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

      Add the following course:

              HNF 255 Professional Development and Career Planning in Nutrition

      (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:

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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCM 650</td>
<td>Principles of Family Medicine</td>
<td>1</td>
</tr>
<tr>
<td>FCM 660</td>
<td>Pre-Clerkship International Preceptor</td>
<td>1</td>
</tr>
</tbody>
</table>

**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.
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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OST 615</td>
<td>Biomedical Research</td>
<td>3 to 18</td>
</tr>
<tr>
<td>OST 620</td>
<td>Patient Safety and Quality Improvement</td>
<td>2 or 3</td>
</tr>
<tr>
<td>OST 621</td>
<td>Leadership in Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>OST 622</td>
<td>Addiction Medicine</td>
<td>3</td>
</tr>
<tr>
<td>OST 623</td>
<td>Board Preparation</td>
<td>1 to 6</td>
</tr>
<tr>
<td>OST 624</td>
<td>Essentials in Diabetes</td>
<td>3</td>
</tr>
<tr>
<td>OST 625</td>
<td>Introduction to Military Medicine</td>
<td>6 to 9</td>
</tr>
<tr>
<td>OST 626</td>
<td>Special Topics in Healthcare Ethics: Case Studies</td>
<td>3</td>
</tr>
<tr>
<td>OST 627</td>
<td>Fundamentals of Health Policy and Advocacy</td>
<td>3</td>
</tr>
</tbody>
</table>

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](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**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>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).</td>
</tr>
</tbody>
</table>

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

```
<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ANTR 510</td>
<td>Clinical Human Gross Anatomy and Palpatory Skills</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>BMB 516</td>
<td>Metabolic Biochemistry: Nutrients and Products</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 598</td>
<td>Evidence-Based Health Science</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>BMB 528</td>
<td>Molecular Biology and Medical Genetics</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>OST 551</td>
<td>Osteopathic Patient Care I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>OMM 511</td>
<td>Osteopathic Manipulative Medicine I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MMG 531</td>
<td>Medical Immunology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MMG 532</td>
<td>Medical Microbiology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PHM 564</td>
<td>Basic Principles of Medical Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSL 539</td>
<td>Principles of Cell Biology and Pathophysiology</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>OMM 512</td>
<td>Osteopathic Manipulative Medicine II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 552</td>
<td>Osteopathic Patient Care II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>OST 556</td>
<td>Pediatrics I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 571</td>
<td>Neuromusculoskeletal System</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>OST 572</td>
<td>Genitourinary System</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OST 573</td>
<td>Endocrine System</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>OMM 513</td>
<td>Osteopathic Manipulative Medicine III</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 553</td>
<td>Osteopathic Patient Care III</td>
<td>3</td>
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<tr>
<td></td>
<td>OST 557</td>
<td>Pediatrics II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 574</td>
<td>Female Reproductive System</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OST 575</td>
<td>Gastrointestinal System</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>OST 576</td>
<td>Integumentary System</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>OMM 514</td>
<td>Osteopathic Manipulative Medicine IV</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OST 554</td>
<td>Osteopathic Patient Care IV</td>
<td>3</td>
</tr>
</tbody>
</table>
```
OST 558 Pediatrics III 1
OST 577 Psychopathology 2
OST 578 Hematopoietic System 2
OST 579 Cardiovascular System 9

Semester 6
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

Semester 4, 5, or 6
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.

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. 1 to 6 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 2001 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.  
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 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.  
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 2021 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) or 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 2021  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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.
Request the use of the Pass-No Grade (P-N) system.
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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.  
Request the use of the Pass-No Grade (P-N) system.  
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 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