984. **Planning Practicum**  
Fall: 4(0-5) P: UP 801, UP 823, UP 863 R: Open only to second-year master’s students in the Urban and Regional Planning major.  
Professional practice in the collection, analysis and synthesis of information by students or student groups under faculty supervision. Developing solutions to specific urban problems.  
SA: UP 894A, UP 894B

985. **Research Writing Seminar**  
Fall: 2(2-0) R: Open only to second-year master’s students in the Urban and Regional Planning major.  
Research writing and presentation methods.

986. **Master’s Thesis Research**  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: UP 897 or concurrently. R: Approval of department.

**VETERINARY MEDICINE**  
VM

**College of Veterinary Medicine**

101. **Veterinary Medicine in Society**  
Spring. 1(1-0)  
Role of the veterinary profession in animal and human health. Impact of veterinary medicine on society.

200. **Veterinary Systems Biology and Medical Science I**  
Spring, 7(5-4) P: CEM 141, MTH 110. R: Approval of college.  
Multidisciplinary approach to the musculoskeletal system of animals. Integration of anatomy, physiology, pathophysiology, pharmacology, and nursing care of animals. Techniques of restraint. Patient management. Medical record keeping.

201. **Veterinary Systems Biology and Medical Science II**  
Spring, 7(5-4) P: CEM 141, MTH 110. R: Approval of college.  
Multidisciplinary approach to the hematopoietic and cardiovascular systems of animals. Integration of anatomy, physiology, pathophysiology, pharmacology, and nursing care related to health and disease.

202. **Special Studies in Veterinary Medicine**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of college.  
Directed individual study by a faculty member on an experimental, theoretical or applied problem. May involve a supervised off-campus experience.

301. **Veterinary Systems Biology and Medical Science IV**  
Fall, 7(5-4) P: VM 200, VM 201. R: Open only to students in Veterinary Technology. Completion of Tier I writing requirement. Approval of college.  
Multidisciplinary approach to the musculoskeletal and endocrine systems of animals. Integration of anatomy, physiology, pathophysiology, pharmacology, and nursing care related to health and disease.

302. **Veterinary Systems Biology and Medical Science V**  
Spring, 7(5-4) P: VM 300, VM 301. R: Open only to students in Veterinary Technology. Completion of Tier I writing requirement. Approval of college.  
Multidisciplinary approach to the gastrointestinal and integumentary systems of animals. Integration of anatomy, physiology, pathophysiology, pharmacology, and nursing care related to health and disease.

303. **Anesthesiology for Veterinary Technicians**  
Spring, 2 credits. P: VM 300, VM 301. R: Open only to students in Veterinary Technology. Approval of college.  
Pharmacologic action of preanesthetic and anesthetic drugs. Principles and techniques of induction, maintenance, monitoring, and recovery of the patient. Human methods of euthanasia. Offered half of semester.

304. **Radiology for Veterinary Technicians**  
Spring, 2 credits. P: VM 300, VM 301. R: Open only to students in Veterinary Technology. Approval of college.  
Fundamentals of radiology. Production of x-rays, components of the x-ray machine, use of screens and grids, handling film, imaging quality, film processing, patient positioning, and radiation safety. Offered half of semester.

369. **Introduction to Zoo and Aquarium Science**  
Spring, 3(3-0) Interdepartmental with Zoology; Landscape Architecture; Fisheries and Wildlife; and Park, Recreation and Tourism Resources. Administered by Zoology. P: (BS 110 or LBS 144 or LBS 148H)  
Fundamentals of zoo and aquarium operations including research, interpretation, design, nutrition, captive breeding, conservation, ethics and management.

400. **Laboratory Animal Technology**  
Fall, 2(2-0) P: VM 300, VM 301, VM 302. R: Open only to seniors in Veterinary Technology. Approval of college.  
Animal husbandry, nutrition, preventative medicine, and medical management of common laboratory animals. Pathophysiology of selected diseases.

401. **Clinical and Anatomic Pathology for Veterinary Technologists**  
Fall, 2(1-2) P: VM 300, VM 301, VM 302. R: Open only to seniors in Veterinary Technology. Approval of college.  
Advanced cytologic techniques encompassing sample collection, processing, and evaluation. Necropsy procedures including history collection, lesion description, specimen submission, and client education concerning necropsy reports.

402. **Hospital Practice Management for Veterinary Technologists**  
Spring, 3(3-0) R: Open only to seniors in Veterinary Technology. Approval of college.  
Veterinary practice economics, personnel management, inventory control, and marketing techniques. Lecture material is reinforced through the utilization of computerized models.

403. **Companion Animal Nutrition and Behavior for Veterinary Technologists**  
Spring, 2(2-0) P: VM 300, VM 301, VM 302. R: Open only to seniors in Veterinary Technology. Completion of Tier I writing requirement. Approval of college.  
Nutritional, management of healthy and diseased canine and feline patients. Normal canine and feline behavior, behavioral abnormalities, and behavioral modification.

404. **Equine and Food Animal Nutrition and Husbandry**  
Spring, 3(3-0) R: Open only to seniors in Veterinary Technology. Completion of Tier I writing requirement. Approval of college.  
Comparative nutrition, feeding behaviors, and husbandry as applied to equine and food animal patients. Individual and herd information.

410. **Veterinary Technology Clerkship in Anesthesiology**  
Fall, Spring, Summer. 3 credits. P: VM 300, VM 303, VM 304. R: Approval of college.  
Application of principles and techniques in anesthesiology.

411. **Veterinary Technology Clerkship in Radiology**  
Fall, Spring, Summer. 3 credits. P: VM 300, VM 303, VM 304. R: Approval of college.  
Application of principles and techniques in radiology.

412. **Veterinary Technology Clerkship in Companion Animal Medicine**  
Fall, Spring, Summer. 3 credits. P: VM 300, VM 303, VM 304. R: Approval of college. Application of principles and techniques in restraint, examination, nursing care, monitoring, and preventative medicine of companion animals.

413. **Veterinary Technology Clerkship in Companion Animal Surgery**  
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college.  
Application of principles and techniques in surgical nursing.

414. **Veterinary Technology Clerkship in Equine Medicine and Surgery**  
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college.  
Application of principles and techniques in equine medicine and surgery.

450. **Veterinary Technology Clerkship in Emergency Medicine**  
Fall, Spring, Summer. 3 credits. P: VM 412. R: Approval of college.  
Application of principles and techniques in emergency medicine.
Descriptions—Veterinary Medicine
of Courses

451. Veterinary Technology Clerkship in Cardiology
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in cardiology.

452. Veterinary Technology Clerkship in Neurology
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in neurology and physical therapy.

453. Veterinary Technology Clerkship in Ophthalmology
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in ophthalmology.

454. Veterinary Technology Clerkship in Critical Care
Fall, Spring, Summer. 3 credits. P: VM 412. R: Approval of college. Application of principles and techniques in critical care.

460. Veterinary Technology Clerkship in Equine Anesthesiology
Fall, Spring, Summer. 3 credits. P: VM 410, VM 414. R: Approval of college. Application of principles and techniques in equine anesthesiology.

461. Veterinary Technology Clerkship in Equine Field Service
Fall, Spring, Summer. 3 credits. P: VM 414. R: Approval of college. Application of principles and techniques in equine field service.

462. Veterinary Technology Clerkship in Advanced Equine Medicine and Surgery
Fall, Spring, Summer. 3 credits. P: VM 414. R: Approval of college. Application of principles and techniques in equine medicine and surgery.

470. Veterinary Technology Clerkship in Food Animal Medicine
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in food animal medicine.

471. Veterinary Technology Clerkship in Production Medicine
Fall, Spring, Summer. 3 credits. P: VM 470. R: Approval of college. Application of principles and techniques in production medicine.

472. Veterinary Technology Clerkship in Food Animal Anesthesiology
Fall, Spring, Summer. 3 credits. P: VM 410, VM 470. R: Approval of college. Application of principles and techniques in food animal anesthesiology.

480. Veterinary Technology Clerkship in Clinical Pathology
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in clinical pathology.

481. Veterinary Technology Clerkship in Microbiology
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in microbiology.

482. Veterinary Technology Clerkship in Necropsy
Fall, Spring, Summer. 3 credits. P: VM 302, VM 303, VM 304. R: Approval of college. Application of principles and techniques in post mortem examination of common domestic species with emphasis on specimen description, collection, and submission.

483. Veterinary Technology Clerkship in Biomedical Research
Fall, Spring, Summer. 0(0-34) A student may earn a maximum of 12 credits in all enrollments for this course. P: VM 400. R: Approval of college. Application of principles and techniques in biomedical research involving laboratory animals.

484. Veterinary Technology Clerkship in Zoo and Wildlife Medicine
Fall, Spring. 3(2-3) R: Open only to seniors in Veterinary Technology. Approval of college. Application of principles and techniques in zoo and wildlife medicine.

485. Veterinary Technology Clerkship in Special Problems
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: VM 300, VM 301, VM 302. R: Open only to seniors in Veterinary Technology. Approval of college. Application of principles and techniques in experimental, therapeutic, or laboratory medicine.

511. Veterinary Perspectives I
Fall, 2(1-2) R: Open only to graduate-professional students in College of Veterinary Medicine. Animal handling, restraint, and physical examination.

512. Veterinary Integrative Problem Solving I
Fall, 1(1-0) R: Open only to graduate-professional students in College of Veterinary Medicine. Integration of subject material from concurrent semester courses.

521. Veterinary Perspectives II
Spring, 2(2-0) R: Open only to graduate-professional students in College of Veterinary Medicine. Not open to students with credit in VM 590. Veterinary medical history and ethics. Client communication and animal behavior.

522. Veterinary Integrative Problem Solving II
Spring, 3(3-0) R: Open only to graduate-professional students in College of Veterinary Medicine. Integration of subject material from concurrent and previous semester courses.

532. Veterinary Integrative Problem Solving III
Fall, 3(1-4) R: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Integration of subject material from concurrent and previous semester courses.

533. Veterinary Epidemiology
Fall, 3(3-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 549. Basic epidemiologic theory and study design. Veterinary descriptive and inferential biostatistics. Production veterinary medicine.

541. Veterinary Perspectives III
Spring, 2(2-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 602. Concepts and principles of veterinary practice management.

542. Veterinary Integrative Problem Solving IV
Spring, 3(2-3) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Integration of subject material from concurrent and previous courses.

543. Cardiovascular Diseases
Spring, 2(2-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Cardiovascular diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

544. Veterinary Public Health
Spring, 2(2-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Veterinary environmental and occupational and public health. Milk and meat hygiene. Control of zoonotic diseases.

545. Principles of Anesthesia and Surgery
Spring, 4(3-2) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 570 or VM 578. Administering anesthetic agents. Fundamentals of surgery: sterile technique, tissue handling, suture patterns, wound healing, postoperative care.

546. Musculoskeletal Diseases
Spring, 3(5-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. 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, 2(2-0) P: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 574. Respiratory diseases of domestic animals. Pathogenesis, diagnosis, and treatment.
552. Veterinary Integrative Problem Solving V  
Fall. 3(2-3) P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. 
Integration of subject material from concurrent and previous semester courses.

553. Theriogenology and Urinary Diseases  
Fall, 3(4-2) P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 560 or VM 561. 

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. Not open to students with credit in VM 562 or VM 563. 
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. Not open to students with credit in VM 563 or VM 564. 
Neurological and ophthalmological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

556. Digestive, Metabolic and Endocrinological Diseases  
Fall, 5(5-0) P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 540 or VM 576 or VM 586. 
Digestive, metabolic, and endocrinological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

557. Operative Surgery  
Fall, 2(1-3) P: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in VM 578 or VM 588 or VM 598. 
Soft tissue and orthopedic surgery of domestic animals: preoperative evaluation, surgery, and postoperative care.

611. Veterinary Externship  
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Completion of 3 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 experimental, theoretical, or applied problem. May involve off campus experience in a preceptorial mode.

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

WOMEN'S STUDIES  

Women's Studies Program  
College of Arts and Letters  
College of Social Science

201. Introduction to Women's Studies  
Fall, Spring, Summer. 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) 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.

301. Sexual Violence Against Women and Children: Theory and Response  
Spring, 3(3-0) P: (WS 201 Or WS 202 Or WS 203) R: Not open to freshmen. 
Sexual violence against women and children from theoretical and applied perspectives. Rape, battering, incest and sexual harassment. Intersection of race, class, gender and violence. Individual and collective strategies to prevent or deter assault, race, class, gender and violence.

321. Lesbian Cultures and Identities  
Fall of even years. 3(3-0) P: (WS 201 Or WS 202) R: Not open to freshmen. 

400. Women in Classical Greek Society  
Spring of odd years. 3(3-0) Interdepartmental with Classical Studies. Administered by Classical Studies. R: Not open to freshmen or sophomores. 
Image, role, and status of women in Greek society as seen through literary sources.

401. Feminist Theory  
Spring, 4(4-0) P: (WS 201 and WS 202) R: Not open to freshmen or sophomores. 

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

Women's Studies—Descriptions of Courses