546. Musculoskeletal Diseases  
Spring, 5(5-0)  
P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 582 or VM 592. Musculoskeletal diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

547. Respiratory Diseases  
Spring, 3(3-0)  
P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 574. Respiratory diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

552. Veterinary Integrative Problem Solving  
Fall, 3(3-3)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. Integration of subject matter from concurrent and previous semester courses.

553. Theriogenology and Urinary Diseases  
Fall, 3(2-2)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 540 or VM 580. Urogenital diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

554. Hematological, Oncological and Dermatological Diseases  
Fall, 3(3-0)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 563 or VM 564. Hematological, oncological and dermatological diseases of domestic animals. Pathogenesis, clinical presentation, diagnosis and treatment.

555. Neurological and Ophthalmological Diseases  
Fall, 3(3-0)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 564 or VM 566. Neurological and ophthalmological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

556. Digestive, Metabolic and Endocrinological Diseases  
Fall, 3(3-0)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 566 or VM 568. Digestive, metabolic, and endocrinological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

557. Operative Surgery  
Fall, 2(2-0)  
P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in VM 568 or VM 599. Soft tissue and orthopedic surgery of domestic animals: preoperative evaluation, surgery, and postoperative care.

611. Veterinary Euthanasia  
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
R: Completion of 5 semesters of the graduate-professional program in the College of Veterinary Medicine. Clinical or research experience in an off-campus setting.

690. Special Problems in Veterinary Medicine  
Fall, Spring. 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. Individual study directed by a faculty member on an experiential, theoretical, or applied problem. May involve off-campus experience in a preceptorial mode.

818. The Epidemiology of Zoonotic Diseases  
Spring of odd-numbered years. 3(3-0) Interdepartmental with Human Medicine. Administered by Human Medicine.  
P: HM 810. R: Open only to master’s students in Epidemiology or approval of college. Human susceptibility to diseases of animals. Modes of transmission, surveillance, and strategies for prevention of specific zoonotic diseases.

WOMEN'S STUDIES  
WS  
Women's Studies Program  
College of Arts and Letters  
College of Social Science

201. Introduction to Women's Studies  
Fall, Spring. 4(4-0)  
Diversity of women's situations in social, cultural, historical and international contexts. Focus on women as victims of oppression and as agents. Concepts basic to feminist thought: gender systems, patriarchy.

202. Introduction to Contemporary Feminist Theories  
Fall, 3(3-0)  
P: WS 201 or approval of program. R: Not open to freshmen. Contemporary feminist theories of patriarchy, oppression, liberation, sexuality, and the meaning of "woman." Influences of liberalism, Marxism, Freud. Intersections of sex, race, class, and ethnicity. Theories by women of color.

203. Bibliographic Methods for Women's Studies Research  
Fall of even-numbered years. 3(3-0)  
P: Completion of Tier I writing requirement. Women's studies as interdisciplinary knowledge. Bibliographic and reference sources, library organization of information, research problems.

204. Lesbian, Bisexual, and Gay Studies: Psychological and Cultural Issues  
Spring. 3(3-0) Interdisciplinary with Psychology.  

205. Sexual Violence Against Women and Children: Theory and Response  
Spring. 3(3-0)  

302. Jewish Women's Experiences and Writings  
Spring. 3(3-0)  

400. Women in Classical Greek Society  
Fall. 3(3-0) Interdepartmental with Classical Studies. Administered by Classical Studies.  
R: Not open to freshmen and sophomores. Images, roles, and statuses of women in Greek society as seen through literary sources.

401. Feminist Theory  
Spring. 4(4-0)  

403. Women and Change in Developing Countries  
Spring. 3(3-0)  
P: WS 201, WS 202 or WS 203. R: Not open to freshmen and sophomores. Effects of economic, political, and social change on women in developing countries. Interrelationships of gender, class, race, and nationality.

404. Women and the Law in the United States  
Spring. 3(3-0)  
P: WS 201, WS 202 or WS 203. R: Not open to freshmen and sophomores. Law in the United States as a vehicle for structuring and maintaining women's social roles, and for social change.

405. Feminist Analyses of Education in the United States  
Fall. 3(3-0) Interdepartmental with Teacher Education.  
P: WS 201; WS 202 or WS 203. R: Not open to freshmen and sophomores. Feminist perspectives on the role of gender in structuring educational experiences in elementary and secondary school.

420. History of Sexuality since the 18th Century  
Fall, Spring. 3(3-0) Interdepartmental with History. Administered by History.  
R: Not open to freshmen and sophomores. Changes in sexual attitudes and practices since 18th century. Development of the concept of sexuality. Primary focus on Germany, France and England.

425. Women and Criminal Justice  
Spring of even-numbered years. 3(3-0) Interdepartmental with Criminal Justice. Administered by Criminal Justice.  
P: CJ 220 or WS 201. R: Only to juniors in Criminal Justice and Women's Studies. Theories on women's victimization and criminality. Women's experiences as victims, offenders, and criminal justice employees. Laws and their effects on the rights of women in the criminal justice system.
453. Women and Work: Issues and Policy Analysis

482. Theory and Practice of Feminist Literary Criticism
   Spring, 3(3-0) Interdepartmental with English. Administered by English.
   P: ENG 353 or WS 202. R: Not open to freshmen and sophomores. Open only to students in English and Women's Studies, and to students in English teaching majors.
   Feminist literary critical theory and its implications for reading and studying literature.

490. Independent Study
   Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
   P: WS 201; WS 202 or WS 203. R: Open only to juniors and seniors; approval of program.
   Individual reading and research on women and gender.

491. Special Topics
   Spring. 3 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
   P: WS 201; WS 202 or WS 203. R: Not open to freshmen and sophomores.
   In-depth study of special topic emphasizing women and gender.

492. Women's Studies Senior Seminar
   Spring. 4(4-0)
   P: WS 201, WS 203, WS 301 or WS 302. R: Not open to freshmen and sophomores. Required reading or research by central to women's studies. Current areas of interest and research in feminist scholarship.

493. Internship
   Fall, Spring, Summer. 2 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
   P: WS 201; WS 202 or WS 203. R: Not open to freshmen and sophomores. Approval of program.
   Internship with feminist knowledge through work experience related to women's concerns. Experience in legislative, community, or educational settings.

490. Individual Reading
   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 program.
   Faculty-supervised graduate level reading in special topics.

ZOOLOGY

Department of Zoology
College of Natural Science

141. Introductory Human Genetics
   Spring, 3(3-0)
   R: Not open to students in Biochemistry, Botany, Entomology, Medical Technology, Clinical Laboratory Sciences, Physiology, Zoology, Microbiology or Interdepartmental Biological Science or to students in the corresponding Lyman Briggs School coordinate majors or to students in the Lyman Briggs School Biology Field concentration. Not open to students with credit in ZOL 341 or ZOL 344.

306. Vertebrate Biology
   Fall, 3(3-3)
   P: BS 110
   Systematics, morphology, and natural history of vertebrate animals. Identification of live and preserved specimens. Recognition of selected groups.

313. Animal Behavior
   Fall, 3(3-3)
   P: BS 110, BS 111 or BS 144, LBS 145. R: Not open to freshmen. Mechanisms and evolution of behavior (ethology).
   SA: ZOL 213

316. General Parasitology
   Spring, 2(0-4)
   P: BS 110, BS 111 or LBS 145.
   Identification, life history, host-parasite relationships, and epidemiology of protozoa, helminths, acanthocephalans, copepods, and arthropod parasites of animals and humans.

316L General Parasitology Laboratory
   Spring, 1(0-3)
   P: BS 110, BS 111 or LBS 145, C: ZOL 316.
   Laboratory diagnosis of protozoa, helminths, acanthocephalans, copepods, and arthropods that infect humans and animals. Animal necropsy.

320. Developmental Biology
   Fall, 4(3-3)
   P: BS 110, BS 111 or LBS 144, LBS 145.
   Principles of development, emphasizing vertebrates. Illustrations from morphological and experimental investigations.
   SA: ZOL 220

323. Comparative Anatomy and Biology of Vertebrates
   Spring, 4(3-3)
   P: BS 110 or LBS 144.
   Comparative morphology and natural history of vertebrates. Dissection of representatives of most vertebrate classes.
   SA: ZOL 222

331. Vertebrate Life of the Past
   Spring, 3(3-0) Interdepartmental with Geological Sciences. Administered by Geological Sciences.
   P: BS 110 or BS 111 or juniors and above. R: Not open to Zoology majors. Not open to students with credit in GLG 433.
   Evolution and diversity of fossil vertebrates from fish to humans with emphasis on dinosaurs and Pleistocene events.

341. Fundamental Genetics
   Fall, Spring, Summer. 4(4-0) Interdepartmental with Botany and Plant Pathology.
   P: BS 110 or LBS 144.
   Principles of heredity in animals, plants and microorganisms. Formal and molecular methods in the study of gene structure, transmission, expression and evolution.

342. Advanced Genetics
   Spring, 3(3-0)
   P: ZOL 341.
   Advanced topics in classical and molecular genetics including various forms of genetic mapping.

343. Genetics Laboratory
   Spring, 2(0-4)
   P: ZOL 341 or concurrently.
   Experiments involving genetics of Drosophila and other eucaryotic organisms.

344. Human Genetics
   Spring, 3(3-0)
   P: ZOL 341. R: Not open to freshmen.

350. Histology
   Fall, 4(3-3)
   P: BS 111 or LBS 145.
   The structure of cells and their interactions to form tissues.

353. Marine Biology
   Fall of even-numbered years. 4(4-0)
   P: BS 110; BOT 250 or ZOL 250 or ZOL 305.

355. Ecology
   Fall, 4(3-3) Summer. 4 credits. Given at W.K. Kellogg Biological Station. Interdepartmental with Botany and Plant Pathology.
   P: BS 110 or LBS 144. R: Completion of Tier I writing requirement.
   Plant and animal ecology. Interrelationships of plants and animals with the environment. Principles of population, community, and ecosystem ecology. Application of ecological principles to global sustainability.
   SA: ZOL 250

360. Biology of Birds
   Spring, 4(3-3) Summer. 4 credits. Given at W.K. Kellogg Biological Station.
   P: BS 110 or LBS 144.
   The behavior, ecology, evolution, and systematics of birds with emphasis on biodiversity. Laboratories emphasize diversity of form and function, life history patterns, and identification.

365. Biology of Mammals
   Fall, 4(3-3)
   P: BS 110 or LBS 144.
   Analysis of the behavior, ecology, evolution, and systematics of mammals. Laboratories emphasize diversity of form and function, life history patterns, and identification. Field trips required.

384. Biology of Amphibians and Reptiles
   Fall of odd-numbered years. 3(3-3) Summer of even-numbered years. 3 credits. Given at W.K. Kellogg Biological Station.
   P: ZOL 228.
   Biology of amphibians and reptiles. Laboratory emphasis on diversity and on Michigan species. Field trips required.