

Subcommittee A – Agenda

1:30 p.m. via Zoom

Part I – New Academic Programs and Program Changes

College of Agriculture and Natural Resources

1) Master of Science degree in Global Plant Breeding

Request to change the requirements for the Master of Science degree in Global Plant Breeding in the Department of Plant, Soil and Microbial Sciences. The University Committee on Graduate Studies (UCGS) considered this request at its September 21, 2026 meeting.

Under the heading Requirements for the Master of Science Degree in Global Plant Breeding make the following changes:

- a) In item 1. change the subject codes of the following courses.

CROP 441	Plant Breeding and Biotechnology	3
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CROP 451	Biotechnology Applications for Plant Breeding and Genetics	3
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- b) In item 3. replace the entry with the following text:

Final Examination: Students in the Plan B Global Plant Breeding Master of Science degree program are required to pass an oral evaluation in defense of their capstone course project. The final oral examination includes a public presentation, followed by a closed-door examination by the student's Graduate Committee. The MS final exam includes all material from the student's coursework and final capstone project. In case of failure, one re-examination may be scheduled for the following semester. The final oral examination must be passed within five calendar years from the date of enrollment in the first course in the Global Plant Breeding degree program.

- c) In item 4. replace the entry with the following text:

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Responsible Conduct of Research (RCR) Requirement: The Department of Plant, Soil, and Microbial Sciences require all students to meet the minimum MSU requirements for Responsible Conduct of Research as follows:

Year 1: Complete 3 CITI online modules within the first year of enrollment in their program. (<https://grad.msu.edu/rcr>)

Year 2: Complete 3 additional CITI online modules.

Discussion-Based Training: Complete a minimum of 6 hours of discussion-based training by completing workshops offered by the Graduate School or discussions with the major professor, graduate committee, or courses.

Effective Summer 2026.

College of Natural Science

2) Master of Science degree in Forensic Science

Request to move the program to the Department of Chemistry and change requirements for the Master of Science degree in Forensic Science. The University Committee on Graduate Studies (UCGS) considered this request at its September 21, 2026 meeting.

Under the heading Requirements for the Master of Science degree in Forensic Science make the following changes:

- a) In item 3. a. replace the entire entry with the following:

The program is available under Plan A (with thesis) or Plan B (without thesis). Each student will have a thesis advisory committee comprised of the academic advisor and two other faculty members. The student must complete at least 38 credits as follows:

The following courses (28 credits):

CEM	804	Crime Scene Investigation	1
CEM	805	Survey in Forensic Science	3
CEM	819	Analysis and Identification of Seized Drugs	3
CEM	821	Forensic Chemistry and Microscopic Evidence	3

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CEM	832	Mass Spectrometry	3
CEM	835	Advanced Analytical Chemistry II	3
CEM	836	Separation Science	3
CEM	938	Analytical Chemistry Seminar	1
LAW	623N	Trial Practice Institute: Scientific and Legal Technology	2
NSC	820	Scanning Electron Microscopy; Energy Dispersive X-ray Microanalysis	3
PHM	431	Pharmacology of Drug Addiction	3

Complete an additional 4 credits of electives chosen in consultation with the student's academic advisor.

Additional Requirements for Plan A

1. Complete 6 credits in CEM 899 Master's Thesis Research,
2. Complete Responsible and Ethical Conduct of Research Training (total of seven online modules and six hours of discussion-based training through the Graduate School's RECR Workshop Series, and
3. Pass an oral examination in defense of the thesis.

Additional Requirements for Plan B

1. Complete 6 credits of CEM 890 Chemical Problems and Reports.
2. Complete Responsible and Ethical Conduct of Research Training (total of seven online modules and six hours of discussion-based training through the Graduate School's RECR Workshop Series, and
3. Completion of a final examination or evaluation.

Effective Fall 2026.

3) Bachelor of Arts degree in Mathematics

Request to change the requirements for the Bachelor of Arts degree in Mathematics in the Department of Mathematics.

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a) Under the heading Requirements for the Bachelor of Arts Degree in Computational and Applied Mathematics make the following changes:

(1) In item 1. delete MTH 309 and 310 as courses that meet the University Tier II writing requirement.

(2) In item 3. add item (6):

(6) One of the following courses (4 credits):

CSE 231 Introduction to Programming I 4

CMSE 201 Computational Modeling and Data Analysis I 4

(3) In item 3.b.(7)(b), add the following course:

MTH 461 Metric and Topological Spaces 3

(4) In item 3., delete item c.:

c. One of the following courses (4 credits):

CSE 231 Introduction to Programming I 4

CMSE 201 Computational Modeling and Data Analysis I 4

Effective Fall 2026.

4) Bachelor of Science degree in Mathematics

Request to change the requirements for the Bachelor of Science degree in Mathematics in the Department of Mathematics

Under the heading Requirements for the Bachelor of Science Degree in Mathematics make the following changes:

a) In item 3., replace the entire entry with the following:

3. The following requirements for the major:

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a. The following courses outside the Department of Mathematics (24 or 25 credits):

(1) One course of at least 3 credits in biological science, entomology, microbiology, physiology, plant biology, or integrative biology.

(2) At least 2 credits in laboratory in biological science, chemistry, entomology, microbiology, physics, physiology, or plant biology.

(3) One course from each of the following groups (8 to 10 credits):

(a) CEM 141 General Chemistry 4

CEM 151 General and Descriptive Chemistry 4

CEM 181H Honors Chemistry I 4

LB 171 Principles of Chemistry I 4

(b) CEM 142 General and Inorganic Chemistry 4

CEM 152 Principles of Chemistry 4

CEM 182H Honors Chemistry II 4

LB 172 Principles of Chemistry II 3

(c) CEM 161 Chemistry Laboratory I 1

CEM 185H Honors Chemistry Laboratory I 2

LB 171L Introductory Chemistry Laboratory I 1

(4) One of the following groups of courses (8 credits):

(a) PHY 183 Physics for Scientists and Engineers I 4

PHY 184 Physics for Scientists and Engineers II 4

(b) PHY 193H Honors Physics I - Mechanics 4

PHY 294H Honors Physics II - Electromagnetism 4

(c) LB 273 Physics I 4

LB 274 Physics II 4

(5) One of the following courses (4 credits):

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CSE 231 Introduction to Programming I 4

CMSE 201 Computational Modeling and Data
Analysis I 4

b. The following courses in the Department of Mathematics including (39 to 43 credits):

(1) One course from each of the following three groups (11 or 12 credits):

(a) MTH 132 Calculus I 3

MTH 152H Honors Calculus 3

LB 118 Calculus I 4

(b) MTH 133 Calculus II 4

MTH 153H Honors Calculus II 4

LB 119 Calculus II 4

(c) MTH 234 Multivariable Calculus 4

MTH 254H Honors Multivariable Calculus 4

LB 220 Calculus III 4

(2) One of the following two groups (4 or 7 credits):

(a) MTH 299 Transitions 4

MTH 309 Linear Algebra I 3

(b) MTH 317H Honors Linear Algebra 4

(3) The following course (3 credits):

MTH 496 Capstone in Mathematics (W) 3

The completion of Mathematics 496 fulfills the department's capstone course requirement.

(4) One of the following courses (3 credits):

MTH 310 Abstract Algebra I and Number Theory 3

MTH 418H Honors Algebra I 3

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(5) One of the following courses (3 credits):

MTH	320	Analysis I	3
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MTH	327H	Honors Introduction to Analysis	3
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(6) One of the following courses (3 credits):

MTH	330	Higher Geometry	3
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MTH	340	Ordinary Differential Equations I	3
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MTH	347H	Honors Ordinary Differential Equations	3
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MTH	432	Axiomatic Geometry	3
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(7) Two courses selected from two of the following three groups (6 credits):

(a)	MTH 411	Abstract Algebra II	3
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MTH 414	Linear Algebra II	3
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MTH 416	Introduction to Algebraic Coding	3
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MTH 417	Topics in Number Theory	3
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MTH 419H	Honors Algebra II	3
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(b)	MTH 421	Analysis II	3
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MTH 425	Complex Analysis	3
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MTH 429H	Honors Real Analysis	3
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MTH 442	Partial Differential Equations	3
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MTH 461	Metric and Topological Spaces	3
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(c)	MTH 441	Ordinary Differential Equations II	3
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MTH 451	Numerical Analysis I	3
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MTH 457	Introduction to Financial Math	3
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MTH 481	Discrete Mathematics I	3
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(8) A total of 27 credits in approved Mathematics courses at the 300–level or above. At least 4 of the approved Mathematics courses must be at the 400–level

or above. Students may use no more than one of MTH 309, 314, 317H to satisfy this requirement. One course from a list of approved cognates available in the Department of Mathematics may be used to satisfy this requirement. Statistics and Probability 351 or 430 or 441 may be substituted for one 300-level mathematics course. The 300-400 level courses referenced in item 3b(2) through 3(b)7 partially satisfy this requirement. Students with credit in MTH 235 prior to entering the Mathematics major, only need 24 credits to fulfill this requirement.

Effective Spring 2027.

5) Bachelor of Science degree in Mathematics-Secondary Education

Request to change the requirements for the Bachelor of Science degree in Mathematics-Secondary Education in the Department of Mathematics. The Teacher Education Council (TEC) considered this request at its September 10, 2026 meeting.

Under the heading Requirements for the Bachelor of Science Degree in Mathematics-Secondary Education make the following changes:

a) In item 3.a.(2), replace with the following text:

(2) At least 2 credits in laboratory in biological science, chemistry, microbiology, physics, physiology, or plant biology.

b) In item 3.a.(3)(d)(iv), delete the following courses:

PHY	173	Physics I	5
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PHY	174	Physics II	5
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c) In item 3.b.(1)(b)., add the following course:

MTH	153H	Honors Calculus II	4
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d) In item 3.c.(2), delete the following course:

STT	430	Introduction to Probability and Statistics	3
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e) In item 3.c.(2), add the following courses:

STT	351	Probability and Statistics for Engineering	3
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Effective Fall 2026.

College of Veterinary Medicine

6) Associate of Applied Science degree in Veterinary Nursing

Request to establish an Associate of Applied Science degree in Veterinary Nursing in the College of Veterinary Medicine. The University Committee on Undergraduate Education (UCUE) will consider the request at its October 8, 2026 meeting.

Background Information

The Veterinary Nursing Program at MSU is nationally recognized, with 100% employment of graduates and an outstanding pass rate for the national credentialing examination (VTNE). The most recent cohort pass rate was 95% (the national average is 70%). To address the state and national veterinary nursing shortage, MSU is developing a Distance Learning Program to expand access while maintaining rigorous academic and hands-on standards.

MSU's existing BS program cannot meet workforce demands alone, as completion requires physical attendance on MSU's East Lansing campus. This is a barrier for many qualified prospective students working at veterinary practices in non-credentialed positions. The AAS program would provide new entry points and stackable credentials that build toward the BS degree.

MSU Doctor of Veterinary Medicine alumni and other employers of MSU Veterinary Nursing graduates are strong advocates for this initiative. They regularly request more graduates and have expressed that expanding MSU's capacity through an associate's pathway is essential to meet clinical workforce needs. Their endorsement demonstrates both the necessity and sustainability of this program.

To provide flexibility and accessibility, two delivery models will be offered:

- Workshop model (short, intensive on-campus sessions to complete required hands-on skills and training)
- Distributive model (internships/work-study placements in local veterinary practices to complete required hands-on skills and training)
 - All knowledge-based didactic instruction will be delivered online.

- Students may complete a combination of workshops and distributive training.

An Associate of Applied Science (A.A.S.) in Veterinary Nursing, which represents the most common degree awarded among AVMA-accredited veterinary nursing and veterinary technology programs nationwide, would bring MSU's program into closer alignment with prevailing professional and educational standards. This degree pathway provides a more direct route to workforce entry, with a shorter time to completion and lower overall tuition costs, helping to reduce graduates' debt burden. At the same time, the A.A.S. structure supports stackable educational progression, allowing graduates to seamlessly pursue further education and expand career opportunities within the profession.

Accreditation is central to this pathway. Only programs accredited by the American Veterinary Medical Association (AVMA) are eligible to confer degrees that permit graduate credentialing. The MSU College of Veterinary Medicine's Veterinary Nursing Program has maintained continuous AVMA accreditation since 1968, and the addition of an A.A.S. pathway would extend this long-standing, accredited program in a manner consistent with national norms and workforce expectations.

Academic Programs Catalog Text:

The Associate of Applied Science degree in Veterinary Nursing is a two-year program delivered through a combination of distance learning and distributive clinical training. Didactic coursework is completed online, offering students flexibility without compromising academic quality. In addition to veterinary nursing courses, students complete required general education credits, ensuring a well-rounded educational experience and establishing a strong foundation for those who may wish to pursue further degrees.

To achieve essential hands-on skills and competencies, students select one of two clinical training pathways: a workshop model, consisting of short, intensive on-campus sessions, or a distributive model, which places students in approved local veterinary practices through work-study experiences. Both pathways meet American Veterinary Medical Association (AVMA) accreditation standards, fully preparing graduates for professional licensure and meaningful careers in high-demand roles across diverse practice environments.

Students who complete the requirements for the Associate of Applied Science degree will be qualified to take the National Board Examinations for licensure as veterinary-technicians.

Admission

The number of students who can be admitted to the AAS in Veterinary Nursing is limited. All persons who are interested in applying for admission to the Veterinary Nursing Program must complete an application which can be found, along with the application process instructions, by visiting <https://cvm.msu.edu/future-students/veterinary-nursing-program>.

Applications for admission to the AAS in Veterinary Nursing are accepted through early February of the year that admission is sought.

Students who are enrolled in colleges and universities other than Michigan State University should contact Michigan State University's Office of Admissions and the College of Veterinary Medicine regarding admission to the AAS in Veterinary Nursing as transfer students.

To be considered for admission, an applicant must have a minimum cumulative grade-point average of 2.75 and a minimum of a 2.5 grade-point average of the last 12 credits completed and a minimum of a 2.0 grade in all math and science courses.

Completion of the following prerequisite courses or transfer equivalents, including:

- MTH 103
- BS 161
- Tier I writing course

The final selection of students admitted to the AAS in Veterinary Nursing is based on the cumulative grade-point average of all courses taken, the grade-point average calculated on all courses in mathematics and the physical and biological sciences, and the grade-point average of the last 12 credits. The selection process also includes submission of a personal statement, evaluations completed by specific individuals regarding the student's veterinary related experience and readiness for the program, and documentation of 80 hours of veterinary-related experience.

Requirements for the Associate of Applied Science Degree in Veterinary Nursing

1. The following requirements for the major (70 to 74 credits):
 - a. All of the following courses (10 credits):

MTH 103	College Algebra	3
BS 161	Cell and Molecular Biology	3

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WRA 101 Writing as Inquiry 4

Students will have to meet the course prerequisites to enroll BS 161.

One of the following courses (4 credits):

ISS 205 Big Ideas in the Social Sciences 4

ISS 210 Society and the Individual 4

ISS 215 Social Differentiation and Inequality 4

ISS 220 Time, Space and Change in Human Society 4

ISS 225 Power, Authority, and Exchange 4

ISS 230 Government and the Individual 4

ISS 235 Liberal Democracy as a Way of Life 4

One of the following courses (4 credits):

IAH 201 United States and the World 4

IAH 202 Europe and the World 4

IAH 203 Latin America and the World 4

IAH 204 Asia and the World 4

IAH 205 Africa and the World 4

IAH 206 Self, Society, and Technology 4

IAH 207 Literatures, Cultures, Identities 4

IAH 208 Music and Culture 4

IAH 209 Art, the Visual, and Culture 4

All of the following courses (43 credits):

VM 112 Veterinary Medical Terminology 1

VM 122 Small Animal Preventive Health Care and Nutrition 3

VM 123 Large Animal Preventive Health Care and Nutrition 3

VM 132 Comparative Anatomy for Veterinary Nursing 2

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VM	142	Pharmacology for Veterinary Nursing	2
VM	152	Hospital Procedures, Communication, and Careers in Veterinary Nursing	3
VM	156	Large and Laboratory Animal Nursing Care and Techniques	1
VM	161	Small Animal Nursing Skills I	2
VM	162	Small Animal Nursing Skills II	2
VM	172	Clinical Pathology I for Veterinary Nursing	1
VM	177	Clinical Pathology II for Veterinary Nursing	1
VM	182	Radiology for Veterinary Nursing	1
VM	214	Surgical Nursing Concepts and Techniques	3
VM	246	Clinical Pathology III for Veterinary Nursing	1
VM	252	Veterinary Comparative Clinical Physiology	3
VM	266	Dentistry Techniques for Veterinary Nursing	2
VM	268	Small Animal Diseases and Management	3
VM	276	Large Animal Diseases and Management	3
VM	280	Veterinary Nursing Clinical Experience: Basic I	1
VM	281	Veterinary Nursing Clinical Experience: Basic II	1
VM	282	Veterinary Nursing Clinical Experience: Advanced I	1
VM	283	Veterinary Nursing Clinical Experience: Advanced II	1
VM	291	Anesthesiology for Veterinary Nursing	2
One of the following options (2 credits):			
VM	163	Small Animal Skills Practicum II	1
VM	166	Small Animal Nursing Skills Practicum I	1
VM	268	Small Animal Nursing Skills Comprehensive On-Campus Laboratory	2

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One of the following courses (1 credit):

VM 186 Radiology Skills Practicum 1

VM 288 Radiology Skills Comprehensive On-Campus Laboratory 1

One of the following courses (1 credit):

VM 173 Clinical Pathology Skills Practicum I 1

VM 278 Clinical Pathology Skills On-Campus Laboratory I 1

One of the following (1 credit):

VM 174 Clinical Pathology Skills Practicum II 1

VM 279 Clinical Pathology Skills On-Campus Laboratory II 1

One of the following courses (1 credit):

VM 157 Large Animal and Laboratory Animal Nursing Skills
Practicum 1

VM 277L Large Animal and Laboratory Animal Nursing Skills
On-Campus Laboratory 1

One of the following courses (1 credit):

VM 267 Dentistry Skills Practicum 1

VM 292L Dentistry Skills On-Campus Laboratory 1

One of the following courses (1 credit):

VM 178 Clinical Pathology Skills Practicum III 1

VM 289L Clinical Pathology Skills On-Campus Laboratory III 1

One of the following courses (1 credit):

VM 216 Anesthesia and Surgical Nursing Skills Practicum 1

VM 293L Anesthesia and Surgical Nursing Skills On-Campus
Laboratory 1

Effective Fall 2027.

7) Master of Science in Veterinary Biomedical Systems

Request to establish a Master of Science in Veterinary Biomedical Systems in the College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its September 21, 2026 meeting.

a) **Background Information:**

The College of Veterinary Medicine (CVM) at Michigan State University is committed to advancing animal and human health through education, research, clinical care, and public service. Our mission includes preparing veterinarians who are clinically skilled, scientifically informed, and dedicated to serving diverse communities. While our goal is for all students admitted to the Doctor of Veterinary Medicine (DVM) program to successfully complete the degree, a small number each year are unable to continue, either due to academic challenges or a change in career goals. These students leave with significant scientific training but without a credential that reflects their accomplishments. To address this gap, we propose the creation of a Master of Science in Veterinary Biomedical Systems, designed specifically for students who have completed the first two years of the DVM curriculum but are unable to continue in the program. This degree would recognize their academic achievements and provide a pathway to future career opportunities in science, education, or industry. This program's structure is based on similar MSU programs: the MS in Basic Medical Science in the College of Osteopathic Medicine and the MA in Clinical Medicine in the College of Human Medicine.

b) **Academic Programs Catalog Text:**

The Master of Science in Veterinary Biomedical Systems provides a rigorous foundation in basic and medical sciences, tailored for students who have completed the first two years of the Doctor of Veterinary Medicine (DVM) program but are unable to continue toward the DVM degree. Students who enroll in the MS in Veterinary Biomedical Systems may not return to pursue the DVM at MSU. Dual degrees will not be conferred to those who successfully complete the four-year curriculum and receive the Doctor of Veterinary Medicine degree.

Admission

To be eligible for admission, applicants must:

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- Be currently or formerly enrolled in the MSU College of Veterinary Medicine as a DVM student.
- Have completed at least 24 credits of the allowable classes with a GPA greater than 2.0 in the DVM program.
- Elect not to continue to completion of the Doctor of Veterinary Medicine degree. Students who are dismissed from the DVM program for ethical or professional misconduct, academic dishonesty, or similar reasons are not eligible for admission to the MS program.

Requirements for the Master of Science in Veterinary Biomedical Systems

1. Students must complete 30 credits under Plan B (non-thesis) to earn the MS in Veterinary Biomedical Systems.
2. Preclinical Coursework

Students must complete 24 credits from the following DVM preclinical courses with the following conditions:

- Minimum grade of 2.0 in each course applied toward the MS degree.
- Cumulative GPA of 3.0 or higher across all applied credits.
- At least 10 credits must come from paired organ system courses (e.g., Musculoskeletal I & II, Cardiovascular I & II).

CREDITS

Veterinary Medicine (Year 1)

Semester 1 (Fall)

VM	500	Veterinary Science I	2
VM	501	One Health I	1
VM	515	Animals in Society	2
VM	516	Musculoskeletal System I	3
VM	517	Nervous System I	3
VM	518	Cardiovascular System I	3

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VM	519	Cutaneous System I	2
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Semester 2 (Spring)

VM	504	One Health II	1
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VM	520	Respiratory System I	3
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VM	523	Immunologic and Hematologic Systems I	3
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VM	525	Digestive System I	3
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VM	527	Endocrine System I	3
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VM	528	Reproductive System I	2
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VM	529	Urinary System I	2
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Veterinary Medicine (Year 2)

Semester 3 (Fall)

VM	507	One Health III	1
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VM	530	Veterinary Science II	4
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VM	531	Immunologic and Hematologic Systems II	3
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VM	534	Cutaneous System II	3
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VM	535	Reproductive System II	3
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VM	536	Respiratory System II	3
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Semester 4 (Spring)

VM	510	One Health IV	1
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VM	565	Cardiovascular System II	2
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VM	568	Urinary System II	3
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VM	569	Musculoskeletal System II	3
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VM	571	Nervous System II	3
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VM	575	Digestive System II	3
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VM	577	Endocrine System II	3
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3. Complete 6 credits from the following:

VM	850	Independent Study – Capstone Literature Review	4 to 6
PHM	850	Communications for Scientists	2

4. Responsible and Ethical Conduct of Research (RECR): Students must complete RECR training during years 1 and 2 of the DVM curriculum.
5. Successfully complete a capstone professional paper.
6. Successfully complete a final examination or evaluation.

Time Limit

Students must complete all degree requirements within six years from the start of the first semester in which credit was earned toward the MS degree.

Effective Spring 2027.

8) Doctor of Veterinary Medicine degree in College of Veterinary Medicine

Request to change the requirements for the Doctor of Veterinary Medicine degree in College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) considered this request at its September 21, 2026 meeting.

Under the heading Requirements for the Doctor of Veterinary Medicine Degree in Veterinary Medicine make the following changes:

- a) Within the Clinical Phase section, replace the text with the following:

The clinical phase curriculum consists of 51 credits. Students will complete 27 clerkship credits and an additional 24 credits of elective clerkships. Satisfactory completion of all preclinical phase courses is required for participation in any clerkship.

- b) Within the Required Clerkships section, delete the following course:

SCS	646	Small Animal Orthopedic Surgery Clerkship	3
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- c) Within the Elective Clerkships section, add the following courses:

LCS	617	Honey Bee Medicine	3
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LCS	635	Swine Health and Preventive Medicine	3
LCS	648	Equine Welfare in Practice	3
SCS	614	Shelter and Community Practice	3
SCS	615	Small Animal Rehabilitation	3
SCS	616	International Service Learning: Veterinary Population Management	3
SCS	646	Small Animal Orthopedic Surgery Clerkship	3
SCS	672	Community Medicine and Surgery Clerkship	3
SCS	696	Advanced Small Animal Critical Care and Intensive Care Unit	3

Effective Spring 2027.

Part II – New Courses and Changes

College of Agriculture and Natural Resources

School of Packaging

REINSTATEMENT

PKG 888 Master's Project

~~Fall of every year. Spring of every year. Summer of every year. Fall of every year. Spring of every year. Summer of every year. 2 credits. 2(2-0) P: PKG 887 R: Open only to master's students in the School of Packaging. Approval of school, application required. R: Open to students in the School of Packaging. Approval of school.~~

~~Master's degree Plan B project. Completion of a project related to packaging issues. Completion of a Master's degree Plan B project related to packaging.~~

~~Pass-No Grade (P-N) Graduate Graded~~

Effective Spring Semester 2027

College of Engineering

Department of Computer Science and Engineering

NEW COURSE

CSE 807 Ethics in AI

Fall of every year. 3(3-0) R: Approval of department.

As systems that use artificial intelligence become ubiquitous and AI technologies are increasingly integrated in our lives, it is essential that we consider the impact of these technologies on different groups in society and the environment. This includes, among others, potential for exacerbating existing inequalities, potential threats to violations of privacy and autonomy, and further risks to vulnerable populations. The goal of this course is to enable students to understand these aspects so that they can deploy AI systems in an ethical manner.

Graduate Graded

Effective Spring Semester 2027

College of Human Medicine

Department of Emergency Medicine

NEW COURSE

EM 615 Special Topics in Emergency Medicine

Spring of every year. 3(3-0) P: HM 552 R: Open to students in the College of Human Medicine

Introductory elective exploring different facets of emergency medicine care.

Cond Pass and ET Human Med

Effective Spring Semester 2027

NEW COURSE

HM 667 International Medicine Elective

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Spring of every year. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: HM 552 R: Open to students in the College of Human Medicine

Exploration of systems of care, medicine, and service within a country other than the United States.

Cond Pass and ET Human Med

Effective Spring Semester 2027

College of Natural Science

Department of Earth and Environmental Sciences

REINSTATEMENT

GLG 330 Biogeochemistry

Spring of every year. 3(3-0) ~~P: CEM 141 or CEM 151 or CEM 181H or LB 171~~ P: (CEM 141 or CEM 151 or CEM 181H or LB 171) ~~RB: (GLG 200 or GLG 201 or GEO 206 or IBIO 355) and CEM 161~~

Physical, chemical, and biological processes that govern the flow of chemical elements. How humans have altered the movement of these chemical elements through the environment. Biogeochemical cycling of elements between the hydrosphere, lithosphere, atmosphere, and biosphere across time and space.

Numerical Undergraduate Graded

Effective Spring Semester 2027

Department of Microbiology, Genetics, and Immunology

NEW COURSE

MGI 836 Foundations of Genomics

Spring of every year. 1(1-0) RB: Basic knowledge of molecular biology, cell biology, physiology, and genetics. R: Open to graduate students.

Basic aspects of modern human genetics and the genetic basis for disease. Molecular genetic analysis, and eukaryotic transcriptomics.

Numerical

SA: MMG 835

Effective Spring Semester 2027

NEW COURSE

MGI 837 Functional Genomics

Spring of every year. 1(1-0) P: MGI 836 RB: Basic knowledge of molecular biology, cell biology, physiology, and genetics. R: Open to graduate students.

Introduction to major high-throughput sequencing technologies and their application to fundamental biological questions. Epigenomics, 3D genomics, translocation detection and introductory bioinformatics.

Numerical

SA: MMG 835

Effective Spring Semester 2027

NEW COURSE

MGI 838 Applied Genomics

Spring of every year. 1(1-0) P: MGI 837 RB: Basic knowledge of molecular biology, cell biology, physiology, and genetics. R: Open to graduate students.

Application of sequencing technologies to understand disease and developmental processes. Major topics include cancer genomics, immune system genomics and CRISPR-based functional genomics.

Numerical

SA: MMG 835

Effective Spring Semester 2027

College of Nursing

NUR 952 Psychopharmacology and Neuropathological Basis of Mental Illness

Summer of every year. 3(3-0) R: Open to graduate students or lifelong graduate students in the College of Nursing.

Advanced pharmacology and psycho-pharmacotherapeutics and the putative neuropathophysiology of common psychiatric illnesses that occur across the lifespan.

Numerical

Effective Fall Semester 2026

NUR 953 Clinical Diagnosis and Management I - Psychiatric Assessment and Diagnosis

Fall of every year. 6(3-9) P: NUR 907 and NUR 908 and NUR 909 and NUR 952 R: Open to graduate students in the College of Nursing.

Mental health assessment and diagnostic screening to formulate differential diagnoses for common mental health conditions/problems across the lifespan.

Numerical

Effective Fall Semester 2026

NUR 954 Clinical Diagnosis and Management II – Evidence-Based Therapeutic Interventions

Spring of every year. 6(3-9) P: NUR 953 R: Open to graduate students in the College of Nursing.

Assessment and intervention strategies for health promotion and common mental health problems in the clinical setting across the lifespan.

Numerical

Effective Fall Semester 2026

NUR 955 Clinical Diagnosis and Management III – Special Populations and Group

Summer of every year. 6(3-9) P: NUR 954 R: Open to graduate students in the College of Nursing.

Assessment, intervention, including group psychotherapy, and management strategies for special and vulnerable populations with mental health problems across the lifespan.

Numerical

Effective Fall Semester 2026

NUR 956 Clinical Diagnosis and Management IV – Complex and Collaborative Mental Health Care

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Fall of every year. 6(2-12) P: NUR 955 R: Open to graduate students in the College of Nursing.

Evidence-based strategies to deliver collaborative mental health care across the wellness/illness continuum with patients across the lifespan.

Numerical

Effective Fall Semester 2026

NUR 974 Introduction to Clinical Practicum

Summer of every year. ~~1(0-8)~~ 2(0-8) R: Open to doctoral students in the College of Nursing or in the Nursing Practice Major. ~~C: NUR 967 concurrently~~ C: NUR 967 concurrently

Application of basic anesthesia cognitive, affective and psychomotor skills in a simulated environment

Pass-No Grade (P-N)

Effective Fall Semester 2026

College of Veterinary Medicine

NEW COURSE

VM 112 Veterinary Medical Terminology

Fall of every year. 1(1-0) P: BS 161 AND Completion of Tier I writing requirement R: Open to students in the Department of Veterinary Technology. Approval of college.

Veterinary medication terminology with an emphasis on the recognition, interpretation, and correct usage of fundamental medical terms.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 122 Small Animal Preventive Health Care and Nutrition

Spring of every year. 3(3-0) P: (VM 132 and VM 252) R: Open to students in the Department of Veterinary Technology. Approval of college.

Small animal preventive health care and nutrition, with an emphasis on the proper husbandry, dietary management, energy metabolism, and nutrient requirements of

common small animal and exotic species.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 123 Large Animal Preventive Health Care and Nutrition

Fall of every year. 3(3-0) P: VM 122 R: Open to students in the Department of Veterinary Technology. Approval of college.

Large animal preventive health care and nutrition, with an emphasis on the proper husbandry, dietary management, energy metabolism, and nutrient requirements of common large animal and domestic species.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 132 Comparative Anatomy for Veterinary Nursing

Fall of every year. 2(2-0) P: BS 161 AND Completion of Tier I writing requirement R: Open to students in the Department of Veterinary Technology. Approval of college.

Overview of the gross and functional anatomy of common animal species encountered in veterinary medicine, including the musculoskeletal, gastrointestinal, cardiovascular, cutaneous, respiratory, urogenital, nervous, and endocrine systems, as well as the special sense organs.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 142 Pharmacology for Veterinary Nursing

Spring of every year. 2(2-0) P: MTH 103 R: Open to students in the Department of Veterinary Technology. Approval of college.

Fundamentals of the characteristics, classification, and usage of common veterinary pharmaceuticals. Introduction and application of basic dosage and formulation calculations.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 152 Hospital Procedures, Communication, and Careers in Veterinary Nursing

Fall of every year. 3(3-0) R: Open to students in the Department of Veterinary Technology. Approval of college.

Development of professional and client communication skills. Exploration of veterinary nursing careers. Effective writing and creation of cover letters and resumes. Introduction to ethical, legal, and business aspects of veterinary practice.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 156 Large and Laboratory Animal Nursing Care and Techniques

Fall of every year. 1(1-0) P: (VM 161 and VM 162) R: Open to students in the Department of Veterinary Technology. Approval of college.

Fundamentals of handling equine, food, and laboratory animals, including breed identification, specimen collection, physical exams, medication administration, and species-specific nursing care.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 157 Large Animal and Laboratory Animal Nursing Skills Practicum

Fall of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology C: VM 156 concurrently

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.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 161 Small Animal Nursing Skills I

Fall of every year. 2(2-0) R: Open to students in the Department of Veterinary Technology. Approval of college.

Learn appropriate methods of restraint of canine and feline, develop physical exam skills, learn various methods of medication delivery, blood sample collection techniques; recognize canine and feline breeds.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 162 Small Animal Nursing Skills II

Spring of every year. 2(2-0) P: VM 161 R: Open to students in the Department of Veterinary Technology. Approval of college.

Master appropriate methods of restraint of canine and feline, perfect physical exam skills, learn various methods of medication delivery, blood sample collection techniques, recognize canine and feline breeds.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 163 Small Animal Nursing Skills Practicum II

Spring of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 162 concurrently

Small animal nursing techniques include the mastery of canine and feline restraint methods, physical examination, medication administration, infection control techniques, and medical records keeping.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 166 Small Animal Nursing Skills Practicum I

Fall of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 161 concurrently

Small animal nursing techniques include the development of canine and feline restraint methods, physical examination, medication administration, infection control techniques, and medical record keeping.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 172 Clinical Pathology I for Veterinary Nursing

Spring of every year. 1(1-0) P: VM 252 R: Open to students in the Department of Veterinary Technology. Approval of college.

Structure and function of normal blood cells, immunity, hemostasis, blood group serology, transfusion medicine, and vaccinology.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 173 Clinical Pathology Skills Practicum I

Spring of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 172 concurrently

Veterinary clinical pathology practicum including diagnostic procedures in hematology, serology and ELISA methodology.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 174 Clinical Pathology Skills Practicum II

Fall of every year. 1 (0-5) P: VM 173 R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 177 concurrently

Comprehensive veterinary clinical pathology course, including diagnostic procedures in urology, dermatology, cytology, and advanced methods in hematology

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 177 Clinical Pathology II for Veterinary Nursing

Fall of every year. 1(1-0) P: VM 172 R: Open to students in the Department of Veterinary Technology. Approval of college.

Diagnostic veterinary clinical pathology topics, with an emphasis on urology, dermatology, cytology, and advanced hematology.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 178 Clinical Pathology Skills Practicum III

Spring of every year. 1 (0-5) P: VM 174 R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 246 concurrently

Identify parasites by visual examination of adult, larvae, and ova life stages. Perform diagnostic tests to detect parasitic infections.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 182 Radiology for Veterinary Nursing

Spring of every year. 1(1-0) P: (VM 112 and VM 132) R: Open to students in the Department of Veterinary Technology. Approval of college.

Fundamentals of radiology, including radiograph production, x-ray machine components, imaging quality, patient positioning, and radiation safety.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 186 Radiology Skills Practicum

Spring of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 182 concurrently

Production of radiographs, learning components of the x-ray machine and digital equipment, use of screens and grids, handling film, imaging quality, patient positioning, and radiation safety.

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 214 Surgical Nursing Concepts and Techniques

Spring of every year. 3(3-0) P: (VM 162 and VM 142 and VM 252 and VM 132) R: Open to students in the Department of Veterinary Technology. Approval of college.

Principles of asepsis, sterilization, suture materials, instrumentation and peri-operative needs for various surgical procedures in small and large animals.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 216 Anesthesia and Surgical Nursing Skills Practicum

Spring of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 291 concurrently

Principles and techniques in veterinary surgical nursing and anesthesia.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 246 Clinical Pathology III for Veterinary Nursing

Spring of every year. 1(1-0) P: (VM 172 and VM 177) R: Open to students in the Department of Veterinary Technology. Approval of college.

Parasites of veterinary and public health importance, with an emphasis on gross and microscopic morphology, transmission, prevention, and control.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 252 Veterinary Comparative Clinical Physiology

Fall of every year. 3(3-0) P: BS 161 AND Completion of Tier I writing requirement R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 112 concurrently and VM 132 concurrently

Study of the function, regulation, and integration of organ systems in common domestic species, with an emphasis on clinically relevant concepts.

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 266 Dentistry Techniques for Veterinary Nursing

Fall of every year. 2(2-0) P: (VM 132 and VM 182) R: Open to students in the Department of Veterinary Technology. Approval of college.

Veterinary dental techniques and oral cavity assessment for companion animals.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 267 Dentistry Skills Practicum

Fall of every year. 1 (0-5) R: Open to students in the Department of Veterinary Technology. Approval of college. C: VM 266 concurrently

Identifying dental anatomy and pathology. Practicing dental prophylaxis skills and medical record keeping.

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Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 268L Small Animal Nursing Skills Comprehensive On-Campus Laboratory

Summer of every year. 2(0-4) P: (VM 161 and VM 162) R: Open to students in the Department of Veterinary Technology. Approval of college.

Small animal nursing techniques including canine and feline restraint, physical examination, medication administration, infection control techniques, and medical records keeping. This laboratory course requires in-person attendance on the Michigan State University campus

Undergraduate Graded

Effective Summer Semester 2028

NEW COURSE

VM 269 Small Animal Diseases and Management

Spring of every year. 3(3-0) P: (VM 161 and VM 162 and VM 172 and VM 252) R: Open to students in the Department of Veterinary Technology. Approval of college.

Pathophysiology, transmission, diagnostic process, clinical management, and prevention of canine and feline diseases.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 276 Large Animal Diseases and Management

Fall of every year. 3(3-0) P: (VM 156 or concurrently) AND (VM 252 and VM 161 and VM 162) R: Open to students in the Department of Veterinary Technology. Approval of college.

Diseases, husbandry, preventative health care, and client education for equine and food animal species.

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 277L Large Animal and Laboratory Animal Nursing Skills On-Campus Laboratory

Summer of every year. 1(0-2) P: (VM 156 and VM 123) R: Open to students in the Department of Veterinary Technology. Approval of college.

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.

Undergraduate Graded

Effective Summer Semester 2029

NEW COURSE

VM 278L Clinical Pathology Skills On-Campus Laboratory I

Summer of every year. 1(0-2) P: VM 172 R: Open to students in the Department of Veterinary Technology. Approval of college.

Veterinary clinical pathology laboratory including diagnostic procedures in hematology, serology and ELISA methodology. This laboratory course requires in-person attendance on the Michigan State University campus

Undergraduate Graded

Effective Summer Semester 2028

NEW COURSE

VM 279L Clinical Pathology Skills On-Campus Laboratory II

Summer of every year. 1(0-2) P: VM 177 R: Open to students in the Department of Veterinary Technology. Approval of college.

Comprehensive veterinary clinical pathology laboratory, including diagnostic procedures in urology, dermatology, cytology, and advanced methods in hematology

Undergraduate Graded

Effective Summer Semester 2029

NEW COURSE

VM 280 Veterinary Nursing Clinical Experience: Basic I

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Fall of every year. Spring of every year. Summer of every year. 1 (0-5) P: (VM 161 or concurrently) R: Open to students in the Department of Veterinary Technology. Approval of college.

Client and health care team communication, restraint techniques, PE, medication administration techniques, nosocomial infection control

Undergraduate Graded

Effective Fall Semester 2027

NEW COURSE

VM 281 Veterinary Nursing Clinical Experience: Basic II

Spring of every year. 1 (0-5) P: VM 280 R: Open to students in the Department of Veterinary Technology. Approval of college.

Client and health care team communication, restraint techniques, perfecting the PE, medication administration techniques, nosocomial infection control, handling of sample collection (blood), hematology diagnostic tests, venipuncture, radiology techniques and safety

Undergraduate Graded

Effective Spring Semester 2028

NEW COURSE

VM 282 Veterinary Nursing Clinical Experience: Advanced I

Fall of every year. 1 (0-5) P: VM 281 R: Open to students in the Department of Veterinary Technology. Approval of college.

Client and health care team communication, restraint techniques, perfecting the PE, medication administration techniques, nosocomial infection control, handling of sample collection (blood and urine), hematology diagnostic tests, venipuncture, radiology techniques and safety, urinalysis, ear cytology, dental prophylaxis and radiographs

Undergraduate Graded

Effective Fall Semester 2028

NEW COURSE

VM 283 Veterinary Nursing Clinical Experience: Advanced II

Michigan State University

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Spring of every year. 1 (0-5) P: VM 282 R: Open to students in the Department of Veterinary Technology. Approval of college.

Client and health care team communication, restraint techniques, perfecting the PE, medication administration techniques, nosocomial infection control, handling of sample collection (blood, urine, feces), hematology diagnostic tests, venipuncture, radiology techniques and safety, urinalysis, eay cytology, fecals, dental prohyllaxis and charting, anesthesia administration and monitoring, surgical assistance and preparation, aseptic technique application

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 288L Radiology Skills Comprehensive On-Campus Laboratory

Summer of every year. 1(0-2) P: VM 182 R: Open to students in the Department of Veterinary Technology. Approval of college.

Production of radiographs, components of the x-ray machine and digital equipment, use of screens and grids, handling film, imaging quality, film processing, patient positioning, and radiation safety. This laboratory course requires in-person attendance on the Michigan State University campus

Undergraduate Graded

Effective Summer Semester 2028

NEW COURSE

VM 289L Clinical Pathology Skills On-Campus Laboratory III

Summer of every year. 1(0-2) P: VM 246 R: Open to students in the Department of Veterinary Technology. Approval of college.

Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control.

Undergraduate Graded

Effective Summer Semester 2029

NEW COURSE

VM 291 Anesthesiology for Veterinary Nursing

Michigan State University

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Spring of every year. 2(2-0) P: (VM 162 and VM 142) R: Open to students in the Department of Veterinary Technology. Approval of college.

Pharmacologic action of preanesthetic and anesthetic drugs. Principles and techniques of induction, maintenance, monitoring, and recovery of the patient. Humane methods of euthanasia.

Undergraduate Graded

Effective Spring Semester 2029

NEW COURSE

VM 292L Dentistry Skills On-Campus Laboratory

Summer of every year. 1(0-2) P: VM 266 R: Open to students in the Department of Veterinary Technology. Approval of college.

Veterinary dental techniques and oral cavity assessment for companion animals.

Undergraduate Graded

Effective Summer Semester 2029

NEW COURSE

VM 293L Anesthesia and Surgical Nursing Skills On-Campus Laboratory

Summer of every year. 1(0-2) P: (VM 214 and VM 291) R: Open to students in the Department of Veterinary Technology. Approval of college.

Principles and techniques in veterinary surgical nursing and anesthesia

Undergraduate Graded

Effective Summer Semester 2029