889 Master's Research
Fall, Spring, Summer. 3 credits. RB: (UP 897 or concurrently) R: Open only to master's students in the Urban and Regional Planning major. Approval of department. Supervised individual research for Plan B master's program.

890 Independent Study
Fall, Spring. 2 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Faculty-supervised study in aspects of urban planning.

893 Internship in Urban Planning
Fall, Spring, Summer. 2 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Supervised individual experience in approved agencies and departments in the Lansing area.

894 Planning Practicum
Fall. 4(0-8) RB: (UP 801 and UP 823 and UP 865) R: Open only to second-year master's students in the Urban and Regional Planning major. SA: UP 854A, UP 854B
Professional practice in the collection, analysis and synthesis of information by students or student groups under faculty supervision. Developing solutions to specific urban problems.

897 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.

899 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. RB: (UP 897) or concurrently. R: Approval of department. Master's thesis research.

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.

110 Veterinary Medical Terminology
Fall. 1(1-0) R: Open only to Veterinary Technology majors. Veterinary medical terminology, focusing on fundamental recognition, interpretation and usage of medical terms.

120 Applied Biochemistry and Nutrients for Veterinary Technicians
Fall. 2(2-0) R: Open only to Veterinary Technology majors. Basic fundamentals of cell structure and metabolism. Energy metabolism, nutrients and nutrient requirements of common domestic species.

130 Comparative Anatomy for Veterinary Technicians
Fall. 2(1-2) R: Open only to Veterinary Technology majors. Gross anatomy of the common animal species encountered in veterinary medicine. Overview of the functional anatomy of the musculoskeletal, digestive, cardiovascular, cutaneous, respiratory, urogenital, nervous, and endocrine systems and the special senses.

140 Pharmacology for Veterinary Technicians
Fall. 2(2-0) R: Open only to Veterinary Technology majors. Fundamentals of characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations.

150 Hospital Procedures and Communication
Spring. 2(2-0) P: (VM 110 and VM 140) R: Open only to Veterinary Technology majors. Development of various modalities of professional and client communication skills.

155 Veterinary Technology Careers and Professional Development
Fall. 1(1-0) R: Open only to Veterinary Technology majors. Career options in veterinary technology, discussion of professional, ethical and legal considerations. Portfolio development, resume and cover-letter writing skills.

160 Small Animal Nursing Skills
Spring. 2(1-3) P: (VM 110 and VM 130 and VM 140) R: Open only to Veterinary Technology majors. Small animal nursing including principles of restraint, physical examination, medical management techniques, and behavior of common companion animals. Recognition of common canine and feline breeds.

165 Large Animal and Laboratory Animal Nursing Care Techniques
Fall. 2(1-2) P: (VM 110 and VM 130 and VM 140) R: Open only to Veterinary Technology majors. Fundamentals of the handling of equine, food animal and laboratory animal species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species.

170 Hematology and Immunology for Veterinary Technicians
Spring. 2(2-0) P: (VM 110 and VM 120) R: Open only to Veterinary Technology majors. C: VM 175 concurrently. Structure and function of normal blood cells, cellular and humoral immunity, mechanisms of hemostasis, blood group serology, transfusion medicine and vaccinology.

175 Clinical Pathology Laboratory I for Veterinary Technicians
Spring. 1(0-2) P: (VM 110 and VM 120) R: Open only to Veterinary Technology majors. C: VM 170 concurrently. Veterinary clinical pathology laboratory including diagnostic procedures in hematology, serology and ELISA methodology.

176 Clinical Pathology Laboratory II for Veterinary Technicians
Fall. 1(0-2) P: (VM 175 and VM 170) R: Open only to Veterinary Technology majors. Comprehensive veterinary clinical pathology laboratory, including diagnostic procedures in urology, dermatology, cytology, and advanced methods in hematology.

210 Surgical Nursing for Veterinary Technicians
Fall. 2(2-0) P: (VM 160) R: Open only to Veterinary Technology majors. C: VM 215 concurrently, VM 303 concurrently. Role of the veterinary technician as a member of the veterinary surgical team.

215 Surgical Nursing and Anesthetic Management Laboratory
Fall. 1(0-4) R: Open only to Veterinary Technology majors. C: VM 210 concurrently. Principles and techniques in veterinary surgical nursing and anesthesia.

245 Parasitology for Veterinary Technicians
Spring. 2(1-2) P: (VM 140 and VM 175) RB: (VM 250) R: Open only to Veterinary Technology majors. Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control.

250 Veterinary Comparative Clinical Physiology
Spring. 5(5-0) P: (VM 110 and VM 120 and VM 130) R: Open only to Veterinary Technology majors. Function, regulation and integration of organs and organ systems of common domestic species. Concepts with clinical relevance.

255 Small Animal Diseases and Management
Fall. 3(3-0) P: (VM 160 and VM 170 and VM 250) R: Open only to Veterinary Technology majors. Pathophysiology, transmission, diagnostic process, clinical management and prevention of canine and feline diseases.

265 Dentistry Techniques for Veterinary Technicians
Spring. 1(0-4) P: (VM 215) R: Open only to Veterinary Technology majors. Veterinary dental techniques and oral cavity assessment for companion animals.

270 Health Care Development for Veterinary Technicians
Spring. 1(0-3) P: (VM 210 and VM 215 and VM 250) R: Open only to Veterinary Technology majors. Service-oriented approach to the health care development in an operational animal care facility.

275 Large Animal Diseases and Management
Spring. 3(3-0) P: (VM 165 and VM 170 and VM 250) R: Open only to Veterinary Technology majors. Diseases, husbandry, preventative health care and client education for equine and food animal species.

285 Clinical Nutrition for Veterinary Technologists
Fall. 1(1-0) P: (VM 250) R: Open only to Veterinary Technology majors. Nutritional assessment and management of common domestic species in veterinary medicine.
Veterinary Medicine—VM

290 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: Open only to Pre-Veterinary and Veterinary Technology majors.
Faculty-directed individual study on an experimental, theoretical or applied problem. May involve a supervised off-campus experience.

295 Biomedical Research and Regulatory Issues for Veterinary Technologists
Fall. (1-1-0) P: (VM 150) R: Open only to Veterinary Technology majors.
Principles and techniques of biomedical research, governance and regulation of animal care and use.

303 Anesthesiology for Veterinary Technicians
Fall. 2(2-0) P: (VM 140 and VM 250) R: Open only to Veterinary Technology majors.
C: VM 215 concurrently, VM 210 concurrently.

306 Radiology for Veterinary Technicians
Spring. 2(2-0) P: (VM 110 and VM 130) R: Open only to Veterinary Technology majors.
Production of radiographs, components of the x-ray machine, use of screens and grids, handling film, imaging quality, film processing, patient positioning, and radiation safety.

305 Hospital Practice Management for Veterinary Technologists
Spring. 2(2-0) P: (VM 150 and VM 155) R: Open only to Veterinary Technology majors.
Veterinary practice economics, personnel management, inventory control and marketing techniques.

310 Advanced Clinical Pathology Techniques
Spring. 2(2-0) P: (VM 175 and VM 176) R: Open only to Veterinary Technology majors.
Advanced cytologic techniques including sample collection, processing and evaluation.

369 Introduction to Zoo and Aquarium Science
Spring. 3(3-0) Interdepartmental with Zoology; Landscape Architecture; Fisheries and Wildlife. Administered by Department of 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.

410 Veterinary Technology Clerkship in Anesthesiology
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in anesthesiology.

411 Veterinary Technology Clerkship in Radiology
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in radiology.

412 Veterinary Technology Clerkship in Companion Animal Medicine
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Open only to Veterinary Technology Majors who have completed the preclinical coursework.
Application of principles and techniques in restraint, examination, nursing care, monitoring, and preventive medicine of companion animals.

413 Veterinary Technology Clerkship in Companion Animal Surgery
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in surgical nursing.

414 Veterinary Technology Clerkship in Equine Medicine and Surgery
Fall, Spring, Summer. 3 credits. P: (VM 415) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in equine medicine and surgery.

415 Veterinary Technician Clerkship in Food Animal and Equine Medicine and Surgery
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in food animal and equine medicine and surgery.

450 Veterinary Technology Clerkship in Emergency Medicine
Fall, Spring, Summer. 3 credits. P: (VM 412) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in emergency medicine.

451 Veterinary Technology Clerkship in Necropsy
Fall, Spring, Summer. 3 credits. P: (VM 412) R: (VM 410 and VM 411 and VM 413) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in necropsy.

452 Veterinary Technology Clerkship in Neurology
Fall, Spring, Summer. 3 credits. P: (VM 412) R: (VM 410 and VM 411 and VM 413) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in neurology and physical therapy.

453 Veterinary Technology Clerkship in Ophthalmology
Fall, Spring, Summer. 3 credits. P: (VM 412) R: (VM 410 and VM 411 and VM 413) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in ophthalmology.

454 Veterinary Technology Clerkship in Critical Care
Fall, Spring, Summer. 3 credits. P: (VM 412) R: (VM 410 and VM 411 and VM 413) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in critical care.

466 Veterinary Technology Clerkship in Large Animal Anesthesia
Fall, Spring, Summer. 3 credits. P: (VM 410 and VM 415) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques of food animal and equine anesthesia.

470 Veterinary Technology Clerkship in Food Animal Medicine
Fall, Spring, Summer. 3 credits. P: (VM 415) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in food animal medicine.

480 Veterinary Technology Clerkship in Clinical Pathology
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in clinical pathology.

482 Veterinary Technology Clerkship in Necropsy
Fall, Spring, Summer. 3 credits. P: (VM 270 and VM 275 and VM 303 and VM 304) R: Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in postmortem examination of common domestic species with emphasis on specimen description, collection, and submission.

483 Veterinary Technology Clerkship in Biomedical Research
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: (VM 270 and VM 275 and VM 303 and VM 304) R: (VM 410 and VM 482) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
Application of principles and techniques in biomedicale research involving laboratory animals.

484 Veterinary Technology Clerkship in Zoo and Wildlife Medicine
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: (VM 270 and VM 275 and VM 303 and VM 304) R: (VM 410) Completion of preclinical coursework. R: Open only to Veterinary Technology majors.
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 302) R: Open only to senior students in the Veterinary Technology major.
Application of principles and techniques in experimental, therapeutic, or laboratory medicine.
486 Veterinary Technology Clerkship in Clinical Parasitology
Fall, Spring, Summer. 3 credits. P: VM 245. R: Completion of preclinical coursework.
Open only to Veterinary Technology major.
Applicants must have completed the didactic core curriculum.
490 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 270 and VM 275 and VM 303 and VM 304. R: Completion of the didactic core curriculum.
Open only to Veterinary Technology majors.
Applicants must have completed the didactic core curriculum.

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) R: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine.
Basic epidemiologic theory and study design. Veterinary descriptive and inferential biostatistics. Production veterinary medicine.

541 Veterinary Perspectives III
Spring. 2(2-0) R: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in VM 590.
Concepts and principles of veterinary practice management.

542 Veterinary Integrative Problem Solving IV
Spring. 3(2-3) R: 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) R: 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) R: 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) R: 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. 5(5-0) R: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine.

547 Respiratory Diseases
Spring. 2(2-0) R: Completion of semester 2 of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in VM 574.

552 Veterinary Integrative Problem Solving V
Fall. 3(2-3) R: 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. 5(4-2) R: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine.

554 Hematological, Oncological and Dermatological Diseases
Fall. 3(3-0) R: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine.
Hematological, oncological and dermatological diseases of domestic animals. Pathogenesis, clinical presentation, diagnosis and treatment.

555 Neurological and Ophthalmological Diseases
Fall. 3(3-0) R: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine.
Neurological and ophthalmological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

556 Digestive, Metabolic and Endocrinological Diseases
Fall. 5(5-0) R: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine.
Digestive, metabolic, and endocrinological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

557 Operative Surgery
Fall. 2(1-3) R: Completion of semester 4 of the graduate-professional program in the College of Veterinary Medicine.
Soft tissue and orthopedic surgery of domestic animals: preoperative evaluation, surgery, and postoperative care.

611 Veterinary Externship
Fall, Spring. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Open only to graduate-professional students 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.
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.

692 Career Development and Business Skills
Spring. 3 credits. Open only to graduate-professional students who have completed semester 5 of the graduate professional program in the College of Veterinary Medicine.
Development of leadership, business and interpersonal skills, career planning, and goal setting.

810 Food Safety Introduction and Professional Management
Fall, Spring, Summer. 2 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course.
One year of college level science including one semester of microbiology. Open only to students in the Master of Science degree in Food Safety or approval of college.
Various food safety topics. Organizational, management, leadership and communication skills.

811 Evolution and Ecology of Foodborne Pathogens
Spring. 3 credits. Open only to students in the Master of Science degree in Food Safety or approval of college.
Evolution of foodborne pathogens. Ecology of microbial organisms found in the food chain from introduction through human consumption.

812 Food Safety Toxicology
Spring. 3 credits. Open only to students in the Master of Science degree in Food Safety or approval of college.
WOMEN’S STUDIES

Women’s Studies Program
College of Arts and Letters

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: 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 odd 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 of odd years. 3(3-0) Interdepartmental with Psychology. Nature, origins, and development of sexual orientation and sexual identity in the context of personality, culture, and society. Multicultural and feminist perspectives on the relationship between sexual orientation and gender, race, class, ethnicity, and religion.

211 Introduction to Gender and Environmental Issues
Spring. 3(3-0) Interdepartmental with Fisheries and Wildlife; Forestry; Environmental Economics and Policy; Resource Development. Administered by Department of Fisheries and Wildlife. R: Not open to freshmen. SA: PRM 211

225 Women and Language
Fall. 3(3-0) Interdepartmental with Linguistics. Administered by Department of Linguistics and Germanic, Slavic, Asian and African Languages. Studies women and language in societies around the world. Issues such as status and verbal politeness, importance of names, gender differences in language use, women’s multilingualism, sexist language, gendered language development in children.

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

302 Jewish Women’s Experiences and Writings

321 Lesbian Cultures and Identities
Fall of even years. 3(3-0) R: (WS 201 and WS 202) Lesbian history, lesbian cultures/communities, and the construction of lesbian identity.

400 Women in Classical Greek Society
Spring of odd years. 3(3-0) Interdepartmental with Classical Studies. Administered by Department of French, Classics, and Italian. 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. Integrative and multidisciplinary approaches to theory in women’s studies. Conceptualization of sex and gender and the subordination of women. Feminist critique of theories of knowledge. Comparison of evolving feminist theories.

403 Women and Change in Developing Countries
Spring. 3(3-0) R: (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.

404 Women and the Law in the United States
Fall of odd years. Spring of odd years. 3(3-0) Interdepartmental with Fisheries and Wildlife. R: (WS 201 or WS 202 or WS 203) R: Not open to freshmen or sophomores. Law in the United States as a vehicle for structuring and maintaining women’s social roles, and for social change.

413 Families in Historical Perspective
Fall. 3(3-0) Interdepartmental with History. Administered by Department of History. R: Not open to freshmen. Family forms and socio-economic change in Europe and the United States. Gender, childhood, courtship, sexual relations, marriage, divorce, childbearing, and old age in peasant, industrial, and postindustrial society. War, welfare state, and the family. The marginalized: vagrants, foundlings, immigrants, and single mothers.