

SUBCOMMITTEE A – AGENDA

Via Zoom
January 19, 2023
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to change the requirements for the **Bachelor of Science** degree in **Nutritional Sciences** in the Department of Food Science and Human Nutrition.

The concentrations in the Bachelor of Science degree in Nutritional Sciences 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 Nutritional Sciences** make the following changes:

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

HNF	250L	Professional Development and Career Planning in Nutrition	1
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Add the following course:

HNF	255	Professional Development and Career Planning in Nutrition	1
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- (2) Replace item 3. a. (5) with the following:

Completion of a minimum of 3 credits in Experiential Learning. Students must consult with their academic advisor for specific details on this requirement.

Completion of this requirement may be fulfilled by enrollment in ANR 475, HNF 475, HNF 493, HNF 499 or any approved study abroad, service, or research experience.

- (3) In item 3. b. under the **Biomedical and Molecular Nutrition** concentration, make the following changes:

- (a) Change the total credits from '40 to 50' to '40 to 52'.

- (b) In item (2), change the requirement to 'One of the following, either (a), (b), (c), or (d) (8 to 10 credits)'.

- (c) Reletter item 'b' to item 'c' and add the following new item 'b':

PHY	221	Studio Physics for Life Scientists I	4
PHY	222	Studio Physics for Life Scientists II	4

- (d) Add the following item (d):

PHY	241	Physics for Cellular and Molecular Biologists I	4
PHY	242	Physics for Cellular and Molecular Biologists II	4
PHY	251	Introductory Physics Laboratory I	1
PHY	252	Introductory Physics Laboratory II	1

- (4) In item 3. b. under the **Global Nutrition and Health** concentration, make the following changes:
 - (a) Change the total credits from '42 to 49' to '43 to 49'.
 - (b) In item (3) change ANP 200 from '2' to '3' credits.
 - (c) In item (8) change 'EEM 260' to 'AFRE 260'.

Effective Summer 2023.

LYMAN BRIGGS COLLEGE

1. Request to delete the curriculum and degree requirements for the **Coordinate Major in Earth Science-Interdepartmental** in Lyman Briggs College. The University Committee on Undergraduate Education (UCUE) provided consultative commentary to the Provost after considering this request at its November 3, 2022 meeting. The Provost made the determination to discontinue the program after considering the consultative commentary from the University Committee on Undergraduate Education.

No new students are to be admitted to the program effective Fall 2020. No students are to be readmitted to the program effective Fall 2020. Effective Spring 2023, coding for the program will be discontinued and the program will no longer be available in Lyman Briggs College. Students who have not met the requirements for the Coordinate Major in Earth Science-Interdepartmental through Lyman Briggs College prior to Spring 2023 will have to change their major.

2. Request to delete the curriculum and degree requirements for the **Field of Concentration (Major) degree in Earth Science** in Lyman Briggs College. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request at its November 3, 2022 meeting. The Provost will make a determination to discontinue the program after considering the consultative commentary from the University Committee on Undergraduate Education.

No new students are to be admitted to the program effective Fall 2020. No students are to be readmitted to the program effective Fall 2020. Effective Spring 2023, coding for the program will be discontinued and the program will no longer be available in Lyman Briggs College. Students who have not met the requirements for the Field of Concentration (Major) in Earth Science through Lyman Briggs College prior to Spring 2023 will have to change their major.

COLLEGE OF OSTEOPATHIC MEDICINE

1. Request to change the requirements for the **Professional Program in Osteopathic Medicine** leading to the Doctor of Osteopathic Medicine degree the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its January 23, 2023 meeting.
 - a. Under the heading **Requirements for the Doctor of Osteopathic Medicine Degree** replace the entire entry with the following:

The standard duration of the D.O. degree program is four years; the maximum time for completion of all degree requirements is six years as defined in the MSUCOM Policy for Retention, Promotion, and Graduation. Specific program requirements leading to conferral of the D.O. degree include:

1. Completion of each required course in the preclerkship and clerkship phase with a passing grade or successful remediation.
2. Passing score on the National Board of Osteopathic Medical Examiners (NBOME) COMLEX-USA Level 1, COMLEX-USA Level 2 Cognitive Evaluation (CE) licensure examinations with defined time limits and with no more than three (3) attempts permitted on each examination.
3. Compliance with annual training requirements of the Responsible Conduct of Research (RCR) program.

4. Achievement of the academic requirements and professional conduct expectations of the D.O. program as outlined in the policies and procedures of MSUCOM and MSU.

Preclerkship Curriculum

The preclerkship curriculum consists of 95 required credit hours across six semesters, representing years one and two of the four-year program. The courses are offered in a predefined sequence. Successful completion of each course in a semester is required to advance to the following semester. The following courses are required:

OMM	511	Osteopathic Manipulative Medicine I	1
OMM	512	Osteopathic Manipulative Medicine II	1
OMM	513	Osteopathic Manipulative Medicine III	1
OMM	514	Osteopathic Manipulative Medicine IV	1
OMM	515	Osteopathic Manipulative Medicine V	1
OST	510	Clinical Human Gross Anatomy	6
OST	520	Foundations of Biomedical Science for Osteopathic Medicine	8
OST	521	Musculoskeletal System	4
OST	522	Hematology, Oncology and Infectious Diseases	3
OST	523	Neurological System	10
OST	524	Psychopathology	2
OST	525	Genitourinary System	4
OST	526	Endocrine System	3
OST	531	Reproduction, Development, and Sexuality	3
OST	532	Integumentary System	2
OST	533	Gastrointestinal System	6
OST	534	Cardiovascular System	8
OST	535	Respiratory System	7
OST	550	Introduction to Osteopathic Medicine and Clinical Skills	2
OST	551	Osteopathic Patient Care I	2
OST	552	Osteopathic Patient Care II	2
OST	553	Osteopathic Patient Care III	3
OST	554	Osteopathic Patient Care IV	3
OST	555	Osteopathic Patient Care V	3
OST	561	Ambulatory Care Capstone	3
OST	562	Hospital Care Capstone	3
OST	563	Health Systems Science Capstone	2

In addition, each student must complete a clinical experience requirement, which may be met by earning 1 credit in one of the following courses:

FCM	650	Principles of Family Medicine	1
FCM	660	Pre-Clerkship International Preceptor	1

Clerkship Curriculum

The clerkship curriculum consists of 80 rotation weeks in years three and four of the four-year program following OST 601 (Transitions II-Classroom to Bedside). Students may advance to clinical rotations after successful completion of the COMLEX-USA Level 1 examination. During the clerkship curriculum, students must successfully complete 40 weeks of required clinical clerkship core rotation courses and an additional 40 weeks of elective rotations to be selected from available required clinical clerkship elective rotation courses. Core rotation courses are scheduled by the COM Clerkship Office and Base Hospital training site and may occur in different sequences. Most core rotation courses are completed during year three. Three required longitudinal courses span the clerkship: OST 603-Core Clinical Concepts in year three, OMM 602-Osteopathic Principles and Practice in year three, and OST 604-Essential Clinical Skills for Senior Medical Students in year four.

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A complete list of required clinical clerkship elective rotation courses includes the following rotation courses which are credited toward the non-surgery requirement:

ANTR	685	Directed Study in Clinical Prosection	1 to 6
FCM	621	Family Medicine Specialty Rotation	1 to 24
HM	610	Pathology Clerkship	3 to 6
IM	621	Clinical Tropical Medicine Clerkship	1 to 20
IM	651	Cardiology Clerkship	1 to 20
IM	652	Gastroenterology Clerkship	1 to 20
IM	653	Oncology and Hematology Clerkship	1 to 20
IM	654	Pulmonary Disease Clerkship	1 to 20
IM	655	Nephrology Clerkship	1 to 20
IM	659	Medical Critical Care Clerkship	1 to 20
IM	661	Internal Medicine Specialty Clerkship	1 to 20
IM	662	Urgent Care Clerkship	1 to 20
IM	663	Emergency Medicine/Wilderness/Austere Medicine Clerkship	1 to 20
IM	664	Pediatric Emergency Medicine Clerkship	1 to 20
IM	665	Emergency Medicine Advanced Clerkship	1 to 20
IM	666	Emergency Medicine Toxicology	3 to 18
IM	667	Emergency Medicine Hyperbaric Medicine and Wound Management	3 to 18
IM	668	Emergency Medicine EMS and Disaster Management	3 to 18
IM	669	Emergency Medicine Ultrasound	3 to 18
NOP	657	Neurology Specialty Clerkship	1 to 24
OMM	601	Osteopathic Manipulative Medicine Clerkship	1 to 20
OST	685	International Clerkship Rotations	1 to 20
OST	686	Global Health: Mexico – Clinical Immersion	1 to 20
OST	687	Global Health: Peru – Clinical Immersion	1 to 20
OST	688	Global Health: Cuba – Clinical Immersion	1 to 20
OST	689	Global Health: Haiti – Clinical Immersion	1 to 20
PED	601	Pediatric Specialty Clerkship	3 to 24
PMR	601	Physical Medicine and Rehabilitation Clerkship	1 to 18
PSC	609	Adult Psychiatry Clerkship	3 to 6
PSC	610	Child Psychiatry Clerkship	3 to 6
PSC	611	Addiction Psychiatry Clerkship	3 to 6
PSC	612	Geriatric Psychiatry Clerkship	3 to 6
RAD	609	Radiology Clerkship	3 to 12
RAD	610	Core Radiology Clerkship	1 to 20

The following rotation courses are credited toward the surgery requirement:

NOP	620	Ophthalmology Clerkship	1 to 24
OSS	640	Cardio Thoracic/Vascular Surgery Clerkship	1 to 20
OSS	641	Facial and Plastic Reconstruction Surgery Clerkship	1 to 20
OSS	642	Neurosurgery Clerkship	1 to 20
OSS	643	Podiatry Clerkship	1 to 20
OSS	644	Sports Medicine Clerkship	1 to 20
OSS	645	Urology Clerkship	1 to 20
OSS	646	Maternal Fetal Medicine Clerkship	1 to 20
OSS	647	Reproductive Endocrine Clerkship	1 to 20
OSS	648	Anesthesiology Advanced Clerkship	3 to 30
OSS	652	Obstetrics and Gynecology Specialty Clerkship	1 to 20
OSS	654	Core Anesthesiology Clerkship	1 to 20
OSS	655	Pain Management Clerkship	1 to 20
OSS	656	Orthopedic Clerkship	1 to 20
OSS	658	Otorhinolaryngology Clerkship	1 to 20
OSS	663	General Surgery	1 to 20
RAD	612	Interventional Radiology	var.

A maximum of eight (8) non-clinical rotation weeks may be selected to include rotations listed below or any elective clinical course completed in a virtual manner. The following rotation courses are credited toward the non-clinical requirement:

OST	615	Biomedical Research	3 to 18
OST	620	Patient Safety and Quality Improvement	2 or 3
OST	621	Leadership in Healthcare	3
OST	622	Addiction Medicine	3
OST	623	Board Preparation	1 to 6
OST	624	Essentials in Diabetes	3
OST	625	Introduction to Military Medicine	6 to 9
OST	626	Special Topics in Healthcare Ethics: Case Studies	3
OST	627	Fundamentals of Health Policy and Advocacy	3

NOTE: The number of rotation/course weeks determines the assigned credits.

Effective Summer 2023.

2. Request to establish a **Master of Science** degree in **Basic Medical Science** in the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its November 21, 2022 meeting.

- a. **Background Information:**

The mission of the Michigan State University College of Osteopathic Medicine (MSUCOM) is to provide world-class, osteopathic, student-centered graduate and medical education and research in order to foster community access to patient-centered medical care. We prepare physicians in the science of medicine, the art of caring and the power of touch, with a world view open to all people. (<https://com.msu.edu/about-us/our-mission>).

MSUCOM has been welcoming bright and talented people who want to make a difference in the world for over 50 years. It is our hope that all students who are admitted to the Doctor of Osteopathic Medicine (D.O.) program will be successful in their goals to complete the degree requirements. However, exceptions occur. The rationale for developing the Master of Science degree in Basic Medical Science is to aid osteopathic medical students who have successfully completed the first two years of the D.O. program but may not, for personal or other reasons, continue to pursue the D.O. degree. This proposal is intended to provide these students with an opportunity to apply the work done and skills learned in the preclerkship curriculum years one and two toward a graduate degree.

There are two categories of students who would be eligible to apply for the Master of Science degree in Basic Medical Science. The first is a student who was successful in the first two years of medical school, but who decided they no longer wish to pursue the profession of osteopathic medicine. This could be for personal or other reasons. The second is a student who passed all required preclerkship courses, but is not able to achieve success in passing COMLEX-USA Level 1 or Level 2-CE- or meet the clerkship requirements in years three and four to earn a D.O. degree.

A small number of students a year leave MSUCOM with no degree. This happens for two reasons. They either fail to meet the D.O. program requirements, or they decide that practicing medicine is not the right career for them. Either way, these students have accrued a significant amount of education and, therefore, should be eligible for a degree that will allow them to move on to a productive career. There will be no impact on other degree programs at MSU. This unique opportunity would not be open to the student population at large. It would be restricted to osteopathic medical students who successfully completed the first two years of medical school. The program will not impact the Master of Arts degree in Clinical Medicine program in the College of Human Medicine because the proposed program is designed specifically for D.O. students, and completion of the D.O. preclerkship program will be required for the M.S. degree.

Once the offer for a student to join the program has been made by the college administration, the student may or may not elect to switch from the D.O. to the Master of Science degree program. This program should have minimal impact on the human or financial resources of MSU or COM. Of the 300 students who matriculate each year, on average, no more than five per year would be eligible for this program. Currently enrolled students who have completed or are near completion of the first two years of medical school are eligible to apply. Students who are ineligible to advance in

the D.O. program due to professional conduct issues would not be eligible for this program. Once the student opts to transfer into the Master of Science degree program, they may not return to pursue the D.O. degree at MSUCOM.

The proposed Master of Science degree in Basic Medical Science would be a post-hoc degree, not one in which a student could start medical school in anticipation of receiving this degree. Dual degrees will not be conferred to those who successfully complete the four-year curriculum and receive the D.O. degree.

b. **Academic Programs Catalog Text:**

The Master of Science degree in Basic Medical Science is available to aid osteopathic medical students who have successfully completed the first two years of the D.O. program but may not, for personal or other reasons, continue to pursue the D.O. degree. Once a student enrolls in the Master of Science degree program, they may not return to pursuing the Doctor of Osteopathic Medicine degree at MSUCOM. The Master of Science degree will not be conferred to those who have successfully completed the four-year curriculum to receive the Doctor of Osteopathic Medicine degree.

Admission

To be considered for admission to the Master of Science degree in Basic Medical Science, students must:

1. be or have been enrolled in the College of Osteopathic Medicine as a medical student.
2. have successfully completed the first two years (preclerkship) of the Doctor of Osteopathic Medicine program outline below.
3. elect not to continue to completion of the Doctor of Osteopathic Medicine degree.

Requirements for the Master of Science Degree in Basic Medical Science

CREDITS

Students must complete 98 credits for the degree. The Master of Science Degree in Basic Medical Science is available only under Plan A (with thesis).

1. Complete all of the following courses in years one and two of the D.O. preclerkship curriculum:

Semester 1

ANTR	510	Clinical Human Gross Anatomy and Palpatory Skills	8
BMB	516	Metabolic Biochemistry: Nutrients and Products	1
OST	598	Evidence-Based Health Science	1

Semester 2

BMB	528	Molecular Biology and Medical Genetics	2
OST	551	Osteopathic Patient Care I	2
OMM	511	Osteopathic Manipulative Medicine I	1
MMG	531	Medical Immunology	2
MMG	532	Medical Microbiology	2
PHM	564	Basic Principles of Medical Pharmacology	2
PSL	539	Principles of Cell Biology and Pathophysiology	4

Semester 3

OMM	512	Osteopathic Manipulative Medicine II	1
OST	552	Osteopathic Patient Care II	2
OST	556	Pediatrics I	1
OST	571	Neuromusculoskeletal System	10
OST	572	Genitourinary System	3
OST	573	Endocrine System	3

Semester 4

OMM	513	Osteopathic Manipulative Medicine III	1
OST	553	Osteopathic Patient Care III	3
OST	557	Pediatrics II	1
OST	574	Female Reproductive System	3
OST	575	Gastrointestinal System	6
OST	576	Integumentary System	2

Semester 5

OMM	514	Osteopathic Manipulative Medicine IV	1
OST	554	Osteopathic Patient Care IV	3

	OST	558	Pediatrics III	1
	OST	577	Psychopathology	2
	OST	578	Hematopoietic System	2
	OST	579	Cardiovascular System	9
	<i>Semester 6</i>			
	OMM	515	Osteopathic Manipulative Medicine V	1
	OST	555	Osteopathic Patient Care V	3
	OST	559	Pediatrics IV	1
	OST	583	Geriatrics	1
	OST	580	Respiratory System	7
	<i>Semester 4, 5, or 6</i>			
	FCM	640	Principles of Family Medicine I	1
	FCM	650	Principles of Family Medicine II	1
2.	Complete the Responsible Conduct of Research (RCR) requirements in years one and two.			
3.	Complete the following course:			
	OST	899	Master's Thesis Research	4
	This requirement must be completed within one full semester of entry into the program.			
4.	Pass an oral defense of the thesis.			

Time Limit

The time limit for completion of the master's degree is six years from the beginning of the first semester in which credit was earned toward the degree.

Effective Fall 2023.

COLLEGE OF VETERINARY MEDICINE

1. Request to change the requirements for the **Doctor of Veterinary Medicine** degree in **Veterinary Medicine** in the College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its January 23, 2023 meeting.
 - a. Under the heading **Admission to the Professional Program in Veterinary Medicine** make the following changes:
 - (1) Replace item 2. with the following:

Multiple Mini Interviews by faculty, staff, alumni, and other vested individuals trained to assess for the qualities considered important for positive professional outcomes (by invitation).
 - (2) Delete the following paragraph:

All science prerequisite courses must be completed at the time of application with a minimum grade of 2.0 in each course and a minimum science prerequisite GPA of 3.0. Up to 50% of the science prerequisite requirements may be satisfied with binary grading. General education requirements must be completed by July 1 prior to fall matriculation. Each course must receive a minimum grade of 2.0.

Add the following paragraph:

All science prerequisite requirements must be completed by students prior to the application deadline each year. All science prerequisite courses must be completed with a minimum grade of 2.0 on a 4.0 scale in each course and a minimum science prerequisite GPA of 3.0. Up to 50% of the science prerequisite requirements may be satisfied with binary grading. General education requirements must be completed by July 1 prior to fall matriculation. Each course must receive a minimum grade of 2.0.

- (3) Under the heading **Science Prerequisite Courses** add:
Physiology
Remove 'Physiology' from the Upper Level Biology Elective category.
- (4) Under the heading **General Education Requirements**, for *Arts and Humanities* and *Social Science*, list the requirement as two courses for each category.

Effective Summer 2023.

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

- FSC 493 Professional Internship in Food Science
Fall of every year. Spring of every year. Summer of every year. ~~4 to 6 credits.~~ 1 to 10 credits. ~~A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 10 credits in all enrollments for this course.~~ ~~R: Open to juniors or seniors in the Food Science major. Approval of department; application required.~~ R: Open to students. Approval of department; application required. A student may earn a maximum of 10 credits in all enrollments for any or all of these courses: ANR 493, ANS 493, CMP 493, CSS 493, CSUS 493, FSC 493, FIM 493, FW 493, HNF 493, HRT 493, PKG 493, and PLP 493.
Supervised professional experiences in agencies and businesses related to food science.
~~Request the use of the Pass No Grade (P-N) system.~~
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FSC 842 ~~Foodborne Diseases~~
Food Safety Microbiology
Spring of odd years. 3(3-0) ~~RB: FSC 440 or FSC 840~~ RB: FSC 440 or MMG 301
~~Epidemiology, isolation, characterization, clinical manifestations, pathogenicity, incidence and control of bacterial, parasitic and viral foodborne pathogens and associated toxins. In-depth evaluation of microbiological food safety concerns with an emphasis on molecular tools for detecting, tracking, and controlling pathogens in the food supply.~~
~~Effective Summer Semester 2004~~ Effective Spring Semester 2024
- HNF 493 Professional Internship
Fall of every year. Spring of every year. Summer of every year. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. P: HNF 250 and (HNF 255 or concurrently) R: Open to undergraduate students. A student may earn a maximum of 10 credits in all enrollments for any or all of these courses: ANR 493, ANS 493, CMP 493, CSS 493, CSUS 493, FSC 493, FIM 493, FW 493, HNF 493, HRT 493, PKG 493, and PLP 493.
- NEW Supervised professional experiences in agencies and businesses related to human nutrition.
Effective Spring Semester 2023
- HNF 499 Undergraduate Research
Fall of every year. Spring of every year. Summer of every year. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. P: HNF 250 and (HNF 255 or concurrently) R: Open to undergraduate students. A student may earn a maximum of 10 credits BMB 499, CSS 499, FSC 499, HNF, 499, MMG 499, NSC 499, PKG 499, and PSL 499.
- NEW Undergraduate research experience is intended to give each student practical experience in the field of nutrition and health.
Effective Spring Semester 2023
- PKG 450 Automotive and Industrial Packaging
Fall of every year. ~~2(2-0)~~ 3(3-0) P: MTH 124 or MTH 132 or LB 118 or MTH 152H
Returnable and expendable packaging for part shipments to assembly plants, cost justification, service parts packaging, logistical systems, and material handling.
SA: PKG 440
~~Effective Summer Semester 2022~~ Effective Spring Semester 2023

COLLEGE OF ENGINEERING

- BME 870 Stem Cell Engineering
Fall of odd years. 3(3-0) RB: This course is open to graduate students and senior undergraduate students with an interest in tissue engineering and biomedical engineering. A basic knowledge of cell biology and molecular biology is required. Exceptions may be granted by the instructor. R: Open to seniors or graduate students.
- NEW This course is an introduction to stem cell biology stem cell engineering approaches for biomedical engineering students. Topics will include a historical revision of stem cell research over the last decades, basic developmental biology and developmental signaling pathways, cell reprogramming, stem cell engineering approaches for translational applications, and novel strategies and reviews of current literature. A significant part of the course will consist of active discussions of seminal contributions to recent scientific literature.
Effective Fall Semester 2023
- CE 843 Advanced Highway Design and Traffic Control
Spring of even years. 3(3-0) R: Open to graduate students in the College of Engineering or in the Department of Civil and Environmental Engineering or in the Civil Engineering Major.
- NEW Highway design policies and practices. Design and performance aspects of freeways and interchanges. Traffic control and signalization strategies.
Effective Spring Semester 2024
- ENE 480 Environmental Measurements Laboratory
Fall of every year. 2(1-3) Interdepartmental with Civil Engineering. ~~P: (CEM 161 or CEM 185H or LB 171L) and ENE 280 and (CEM 142 or CEM 152 or CEM 182H or LB 172) and ((ENE 481 or concurrently) or (ENE 483 or concurrently)) and Completion of Tier I Writing Requirement~~ P: (CEM 161 or CEM 185H or LB 171L) and ENE 280 and (CEM 142 or CEM 152 or CEM 182H or LB 172) and ((ENE 481 or concurrently) or (ENE 483 or concurrently)) and CE 372 and CE 321 R: Open to juniors or seniors or graduate students in the College of Engineering.
Basic chemical and microbiological methods used in the analysis of environmental media. Laboratory safety, quality assurance, quality control, and statistics used in laboratory analysis.
~~Effective Fall Semester 2024~~ Effective Fall Semester 2023
- EGR 100 Introduction to Engineering Design
Fall of every year. Spring of every year. Summer of every year. 2(1-2) ~~P: ((MTH 116 or concurrently) or (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 117 or concurrently) or (LB 118 or concurrently)) and (WRA 1004 or designated score on English Placement test)~~ P: (MTH 114 or concurrently) or (MTH 116 or concurrently) or (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 117 or concurrently) or (LB 118 or concurrently) ~~R: Open to students in the College of Engineering or in the Entrepreneurship and Innovation Minor and open to students in the Lyman Briggs College.~~ R: Open to students in the College of Engineering and open to students in the Lyman Briggs College and open to students in the Entrepreneurship and Innovation Minor.
Engineering design process as modeled by team-based, interdisciplinary design projects. Roles of engineers and the contributions of engineering in society. Project management, creativity and design of products and processes to specified outcomes under specified constraints. Introduction to computing tools and physical equipment in support of engineering design. Engineering ethics. Oral and written technical communications.
~~Effective Fall Semester 2019~~ Effective Fall Semester 2023

COLLEGE OF HUMAN MEDICINE

- EPI 495 Epidemiology and Behavioral Health in Society
Summer of every year. 3(3-0) A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to juniors or seniors or graduate students.
- REINSTATEMENT Introduction to epidemiology as applied to behavioral health issues in contemporary society. Life-span developmental perspective from preterm births to late life Alzheimer's disease and the dementias.
Effective Summer Semester 2023

COLLEGE OF NATURAL SCIENCE

- BS 162 Organismal and Population Biology
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~Interdepartmental with Plant Biology~~ P: BS 161 or BS 181H or LB 145 Not open to students with credit in BS 182H or LB 144.
Biological diversity and organismal biology. Principles of evolution, transmission genetics, population biology, community structure, ecology.
SA: BS 110, BS 148H
~~Effective Summer Semester 2024~~ Effective Spring Semester 2023

- ~~BS 172~~
BS 172L Organismal and Population Biology Laboratory
Fall of every year. Spring of every year. Summer of every year. 2(1-3) ~~Interdepartmental with Plant Biology~~ P: (BS 162 or concurrently) or (BS 182H or concurrently) Not open to students with credit in BS 192H or LB 144.
Nature and process of organismal biology including experimental design, statistical methods, hypothesis testing in genetics, ecology, and evolution.
SA: BS 110, BS 158H
~~Effective Summer Semester 2022~~ Effective Spring Semester 2023

COLLEGE OF OSTEOPATHIC MEDICINE

- FCM 621 Family Medicine Specialty Rotation
Fall of every year. Spring of every year. Summer of every year. 1 to 24 credits. ~~A student may earn a maximum of 51 credits in all enrollments for this course. 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.
Clinical exposure in osteopathic family medicine subspecialty rotations. Proficiency in motor skills and aptitudes; comprehension of concepts and principles; patient evaluation; diagnosis; management; therapy.
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 Semester 2018~~ Effective Fall Semester 2022
- OST 510 Clinical Human Gross Anatomy
Summer of every year. 6(4-4) R: Open to graduate-professional students in the College of Osteopathic Medicine.
- NEW Introduction to macroscopic human structure, landmarks, and spatial relationships using laboratory prosections, multimedia, and clinical correlations. Correct usage of clinical-anatomical language.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer Semester 2023

OST 520	Foundations of Biomedical Science for Osteopathic Medicine Fall of every year. 8(19-1) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Foundational principles and mechanisms of biomedical sciences and their application to osteopathic medicine. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall Semester 2023
OST 521	Musculoskeletal System Fall of every year. 4(8-2) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Structure, function, and conditions of the musculoskeletal system as applied to osteopathic medicine. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall Semester 2023
OST 522	Hematology, Oncology and Infectious Diseases Fall of every year. 3(3-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to principles of hematology, oncology, and response to infection. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall Semester 2023
OST 523	Neurological System Spring of every year. 10(8-4) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Neurological system with integration of basic science and clinical neurology and ophthalmology. Clinical approach to neuromusculoskeletal conditions from osteopathic perspective. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring Semester 2024
OST 524	Psychopathology Spring of every year. 2(2-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to the behavioral system. Normal structure and function and pathologies of the mind to include integration of basic science and clinical information. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring Semester 2024
OST 525	Genitourinary System Spring of every year. 4(4-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Structure and function of the genitourinary system. Diagnosis and management of conditions of the kidney, urinary tract, and genitalia. Integration of basic science and clinical information related to the genitourinary system. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring Semester 2024
OST 526	Endocrine System Spring of every year. 3(3-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Multidisciplinary approach to endocrinology. Normal endocrine structure and function; principles of diagnosis and management of endocrine disorders. Integration of basic science and clinical information. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring Semester 2024

OST 531	Reproduction, Development, and Sexuality Summer of every year. 3(3-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Anatomy, embryology, and physiology of reproduction and human development, including pregnancy and obstetrical care. Review sex and gender, sexuality, and care of LGBTQIA+ patients. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Summer Semester 2024
OST 532	Integumentary System Summer of every year. 2(2-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to the integumentary system, to include the skin and its epidermal derivatives. Normal structure and function and pathologies. Integration of basic science and clinical information. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Summer Semester 2024
OST 533	Gastrointestinal System Summer of every year. 6(5-2) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to the entire digestive track, including accessory organs of digestion. Normal structure and function and pathologies. Integration of basic science and clinical information. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Summer Semester 2024
OST 534	Cardiovascular System Fall of every year. 8(7-2) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to the cardiovascular system, including the heart and vasculature throughout the body. Normal structure and function and pathologies. Integration of basic science and clinical information. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall Semester 2024
OST 535	Respiratory System Fall of every year. 7(5-4) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Systems biology approach to the entire respiratory system. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall Semester 2024
OST 550	Introduction to Osteopathic Medicine and Clinical Skills Summer of every year. 2(2-2) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Introduction to the history and philosophy of osteopathic medicine and practice of clinical medicine. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Summer Semester 2023
OST 561	Ambulatory Care Capstone Spring of every year. 3(8-1) R: Open to graduate-professional students in the College of Osteopathic Medicine.
NEW	Foundations of healthcare systems, including medical economics, informatics, patient safety, and healthcare policy. <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring Semester 2025

- OST 562 Hospital Care Capstone
Spring of every year. 3(8-1) R: Open to graduate-professional students in the College of Osteopathic Medicine.
- NEW Application of medical knowledge to patient care in hospital setting.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring Semester 2025
- OST 563 Health Systems Science Capstone
Spring of every year. 2(8-1) R: Open to graduate-professional students in the College of Osteopathic Medicine.
- NEW Foundations of healthcare systems, including medical economics, informatics, patient safety, and healthcare policy.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring Semester 2025
- OST 899 Master's Thesis Research
Fall of every year. Spring of every year. Summer of every year. 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open to osteopathic medicine students. Approval of college.
- NEW The Master's thesis research course is required for students who may not continue medical school after completing the first two years of curriculum.
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 3 semesters after the end of the semester of enrollment.
Effective Fall Semester 2023
- PMR 601 Physical Medicine and Rehabilitation Clerkship
Fall of every year. Spring of every year. Summer of every year. 1 to 18 credits. ~~A student may earn a maximum of 24 credits in all enrollments for this course.~~ 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.
Physical medicine and rehabilitation inpatient and ambulatory setting clinical experience, didactic sessions, case documentation and presentation, hospital rounds. Strong emphasis on evaluation of neuromusculoskeletal disorders and treatment of function deficits.
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 Semester 2010~~ Effective Fall Semester 2023