  

422. Beef Cattle Management  
Fall. 3(3-0)  
QP: ANS 313B, ANS 314, ANS 315 QA: ANS 422  

423. Dairy Cattle Management  
Fall. 3(3-0)  
QP: ANS 313B, ANS 314, ANS 315 QA: ANS 432  

442. Horse Management  
Spring. 3(2-12)  
QP: ANS 412, ANS 313, ANS 314, ANS 315 QA: ANS 442  

455. Asian Physiology  
Spring. 4(3-19)  
P: ANS 315. R: Open only to juniors, seniors and graduate students.  
Systemic and comparative physiology of birds: respiration, reproduction, endocrinology, digestion, urination, and the senses.  
QP: ANS 315, PSL 241 QA: ANS 465  

472. Swine Management  
Fall. 3(2-2)  
QP: ANS 313B, ANS 313 QA: ANS 482  

480. Animal Systems in International Development  
Spring. 3(2-2)  
QP: ANS 313B, ANS 314, ANS 315 QA: ANS 488  

490. Independent Study  
Fall, Spring, Summer. 1 to 4 credits.  
A student may earn a maximum of 8 credits in all enrollments for this course.  
P: ANS 313 or ANS 314 or ANS 315. R: Open only to juniors and seniors. Approval of department; application required.  
Individually supervised in genetics, nutrition, physiology, toxicology, meat science, or management of poultry, livestock, or horses.  
QP: ANS 310, ANS 313B, ANS 314, ANS 315 QA: ANS 400  

498. Advanced Enterprise Management  
Spring. 3(2-2)  
P: ANS 312 or ANS 422 or ANS 432 or ANS 442 or ANS 472 or concurrently. R: Open only to seniors.  
Husbandry and business management skills applied to commercial livestock enterprise management. Goal-directed decisions and actions. Field trip required.  
QP: ANS 422, ANS 432, ANS 442, ANS 482  

499. Senior Thesis in Animal Science  
Fall, Spring, Summer. 3 to 9 credits.  
A student may earn a maximum of 9 credits in all enrollments for this course.  
P: ANS 313, ANS 314, ANS 315 R: Open only to seniors. Approval of department; application required.  
Maximum of 9 credits may be earned in ANS 490 and ANS 490.  
Individual studies in an area of choice with both oral and written final communications. Topic to be determined by student and guidance committee.  
QP: ANS 313B, ANS 314, ANS 315 QA: ANS 490
511. Animal Science for Veterinarians
Fall, 2(2-0)
R: Open only to graduate-professional students in the College of Veterinary Medicine.
Major subfields: management and management goals.
QA: ANS 511

512. Animal Nutrition for Veterinarians
Fall, 2(2-0)
R: Open only to graduate-professional students in the College of Veterinary Medicine.
Nutrition for domestic animals and wildlife. Comparative nutrient digestion and metabolism. Nutritional requirements for maintenance, growth, reproduction, lactation, and work.
QP: BCH 401 QA: ANS 525

810. Descriptions—Animal Science
Fall, 3(3-0)
Microbial ecology of gastrointestinal tract. Microbial role in nutrition, health, and productivity. Environmental applications. Livestock species emphasized.
QA: ANS 859

812. Research Techniques in Animal Nutrition and Metabolism
Fall of odd-numbered years, 3(1-4)
R: Open only to graduate students in Animal Science.
Nutrient analyses, digesta flow kinetics, and digestion-balance trials. Hormone analyses, tissue culture, enzyme assays, metabolic fluxes, tracer methodology, and nucleic acid isolation and analysis.
QA: ANS 852

890. Advancement Independent Study
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
R: Approval of department; application required. Investigation of topics of special interest.
QA: ANS 800, ANS 890

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 96 credits in all enrollments for this course.
R: Open only to master's students in Animal Science. Approval of department.
QA: ANS 899

943. Linear Models in Quantitative Genetics
Spring, 3(3-0)
P: STT 44. R: Open only to graduate students in College of Agricultural and Natural Resources.
Breeding values of livestock. Linear models to determine genetic basis of livestock performance. Computation of genetic parameters for livestock including variance, covariance, fixed and random factors. Best linear unbiased predictions.
QP: STT 425 QA: ANS 872, ANS 943

999. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 96 credits in all enrollments for this course.
R: Open only to doctoral students in Animal Science. Approval of department.
QA: ANS 999

ANTHROPOLOGY ANP

Department of Anthropology
College of Social Science

101. Introduction to Anthropology
Fall, Spring, Summer. 3(3-0)

201. Sociocultural Diversity
Fall, Spring, Summer. 3(3-0)
Origins and diversity of cultural systems. Theories of culture. Patterns of kinship, Religious, economic, and political institutions.
QA: ANP 171

202. Bio-cultural Evolution
Fall, Spring, Summer. 3(3-0)
QA: ANP 106

220. Gender Relations in Comparative Perspective
Fall, 3(3-0)
Gender relations in different cultures. Economic and domestic division of labor between the sexes as a factor underlying power differentials.
QA: ANP 282

264. Great Discoveries in Archaeology
Spring, 3(3-0)
Great discoveries and archaeology that have captured the public's imagination and shaped Western thought, from Olduvai Gorge and Stonehenge to Machu Picchu.
QA: ANP 284

270. Women and Health: Anthropological and International Perspectives
Fall, 3(3-0)
QA: ANP 230

280. The Anthropological Film
Spring, 2(2-0)
Ethnographic film as a record of vanishing cultures, as a tool for ethnological analysis, and as a source of perspectives on different cultures and variability within cultures.
QA: ANP 210

320. Social and Cultural Analysis
Fall, Spring, 4(4-0)
P: ANP 101 or ANP 201
Major theoretical traditions of cultural anthropology. Functionalism, symbolism, structuralism, and contemporary developments.
QA: ANP 171 QA: ANP 221

321. Anthropology of Social Movements
Fall, 3(3-0)
P: ANP 101 or ANP 201
How social movements within different cultures around the world function, create, or impede change on the basis of class, religion, race, ethnicity, language, and territory.
QA: ANP 171, ANP 221 QA: ANP 388

332. Peasanias and Social Change in the Developing World
Spring, 2(2-0)
P: ANP 101, ANP 201
Cross-cultural perspectives on patterns and variations in peasant systems worldwide. Social mechanisms with which they respond to change.
QA: ANP 171, ANP 221 QA: ANP 350

340. Introduction to Physical Anthropology
Spring, 4(3-2)
P: ANP 101 or ANP 202
Problems, data, and methods of physical anthropology. Human genetics, hominid evolution, primate studies, human osteology, and human diversity. Field trips at the student's expense may be required.
QA: ANP 100 QA: ANP 348

360. Introduction to Archaeology
Fall, 3(3-0)
Theory, methodology, and techniques of archaeology. Applications to questions about past human behavior. History and concepts of archaeology as an anthropological subspecialty.
QA: ANP 106, ANP 264 QA: ANP 263

361. Paleolithic Archaeology
Fall, 3(3-0)
P: ANP 101 or ANP 264 or ANP 360
Stone Age archaeology from the dawn of tool making to the specialized hunters and cave artists of the late Ice Age.
QP: ANP 100, ANP 263, ANP 264 QA: ANP 454

362. Evolution of Agrarian Society
Spring, 3(3-0)
P: ANP 101 or ANP 262 or ANP 264 or ANP 360
R: Not open to freshmen and sophomores.
Food production as adaptive strategy. Archaeological evidence for the appearance and development of food production in prehistory. Theories, problems, and issues in the study of food production evolution.
QP: ANP 100, ANP 263, ANP 264 QA: ANP 453

363. Rise of Civilization
Spring, 3(3-0)
P: ANP 101 or ANP 360
Archaeological evidence for the appearance and development of the world's earliest prehistoric civilizations. The nature of complex societies and the comparative evolution of states.
QP: ANP 100, ANP 263, ANP 264 QA: ANP 353

370. Culture, Health, and Illness
Spring, 3(3-0)
P: ANP 101 or ANP 201 or ANP 202 or ANP 270
Cross-cultural perspectives on the definition and treatment of illness.
QP: ANP 171, ANP 200, ANP 221, ANP 239 QA: ANP 356

410. Revolution and Social Change in Latin America
Fall of even-numbered years, 3(3-0)
P: ANP 101 or ANP 201. R: Not open to freshmen and sophomores.
Comparative examination of sociocultural changes leading to and created by major revolutions in Latin America.
QP: ANP 171, ANP 221

411. North American Indian Ethnography
Spring of even-numbered years, 3(3-0)
P: ANP 101 or ANP 201.
Social and cultural patterns of North American Indian societies. History, economy, politics, social organization, religion, and social change.
QP: ANP 171, ANP 221 QA: ANP 421

412. Social and Cultural Status of Latinos in the U.S.
Spring of odd-numbered years, 3(3-0)
P: ANP 101 or ANP 201 or SOC 101. R: Not open to freshmen and sophomores.
Social and cultural history of Chicano, Puerto Rican, Cuban, and Central Americans in the United States and their contributions to American society.
QP: ANP 171, ANP 221, SOC 241

413. Cultures of Southeast Asia
Spring of odd-numbered years, 3(3-0)
P: ANP 101 or ANP 201.
Southeast Asian peoples, cultures, and nations. Tropcal forest and sea trading adaptations. Recent social change.
QP: ANP 171, ANP 221 QA: ANP 411

414. Anthropology of South Asia
Fall of even-numbered years, 3(3-0)
P: ANP 101 or ANP 201.
Anthropology of India, Pakistan, Nepal, Bangladesh, and Sri Lanka. Religion, social organization, village life, urban structures, economic organization, history, and social change.
QP: ANP 171, ANP 221, ANP 275 QA: ANP 411

415. China: Culture and Society
Fall of odd-numbered years, 3(3-0)
P: ANP 101 or ANP 201.
Socioeconomic and cultural continuity and change from traditional civilization to the contemporary society and the communist period. Village and urban society and their relationships.
QP: ANP 171, ANP 221, ANP 275 QA: ANP 412