MICHIGAN STATE UNIVERSITY

Report of

THE UNIVERSITY COMMITTEE ON CURRICULUM

to the Faculty Senate

October 8, 2019

The effective date for new programs subject to Statewide Academic Program review is implemented in accordance with the Statewide Academic Program Review calendar.

MICHIGAN STATE UNIVERSITY
University Committee on Curriculum

October 8, 2019

TO: Faculty Senate

This report is prepared and distributed for the following purposes:

1. To report new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses.
2. To notify the initiating colleges, schools, and departments of approval by the University Committee on Curriculum of their requests for new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses. Any items not approved by the Faculty Senate will be reported to the appropriate college and department or school.
3. To provide information to members of the faculty in each department about academic programs and courses in all colleges, departments, and schools of the University.

Reports of the University Committee on Curriculum to the Faculty Senate are organized as follows:

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES:

Organized by colleges in alphabetical order. For a given college, academic units are organized in alphabetical order. For a given academic unit, degrees, majors, and specializations are organized in alphabetical order.

PART II - NEW COURSES:[1]

Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

PART III - COURSE CHANGES:[1]

Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

Not all of the above categories, and not all of the colleges and academic units, will necessarily appear in any given Senate Report.

[1]One or more of the abbreviations that follow may be included in a course entry:

P:	=	Prerequisite monitored in SIS
C:	=	Corequisite
R:	=	Restriction
RB:	=	Recommended background
SA:	=	Semester Alias

MICHIGAN STATE UNIVERSITY

October 8, 2019

TO: Faculty Senate

FROM: University Committee on Curriculum

SUBJECT: New Academic Programs and Program Changes:
New Courses and Course Changes

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Change the requirements for the **Bachelor of Science** degree in **Food Science** in the Department of Food Science and Human Nutrition.

   The concentrations in the Bachelor of Science degree in Food Science are noted on the student's academic record when the requirements for the degree have been completed.

   a. Under the heading **Requirements for the Bachelor of Science Degree in Food Science** make the following changes:

      (1) In item 3. a. delete the following course:

FSC	422	Advanced Professional Seminar in Food Science	1

      Add the following course:

FSC	322	Advanced Professional Seminar in Food Science	1

   Effective Fall 2020.

2. Change the requirements for the **Bachelor of Science** degree in **Construction Management** in the School of Planning, Design and Construction to the following.

   a. Under the heading **Requirements for the Bachelor of Science Degree in Construction Management** make the following changes:

      (1) In item 2., paragraph two, add the following sentence:

      The completion of MTH 132, MTH 152H, or LB 118 will also satisfy this requirement.

      (2) In item 3. a. change the total credits from '64' to '61' and delete the following courses:

CMP	211	Building Codes	3
CSE	101	Computing Concepts and Competencies	3

      Add the following course:

CMP	245	Principles of Green Building	3

      (3) In item 3. c. add the following courses:

CMP	445	Green and Energy Efficient Building Construction	3
CMP	493	Professional Internship in Construction Management	3

      (4) In item 3. d. delete the following course:

CMP	493	Professional Internship in Construction Management	3

(5) In item 3. e. change the total credits from '4' to 3 or 4' and delete the following courses:

CEM	161	Chemistry Laboratory I	1
PHY	252	Introductory Physics Laboratory II	1

(6) In item 3. i. add the following course:

SCM	304	Survey of Supply Chain Management	3

Effective Spring 2020.

COLLEGE OF ARTS AND LETTERS

1. Change the requirements for the **Bachelor of Arts** degree in **Philosophy** in the Department of Philosophy.

The concentration in the Bachelor of Arts degree in Philosophy is noted on the student's academic record when the requirements for the degree have been completed.

a. Under the heading **Requirements for the Bachelor of Arts Degree in Philosophy** make the following changes:

(1) Replace item 1., paragraph two with the following:

The University's Tier II writing requirement for the Philosophy major is met by competing Philosophy 492, or, with prior approval, Philosophy 499. Students who complete the optional concentration in Philosophy and the Law meet this requirement by completing Philosophy 454.

(2) In item 3. a. (5), replace the note with the following:

With the prior written approval of the department, Philosophy 454 or 499 may be substituted for Philosophy 492.

(3) Add the following concentration:

Concentration in Philosophy and the Law

The department offers an optional concentration in Philosophy and the Law that provides an alternative pathway through the major for students with career interests in legal and governmental fields. The concentration is available to, but not required of, any student enrolled in the Bachelor of Arts degree program in Philosophy. The concentration will be noted on the student's transcript upon completion of requirements for the degree.

Philosophy and the Law

To earn a Bachelor of Arts degree in Philosophy with a concentration in philosophy and the law, students must complete the University requirements and requirements of the College of Arts and Letters for the Bachelor of Arts degree as outlined in items 1. and 2. above. Students will complete a minimum of 36 credits from the following requirements in lieu of item 3. above:

1. The following course (3 credits):

PHL	130	Logic and Reasoning	3

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

PHL	330	Formal Reasoning	4
PHL	432	Logic and its Metatheory	4

3.	Both of the following courses (6 credits):			
	PHL	340	Ethics	3
	PHL	350	Introduction to Social and Political Philosophy	3
4.	One of the following courses (3 credits):			
	PHL	210	Ancient Greek Philosophy	3
	PHL	211	Modern Philosophy	3
	PHL	212	Latin American Philosophy	3
	PHL	213	African Philosophy	3
	PHL	214	Indigenous Philosophy	3
5.	The following course (3 credits):			
	PHL	354	Philosophy of Law	3
6.	Two of the following courses (6 to 8 credits):			
	PHL	342	Environmental Ethics	3
	PHL	344	Ethical Issues in Health Care	4
	PHL	345	Business Ethics	4
	PHL	353	Core Themes in Peace and Justice Studies	3
	PHL	355	Philosophy of Technology (W)	4
	PHL	356	Philosophical Aspects of Feminism	4
	PHL	357	Philosophy of Karl Marx	3
	PHL	440	Central Issues in Ethics	4
	PHL	442	Ethics and Animals	3
	PHL	444	Philosophical Issues in Biomedicine	4
	PHL	451	Philosophy and the Black Experience	3
	PHL	452	Ethics and Development	3
	PHL	453	Ethical Issues in Global Public Health	3
	PHL	456	Topics in Feminist Philosophy	4
7.	The following capstone course (3 credits):			
	PHL	454	Topics in Philosophy	3
8.	At least three 400-level PHL courses not used to fulfill any other requirement			8 to 12

Effective Spring 2020.

COLLEGE OF EDUCATION

1. Establish a **Master of Science** degree in **Athletic Training** in the Department of Kinesiology. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its April 15, 2019 meeting.

   a. **Background Information:**

   Today, there are more than 370 Commission on Accreditation of Athletic Training Education (CAATE) accredited professional education programs. In the fall 2015, CAATE made the announcement to change the Athletic Training degree from the Bachelor's to the Master's level. More importantly, CAATE has mandated that all "Baccalaureate programs may not admit, enroll, or matriculate students into the athletic training program after the start of the fall term 2022". Therefore, MSU placed the undergraduate Athletic Training program on a moratorium effective spring 2020 through fall 2021.

   Because of CAATE mandating the move of the professional degree to the master's level, MSU's Department of Kinesiology, would like to create a new Athletic Training program at the master's level by fall 2020. The following are several reasons for the new program: 1) CAATE believes that graduate-level professional education will better align ATs as peers to other health care professions (i.e., Doctorate in Physical Therapy) and should enhance competence/efficacy of AT professionals. 2) The perception of program directors, who oversee programs at the master's level, is that students at the graduate level show an increase in maturity, commitment to the profession, and benefit from a higher quality of clinical experience. 3) Retention of ATs who have a master's degree in the AT profession is significantly better than ATs who do not have a master's degree. This longevity also affects the reputation of ATs. 4) The combination of expanding competencies that are specific to athletic training with the global expectation of integrating the Institute of Medicine

core competencies, illustrates the need for graduate-level professional education that can accommodate the expanding body of knowledge and associated changes in clinical practice that are expected in outcomes-oriented health care.

Therefore, the undergraduate athletic training program would like to transition to the master's level in order to comply with the CAATE standards.

The new Master of Science degree in Athletic Training will be externally evaluated by CAATE based on national standards to ensure the program complies with accreditation requirements.

b. **Academic Programs Catalog Text:**

The Master of Science degree in Athletic Training prepares students to provide healthcare to physically active patients in coordination with other allied health professionals. Athletic trainers provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions in a variety of healthcare settings. Athletic trainers work under the direction of a physician as required by state licensure statutes.

The Michigan State University athletic training degree blends clinical and academic learning experiences. Athletic training students are exposed to foundational and advanced clinical reasoning, state-of-the-art health care equipment, and patient-oriented research. Students who complete this degree will be eligible to take the Board of Certification (BOC) examination. The Master of Science degree in Athletic Training is designed to prepare students for job opportunities in professional, collegiate, high school, clinical, industrial settings, military and performing arts.

Admission

To be considered for admission to the Master of Science degree in Athletic Training, applicants must have completed a bachelor’s degree from an accredited institution. Admission into the program is based on a combination of the following factors:

1. Have completed an application for graduate study.

2. Previous academic experience and performance as indicated by transcripts from previous degrees including a competitive cumulative grade-point average of 3.0 or higher on a 4.0 scale.

3. Personal goals statement of up to 500 words, covering the following items: academic background, the development of your interest in athletic training, reasons for wanting to enter this program, qualities you possess which will enhance your athletic training skills and aid in achieving your career objective(s).

4. Competitive scores on the Graduate Record Examination and Test of English as a Foreign Language (for international students).

5. Three letters of recommendation.

6. Minimum of 75 observation hours under supervision of a certified Athletic Trainer.

7. Interview with the Michigan State University Athletic Training Admissions Board.

8. The following prerequisite or equivalent courses with a grade-point average of 2.5 or higher: Introduction to Athletic Injury (3 credits); First Aid/CPR/AED (3 credits) or current professional rescuers certification card; Exercise Physiology and Laboratory (3 credits); Biomechanics (3 credits); Anatomy with Laboratory (3 credits); Physiology (3 credits); Chemistry (3 credits); Physics (3 credits); Medical Terminology (1 credit); Research Methods or Statistics (3 credits); Biology (3 credits); and Psychology (3 credits).

Requirements for the Master of Science Degree in Athletic Training

The Master of Science degree in Athletic Training is available only under Plan B (without thesis). Students must complete 54 credits for the degree.

1. All of the following courses (54 credits):

			CREDITS
KIN	800	Pathophysiology and Functional Anatomy	3
KIN	801	Emergency Procedures for Athletic Trainers	3
KIN	802	Athletic Training Practicum I	2
KIN	803	Athletic Training Practicum II	2
KIN	804	Athletic Training Practicum III	2
KIN	805	Athletic Training Practicum IV	1
KIN	806	Athletic Training Practicum V	2
KIN	807	Athletic Training Practicum VI	3
KIN	832	Lower Body Physical Assessment	3
KIN	833	Lower Body Therapeutic Interventions	3
KIN	834	Evidence Based Practice in Athletic Training	3
KIN	835	Pharmacology of Athletic Trainers	3
KIN	836	Upper Body Physical Assessment	3
KIN	837	Upper Body Therapeutic Interventions	3
KIN	838	General Medical Conditions for Athletic Trainers	3
KIN	883	Health Care Administration for Athletic Trainers	3
KIN	884	Spine Evaluation and Advanced Rehabilitation	3
KIN	885	Sport Biomechanics	3
KIN	886	Psychology of Sports Injury and Rehabilitation	2
KIN	887	Performance Enhancement in Sport	1
KIN	888	Seminar in Athletic Training	3

2. Completion of a final examination or evaluation.

Effective Summer 2020.

2. Change the requirements for the **Graduate Certificate in Children's and Young Adult Literature** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   a. Under the heading **Admission** replace the paragraph with the following:

      Students must be currently enrolled in a graduate degree program in the College of Education at Michigan State University and must complete the Intent to Enroll form on the program Web site.

Effective Spring 2020.

3. Change the requirements for the **Graduate Certificate in Elementary STEM Education** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Admission** replace the paragraph with the following:

      Students who wish to complete the graduate certificate and are currently enrolled in a graduate degree program in the College of Education at Michigan State University must complete the Intent to Enroll form on the program Web site.

Effective Spring 2020.

4. Change the requirements in the **Graduate Certificate** in **English Language Learner Education** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   The Graduate Certificate in English Language Learner Education is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in English Language Learner Education".

   a. Under the heading **Admission** replace the entry with the following:

      To be considered for admission to the Graduate Certificate in English Language Learner Education students must be pursuing a doctoral degree program within the College of Education and must complete the Intent to Enroll form on the program Web site.

   Effective Summer 2020.

5. Change the requirements for the **Graduate Specialization** in **K-12 English as a Second Language** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   a. Under the heading **Admission** replace the paragraph with the following**:**

      Students must be currently enrolled in the Master of Arts degree in Teaching and Curriculum, the Master of Arts degree in Education, or the Master of Arts degree in Special Education at Michigan State University and must complete the Intent to Enroll form on the program Web site. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the graduate specialization may also be used to satisfy the requirements for the master's degree. The planned program of courses meets the content knowledge requirements set for by the Michigan Department of Education for the K-12 Endorsement in English as a Second Language (NS).

   Effective Spring 2020.

6. Change the requirements for the **Graduate Specialization** in **Language and Literacy Education** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Graduate Specialization in Language and Literacy Education** replace paragraph two with the following:

      The graduate specialization is available as an elective to students who are enrolled in the Doctor of Philosophy degree in Educational Psychology and Educational Technology, the Doctor of Philosophy degree in Curriculum, Instruction and Teacher Education, or the Doctor of Philosophy degree in Special Education. Students must complete the Intent to Enroll form on the program Web site. Students must meet the requirements of the specialization specified below, in addition to the requirements for the Doctor of Philosophy degree in Educational Psychology and Educational Technology or the Doctor of Philosophy degree in Curriculum, Instruction and Teacher Education or the Doctor of Philosophy degree in Special Education. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the specialization may also be used to satisfy the requirements for the doctoral degree.

   b. Under the heading **Requirements for the Graduate Specialization in Language and Literacy Education**, in item 3., delete the following course:

      TE 991B Special Topics in Language and Literacy Education 3

   Effective Spring 2020.

7. Change the requirements for the **Graduate Specialization** in **Literacy and Language Instruction** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Graduate Specialization in Literacy and Language Instruction** replace paragraph two with the following:

      The specialization is available as an elective to students who are enrolled in master's degree programs in the College of Education at Michigan State University. Students must complete the Intent to Enroll form on the program Web site. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the specialization may also be used to satisfy the requirements for the master's degree.

   Effective Spring 2020.

8. Change the requirements for the **Graduate Certificate in Qualitative Research Methods** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   a. Under the heading **Admission** replace the paragraph with the following:

      Students must be currently enrolled in a doctoral program in the College of Education at Michigan State University and must complete the Intent to Enroll form on the program Web site.

   Effective Spring 2020.

9. Change the requirements for the **Graduate Certificate** in **Science Education** in the Department of Teacher Education. The University Committee on Graduate Studies (UCGS) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Graduate Certificate in Science Education** replace paragraph three with the following:

      With approval of the College of Education, the certificate is available as an elective to any student who is enrolled in a Doctor of Philosophy degree program in the College of Agriculture and Natural Resources, College of Natural Science, or the College of Education. Students must complete the Intent to Enroll form on the program Web site. Students must meet the requirements of the certificate specified below, in addition to the requirements for the student's Doctor of Philosophy degree program.

   Effective Spring 2020.

COLLEGE OF ENGINEERING

1. Change the **Admission to the College** statement in the College of Engineering. The University Committee on Undergraduate Education (UCUE) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Admission to the College** make the following changes:

      (1) Replace item 4. with the following:

      Completion of Chemistry 141 or 151 or approved substitution or waiver. Computational Data Science and Computer Science majors are not required to fulfill this requirement.

   Effective Spring 2020.

2. Change the **Graduation Requirements for All Majors** in the College of Engineering. The University Committee on Undergraduate Education (UCUE) approved this request at its September 5, 2019 meeting.

   a. Under the heading **Graduation Requirements for All Majors** make the following changes:

      (1) Change item 1., paragraph one to the following:

      The University requirements for bachelor's degrees as described in the Undergraduate Education section of the catalog; 120 credits, including general elective credits, are required for the Bachelor of Science degree in Computational Data Science, the Bachelor of Science degree in Computer Science and the Bachelor of Science degree in Applied Engineering Sciences; and 128 credits, including general elective credits, are required for the Bachelor of Science degree in the other Engineering majors.

      (2) Change item 2. b., to the following:

      Chemistry 141 or 151. Computational Data Science and Computer Science majors are not required to complete Chemistry 141 or 151.

      (3) Change item 2.e. to the following:

      One technical computing course depending on intended major: CMSE 202 (Computational Data Science), CSE 220 (Electrical Engineering), CSE 231 (Computer Science, Computer Engineering, Mechanical Engineering), or EGR 102 (all other engineering majors).

   Effective Spring 2020.

3. Change the name of the Linked **Bachelor of Science Degree in Computer Engineering** and **Master of Science Degree in Electrical Engineering** in the Department of Electrical and Computer Engineering to Linked **Bachelor of Science Degree in Computer Engineering** and **Master of Science Degree in Electrical and Computer Engineering**. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   Students admitted to the major prior to Summer 2019 will be awarded a Master of Science Degree in Electrical Engineering.

   Students admitted to the major Summer 2019 and forward will be awarded a Master of Science Degree in Electrical and Computer Engineering.

   Per University policy:

   A candidate for a Linked Bachelor's-Master's Degree from Michigan State University may request the application of up to 9 credits toward the master's program for qualifying 400-level and above course work taken at the undergraduate level at Michigan State University or an external accredited institution. The number of approved credits, not to exceed 9, are applied toward the credit requirement of the master's degree. Credits applied to the Linked Bachelor's-Master's Program are not eligible to be applied to any other graduate degree program.

   Effective Summer 2019.

4. Change the name of the Linked **Bachelor of Science Degree in Electrical Engineering** and **Master of Science Degree in Electrical Engineering** in the Department of Electrical and Computer Engineering to Linked **Bachelor of Science Degree in Electrical Engineering** and **Master of Science Degree in Electrical and Computer Engineering**. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   Students admitted to the major prior to Summer 2019 will be awarded a Master of Science Degree in Electrical Engineering.

   Students admitted to the major Summer 2019 and forward will be awarded a Master of Science Degree in Electrical and Computer Engineering.

Per University policy:
A candidate for a Linked Bachelor's-Master's Degree from Michigan State University may request the application of up to 9 credits toward the master's program for qualifying 400-level and above course work taken at the undergraduate level at Michigan State University or an external accredited institution. The number of approved credits, not to exceed 9, are applied toward the credit requirement of the master's degree. Credits applied to the Linked Bachelor's-Master's Program are not eligible to be applied to any other graduate degree program.

Effective Summer 2019.

JAMES MADISON COLLEGE

1. Change the requirements for the **Bachelor of Arts** degree in **James Madison College [Social Relations and Policy]**. The Teacher Education Council (TEC) approved this request at its September 9, 2019 meeting.

   a. Under the heading **Requirements for the Bachelor of Arts Degree in James Madison College** make the following changes:

      (1) Under the heading ***Social Relations and Policy*** make the following change:

         (a) In item 1. c. add the following course:

            MC 334 Rights, Advocacy, and Activism 4

Effective Spring 2020.

2. Change the requirements of the **Minor in Muslim Studies** in James Madison College.

   a. Under the heading **Requirements for the Minor in Muslim Studies** make the following changes:

      (1) In item 2., under **Religious Studies** delete the following course:

         REL 331 Islam and Gender 3

      (2) In item 2., under **James Madison College** delete the following course:

         MC 324DRegional Politics, Cooperation and Conflict in Asia 4

      (3) In item 2., under **Political Science** delete the following course:

         PLS 354 Politics of Asia 3

Effective Spring 2020.

COLLEGE OF NATURAL SCIENCE

1. Change the requirements for the **Bachelor of Science** degree in **Human Biology** in the College of Natural Science.

   a. Under the heading **Requirements for the Bachelor of Science Degree in Human Biology** make the following changes:

      (1) In item 3. b. change the total credits from '14' to '15' and the credits of 'NSC 495' from '2' to '3'.

      (2) In item 3. i. delete the following courses:

BLD	416	Clinical Chemistry	4
KIN	310	Physiology Bases of Physical Activity	3
KIN	330	Biomechanics of Physical Activity	3
MMG	463	Medical Microbiology	3

      Add the following courses:

BLD	439	Histocompatibility and Immunogenetics	1
BLD	446	Immunobiology of Neoplasia	1
BLD	447	Immunomodulation and Immunotherapy	1
HNF	310	Nutrition in Medicine for Pre-Health Professionals	3
IBIO	445	Evolution (W)	3
MMG	365	Medical Microbiology	3
MMG	365L	Medical Microbiology Laboratory	1
MMG	465	Advanced Medical Microbiology	3
MMG	465L	Advanced Medical Microbiology Laboratory	1
NEU	310	Psychology and Biology of Human Sexuality	3
PHM	321	Common Drugs	3
PHM	430	Human Pharmacology	3
PHM	440	Principles of Drug Action	1
PHM	461	Tropical Medicine Pharmacology	2
PSL	311L	Physiology Laboratory for Pre-Health Professionals	2

   Effective Spring 2020.

2. Change the requirements for the **Master of Science** degree in **Mathematics Education** in the College of Natural Science. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

   a. Under the heading **Admission** replace the entire entry with the following:

      The program admits students with a variety of backgrounds. Some students will have equally strong backgrounds in education and mathematics. Others may have more extensive prior preparation in one of these two disciplines.

      Admissions decisions will be made by an Admissions Committee composed of members of the Mathematics Education Faculty Group.

   b. Under the heading **Requirements for the Master of Science Degree in Mathematics Education** replace the entire entry with the following:

      The students must complete 30 credits for the degree. The program is available only under Plan B (without thesis). The student's program of study must be approved by the student's academic advisor and must include:

      CREDITS

1. All of the following courses (12 credits):

MTHE	926	Proseminar in Mathematics Education I	3
MTHE	927	Proseminar in Mathematics Education II	3
MTHE	954	Design and Methods in Mathematics Education Research	3
TE	950	Mathematical Ways of Knowing	3

2. Complete a minimum of 18 credits of course work relevant to the student's focus within mathematics education.
3. Complete a final evaluation.

Effective Spring 2020.

3. Change the requirements for the **Doctor of Philosophy** degree in **Mathematics Education** in the College of Natural Science. The University Committee on Graduate Studies (UCGS) approved this request at its September 9, 2019 meeting.

a. Under the heading **Admission** replace the entire entry with the following:

The program admits students with a variety of backgrounds. Some students will have equally strong backgrounds in education and mathematics. Others may have more extensive prior preparation in one of these two disciplines.

Admissions decisions will be made by an Admissions Committee composed of members of the Mathematics Education Faculty Group. A student who shows promise for success at doctoral study but who needs additional background to be eligible for admission to the Ph.D. program will be provided with specific conditions to be met before admission. Upon successful completion of these requirements, the student may reapply.

b. Under the heading **Requirements for the Doctor of Philosophy Degree in Mathematics Education** replace the entire entry with the following:

The students must complete the requirements listed below. The student's program of study must be approved by the student's guidance committee and must include:

1. All of the following courses (12 credits):

			CREDITS
MTHE	926	Proseminar in Mathematics Education I	3
MTHE	927	Proseminar in Mathematics Education II	3
MTHE	954	Design and Methods in Mathematics Education Research	3
TE	950	Mathematical Ways of Knowing	3

2. **Research Methods** (9 credits):
   a. One course in quantitative research methods 3
   b. One course in qualitative research methods 3
   c. One additional research methods course 3

   Research methods courses must be approved by the student's guidance committee.
3. **Research Practicum** (1 to 3 credits):

MTHE	995	Research Practicum	1 to 3

4. **Mathematics and Mathematical Knowledge for Teaching** (12 credits):
   Complete 12 credits of course work, approved by the student's guidance committee, focusing on mathematics content, both traditional mathematical sciences content and specialized knowledge needed by those engaging in research on teaching and learning mathematics.
5. **Area of Concentration** (12 credits):
   Complete 12 credits of course work in an area of concentration as approved by the student's guidance committee.
6. Successful completion of comprehensive examinations administered by program faculty.
7. **Doctoral Dissertation**
   Complete at least 24 credits and no more than 36 credits of MTHE 999 Doctoral Dissertation Research and successfully defend the oral dissertation.

Effective Spring 2020.

COLLEGE OF VETERINARY MEDICINE

1. Change the name of the **Bachelor of Science** degree in **Veterinary Technology** to **Veterinary Nursing** in the College of Veterinary Medicine.

   Students admitted to the major prior to Spring 2020 will be awarded a Bachelor of Science Degree in Veterinary Technology.

   Students admitted to the major Spring 2020 and forward will be awarded a Bachelor of Science Degree in Veterinary Nursing.

   Effective Spring 2020.

2. Change the requirements for the **Bachelor of Science** degree in **Veterinary Nursing** in the College of Veterinary Medicine.

   a. Under the heading **Requirements for the Bachelor of Science Degree in Veterinary Nursing** make the following changes:

      (1) In item 2. change the total credits from '103' to '102'.

      (2) In item 2. a., make the following changes:

         (a) Change the total credits from '73' to '72'.

         (b) Delete the following courses:

VM	130	Comparative Anatomy for Veterinary Technicians	2
VM	140	Pharmacology for Veterinary Technicians	2
VM	155	Veterinary Technology Careers and Professional Development	1
VM	170	Hematology and Immunology for Veterinary Technicians	2
VM	175	Clinical Pathology Laboratory I for Veterinary Technicians	1
VM	176	Clinical Pathology Laboratory II for Veterinary Technicians	1
VM	205	Preventive Animal Health Care for Veterinary Technicians	3
VM	210	Surgical Nursing for Veterinary Technicians	2
VM	245	Parasitology for Veterinary Technicians	2
VM	250	Veterinary Comparative Clinical Physiology	5
VM	265	Dentistry Techniques for Veterinary Technicians	1
VM	270	Advanced Skills Development for Veterinary Technicians	1
VM	295	Biomedical Research and Regulatory Issues for Veterinary Technicians	1
VM	303	Anesthesiology for Veterinary Technicians	2
VM	304	Radiology for Veterinary Technicians	2
VM	305	Hospital Practice Management for Veterinary Technicians	2
VM	410	Veterinary Technology Clerkship in Anesthesiology	3
VM	411	Veterinary Technology Clerkship in Radiology	3
VM	412	Veterinary Technology Clerkship in Companion Animal Medicine	3
VM	413	Veterinary Technology Clerkship in Companion Animal Surgery	3

Add the following courses:

VM	130	Comparative Anatomy for Veterinary Nurses	2
VM	140	Pharmacology for Veterinary Nurses	2
VM	155	Veterinary Nursing Careers and Professional Development	1
VM	170	Hematology and Immunology for Veterinary Nurses	2
VM	175	Clinical Pathology Laboratory I for Veterinary Nurses	1
VM	176	Clinical Pathology Laboratory II for Veterinary Nurses	1
VM	205	Preventive Animal Health Care for Veterinary Nurses	3
VM	210	Surgical Nursing for Veterinary Nurses	2
VM	245	Parasitology for Veterinary Nurses	2
VM	250	Veterinary Comparative Clinical Physiology	4
VM	265	Dentistry Techniques for Veterinary Nurses	1
VM	270	Advanced Skills Development for Veterinary Nurses	1
VM	295	Biomedical Research and Regulatory Issues for Veterinary Nurses	1
VM	303	Anesthesiology for Veterinary Nurses	2
VM	304	Radiology for Veterinary Nurses	2
VM	305	Hospital Practice Management for Veterinary Nurses	2
VM	410	Veterinary Nursing Clerkship in Anesthesiology	3
VM	411	Veterinary Nursing Clerkship in Radiology	3
VM	412	Veterinary Nursing Clerkship in Companion Animal Medicine	3
VM	413	Veterinary Nursing Clerkship in Companion Animal Surgery	3

(3) In item 2. c., make the following changes:

(a) Change the credits of ‘ANS 413’ from ‘3’ to ‘4’.

(b) Delete the following course:

VM	285	Clinical Nutrition for Veterinary Technologists	1

Add the following course:

VM	285	Clinical Nutrition for Veterinary Nurses	1

(4) Replace item 2. d. with the following:

At least 18 credits from the following courses or from the courses listed in item 2. c. All course selections must be approved by the student’s academic advisor:

VM	414	Veterinary Nursing Clerkship in Equine Medicine and Surgery	3 to 6
VM	415	Veterinary Nursing Clerkship in Food Animal and Equine Medicine and Surgery	3 to 6
VM	450	Veterinary Nursing Clerkship in Emergency Medicine	3
VM	451	Veterinary Nursing Clerkship in Cardiology	3
VM	452	Veterinary Nursing Clerkship in Neurology	3
VM	453	Veterinary Nursing Clerkship in Ophthalmology	3
VM	454	Veterinary Nursing Clerkship in Critical Care	3
VM	466	Veterinary Nursing Clerkship in Large Animal Anesthesia	3
VM	470	Veterinary Nursing Clerkship in Food Animal Medicine	3 to 6
VM	480	Veterinary Nursing Clerkship in Clinical Pathology	3

VM	482	Veterinary Nursing Clerkship in Necropsy	3
VM	483	Veterinary Nursing Clerkship in Biomedical Research	3 to 12
VM	484	Veterinary Nursing Clerkship in Zoo and Wildlife	3 to 12
VM	486	Veterinary Nursing Clerkship in Clinical Parasitology	3
VM	490	Veterinary Nursing Clerkship in Special Problems	3 to 12

Effective Spring 2020.

2. Change the requirements for the **Minor** in **Pharmacology and Toxicology** in the Department of Pharmacology and Toxicology.

a. Under the heading **Requirements for the Minor in Pharmacology and Toxicology** make the following change:

(1) In item 4., delete the following courses:

CEM	419	Independent Study	2
ZOL	450	Cancer Biology (W)	3

Add the following courses:

IBIO	450	Cancer Biology (W)	3
PHM	461	Tropical Medicine Pharmacology	2
PHM	483	Chemotherapy of Infectious Diseases	3

Replace the note with the following:

Students should consult their academic advisor for section specific information for enrollment in PHM 480.

Students who complete PHM 211 in item 3. must complete 10 credits to fulfill item 4.

Students who complete PHM 454 in item 3., must complete 9 credits to fulfill item 4.

Effective Spring 2020.

PART II - NEW COURSES

DEPARTMENT OF ADVERTISING AND PUBLIC RELATIONS

ADV 401 Neuromarketing and Consumer Decisions
Fall of every year. Spring of every year. 3(3-0)
Exploration of the field of neuromarketing, including different methodological techniques. Examination of how the human brain makes consumer decisions. Discern valid from invalid neuromarketing practices.
Effective Spring 2020

COLLEGE OF COMMUNICATION ARTS AND SCIENCES

CAS 899 Master's Thesis Research
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to master's students in the Health and Risk Communication Major.
Master's thesis research.
Effective Fall 2019

DEPARTMENT OF COMMUNITY SUSTAINABILITY

CSUS 426 Conservation Planning and Adaptive Management
On Demand. 3(3-0) P: CSUS 320 and BS 161 or approval of department R: Open to juniors or seniors in the College of Agriculture and Natural Resources or approval of department.
Systematic and adaptive management process for planning conservation projects. Focus on the development of conservation action plans based on the Open Standards for the Practice of Conservation.
Effective Fall 2020

DEPARTMENT OF ECONOMICS

EC 332 Monetary Policy Analysis for Fed Challenge
Fall of every year. Spring of every year. 1 to 2 credits. A student may earn a maximum of 3 credits in all enrollments for this course. P: (EC 201 or EC 251H) and (EC 202 or EC 252H) R: Approval of department.
U.S. economy through the lens of the U.S. Central Bank. Federal Reserve and monetary policy. Practice presentations in preparation for the Chicago Fed Challenge. Collect and analyze macroeconomic and financial data. Apply economic theories to understand the state of the economy.
Effective Fall 2019

DEPARTMENT OF FINANCE

FI 250 Careers in Finance
Fall of every year. Spring of every year. 1(1-0) R: Open to undergraduate students in the Business - Admitted major or in the Finance Major or approval of department.
Exploration of the various specialty areas within the field of finance, including career options for new college graduates and employment trends. Understanding the minors offered to supplement the major, the student organizations that augment classroom learning, and the professional certifications desired by employers.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring 2020

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

FSC 322 Advanced Professional Seminar in Food Science
Spring of every year. 1(1-0) P: FSC 222 R: Open to sophomores or juniors in the Food Science Major.

Preparation for success in food science careers, marketing tools, business communication skills, and contemporary topics in food science.
SA: FSC 422
Effective Fall 2020

COLLEGE OF HUMAN MEDICINE

HM 616 Radiation Oncology Clerkship
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P: HM 556 or approval of college R: Open to graduate-professional students in the College of Human Medicine or in the College of Osteopathic Medicine.

Diagnosis, staging, and treatment of cancers amenable to radiation therapy modalities. Indications for and complications of radiation therapy in definitive and palliative settings.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2019

DEPARTMENT OF INTEGRATIVE BIOLOGY

IBIO 200 Animal Biodiversity
Fall of every year. Spring of every year. 2(2-0) R: Open to students in the Integrative Biology major.

Importance of animal biodiversity in the context of evolution, ecology, conservation, and resource use.
Effective Fall 2019

IBIO 391 Emerging Scholars in Integrative Biology
Fall of every year. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department.

Professional development topics aimed at preparing for participating in research and beyond, the scientific method, research methods, and communication in science.
Effective Fall 2019

DEPARTMENT OF KINESIOLOGY

KIN 800 Pathophysiology and Functional Anatomy
Summer of every year. 3(2-2)

Functional anatomy and pathophysiology of sports injury. Practical strategies and methods for management, development, and advancement of sport professionals, athletes, and stakeholders.
Effective Summer 2020

KIN 801 Emergency Procedures for Athletic Trainers
Summer of every year. 3(2-2)

Scientific and philosophical foundations of preventative care and pre-hospital emergency care. Knowledge, critical thinking, problem solving skills, emergency care principles and associated skills in a variety of clinical and professional settings.
Effective Summer 2020

KIN 802 Athletic Training Practicum I
Summer of every year. 2(1-2) P: KIN 801
Integration of learning with the associated psychomotor skills required for the practice of athletic training. Implementation of emergency action plans, preventative measures, emergency trauma, and record keeping practices in a clinical field experience under the direct supervision of a preceptor.
Effective Summer 2020

KIN 803 Athletic Training Practicum II
Fall of every year. 2(1-2) P: KIN 800 and KIN 801 and KIN 802
Practicum experiences to integrate learning with the associated psychomotor skills. Anatomical palpations, emergency procedures, and clinical practices.
Effective Summer 2020

KIN 804 Athletic Training Practicum III
Spring of every year. 2(1-2) P: KIN 803 and KIN 832 and KIN 833
Clinical practicum experiences for learning psychomotor skills related to Athletic Training. Lower extremity injuries, lower extremity modalities and rehabilitation, and clinical practices in a clinical field experience.
Effective Summer 2020

KIN 805 Athletic Training Practicum IV
Summer of every year. 1(0-2) P: KIN 804 and KIN 836 and KIN 838
Clinical practicum experiences to integrate learning with the associated psychomotor skills. Emphasizes general medical conditions and clinical practices in a clinical field experience.
Effective Summer 2020

KIN 806 Athletic Training Practicum V
Fall of every year. 2(1-2) P: KIN 805 and KIN 836 and KIN 838
Clinical practicum experiences in learning with the associated psychomotor skills required for athletic training. Upper extremity injuries, upper extremity modalities and rehabilitation, general medical conditions, pharmacology, and clinical practices.
Effective Summer 2020

KIN 807 Athletic Training Practicum VI
Spring of every year. 3(0-6) P: KIN 806 and KIN 883 and KIN 884 and KIN 885
Clinical practicum experiences for learning with the associated psychomotor skills required for the practice of athletic training. Immersive clinical field experience under the direct supervision of a preceptor.
Effective Summer 2020

KIN 832 Lower Body Physical Assessment
Fall of every year. 3(2-2) P: KIN 800 and KIN 801 and KIN 802
Principles of lower body physical assessment. Mechanisms of injury, the evaluation process, and testing leading to diagnosis of lower body injuries.
Effective Summer 2020

KIN 833 Lower Body Therapeutic Interventions
Fall of every year. 3(2-2) P: KIN 800 and KIN 801 and KIN 802
Development, implementation, and evaluation of treatment plans. Therapeutic modalities and rehabilitation interventions for treating lower body injuries and general health conditions. Evidence-based approaches to therapeutic interventions.
Effective Summer 2020

KIN 834 Evidence Based Practice in Athletic Training
Fall of every year. 3(3-0) P: KIN 800 and KIN 801 and KIN 802
Methods for critically evaluating the quality of clinical research, implanting outcomes assessment techniques, and developing interventions to improve the delivery of primary healthcare in athletic training practice.
Effective Summer 2020

KIN 835 Pharmacology for Athletic Trainers
Spring of every year. 3(3-0) P: KIN 832 and KIN 833
Application of pharmacology to Athletic Training clinical practice. Drug-related side effects when a negative reaction is occurring, and managing instances of drug abuse in athletes.
Effective Summer 2020

KIN 836 Upper Body Physical Assessment
Spring of every year. 3(2-2) P: KIN 832 and KIN 833 and KIN 834
Principles of upper body physical assessment. Mechanisms of injury, the evaluation process, and testing leading to diagnosis of upper body injuries.
Effective Summer 2020

KIN 837 Upper Body Therapeutic Interventions
Spring of every year. 3(2-2) P: KIN 832 and KIN 833 and KIN 834
Evidence-based approach to development, implementation, and evaluation. Treatment plans using therapeutic modalities and rehabilitation interventions in the treatment of upper body injuries and general medical conditions.
Effective Summer 2020

KIN 838 General Medical Conditions for Athletic Trainers
Spring of every year. 3(2-2) P: KIN 832 and KIN 833 and KIN 834
General medical conditions from the athletic training perspective. Diagnosis and treatment of patients in daily clinical practice.
Effective Summer 2020

KIN 883 Health Care Administration for Athletic Trainers
Fall of every year. 3(3-0) P: KIN 835 and KIN 836 and KIN 837 and KIN 838
Professional management and administrative issues in athletic training. Planning, design, development, organization, implementation, direction, and evaluation of health care programs. Current issues in athletic training related to professional conduct and practice.
Effective Summer 2020

KIN 884 Spine Evaluations and Advanced Rehabilitation
Fall of every year. 3(2-2)
Techniques of manual clinical evaluation of the spine. Correction skills for spinal dysfunctions.
Effective Spring 2020

KIN 885 Sport Biomechanics
Fall of every year. 3(3-0)
Biomechanics of tissues involved in common musculoskeletal injuries. Common methods of biomechanical assessment in athletic populations, and application of these concepts to the mechanisms of musculoskeletal injury and the approach to rehabilitation.
Effective Spring 2020

KIN 886 Psychology of Sports Injury and Rehabilitation
Spring of every year. 2(2-0) P: KIN 883 and KIN 884 and KIN 885
Psychology of injury that may affect athletes. Risk, culture, pain science, adherence to rehabilitation regimens, the relationship between psychological factors and clinical outcomes, and referrals for additional support.
Effective Summer 2020

KIN 887 Performance Enhancement in Sport
Spring of every year. 1(1-0) P: KIN 883 and KIN 884 and KIN 885
Athletic trainer's roles in modifying nutritional behaviors of athletes. Achieving peak performance in athletes by training and consumption of nutrients. Pre-game and post-game meals.
Effective Summer 2020

KIN 888 Seminar in Athletic Training
Spring of every year. 3(2-2) P: KIN 836 and KIN 837
Scientific writing and clinical research. Case reports, critically appraised topics (CATs), or research projects to address health-related problems in Athletic Training.
Effective Summer 2020

MSU COLLEGE OF LAW

LAW 623M TPI: Trial Presentation
Spring of every year. 0 to 6 credits. P: LAW 623B R: Open to Law students. Not open to students with credit in LAW 590A or LAW 587B or LAW 591A or LAW 617A.
Efficient use of courtroom technology and the presentation of electronic evidence, effective verbal and nonverbal communication skills, and proper courtroom etiquette and decorum during the various stages of litigation.
Request the use of the Pass-Fail Grade (P-F) system.
SA: LAW 623G, LAW 623A
Effective Spring 2020

LAW 623N TPI:Scientific: Evidence and Legal Technology
Spring of every year. 0 to 6 credits. R: Open to Law students. Not open to students with credit in LAW 590A or LAW 587B or LAW 617A or LAW 591A.
Maximization of technology in the delivery of legal services; use of experts during litigation, the e-discovery process, and new legal delivery methods.
Effective Spring 2020

DEPARTMENT OF LINGUISTICS AND GERMANIC, SLAVIC, ASIAN AND AFRICAN LANGUAGES

LLT 813 CALL: Technology-mediated Language Learning and Teaching
Spring of odd years. 3(3-0) RB: LLT 807 or ROM 803 R: Open to graduate students in the Second Language Studies Major or in the Teaching English to Speakers of Other Languages Major or approval of department.
Overview of pedagogical, empirical, methodological, and theoretical issues regarding language learning and teaching in technology-mediated contexts. Discussion, simulations and case studies, the creation of a teaching portfolio, and the participation in action research.
Effective Spring 2020

LLT 818 Eye Tracking in Second Language Acquisition and Bilingualism
Fall of odd years. 3(3-0) RB: LLT 872 or LLT 873 R: Open to graduate students in the Second Language Studies Major or in the Teaching English to Speakers of Other Languages Major or in the Cognitive Science Specialization or approval of department.
Use eye-movement recordings (eye-tracking) in second language acquisition research and bilingualism. Conduct an eye-tracking study from start to finish. Foundational texts on eye-movement research and selected empirical studies.
Effective Fall 2019

LLT 823 Introduction to Corpus Linguistics for Second Language Studies
Fall of even years. 3(3-0) R: Open to graduate students in the Second Language Studies Major or in the Teaching English to Speakers of Other Languages Major or approval of department.
Overview of corpus linguistics in applied contexts such as second language acquisition and use as well as second/foreign language teaching. Key concepts and methods in corpus linguistics and preparation for basic corpus-based research.
Effective Fall 2019

LLT 842 Teaching and Learning Vocabulary in Another Language
Spring of even years. 3(3-0) R: Open to graduate students in the Second Language Studies Major or in the Teaching English to Speakers of Other Languages Major or approval of department.
Overview of second language vocabulary acquisition research and its implications for second language teaching. Dimensions of vocabulary knowledge. Vocabulary and the four communicative skills. Incidental versus intentional vocabulary learning. Vocabulary learning strategies.
Effective Spring 2020

LLT 870 Instructed Second Language Acquisition
Spring of odd years. 3(3-0) R: Open to graduate students in the Second Language Studies Major or in the Teaching English to Speakers of Other Languages Major or approval of department.
Relationships among SLA theory, research, and second language pedagogy. Key concepts in instructed SLA and preparation for considering the research-pedagogy link in second language teaching and learning contexts.
Effective Fall 2020

DEPARTMENT OF MANAGEMENT

ESHP 202 Entrepreneurship Abroad
On Demand. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Explores the entrepreneurial mindset through the lens of a different culture and different business norms through study abroad.
Effective Fall 2019

ESHP 490 Independent Study in Entrepreneurship
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: ESHP 190 or approval of department
Supervised program of independent research and application, in areas related to entrepreneurship and innovation.
Effective Fall 2019

ESHP 491 Special Topics in Entrepreneurship
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: ESHP 190 or approval of department
Current and emerging topics in entrepreneurship and innovation.
Effective Fall 2019

SCHOOL OF PLANNING, DESIGN AND CONSTRUCTION

CMP 245 Principles of Green Building
Spring of every year. 3(3-0) P: CMP 210 and (CMP 230 or concurrently)
Origins of green building in the U.S. Codes, regulations, and standards governing green building practice. The whole building concept and airflow, thermal, and moisture movement in buildings. Sustainable building systems and modern green construction practices.
Effective Spring 2020

CMP 445 Green and Energy Efficient Building Construction
Spring of every year. 3(2-2) P: CMP 245 Not open to students with credit in CMP 845.
Best building practices in building construction, based upon the Leadership in Energy and Environmental Design and National Green Building Standard, and other national programs.
Effective Spring 2020

CMP 845 Advanced Green and Energy Efficient Building Construction
Spring of every year. 3(2-2) R: Open to graduate students in the School of Planning, Design and Construction or in the Civil Engineering Major. Approval of department. Not open to students with credit in CMP 445.
Best building practices in building construction, based upon the Leadership in Energy and Environmental Design and National Green Building Standard, and other national standards; basic understanding on building energy modeling.
Effective Spring 2020

DEPARTMENT OF PLANT, SOIL AND MICROBIAL SCIENCES

CSS 846 Integrated Climate and Cropping System Modeling
Spring of odd years. 3(3-0) Interdepartmental with Biosystems Engineering. RB: GEO 402
Crop simulation modeling for water and nutrient use under resource limitations and varying climatic conditions.
Effective Spring 2019

OFFICE OF THE PROVOST

LWG 817A Mortgage Finance
Spring of every year. 0 to 4 credits.
Legal issues in the mortgage-banking industry with a focus on residential property.
Effective Spring 2020

LWG 837V Blockchain Technology, Law, and Policy
Fall of every year. 2 to 4 credits.
Laws affecting applications of the technology, and anticipated effects on contemporary legal practice.
Effective Fall 2019

LWG 848F International Human Rights
Fall of every year. 2 to 4 credits.
Human rights and the international legal order, background, concepts, and the future.
Effective Spring 2020

LWG 858S Biotechnology Law Seminar
Fall of every year. Spring of every year. Summer of every year. 2 to 4 credits.
Impacts of biotechnology on legal topics that include intellectual property, business, federal regulations, property, criminal law and evidence, bioethics and international law.
Effective Fall 2019

LWG 872D Tax Policy Seminar
Fall of every year. Spring of every year. 2 to 4 credits.
Tax policy issues arising from federal taxation.
Effective Fall 2019

SCHOOL OF SOCIAL WORK

SW 878 Substance Use and Addictions Treatment
Fall of every year. Summer of every year. 2(2-0) R: Open to graduate students in the School of Social Work or approval of school.
Knowledge and skills in evidence-based treatment approaches for addiction concerns. Attention to diagnosis, assessment, and prevention processes that support cross-cultural and ethical considerations within multidisciplinary treatment contexts. Managing long-term recovery as a part of whole health.
Effective Fall 2019

COLLEGE OF VETERINARY MEDICINE

VM 693 Companion Animal Behavior Clerkship
Spring of every year. 3(3-0) R: Open to veterinary medicine students in the College of Veterinary Medicine or approval of college.
History acquisition, development of treatment plans in the context of veterinary behavior cases.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring 2020

PART III – COURSE CHANGES

DEPARTMENT OF ACCOUNTING AND INFORMATION SYSTEMS

ACC 201 Principles of Financial Accounting
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: CSE 101~~ P: CSE 102 R: Open to undergraduate students in the Business - Admitted major and open to sophomores or juniors or seniors in the Hospitality Business Major.

Purpose and content of corporate financial statements with emphasis on interpretation and understanding the effects of various transactions on these statements. Basic principles, conventions and concepts related to financial statements. Measurement of assets, liabilities, revenues and expenses. International accounting concepts.
~~Effective Fall 2018~~ Effective Spring 2020

ITM 209 Business Analytics and Information Systems
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: CSE 101~~ P: CSE 102 R: Open to undergraduate students in the Business - Admitted major and open to undergraduate students in the Information Technology Minor.

~~Use of business processes, information technologies, and analytics in creating value and enabling improvements in global business performance.~~ Use of data and analytics to identify and create business value.
~~SA: BUS 309, ITM 309~~
~~Effective Fall 2017~~ Effective Fall 2020

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ESP 804 Environmental Applications and Analysis
Fall of every year. ~~Spring of every year.~~ 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: ESP 801 and (ESP 802 or concurrently) and ESP 803 or approval of department RB: Bachelors or Masters in appropriate discipline for specialization.

~~Global, regional and local environmental issues. Use of systems approach to identify and solve environmental problems.~~ Global, regional, and local environmental issues. Systems approach to identify and solve environmental problems.
SA: SSC 806
~~Effective Spring 2014~~ Effective Fall 2019

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

~~BMB 472~~
BMB 470 Advanced Molecular Biology Laboratory
Fall of every year. 3(0-6) P: CEM 262 and BMB 461 RB: BMB 462 R: Open to students in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major or in the Lyman Briggs Biochemistry and Molecular Biology Coordinate Major or in the Lyman Briggs-Biochemistry/Biotechnology Coordinate Major or approval of department.

Methods of molecular biology and the underlying principles on which these methods are based.
~~SA: BCH 472~~ SA: BCH 472, BMB 472
~~Effective Summer 2014~~ Effective Summer 2020

BMB 471 Advanced Biochemistry Laboratory
Spring of every year. 3(0-6) ~~P: BMB 461 and CEM 262~~ P: BMB 461 and CEM 262 and CMSE 201 R: Open to students in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major or in the Lyman Briggs Biochemistry and Molecular Biology Coordinate Major or in the Lyman Briggs-Biochemistry/Biotechnology Coordinate Major or approval of department.

Biochemical methods and principles used in the study of enzymes (proteins), carbohydrates, lipids, and cell organelles.
SA: BCH 471
~~Effective Summer 2014~~ Effective Fall 2019

DEPARTMENT OF BIOSYSTEMS AND AGRICULTURAL ENGINEERING

BE 482 Engineering Ecological Treatment Systems
Fall of every year. ~~Spring of every year.~~ 3(2-2) P: (BE 350 or ENE 483 or CHE 312) and (BE 360 or ENE 487 or CHE 431) R: Open to juniors or seniors in the College of Engineering.
Analysis of pollutants in ecological systems. Engineering design of ecological systems to prevent, mitigate, and treat diffuse and point source pollution, including low impact development (LID) strategies and best management practices (BMPs).
~~Effective Fall 2018~~ Effective Fall 2019

THE ELI BROAD COLLEGE OF BUSINESS

HCM 801 Critical Thinking and Innovation in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Critical thinking and innovation as vital management tools for healthcare professionals. Strategies for dealing with cognitive biases and unrecognized assumptions. Determining causality. Navigating pathways in critical reasoning. Maximizing reasoning effectiveness. Developing and implementing innovative design, processes, and leadership in healthcare.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 802 Cost Analysis in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Cost accounting and management control tools and techniques for making value-added decisions in important healthcare contexts. Topics will include (a) Cost Analysis: cost estimation, cost allocation, and cost behavior; (b) Pricing: revenue management and strategic product-mix decisions; (c) Profitability: analytical techniques for determining profitability of departments, services, and patients; (d) Control: budgeting, variance analysis, coordination of activities among departments; and (e) Contracting with suppliers and insurance companies.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 803 Financial Analysis in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Principles of financial accounting applied to healthcare organizations, emphasizing application of key financial accounting tools and concepts for managerial decisions.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 804 Financial Management in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. P: HCM 803 ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Financial management tools for investment and financing decision making in healthcare firms. Risk, valuation, capital budgeting. Analysis of the financial condition of the firm through the examination of financial statements. Current events and applications.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 805 Quality, Risk, and Performance Management
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Managing healthcare performance by means of quality initiatives, process management, and risk management. Relevant methods, principles, processes, strategies and systems thinking.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 806 Healthcare Information Systems
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Issues in the management and implementation of healthcare information systems and application of information technologies to support the effective and efficient delivery of healthcare work processes to stakeholders. The relationship between quality management and information management. Technology standards, security, and emerging technologies. Healthcare analytics.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 807 Law and Ethics in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Legal and ethical doctrines, principles, applications, and issues in healthcare organizations. Legal and ethical dimensions of decision making, administrative law, and planning in healthcare.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 808 Healthcare Systems and Economic Policy
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Organization of U.S. health system, policy process, and services. Dynamics of economic theory, valuation, financing and delivery of healthcare.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 809 Organizational Behavior in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Role of workforce leadership in fulfilling the goals and mission of healthcare organizations. Theories and applications of organizational behavior principles to motivating, rewarding, and structuring employees' work. Managing groups and teams. Structuring the organization. Domestic and international issues in the workplace.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 810 Human Resource Management in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Human resource management for healthcare organizations. Strategies for human resource recruitment, utilization, productivity, compensation, and development.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 811 Healthcare Strategic Management
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Examines ways top managers create and sustain competitive advantage in today's challenging healthcare marketplace from a total firm perspective.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 812 Supply Chain Management in Healthcare
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Concepts and tools of supply chain management related to healthcare settings. Management of resources, sourcing, operations, inventory, logistics, and capacity for effective services, quality, and cost performance.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 813 Healthcare Services Marketing
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
The principles and processes of marketing and its role in effectively managing healthcare services for improvement and policy making.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 814 Hospitality and the Patient Experience
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
The patient experience in healthcare as it relates to hospitality marketing, service quality management, patient well-being, and the role that leadership plays in the process.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 815 Managerial Epidemiology and Population Health
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Epidemiological concepts for decision-making in healthcare organizations. Managerial strategies for applying population health principles to disease assessment, community forecasting, cost effectiveness, and utilization of services.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 816 Healthcare Management Capstone
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Integrates the coursework, skills and perspectives in the program in a project, paper, or practicum. Brings cumulative knowledge to bear on specific healthcare management issues, dilemmas and gaps.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 817 Healthcare Leadership
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. P: HCM 809 and HCM 810 ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Review of leadership theories and practices as applied in healthcare organizations. Development of leadership skills.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 818 Strategic Decision Making
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. P: HCM 811 ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Explores the process of strategic decision-making in healthcare organizations. Identifies issues that impeded and improve decision success. Examines a range of contextual factors that influence the decision process.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 819 Market Analysis and Planning
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Techniques, systems and formats to comprehend healthcare market forces and develop value-based healthcare marketing plans.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 820 Negotiations
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. P: HCM 809 ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Fundamentals of effective negotiations in healthcare organizations. Planning for negotiation, integrative and distributive negotiation strategies, power and influence, ethics and interpersonal communication. Experience in negotiating through simulations and follow-up discussions.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 821 Healthcare Regulations
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Examines the role of regulations in the healthcare industry, focusing on standards of regulatory and accreditation organizations. Explores regulation in relationship to organizational culture and performance.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 822 Healthcare Compliance
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Explores the importance of compliance in healthcare organizations. Effective healthcare compliance, governance issues, fiduciary responsibilities, and challenges faced in the healthcare industry.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 823 Enterprise Risk Management
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Best approaches, academic and practical, to creating and implementing an Enterprise Risk Management (ERM) system. Examines ERM from a healthcare perspective. Key risk frameworks and tools for critical analysis of issues.
~~Effective Fall 2018~~ Effective Fall 2019

HCM 824 Implementing Compliance Systems
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. ~~R: Approval of college.~~ R: Open to master's students in the Healthcare Management Major.
Implementation, execution, and enforcement of healthcare compliance programs. Current issues in compliance systems and healthcare sectors, and relationships with the federal government and accrediting agencies.
~~Effective Fall 2018~~ Effective Fall 2019

DEPARTMENT OF CHEMISTRY

CEM 121 Explorations in Chemistry
Fall of every year. ~~Spring of every year.~~ 3(4-0) ~~P: MTH 103 or concurrently~~ P: (MTH 103 or concurrently) or (MTH 103A or concurrently) or (MTH 103B or concurrently) R: Approval of department. Not open to students with credit in CEM 141 or CEM 151 or CEM 181H or LB 171.
Introduction to core ideas in chemistry (structure and properties of matter, energy, and electrical forces) blended with science practices (use of models, argumentation, construction of scientific explanations, mathematical thinking) to understand and explain chemical phenomena.
~~Effective Fall 2015~~ Effective Summer 2020

CEM 251 Organic Chemistry I
Fall of every year. Spring of every year. Summer of every year. 3(4-0) P: CEM 141 or CEM 151 or CEM 181H or LB 171 RB: CEM 142 or CEM 152 or CEM 182H or LB 172 Not open to students with credit in CEM 351.
Common classes of organic compounds including their nomenclature, structure, bonding, reactivity, and spectroscopic characterization.
~~Effective Fall 2013~~ Effective Summer 2020

CEM 311 Inorganic Chemistry
~~Fall of every year.~~ Spring of every year. 3(3-0) P: CEM 142 or CEM 152 or CEM 182H or LB 172 RB: CEM 384
Basic symmetry, molecular orbital theory, and valence bond theory applications to inorganic systems. Physical properties and reactivity of transition metal systems.
~~Effective Spring 2013~~ Effective Spring 2020

CEM 333 Instrumental Methods and Applications
Spring of every year. 3(2-3) ~~P: {CEM 262 or (CEM 162 and BLD 213 and BLD 417)} and ((CEM 143 or CEM 251 or CEM 351) and completion of Tier I writing requirement)~~ P: {(CEM 262) or (CEM 162 and BLD 213L and BLD 313)} and ((CEM 143 or CEM 251 or CEM 351) and completion of Tier I writing requirement)
Principles and applications of instrumental analysis of separation techniques.
~~Effective Spring 2015~~ Effective Fall 2019

DEPARTMENT OF COMPUTATIONAL MATHEMATICS, SCIENCE, AND ENGINEERING

CMSE 801 ~~Introduction to Computational Modeling~~
Introduction to Computational Modeling and Data Analysis
Fall of every year. Spring of every year. 3(3-0) RB: One semester of introductory calculus
Introduction to computational modeling using a wide variety of application examples. Algorithmic thinking and model building, data visualization, numerical methods, all implemented as programs. Command line interfaces. Scientific software development techniques including modular programming, testing, and version control.
SA: NSC 801
~~Effective Summer 2017~~ Effective Summer 2020

CMSE 802 Methods in Computational Modeling
Fall of every year. Spring of every year. 3(3-0) RB: (CMSE 801) or equivalent experience
Standard computational modeling methods and tools. Programming and code-management techniques.
SA: NSC 802
~~Effective Summer 2017~~ Effective Fall 2019

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

~~IBIO 303~~
GLG 303 Oceanography
Fall of every year. ~~4(4-0)~~ 3(3-0) ~~Interdepartmental with Geological Sciences~~. Interdepartmental with Integrative Biology P: (CEM 141 or CEM 181H or LB 171 or CEM 151) and (PHY 231 or PHY 183 or PHY 193H or LB 273 or PHY 183B or PHY 231C or PHY 241)
Physical, chemical, biological, and geological aspects of oceanography: ocean circulation, waves, tides, air-sea interactions, chemical properties of ocean water, ocean productivity, shoreline processes, and sediments.
~~SA: ZOL 303~~
~~Effective Spring 2018~~ Effective Summer 2020

GLG 873 Introduction to Numerical Tools for Earth and Environmental Scientists
~~Fall of odd years.~~ Spring of even years. 3(3-0) RB: B.S. in the Earth Sciences or related field
Introduction to Linux and C including numerical methods, integration, curve-fitting, and differential equations with an emphasis on applications to the geological sciences.
~~Effective Fall 2017~~ Effective Fall 2019

DEPARTMENT OF FAMILY MEDICINE

FM 641 ~~Family Medicine Subinternship in the Late Clinical Experience~~
Family Medicine Clerkship in the Late Clinical Experience
Fall of every year. Spring of every year. Summer of every year. 6 credits. P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.
Clinical experience in which students take primary responsibility for managing the care of patients in a primary care setting under the supervision of attending physicians.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
~~Effective Fall 2017~~ Effective Summer 2020

DEPARTMENT OF FINANCE

~~FI 455~~
FI 355 ~~Computer Applications in Financial Modeling~~
Financial Modeling
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: FI 311 and (FI 312 or concurrently) R: Open to students in the Finance Major.
Development of computer spreadsheet-based models to analyze corporate financial strategies and valuation issues.
SA: FI 455
~~Effective Fall 2018~~ Effective Fall 2020

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

FSC 222 Professional Development and Career Planning in Food Science
Fall of every year. 1(1-0) P: FSC 211 or concurrently RB: Introductory course in food science ~~R: Open to students in the Food Science Major.~~ R: Open to freshmen or sophomores in the Food Science Major.
Career opportunities in food science; training in oral, written, and visual communication skills for professional development.
~~Effective Fall 2018~~ Effective Fall 2020

COLLEGE OF HUMAN MEDICINE

HM 655 Advanced Skills and Knowledge in Medical School V
Fall of every year. Spring of every year. 2(2-0) A student may earn a maximum of 6 credits in all enrollments for this course. ~~P: HM 654~~ P: HM 654 or concurrently R: Open to graduate-professional students in the College of Human Medicine.
Interdisciplinary small group course for advanced medical students combining advanced clinical skills with deep exploration of scientific and humanities literature underlying these skills.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
~~Effective Spring 2019~~ Effective Fall 2019

DEPARTMENT OF INTEGRATIVE BIOLOGY

IBIO 485 ~~Tropical Biology (W)~~
Tropical Biology
Fall of every year. 3(3-0) Interdepartmental with Plant Biology. P: (IBIO 355) and completion of Tier I writing requirement R: Open to juniors or seniors.
Tropical biota emphasizing evolutionary and ecological principles compared across tropical ecosystems.
SA: ZOL 485
~~Effective Fall 2016~~ Effective Fall 2019

IBIO 830 Statistical Methods in Ecology and Evolution I
Fall of every year. 3(3-0) Interdepartmental with Entomology and Plant Biology. R: Open to graduate students in the Department of Entomology or in the Ecology, Evolutionary Biology and Behavior Specialization or in the Ecology, Evolutionary Biology and Behavior Major or approval of department.
Fundamental elements of data analysis in ecology and evolution. Programming fundamentals in the R computing language. Introduction to modeling biological data with modern methods for estimation and inference.
~~Effective Spring 2018~~ Effective Fall 2019

IBIO 831 Statistical Methods in Ecology and Evolution II
Spring of every year. 3(3-0) Interdepartmental with Entomology and Plant Biology. P: IBIO 830 R: Open to graduate students in the Department of Entomology or in the Ecology, Evolutionary Biology and Behavior Specialization or in the Ecology, Evolutionary Biology and Behavior Major or approval of department.

Advanced interpretation and modeling of biological data with modern methods for estimation and inference using the R computing language.
~~Effective Spring 2018~~ Effective Fall 2019

CENTER FOR INTEGRATIVE STUDIES IN GENERAL SCIENCE

ISB 200 History of Life
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 110 or concurrently) or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 103B or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test

Life from its origin to the dawn of human history. Living things as both the products of evolutionary processes and as a major force driving evolution and altering the environment of planet earth.
~~Effective Summer 2016~~ Effective Fall 2019

ISB 201 Insects, Globalization, and Sustainability
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 110 or concurrently) or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 103B or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test

The relationship between insects, human society, and the environment with an emphasis on ecological and evolutionary processes. Critical evaluation of current regional and global environmental problems and how they are effecting the development of a sustainable society.
~~Effective Fall 2016~~ Effective Fall 2019

ISB 202 Applications of Environmental and Organismal Biology
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 110 or concurrently) or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 103B or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test

Historical and recent development of ideas about behavior, ecological, and evolutionary processes. Critical evaluation of the use and misuse of human understanding of nature, emphasizing recent findings.
~~Effective Fall 2016~~ Effective Fall 2019

ISB 204 Applications of Biomedical Sciences
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 110 or concurrently) or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: ((MTH 101 or concurrently) or (MTH 103 or concurrently) or (MTH 103B or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Historical and recent development of knowledge about cellular developmental or genetic processes. Critical evaluation of the use and misuse of scientific discoveries in these areas.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 203A Understanding Earth: Global Change
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Science as a way of knowing about natural and anthropogenic global change. Implications for societies.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 203B Understanding Earth: Natural Hazards and the Environment
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Science as a way of knowing about natural hazards, as well as natural and anthropogenic environmental change. Implications for societies.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 205 Visions of the Universe
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Role of observation, theory, philosophy, and technology in the development of the modern conception of the universe. The Copernican Revolution. Birth and death of stars. Spaceship Earth. Cosmology and time.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 209 The Mystery of the Physical World
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Laws of physics through demonstrations and analyses of every day phenomena. Optics, mechanical systems and electromagnetic phenomena.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 215 The Science of Sound
Fall of every year. Spring of every year. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
The science of speech, communication, musical instruments, room acoustics, and analogue and digital audio. Integrating the physical, physiological, and psychological principles involved.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 217 Water and the Environment
Fall of every year. Spring of every year. 3(3-0) ~~P: MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)~~ P: MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)
Application of the scientific method to identification and solution of environmental problems related to water.
~~Effective Fall 2016~~ Effective Fall 2019

ISP 220 Quarks, Spacetime, and the Big Bang
Spring of odd years. 3(3-0) ~~P: (MTH 101 or MTH 103 or MTH 110 or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: (MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test
Elementary particle physics and the Big Bang for non-scientists. A survey of particles and forces in the early universe as it is recreated at high energy particle colliders in laboratories around the world.
~~Effective Spring 2017~~ Effective Fall 2019

ISP 221 Earth Environment and Energy
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: MTH 103 or MTH 110 or MTH 116 or (LB 118 or concurrently) or (MTH 112 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)~~ P: MTH 101 or MTH 103 or MTH 103B or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 201 or concurrently) or (LB 118 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)
Flow of energy into, through, and out of the earth's lithosphere, hydrosphere, atmosphere, and biosphere. Energy, entropy, and life processes. Global warming, greenhouse effect, and contemporary issues.
~~Effective Fall 2014~~ Effective Fall 2019

DEPARTMENT OF LARGE ANIMAL CLINICAL SCIENCES

LCS 625 ~~Equine Herd Health Clerkship~~
Equine Primary Care Clerkship
Fall of every year. Spring of every year. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.
Establishment and maintenance of equine herd health programs. Reproduction, parasite control, immunization, and diagnostic medicine and surgery in the field.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
~~Effective Fall 2013~~ Effective Summer 2020

MSU COLLEGE OF LAW

LAW 587B Civil Trial Advocacy I
Fall of every year. Spring of every year. ~~2 to 4 credits.~~ 0 to 6 credits. RB: LAW 500P ~~R: Open to students in the MSU College of Law.~~ R: Open to Law students or law advanced students or law lifelong students or law non-degree students in the MSU College of Law. Not open to students with credit in LAW 623B or LAW 623C or LAW 623D or LAW 623E or LAW 623F or LAW 623M or LAW 623N.
Pre-trial preparation training.
SA: DCL 472
~~Effective Summer 2009~~ Effective Spring 2020

LAW 591A Client Counseling and Interviewing
Fall of every year. Spring of every year. 0 to 6 credits. P: LAW 530A and LAW 500P R: Open to Law students or law advanced students or law lifelong students or law non-degree students in the MSU College of Law. ~~Not open to students with credit in LAW 623B or LAW 623C or LAW 623D or LAW 623E or LAW 623F or LAW 623A.~~ Not open to students with credit in LAW 623B or LAW 623C or LAW 623D or LAW 623E or LAW 623F or LAW 623M or LAW 623N.
Problem-solving approaches to fundamental counseling skills.
SA: DCL 450
~~Effective Summer 2019~~ Effective Spring 2020

LAW 617A Criminal Trial Advocacy I - Pretrial
Fall of every year. Spring of every year. ~~2 to 4 credits.~~ 0 to 6 credits. P: LAW 500F ~~R: Open to students in the MSU College of Law.~~ R: Open to Law students or law advanced students or law lifelong students or law non-degree students in the MSU College of Law. Not open to students with credit in LAW 623B or LAW 623C or LAW 623D or LAW 623E or LAW 623F or LAW 623M or LAW 623N.
Criminal procedure including case initiation, indictment, and pretrial motions.
SA: DCL 470
~~Effective Summer 2009~~ Effective Spring 2020

LAW 623A Trial Practice Institute: Theatrical Skills - Advocacy as a Performing Art
Fall of every year. 1 to 4 credits. R: Open to students in the MSU College of Law.
Enhancement of advocacy skills through application of actor-training techniques.
Request the use of the Pass-Fail Grade (P-F) system.
SA: DCL 533
DELETE COURSE
Effective Fall 2019

LAW 623G Technology Enhanced Trial Advocacy
Fall of every year. Spring of every year. Summer of every year. 0 to 4 credits. R: Open to Law students.
Hands-on training in the efficient uses of courtroom technology and the presentation of electronic evidence.
Request the use of the Pass-Fail Grade (P-F) system.
DELETE COURSE
Effective Fall 2019

DEPARTMENT OF MARKETING

MKT 300 Managerial Marketing
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~R: Open to juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management and not open to undergraduate students in the School of Hospitality Business.~~ R: Open to sophomores or juniors or seniors in the Accounting major or in the Business - Admitted major or in the Finance Major or in the Human Resource Management Major or in the Management Major or in the Supply Chain Management Major or in the Marketing Major. Not open to students with credit in MKT 327.
Analysis and strategic integration of buyer behavior, segmentation, positioning, demand analysis, information, pricing, promotion, channels, product policies, and ethics in consumer, reseller, industrial, and service markets.
SA: MSC 300
~~Effective Fall 2015~~ Effective Fall 2019

MKT 420 New Product Design and Development
Fall of every year. Spring of every year. 3(3-0) ~~P: (MKT 300 or MKT 327 or BUS 190) and (MKT 317 or approval of department)~~ P: (MKT 300 or MKT 327 or ESHP 190) and MKT 317 ~~R: Open to seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Entrepreneurship & Innovation Minor.~~ R: Open to seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Entrepreneurship and Innovation Minor.
Practical training and experiences in design and testing of new products.
SA: MSC 420
~~Effective Fall 2016~~ Effective Fall 2019

MKT 911 ~~Seminar in Marketing Strategy and Competition~~
Seminar in Marketing Strategy
Fall of odd years. 3(3-0) R: Open to doctoral students in the Eli Broad College of Business and The Eli Broad Graduate School of Management or approval of department; application required.
Strategic marketing and planning. How marketing concepts, tools, and processes can be used to help an organization develop a sustainable competitive advantage through the creation of superior customer value.
SA: MSC 911
~~Effective Fall 2009~~ Effective Summer 2020

DEPARTMENT OF MATHEMATICS

MTH 309 Linear Algebra I
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: ((MTH 133 or MTH 153H or LB 119) and completion of Tier I writing requirement) and (MTH 299 or approval of department)~~ P: (MTH 133 or MTH 153H or LB 119) and completion of Tier I writing requirement Not open to students with credit in MTH 317H.
Matrices, systems of linear equations, vector spaces, linear transformations, inner products and orthogonal spaces, eigenvalues and eigenvectors, and applications to geometry. A writing course with emphasis on proofs.
~~Effective Fall 2017~~ Effective Fall 2019

MTH 451 Numerical Analysis I
Fall of every year. 3(3-0) ~~P: (CSE 131 or CSE 231) and (CSE 131 or CSE 231) and (MTH 235 or MTH 340 or MTH 347H)~~ P: (CSE 231 or CMSE 201) and (MTH 235 or MTH 340 or MTH 347H)
Numerical solution of linear and nonlinear algebraic equations and eigenvalue problems. Curve fitting. Interpolation theory. Numerical integration, differentiation, and solution of differential equations. Algorithms implementation with a programming language like Fortran, C/C++ or MATLAB.
SA: MTH 351
~~Effective Fall 2015~~ Effective Fall 2019

MTH 468 Predictive Analytics
Spring of every year. 3(3-0) Interdepartmental with Statistics and Probability. ~~P: CSE 131 or CSE 231 or MTH 235 or MTH 340 or MTH 309 or MTH 360 or STT 442~~ P: (CSE 231) and (MTH 235 or MTH 340) and MTH 360 and STT 442
Predictive analytics for insurance business and risk management with an emphasis on the use of machine learning tools.
~~Effective Fall 2018~~ Effective Fall 2019

PROGRAM IN MATHEMATICS EDUCATION

MTHE 995 Research Practicum

Spring of every year. ~~3 credits.~~ 1 to 3 credits. RB: MTHE 954 R: Open to graduate students in the Mathematics Education Major. Approval of department.

Supervised research practicum. Design, execution, analysis, presentation, critique, and revision of research projects.

Request the use of the Pass-No Grade (P-N) system.

Request the use of ET-Extension to postpone grading.

The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.

~~Effective Summer 2013~~ Effective Spring 2020

DEPARTMENT OF MEDIA AND INFORMATION

MI 247 Three-Dimensional Graphics and Design

Fall of every year. Spring of every year. Summer of every year. 3(2-2) P: (CAS 116) or (STA 110 and STA 113) or (CAS 205 or CAS 206 or CAS 207) ~~R: Open to students in the Department of Media and Information or in the Game Design and Development Minor.~~ R: Open to students in the Department of Media and Information or in the Game Design and Development Minor or in the Computer Science Major or in the Graphic Design Major or in the Bachelor of Fine Arts in Studio Art or in the Studio Art Major.

~~Principles of 3D of computer graphics applied in cinema, games, illustration, design and sculpture. Use of 3D software to create and manipulate synthetic objects, materials, lights, and cameras.~~ Principles of 3D computer graphics applied in cinema, games, illustration, design and sculpture. Use of 3D software to create and manipulate synthetic objects, materials, lights, and cameras.

SA: TC 247

~~Effective Fall 2016~~ Effective Fall 2019

DEPARTMENT OF MEDICINE

MED 641 ~~Internal Medicine Subinternship in the Late Clinical Experience~~
Internal Medicine Clerkship in the Late Clinical Experience

Fall of every year. Spring of every year. Summer of every year. 6 credits. P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.

Clinical experience in which students take primary responsibility for managing the care of adult patients under the supervision of senior residents and/or attending physicians

Request the use of the Pass-No Grade (P-N) system.

Request the use of ET-Extension to postpone grading.

The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

~~Effective Fall 2017~~ Effective Summer 2020

COLLEGE OF OSTEOPATHIC MEDICINE

OST 686 Global Health: Mexico - Clinical Immersion

Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. P: IM 618 or approval of college RB: Fluency in Spanish to interact with patients R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of college.

Observation of and supervised participation in host country's healthcare delivery system. Etiology, treatment, and control of endemic disease. Exploration of local culture and history.

~~Request the use of the Pass-No Grade (P-N) system.~~

Request the use of ET-Extension to postpone grading.

The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.

~~Effective Summer 2019~~ Effective Spring 2020

OST 687 Global Health: Peru - Clinical Immersion
Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. RB: Fluency in Spanish to interact with patients R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of college.
Observation of and supervised participation in host country's healthcare delivery system. Etiology, treatment, and control of endemic disease. Exploration of local culture and history. Offered second half of semester.
~~Request the use of the Pass-No Grade (P-N) system.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Summer 2019~~ Effective Spring 2020

OST 688 Global Health: Cuba - Clinical Immersion
Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of college.
Observation of and supervised participation in host country's healthcare delivery system. Etiology, treatment, and control of endemic disease. Exploration of local culture and history.
~~Request the use of the Pass-No Grade (P-N) system.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Summer 2019~~ Effective Spring 2020

OST 690 Global Health: Dominican Republic - Clinical Immersion
Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of college.
Observation of and supervised participation in host country's healthcare delivery system. Etiology, treatment, and control of endemic disease. Exploration of local culture and history.
~~Request the use of the Pass-No Grade (P-N) system.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Summer 2019~~ Effective Spring 2020

OST 694 Global Health: Nepal - Clinical Immersion
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 30 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of college.
Observation of and supervised participation in host country's healthcare delivery system. Etiology, treatment, and control of endemic disease. One Health. Exploration of local culture and history.
~~Request the use of the Pass-No Grade (P-N) system.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Summer 2019~~ Effective Spring 2020

OST 821 One Health—Transdisciplinary Collaborations to Global Health
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Transdisciplinary collaboration amongst different animal health, human health, and non-health specialists to solve problems at the interface of people, animals, and their environment.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2019~~ Effective Spring 2020

OST 822 Introduction to Global Health Practice
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Differences in national models of healthcare delivery, issues of social justice and human rights principles, and strategies to engage marginalized and vulnerable populations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2019~~ Effective Spring 2020

OST 823 Global Burden of Disease
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Major causes of, types of, and efforts to reduce morbidity and mortality around the world. Techniques for monitoring and validating the health status of populations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2019~~ Effective Spring 2020

OST 824 Emerging Topics in Global Health
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Emerging topics in global health and connections to current issues.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring 2020

OST 825 Ethical Issues in Global Health
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
International standards for protection of human subjects. Social justice and human rights principles within the global context.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring 2020

OST 827 Global Health Management
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Leadership and management within the context of global healthcare, including interprofessional and intercultural values and communication.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring 2020

OST 828 Global Health Capstone
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Integration of knowledge, skills and competencies acquired in global health.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall 2020

OST 829 Global Health Community Assessment
Fall of every year. Spring of every year. Summer of every year. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. ~~R: Open to graduate students in the College of Osteopathic Medicine or approval of college.~~ R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Assessment of community health scenarios. Techniques for collaboration and co-creation with community partners.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2019~~ Effective Spring 2020

OST 831 Evidence-Based Practice in Global Health
Fall of every year. Spring of every year. Summer of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
Critical appraisal of scientific studies of global health interventions.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring 2020

DEPARTMENT OF PEDIATRICS AND HUMAN DEVELOPMENT

PHD 641 ~~Pediatric Subinternship in the Late Clinical Experience~~
Pediatric Clerkship in the Late Clinical Experience
Fall of every year. Spring of every year. Summer of every year. 6 credits. P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.
Clinical experience in which students take primary responsibility for managing the care of pediatric patients under the supervision of senior residents and/or attending physicians.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
~~Effective Fall 2017~~ Effective Summer 2020

DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY

PHM 816 Integrative Toxicology: Mechanisms, Pathology and Regulation
Fall of odd years. 3(3-0) Interdepartmental with Animal Science and Biochemistry and Molecular Biology and Pathobiology and Diagnostic Investigation. ~~P: PHM 819~~
Biochemical, molecular, and physiological mechanisms of toxicology. Functional and pathological responses of major organ systems to chemical insult. Mechanisms of mutagenesis, carcinogenesis, and reproductive toxicology. Concepts in risk and safety assessment.
~~Effective Fall 2007~~ Effective Fall 2019

SCHOOL OF PLANNING, DESIGN AND CONSTRUCTION

CMP 101 Principles of Construction Management
Fall of every year. Spring of every year. 2(2-0) R: Not open to seniors.
Historical developments, current issues and trends in commercial and residential construction industries.
SA: BCM 101
~~Effective Fall 2017~~ Effective Spring 2020

CMP 124 Residential Construction Materials and Methods
Fall of every year. Spring of every year. 3(3-0) ~~P: CMP 101~~ P: CMP 101 or concurrently R: Not open to seniors.
Properties of construction materials and their application in residential construction.
SA: BCM 124
~~Effective Fall 2017~~ Effective Fall 2019

CMP 230 Utility Systems
Spring of every year. 4(4-0) ~~P: CMP 210~~ P: (CMP 210) and (MTH 124 or MTH 132 or LB 118) and (PHY 183 or PHY 231) R: Not open to seniors.
~~Heating, cooling, ventilating, electrical, gas, lighting, water, waste water, telecommunications, fire protection, safety, security, and sound control systems in residential and commercial construction. Applicable codes.~~ Design and analysis of utility and environmental systems in residential and commercial construction with a focus on mechanical, electrical, and plumbing systems
SA: BCM 230
~~Effective Summer 2013~~ Effective Fall 2019

CMP 423 Construction Project Management
Fall of every year. ~~Spring of every year.~~ 3(3-0) P: CMP 385 and CMP 311 and (CMP 415 or concurrently) R: Open to seniors in the Construction Management Major or in the Civil Engineering Major or approval of department.
~~Construction management principles and practices. Project planning and controls. Students are preparing for and taking a certification exam.~~ Construction project management principles and practices. Project start up, administration, and documentation. Project controls.
SA: BCM 423
~~Effective Fall 2016~~ Effective Spring 2019

CMP 435 Residential Building and Development Projects (W)
Fall of every year. ~~Spring of every year.~~ 3(1-4) P: {(ACC 201 and ACC 202) or ACC 230} and ((CMP 423 or concurrently) and completion of Tier I writing requirement) R: Open to seniors in the Construction Management Major.
~~Development of a residential project and business plan.~~ Working in teams, applying skills of construction project management to develop a residential project and business plan that addresses preconstruction, construction, and marketing areas
SA: BCM 435
~~Effective Fall 2013~~ Effective Spring 2020

CMP 493 Professional Internship in Construction Management
Fall of every year. Spring of every year. Summer of every year. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. ~~R: Open to students in the Construction Management major. Approval of department; application required.~~ R: Open to students in the Construction Management major. Approval of department; application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, ANR 493, ANS 493, CMP 493, CSS 493, CSUS 493, EEP 493, FIM 493, FSC 493, FW 493, HRT 493, PKG 493, and PLP 493.
Supervised professional experiences in agencies and businesses related to a student's major field of study.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
SA: BCM 493
~~Effective Fall 2014~~ Effective Spring 2019

DEPARTMENT OF PLANT, SOIL AND MICROBIAL SCIENCES

CSS 431 International Agricultural Systems
Spring of every year. 3(3-0) ~~P: (ANR 250 or EEP 260 or ISS 310 or ISS 315 or ISS 318 or ISS 320 or ISS 330A or ISS 330B or ISS 330C or ISS 336) and completion of Tier I writing requirement~~ P: (ANR 250 or ISS 310 or ISS 315 or ISS 318 or ISS 320 or ISS 330A or ISS 330B or ISS 330C or ISS 336) and completion of Tier I writing requirement R: Not open to freshmen.
World production capacity for food, fiber and biofuel as related to soil, biology and climatic resources. Principles and case studies of sustainable systems presented from developing and developed countries. Emerging issues in agricultural globalization and biodiversity.
~~Effective Spring 2014~~ Effective Fall 2019

COLLEGE OF VETERINARY MEDICINE

VM 130 ~~Comparative Anatomy for Veterinary Technicians~~
Comparative Anatomy for Veterinary Nurses
Fall of every year. 2(1-2) ~~P: {Completion of Tier I Writing Requirement and (BS 161 and BS 171)} or LB 145~~ P: {(Completion of Tier I Writing Requirement) and (BS 161 and BS 171)} or LB 145 R: Approval of college. C: VM 250 concurrently.
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.
~~Effective Fall 2013~~ Effective Spring 2020

VM 140 ~~Pharmacology for Veterinary Technicians~~
Pharmacology for Veterinary Nurses
Fall of every year. 2(2-0) ~~P: MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132~~ P: {(MTH 101 and MTH 103) or MTH 103} and (MTH 114 or MTH 116 or MTH 124 or MTH 132 or MTH 152H) R: Approval of college.
Fundamentals of characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations.
~~Effective Spring 2013~~ Effective Spring 2020

VM 155 ~~Veterinary Technology Careers and Professional Development~~
Veterinary Nursing Careers and Professional Development
Spring of every year. 1(1-0) R: Approval of college.
~~Career options in veterinary technology, discussion of professional, ethical and legal considerations. Portfolio development, resume and cover-letter writing skills.~~ Career options in veterinary nursing, discussion of professional, ethical and legal considerations. Portfolio development, resume and cover-letter writing skills.
~~Effective Spring 2013~~ Effective Spring 2020

VM 170 ~~Hematology and Immunology for Veterinary Technicians~~
Hematology and Immunology for Veterinary Nurses
Spring of every year. 2(2-0) P: VM 250 and VM 110 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.
~~Effective Spring 2013~~ Effective Spring 2020

VM 175 ~~Clinical Pathology Laboratory I for Veterinary Technicians~~
Clinical Pathology Laboratory I for Veterinary Nurses
Spring of every year. 1(0-2) P: VM 110 and VM 250 C: VM 170 concurrently.
Veterinary clinical pathology laboratory including diagnostic procedures in hematology, serology and ELISA methodology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 176 ~~Clinical Pathology Laboratory II for Veterinary Technicians~~
Clinical Pathology Laboratory II for Veterinary Nurses
Fall of every year. 1(0-2) P: VM 175
Comprehensive veterinary clinical pathology laboratory, including diagnostic procedures in urology, dermatology, cytology, and advanced methods in hematology
~~Effective Spring 2013~~ Effective Spring 2020

VM 205 ~~Preventive Animal Health Care for Veterinary Technicians~~
Preventive Animal Health Care for Veterinary Nurses
Spring of every year. 3(3-0) P: VM 150 and VM 110
Development of husbandry techniques to enhance wellness and reduce the risk of disease, injury and stress in common domestic and exotic animals.
~~Effective Spring 2013~~ Effective Spring 2020

VM 210 ~~Surgical Nursing for Veterinary Technicians~~
Surgical Nursing for Veterinary Nurses
Fall of every year. 2(1-1) P: VM 160 and VM 130 and VM 250 R: Approval of department. C: VM 215 concurrently and VM 303 concurrently.
~~Role of the veterinary technician as a member of the veterinary surgical team.~~ Role of the veterinary nurse as a member of the veterinary surgical team.
~~Effective Fall 2015~~ Effective Spring 2020

VM 245 ~~Parasitology for Veterinary Technicians~~
Parasitology for Veterinary Nurses
Spring of every year. 2(1-2) P: VM 140 and VM 176 and VM 205 RB: VM 250
Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control.
~~Effective Spring 2013~~ Effective Spring 2020

VM 265 ~~Dentistry Techniques for Veterinary Technicians~~
Dentistry Techniques for Veterinary Nurses
Spring of every year. 1(0-4) P: VM 215 and VM 210 and VM 303
Veterinary dental techniques and oral cavity assessment for companion animals.
~~Effective Spring 2013~~ Effective Spring 2020

VM 270 ~~Advanced Skills Development for Veterinary Technicians~~
Advanced Skills Development for Veterinary Nurses
Spring of every year. 1(0-3) P: VM 210 and VM 215 and VM 303
Service-oriented approach to health care development in an operational animal care facility.
~~Effective Spring 2013~~ Effective Spring 2020

VM 285 ~~Clinical Nutrition for Veterinary Technologists~~
Clinical Nutrition for Veterinary Nurses
Fall of every year. Spring of every year. 1(1-0) P: VM 255 and VM 120
Nutritional assessment and management of common domestic species in veterinary medicine.
~~Effective Spring 2013~~ Effective Spring 2020

VM 295 ~~Biomedical Research and Regulatory Issues for Veterinary Technologists~~
Biomedical Research and Regulatory Issues for Veterinary Nurses
Fall of every year. 1(1-0) P: VM 150 and VM 205
Principles and techniques of biomedical research, governance and regulation of animal care and use.
~~Effective Spring 2013~~ Effective Spring 2020

VM 303 ~~Anesthesiology for Veterinary Technicians~~
Anesthesiology for Veterinary Nurses
Fall of every year. 2(1-1) P: VM 140 and VM 160 and VM 130 and VM 250 ~~R: Approval of department.~~ C: VM 215 concurrently and VM 210 concurrently.
Pharmacologic action of preanesthetic and anesthetic drugs. Principles and techniques of induction, maintenance, monitoring, and recovery of the patient. Humane methods of euthanasia.
~~Effective Fall 2015~~ Effective Spring 2020

VM 304 ~~Radiology for Veterinary Technicians~~
Radiology for Veterinary Nurses
Spring of every year. 2(1-2) P: VM 110 and VM 130
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.
~~Effective Spring 2013~~ Effective Spring 2020

VM 305 ~~Hospital Practice Management for Veterinary Technologists~~
Hospital Practice Management for Veterinary Nurses
Spring of every year. 2(2-0) P: VM 150
Veterinary practice economics, personnel management, inventory control and marketing techniques.
~~Effective Spring 2013~~ Effective Spring 2020

VM 410 ~~Veterinary Technology Clerkship in Anesthesiology~~
Veterinary Nursing Clerkship in Anesthesiology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: (VM 270 and VM 275 and VM 245 and VM 304) and completion of Tier I writing requirement RB: Completion of preclinical course work.
Application of principles and techniques in anesthesiology.
~~Effective Spring 2019~~ Effective Spring 2020

VM 411 ~~Veterinary Technology Clerkship in Radiology~~
Veterinary Nursing Clerkship in Radiology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in radiology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 412 ~~Veterinary Technology Clerkship in Companion Animal Medicine~~
Veterinary Nursing Clerkship in Companion Animal Medicine
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: (VM 270 and VM 275 and VM 245 and VM 304) and completion of Tier I writing requirement RB: Completion of pre-clinical course work.
Application of principles and techniques in restraint, examination, nursing care, monitoring, and preventive medicine of companion animals.
~~Effective Spring 2019~~ Effective Spring 2020

VM 413 ~~Veterinary Technology Clerkship in Companion Animal Surgery~~
Veterinary Nursing Clerkship in Companion Animal Surgery
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in surgical nursing.
~~Effective Spring 2013~~ Effective Spring 2020

VM 414 ~~Veterinary Technology Clerkship in Equine Medicine and Surgery~~
Veterinary Nursing Clerkship in Equine Medicine and Surgery
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in equine medicine and surgery.
~~Effective Spring 2013~~ Effective Spring 2020

VM 415 ~~Veterinary Technician Clerkship in Food Animal and Equine Medicine and Surgery~~
Veterinary Nursing Clerkship in Food Animal and Equine Medicine and Surgery
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in food animal and equine medicine and surgery.
~~Effective Spring 2013~~ Effective Spring 2020

VM 450 ~~Veterinary Technology Clerkship in Emergency Medicine~~
Veterinary Nursing Clerkship in Emergency Medicine
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: (VM 410 and VM 411 and VM 413) and Completion of preclinical coursework.
Application of principles and techniques in emergency medicine.
~~Effective Spring 2013~~ Effective Spring 2020

VM 451 ~~Veterinary Technology Clerkship in Cardiology~~
Veterinary Nursing Clerkship in Cardiology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: (VM 410 and VM 411 and VM 413) and Completion of preclinical coursework.
Application of principles and techniques in cardiology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 452 ~~Veterinary Technology Clerkship in Neurology~~
Veterinary Nursing Clerkship in Neurology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: (VM 410 and VM 411 and VM 413) and Completion of preclinical coursework.
Application of principles and techniques in neurology and physical therapy.
~~Effective Spring 2013~~ Effective Spring 2020

VM 453 ~~Veterinary Technology Clerkship in Ophthalmology~~
Veterinary Nursing Clerkship in Ophthalmology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 and VM 413 RB: (VM 410) and Completion of preclinical coursework.
Application of principles and techniques in ophthalmology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 454 ~~Veterinary Technology Clerkship in Critical Care~~
Veterinary Nursing Clerkship in Critical Care
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: (VM 410 and VM 411 and VM 413) and Completion of preclinical coursework.
Application of principles and techniques in critical care.
~~Effective Spring 2013~~ Effective Spring 2020

VM 455 ~~Veterinary Technology Clerkship in Companion Animal Oncology~~
Veterinary Nursing Clerkship in Companion Animal Oncology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 and VM 413 RB: Completion of preclinical coursework.
Application of principles and techniques in companion animal oncology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 456 ~~Veterinary Technology Clerkship in Companion Animal Physical Rehabilitation~~
Veterinary Nursing Clerkship in Companion Animal Physical Rehabilitation
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: Completion of preclinical coursework.
Application of principles and techniques of companion animal physical rehabilitation, particularly those animals recovering from orthopedic and neurologic injuries and surgeries.
~~Effective Spring 2013~~ Effective Spring 2020

VM 458 ~~Veterinary Technology Clerkship in Companion Animal Diagnostic Ultrasound~~
Veterinary Nursing Clerkship in Companion Animal Diagnostic Ultrasound
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 411 RB: Completion of preclinical coursework.
Application of principles and techniques of Diagnostic Ultrasound
~~Effective Spring 2013~~ Effective Spring 2020

VM 466 ~~Veterinary Technology Clerkship in Large Animal Anesthesia~~
Veterinary Nursing Clerkship in Large Animal Anesthesia
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 270 and VM 275 and VM 303 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques of food animal and equine anesthesiology.
SA: VM 460, VM 472
~~Effective Spring 2013~~ Effective Spring 2020

VM 470 ~~Veterinary Technology Clerkship in Food Animal Medicine~~
Veterinary Nursing Clerkship in Food Animal Medicine
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in food animal medicine.
~~Effective Spring 2013~~ Effective Spring 2020

VM 480 ~~Veterinary Technology Clerkship in Clinical Pathology~~
Veterinary Nursing Clerkship in Clinical Pathology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 270 and VM 275 and VM 303 and VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in clinical pathology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 482 ~~Veterinary Technology Clerkship in Necropsy~~
Veterinary Nursing Clerkship in Necropsy
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 270 and VM 275 and VM 303 and VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in postmortem examination of common domestic species with emphasis on specimen description, collection, and submission.
~~Effective Spring 2013~~ Effective Spring 2020

VM 483 ~~Veterinary Technology Clerkship in Biomedical Research~~
Veterinary Nursing Clerkship in Biomedical Research
Fall of every year. Spring of every year. Summer of every year. 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 and VM 245 RB: (VM 410 and VM 482) and Completion of preclinical coursework.
Application of principles and techniques in biomedical research involving laboratory animals.
~~Effective Spring 2013~~ Effective Spring 2020

VM 484 ~~Veterinary Technology Clerkship in Zoo and Wildlife Medicine~~
Veterinary Nursing Clerkship in Zoo and Wildlife Medicine
Fall of every year. Spring of every year. Summer of every year. 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 and VM 245 RB: (VM 410) or Completion of preclinical coursework.
Application of principles and techniques in zoo and wildlife medicine.
~~Effective Spring 2013~~ Effective Spring 2020

VM 486 ~~Veterinary Technology Clerkship in Clinical Parasitology~~
Veterinary Nursing Clerkship in Clinical Parasitology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in clinical parasitology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 487 ~~Veterinary Technology Clerkship in Dermatology~~
Veterinary Nursing Clerkship in Dermatology
Fall of every year. Spring of every year. Summer of every year. 3 credits. P: VM 412 RB: Completion of pre-clinical course work.
Application of principles and techniques in dermatology.
~~Effective Spring 2013~~ Effective Spring 2020

VM 490 ~~Veterinary Technology Clerkship in Special Problems~~
Veterinary Nursing Clerkship in Special Problems
Fall of every year. Spring of every year. Summer of every year. 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 and VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in experimental, therapeutic, or laboratory medicine.
~~Effective Spring 2013~~ Effective Spring 2020