

SUBCOMMITTEE A – AGENDA

437 Administration Building

March 21, 2019

1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish an **Agricultural Technology Certificate in Food Processing, Technology and Safety** in The Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) approved this request at its January 24, 2019 meeting.

a. **Background Information:**

The Institute of Agricultural Technology (IAT) provides Michigan State University with a unique niche in its capacity to help educate Michigan citizens and to help diversify the Michigan economy.

Employment and career opportunities continue to expand for those who have training and educational preparation in Food Processing and Technology. In response to industry needs, Michigan State University is collaborating with community colleges to offer a combined program, which enables students to complete an MSU Institute of Agricultural Technology certificate in Food Processing, Technology and Safety and an Associate Degree at the community college concurrently, bringing together the world acclaimed expertise of Michigan State University's College of Agriculture and Natural Resources and the "close to home" convenience of outstanding community colleges. Students may continue their course work to obtain an Associate in Applied Science Degree from the community college partners in addition to the certificate from Michigan State University. Should students wish to continue their education, the appropriate predesignated credits may be applied to a bachelor's degree program at Michigan State University if students meet the established transfer guidelines.

b. **Academic Programs Catalog Text:**

The Food Processing, Technology and Safety program prepares graduates for a wide range of employment and career choices. Each student receives personal, one-on-one help in selecting her/his program of study (including workplace internship).

Requirements for Food Processing, Technology and Safety

CREDITS

Students must complete 60 credits from the following:

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|----|--|---|---|
| 1. | All of the following courses (27 credits): | | |
| | ABM 100 | Decision-making in the Agri-Food System | 3 |
| | AT 193 | Agricultural Technology Clerkship | 2 |
| | AT 293 | Professional Internship in Agricultural Technology | 3 |
| | FSC 111 | Foundational Concepts in Food Processing and Technology | 3 |
| | FSC 112 | Seminar in Food Processing, Technology and Safety | 1 |
| | FSC 113 | Basic Commodity Overview Food Processing and Technology | 3 |
| | FSC 114 | Food Processing and Technology Facilities Management | 3 |
| | FSC 125 | Food Processing and Technology Unit Operations | 2 |
| | FSC 240 | Applied Food Processing and Technology Microbiology | 2 |
| | FSC 241 | Safety Principles and Regulations in Food Processing and Technology | 3 |
| | FSC 242 | Applied Food Processing and Technology Chemistry | 2 |
| 2. | Two of the following courses (4 credits): | | |
| | FSC 230 | Fruit and Vegetable Processing | 2 |
| | FSC 231 | Cereals Processing | 2 |
| | FSC 232 | Dairy Foods Processing | 2 |
| | FSC 233 | Muscle Foods Processing | 2 |
| 3. | Complete a minimum of 3 elective credits in the College of Agriculture and Natural Resources as approved by the program coordinator in the Institute of Agricultural Technology. | | |

4. Complete 26 credits of additional course work through the College of Agriculture and Natural Resources, a community college partner (Kellogg Community College, Lansing Community College, Muskegon Community College, Northwestern Michigan College,) or an approved transferring institution. All course work must be approved by the program coordinator in the Institute of Agricultural Technology.

Effective Fall 2019.

COLLEGE OF ENGINEERING

1. Request to change the requirements for the **Bachelor of Science** degree in **Applied Engineering Sciences** in the College of Engineering.

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

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

STT	315	Introduction to Probability and Statistics for Business	3
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Add the following course:

STT	351	Probability and Statistics for Engineering	3
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- (2) In item 3. c. **Computer Science** concentration replace items 2. and 3. with the following:

2.	Two of the following courses (6 or 7 credits):		
CSE	320	Computer Organization and Architecture	3
CSE	325	Computer Systems	3
CSE	331	Algorithms and Data Structures	3
CSE	335	Object-oriented Software Design	4
CSE	404	Introduction to Machine Learning	3
CSE	420	Computer Architecture	3
CSE	429	Interdisciplinary Topics in Cybersecurity	3
CSE	431	Algorithm Engineering	3
CSE	440	Introduction to Artificial Intelligence	3
CSE	471	Media Processing and Multimedia Computing	3
CSE	472	Computer Graphics	3
CSE	476	Mobile Application Development	3
CSE	477	Web Application Architecture and Development	3
CSE	480	Database Systems	3
CSE	482	Big Data Analysis	3

Effective Fall 2019.

2. Request to change the name of the **Master of Science** degree in **Electrical Engineering to Electrical and Computer Engineering** in the Department of Electrical and Computer Engineering. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 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.

Effective Summer 2019.

3. Request to change the requirements for the **Master of Science** degree in **Electrical and Computer Engineering** in the Department of Electrical and Computer Engineering. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 2019 meeting.

- a. Under the heading **Requirements for the Master of Science Degree in Electrical and Computer Engineering** make the following change:

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

ECE 826 Linear Control Systems 3

Effective Summer 2019.

4. Request to change the name of the **Doctor of Philosophy** degree in **Electrical Engineering to Electrical and Computer Engineering** in the Department of Electrical and Computer Engineering. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 2019 meeting.

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

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

Effective Summer 2019.

COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the **Graduate Specialization in Ecology, Evolutionary Biology and Behavior** in the College of Natural Science. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 2019 meeting.

- a. Under the heading **Requirements for the Graduate Specialization in Ecology, Evolutionary Biology and Behavior**, add the following item 3. to the **Required Core Courses**:

3. Two 3-credit courses in statistical methods at the 800-900 level. A list of approved courses is available from the office of the ecology, evolutionary biology and behavior program.

Effective Fall 2019.

2. Request to change the requirements for the **Dual Major in Ecology, Evolutionary Biology and Behavior** in the College of Natural Science. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 2019 meeting.
 - a. Under the heading **Requirements for the Dual Major in Ecology, Evolutionary Biology and Behavior**, replace item 3. with the following:
 3. Two 3-credit courses in statistical methods at the 800-900 level. A list of approved courses is available from the office of the ecology, evolutionary biology and behavior program.

Effective Fall 2019.

3. Request to change the requirements for the **Doctor of Philosophy** degree in **Neuroscience** in the Program in Neuroscience. The University Committee on Graduate Studies (UCGS) will consider this request at its March 11, 2019 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Neuroscience** make the following changes:
 - (1) Replace items 1. and 2. with the following:
 1. Complete all of the following courses (17 credits):

NEU	801	Molecular, Cellular and Developmental Neuroscience I	3
NEU	802	Systems and Behavioral Neuroscience I	3
NEU	803	Molecular, Cellular and Developmental Neuroscience II	3
NEU	805	Systems and Behavioral Neuroscience II	3
NEU	807	Strategies in Neuroscience Research	2
NEU	815	Quantitative Skills in Neuroscience Research	3
PHM	830	Experimental Design and Data Analysis	3
 2. Complete two elective courses relevant to neuroscience (4 to 6 credits).

Effective Fall 2019.

COLLEGE OF OSTEOPATHIC MEDICINE

1. Request to establish a **Master of Science** degree in **Global Health** in the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 14, 2019 meeting.

- a. **Background Information:**

The proposal for this degree program is driven by four demands: (1) a nationally and internationally recognized interest in academic programs in global health; (2) increasing interest in the part of medical and other health professions in global health course offerings; (3) a demand from partnering international universities in the desire to send students into a global health program delivered by Michigan State University; and (4) an interest on the part of the faculty across the university in developing a multi-disciplinary program around global health.

Several recent publications have highlighted the growing interest in global health programs. For example, Withers et al. conducted an online survey of twelve higher educational institutions in the Pacific Rim. Enrollment in global health programs increased over three-fold between 2005-2011, the survey period. A survey was conducted during three separate meetings of the International Federation of Medical Student Associations (IFMSA) Over 91% of students surveyed responded "yes" to the statement "It is important for students to learn about global health in general" with 71% indicating it should be compulsory for all medical students. Additionally, Drain et al reported in Academic Medicine that the percentage of medical school graduates participating in an elective

international health experience during medical school increased from 5% in 1975 to 25% in 2004. The authors suggested strategies to meet the global health interests of students, such as offering courses in global health and offering combined degree programs in global health.

The MSU student population internationally and nationally has mirrored the increased interest by students. Because of demand for international electives, the Institute for Global Health now boasts 10 international electives. Professional and graduate students from the Colleges of Osteopathic Medicine, Human Medicine, Nursing, and Veterinary Medicine participate in these electives, along with select undergraduate students. The Institute for Global Health also offers short-term training opportunities at MSU for health professions students and professionals from countries such as China, Japan, Korea, Mexico, and Peru. Collaborating universities have expressed significant interest in sending students to a MSU master's program in global health. Several of our global partnering universities have expressed interest in co-sponsoring a program in the future.

The proposed program is unique as it is a distributive model in both instruction and finances. The core faculty are from four different colleges including the College of Osteopathic Medicine, the College of Veterinary Medicine, College of Nursing, and the College of Arts and Letters. The College of Human Medicine offers a Master of Public Health (MPH) program that is in the process of going through accreditation by the Council on Education for Public Health, but does not currently include a concentration in global health. The MPH also does not include competencies of the Consortium of Universities of Global Health (CUGH). The leadership of the MPH currently serves on the Global Health Committee.

A competitive market analysis performed by an outside consultant, BISK, identified a strong market for global health programs with a steady 10-year growth and low saturation. They also identified minimal online competition. Of 72 competitor programs, only 15 were online as of 2016. Within the region, there is a low presence of global health master degree programs. BISK identified 7 schools with a MPH with a global focus and none were online. Northwestern University is the only regional program with an online Master of Science Degree in Global Health. BISK recommended that MSU offer a global health degree online based on a relatively limited competitive market with high demand. BISK further stated "leveraging MSU's strong regional presence and related interdisciplinary strengths will add to the potential success of this program".

The Master of Science degree in Global Health is a competency-based program and incorporates many of the competencies recommended by the Consortium of Universities for Global Health (CUGH). CUGH published these competencies in a 2015 issue of *Annals of Global Health*. In collaboration with the International Studies and Programs, the Institute for Global Health purchased an institutional membership to CUGH to enable all faculty, staff and students to avail themselves of the resources of this professional society devoted to educational programs in global health. The program faculty, staff and students will have access to best practices in global health education and research offerings through journals, networking and conferences. The competencies are mapped within the courses of the program to ensure that all students completing the program will have exposure to all of the recommended competencies.

In addition to the CUGH competencies, the program will seek certification by Quality Matters for an online program. Quality Matters is an international organization recognized as a leader in quality assurance for online education. MSU is a member organization and has trained reviewers on campus who can certify online programs. We will seek certification within one year of matriculating students. All faculty participating in the program will be offered certification as online instructors through Quality Matters.

The College of Osteopathic Medicine has been home to the Institute for Global Health (IGH) for the past 30 years. The Institute was developed in 1987, when Dr. Roy Gerard of the Department of Family Practice received \$4.2 million from the W.K. Kellogg Foundation to implement the Kellogg International Fellowship Program in Health. In the past 31 years, IGH has continued to flourish as MSU's focal point of international health by expanding training, education, scholarship and research programs, as well as collaborative partnerships around the world. The mission of the Institute for Global Health is to provide global health education, research and capacity building for our partners that will position Michigan State University as a leader in addressing and solving global health challenges. IGH works with health-related colleges, as well as with agricultural, social and environmental scientists and nutritionists to foster and coordinate research, education, and development at a global level. IGH collaborates with Michigan-based hospitals affiliated with MSU's College of Osteopathic Medicine to raise awareness of global health issues and help improve clinical services and health outcomes for underserved regions of the world.

b. Academic Programs Catalog Text:

The Master of Science degree in Global Health is an interdisciplinary degree administered by the College of Osteopathic Medicine in partnership with faculty from the Colleges of Arts and Letters, Communication Arts and Sciences, Nursing, Social Science, and Veterinary Medicine. The program stresses the interconnectedness of the animal, environment and human health and is applicable to a broad range of health professionals such as medical, nursing, or veterinary medicine as well as individuals interested in a holistic view of global health. The program prepares individuals to both manage and lead as global health professionals. Individualized programs of study can be tailored to accommodate individuals with a broad range of academic and professional experience and interests. The certificate is available online only.

In addition to meeting the requirements of the University and the College of Osteopathic Medicine, students must meet the requirements below.

Admission

To be considered for admission to the Master of Science degree in Global Health, an applicant must submit the following:

1. A transcript showing a completed undergraduate degree.
2. A personal statement describing interest and experience in global health, including career goals.
3. A resume or curriculum vitae.
4. Test scores from a standardized graduate or professional school test such as the GRE, GMAT, MCAT, DAT, LSAT. This requirement may be waived if applicant has a previously conferred graduate or professional degree.
5. A test of English language proficiency for students for whom English is not a first language.

Requirements for the Master of Science Degree in Global Health

CREDITS

The Master of Science degree in Global Health is available online only and only under Plan B (non-thesis). Students must complete 42 credits as specified below:

1. All of the following courses (27 credits):

	OST	821	One Health – The Theory and Added Value of Transdisciplinary Collaborations to Global Health	3
	OST	822	Introduction to Global Health Practice	3
	OST	823	Global Burden of Disease	3
	OST	824	Emerging Topics in Global Health	3
	OST	825	Ethical Issues in Global Health	3
	OST	827	Global Health Management	3
	OST	828	Global Health Capstone	3
	OST	829	Global Health Community Assessment	3
	OST	831	Evidence-Based Practice in Global Health	3
2. Complete a minimum of 2 to 8 credits from the following courses. The elective chosen must be completed concurrently with OST 829 Global Health Community Assessment.

	OST	686	Global Health: Mexico – Community Medicine and Mayan Culture in the Yucatan	3
	OST	687	Global Health: Peru Medical Service	3
	OST	688	Global Health: Cuban Healthcare Delivery System	3
	OST	689	Global Health: Haiti – Introduction to Global Health and Culture	3
	OST	690	Global Health: Dominican Republic – Healthcare Delivery System and Culture	3
	OST	691	Global Health: Guatemala – Tropical Medicine and Infectious Disease	1
	OST	692	Global Health: Turkish Healthcare Delivery System and Culture	3
	OST	693	Global Health: Korean Healthcare Delivery System	3
	OST	694	Global Health: One Health in Nepal	3
	OST	830	Independent Study in Global Health	1 to 3

3. Complete 9 to 15 credits selected from the following courses:

ANP	834	Medical Anthropology	3
ANP	835	Topics in Medical Anthropology	3
CAS	826	Health Communication for Diverse Populations	3
OST	830	Independent Study in Global Health	1 to 3
PSY	880	Foundations of Evaluation Practice	3
PSY	881	Evaluation Design	3
4. Successfully complete a capstone professional paper.

Effective Fall 2019.

2. Request to establish a **Graduate Certificate in Global Health** in the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 14, 2019 meeting.

a. **Background Information:**

The proposal for this certificate is driven by four demands: (1) a nationally and internationally recognized interest in academic programs in global health; (2) increasing interest in the part of medical and other health professions in global health course offerings; (3) a demand from partnering international universities in the desire to send students into a global health program delivered by Michigan State University; and (4) an interest on the part of the faculty across the university in developing a multi-disciplinary program around global health.

Several recent publications have highlighted the growing interest in global health programs. For example, Withers et al. conducted an online survey of twelve higher educational institutions in the Pacific Rim. Enrollment in global health programs increased over three-fold between 2005-2011, the survey period. A survey was conducted during three separate meetings of the International Federation of Medical Student Associations (IFMSA) Over 91% of students surveyed responded “yes” to the statement “It is important for students to learn about global health in general” with 71% indicating it should be compulsory for all medical students. Additionally, Drain et al reported in *Academic Medicine* that the percentage of medical school graduates participating in an elective international health experience during medical school increased from 5% in 1975 to 25% in 2004. The authors suggested strategies to meet the global health interests of students, such as offering courses in global health and offering combined degree programs in global health.

The MSU student population internationally and nationally has mirrored the increased interest by students. Because of demand for international electives, the Institute for Global Health now boasts 10 international electives. Professional and graduate students from the Colleges of Osteopathic Medicine, Human Medicine, Nursing, and Veterinary Medicine participate in these electives, along with select undergraduate students. The Institute for Global Health also offers short-term training opportunities at MSU for health professions students and professionals from countries such as China, Japan, Korea, Mexico, and Peru. Collaborating universities have expressed significant interest in sending students to a MSU master’s program in global health. Several of our global partnering universities have expressed interest in co-sponsoring a program in the future.

The proposed program is unique as it is a distributive model in both instruction and finances. The core faculty are from four different colleges including the College of Arts and Letters, the College of Osteopathic Medicine, the College of Veterinary Medicine and the College of Nursing. The College of Human Medicine offers a Master of Public Health (MPH) program that is in the process of going through accreditation by the Council on Education for Public Health, but does not currently include a concentration in global health. The MPH also does not include competencies of the Consortium of Universities of Global Health (CUGH). The leadership of the MPH currently serves on the Global Health Committee.

The Certificate in Global Health is a competency-based program and incorporates many of the competencies recommended by the Consortium of Universities for Global Health (CUGH). CUGH published these competencies in a 2015 issue of *Annals of Global Health*. In collaboration with the International Studies and Programs, the Institute for Global Health purchased an institutional membership to CUGH to enable all faculty, staff and students to avail themselves of the resources of this professional society devoted to educational programs in global health. The program faculty, staff and students will have access to best practices in global health education and research offerings through journals, networking and conferences. The competencies are mapped within the

courses of the program to ensure that all students completing the program will have exposure to all of the recommended competencies.

In addition to the CUGH competencies, the program will seek certification by Quality Matters for an online program. Quality Matters is an international organization recognized as a leader in quality assurance for online education. MSU is a member organization and has trained reviewers on campus who can certify online programs. We will seek certification within one year of matriculating students. All faculty participating in the program will be offered certification as online instructors through Quality Matters.

The Certificate in Global Health will enable students to decide whether they would like to pursue a Master of Science in Global Health degree, which is concurrently being proposed. The certificate is a great option for students who are unable to complete the Master of Science degree, due to professional or personal obligations or for financial reasons.

b. **Academic Programs Catalog Text:**

The Graduate Certificate in Global Health is an interdisciplinary certificate administered by the College of Osteopathic Medicine in partnership with faculty from the Colleges of Arts and Letters, Nursing, and Veterinary Medicine. The certificate stresses the interconnectedness of the animal, environment and human health and is applicable to a broad range of health professionals such as medical, nursing, or veterinary medicine as well as individuals interested in a holistic view of global health. The certificate prepares individuals to both manage and lead as global health professionals. Individualized programs of study can be tailored to accommodate individuals with a broad range of academic and professional experience and interests. The certificate is available online only.

Admission

To be considered for admission to the Graduate Certificate in Global Health, an applicant must submit the following:

1. A transcript showing a completed undergraduate degree.
2. A personal statement describing interest and experience in global health, including career goals.
3. A resume or curriculum vitae.
4. Test scores from a standardized graduate or professional school test such as the GRE, GMAT, MCAT, DAT, LSAT. This requirement may be waived if applicant has a previously conferred graduate or professional degree.
5. A test of English language proficiency for students for whom English is not a first language.

Requirements for the Graduate Certificate in Global Health

CREDITS

The certificate program is available online only. Students must complete 9 credits from the following:

OST	821	One Health – The Theory and Added Value of Transdisciplinary Collaborations to Global Health	3
OST	822	Introduction to Global Health Practice	3
OST	823	Global Burden of Disease	3

Effective Fall 2019.

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

FSC 111	Foundational Concepts in Food Processing and Technology Fall of every year. 3(3-0) R: Open to students in the Institute of Agricultural Technology.
NEW	Fundamental principles of food chemistry, microbiology, and physical science. Effective Fall 2019
FSC 112	Seminar in Food Processing, Technology and Safety Fall of every year. 1(1-0) R: Open to students in the Institute of Agricultural Technology.
NEW	Communication, organization, and time management skills for the food processing industry. Exploration of internships. Effective Fall 2019
FSC 113	Basic Commodity Overview Food Processing and Technology Fall of every year. 3(3-0) R: Open to students in the Institute of Agricultural Technology.
NEW	Fundamental principles of food processing continuum - from production, through processing, to distribution. Effective Fall 2019
FSC 114	Food Processing and Technology Facilities Management Spring of every year. 3(2-2) P: FSC 125 or concurrently R: Open to students in the Institute of Agricultural Technology.
NEW	Fundamentals of food plant design and layout. Cleaning and sanitation systems, standards, and regulations. Total Quality Management principles. Effective Fall 2019
FSC 125	Food Processing and Technology Unit Operations Spring of every year. 2(1-2) P: FSC 111 R: Open to students in the Institute of Agricultural Technology.
NEW	Basic unit operations commonly used in the food industry to prepare, process, and preserve a variety of food products. Effect of food processing on physical, nutritional, and sensory attributes of food products and impact on quality and shelf life. Effective Fall 2019
FSC 230	Fruit and Vegetable Processing Fall of every year. 2(1-2) P: FSC 125 and (FSC 242 or concurrently) R: Open to students in the Institute of Agricultural Technology.
NEW	Basic concepts and operations utilized in the handling, preservation, and processing of fruit and vegetable crops Effective Fall 2019
FSC 231	Cereals Processing Spring of every year. 2(1-2) P: FSC 125 and (FSC 242 or concurrently) R: Open to students in the Institute of Agricultural Technology.
NEW	Classification and composition of major cereal crops. Milling processes and cereal product manufacturing. Effective Fall 2019
FSC 232	Dairy Foods Processing Fall of every year. 2(1-2) P: FSC 125 and (FSC 242 or concurrently) R: Open to students in the Institute of Agricultural Technology.
NEW	Handling and processing of fluid milk, cultured milks, natural and processed cheese, whey products, dairy ingredients and dairy based frozen desserts. Effective Fall 2019

FSC 233	Muscle Foods Processing Spring of every year. 2(1-2) P: FSC 125 and (FSC 242 or concurrently) R: Open to students in the Institute of Agricultural Technology.
NEW	Manufacturing practices and principles of fresh, frozen, and cured meats and poultry. Effective Fall 2019
FSC 240	Applied Food Processing and Technology Microbiology Spring of every year. 2(2-0) P: FSC 111 RB: A previous course in biological science. R: Open to students in the Institute of Agricultural Technology.
NEW	Major groups of microorganisms of importance to the food processing and technology industry with emphasis on ecological, physiological, and public health aspects. Principles and practices to prevent food spoilage and food-borne outbreaks. Effective Fall 2019
FSC 241	Safety Principles and Regulations in Food Processing and Technology Fall of every year. 3(3-0) P: FSC 240 R: Open to students in the Institute of Agricultural Technology.
NEW	Hazard Analysis Critical Control Points (HACCP), risk-based preventive controls, process validation, and statistical applications in food safety. Effective Fall 2019
FSC 242	Applied Food Processing and Technology Chemistry Fall of every year. 2(2-0) P: FSC 111 RB: A previous course in general chemistry. R: Open to students in the Institute of Agricultural Technology.
NEW	Chemical changes in foods as a result of formulation, processing, and storage affecting texture, color, flavor, stability, functionality, safety, and nutritional quality. Effective Fall 2019

COLLEGE OF HUMAN MEDICINE

MED 628	Advanced Internal Medicine: Senior Medicine Sub-Internship 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. <u>P: MED 608 or MED 641</u> RB: MED 608 or HM 556 R: Open to graduate-professional students in the College of Human Medicine. Advanced clinical experiences to refine diagnostic and management skills in complicated general internal medicine patients. 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
SUR 615	Ophthalmology 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: SUR 608 or SUR 644 <u>RB: SUR 608 or SUR 641</u> R: Open to graduate-professional students in the College of Human Medicine. Medical and surgical treatment of eye diseases. Clinical experiences include private office practice, surgical observations, pre-and post-operative care. 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 Fall 2019 <u>Effective Summer 2019</u>

- SUR 618 Anesthesia 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: SUR 608 or SUR 644~~ RB: SUR 608 or SUR 641 R: Open to graduate-professional students in the College of Human Medicine.
Common anesthetic agents and procedures. Operative and post-operative effects, complications, patient risk, cost. Performing anesthetic procedures under faculty supervision.
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 Fall 2018~~ Effective Summer 2019
- SUR 630 Surgical Wound Care 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: SUR 608 or SUR 644~~ RB: SUR 608 or SUR 641 R: Open to graduate-professional students in the College of Human Medicine.
Evaluation, management and knowledge of wound care in surgical patients.
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 Fall 2018~~ Effective Summer 2019
- SUR 632 Surgical Nutrition 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: SUR 608 or SUR 644~~ RB: SUR 608 or SUR 641 R: Open to graduate-professional students in the College of Human Medicine.
Evaluation, management and knowledge of nutrition in critically-ill surgical patients.
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 Fall 2018~~ Effective Summer 2019

COLLEGE OF NATURAL SCIENCE

- NEU 802 Systems and Behavioral Neuroscience I
Fall of every year. 3(3-0) RB: B.S., B.A. or M.S. in the biological or psychological sciences. R: Open to graduate students in the Neuroscience Major or in the Neuroscience Major or in the Neuroscience-Environmental Toxicology Major. Approval of department.
- NEW Anatomy and physiology of multicellular neural systems controlling learning and memory, motivated behaviors, pain, biological rhythms and psychopathologies.
Effective Fall 2019
- NEU 803 Molecular, Cellular and Developmental Neuroscience II
Spring of every year. 3(3-0) Interdepartmental with Physiology. RB: B.S., B.A. or M.S. degree in the biological or psychological sciences. R: Open to graduate students in the Neuroscience Major or in the Neuroscience Major or in the Neuroscience-Environmental Toxicology Major. Approval of department.
- NEW Electrical and intra- and extracellular signaling mechanisms of neurons and glia in health and disease in the developing and mature nervous system.
Effective Fall 2019

COLLEGE OF OSTEOPATHIC MEDICINE

- OST 598 Evidence-Based Health Science for Osteopathic Medical Students
Summer of every year. 1(1-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
- NEW Introductory evidence-based approach to osteopathic basic science and clinical education and application to health science, critical review of literature, and research design.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2019
- OST 821 One Health—The Theory and Added Value of Transdisciplinary Collaborations to Global Health
Fall of every year. Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
- NEW Introduction to One Health approach of 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
- OST 822 Introduction to Global Health Practice
Fall of every year. Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
- NEW 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
- OST 823 Global Burden of Disease
Fall of every year. Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
- NEW 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 using available data.
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
- OST 824 Emerging Topics in Global Health
Fall of every year. Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
- NEW New and emerging topics of importance to 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
Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
- NEW 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 Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
NEW	Leadership and management within the context of global healthcare. Focus on interprofessional and intercultural values and communication. <u>Request the use of ET-Extension to postpone grading.</u> <u>The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.</u> Effective Spring 2020
OST 828	Global Health Capstone Fall of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
NEW	Integrate knowledge, skills and competencies acquired from previous courses. <u>Request the use of ET-Extension to postpone grading.</u> <u>The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.</u> Effective Fall 2020
OST 829	Global Health Community Assessment Fall of every year. Spring 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.
NEW	Assessment of global health field experience. Techniques for collaboration and co-creation with community partners. <u>Request the use of ET-Extension to postpone grading.</u> <u>The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.</u> Effective Fall 2019
OST 830	Independent Study in Global Health Fall of every year. Spring of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
NEW	Independent study in areas relevant to global health. <u>Request the use of ET-Extension to postpone grading.</u> <u>The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.</u> Effective Fall 2019
OST 831	Evidence-Based Practice in Global Health Spring of every year. 3 credits. R: Open to master's students in the College of Osteopathic Medicine or approval of college.
NEW	Approaches for critical appraisal of scientific studies of global health interventions. <u>Request the use of ET-Extension to postpone grading.</u> <u>The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.</u> Effective Spring 2020

COLLEGE OF VETERINARY MEDICINE

- PHM 802 Cellular, Molecular and Integrated Systems Pharmacology
Spring of every year. 3(3-0) ~~P: (BMB 801 or BMB 802) and (PHM 827 or PSL 828 or PSL 829) P:~~
PHM 801 R: Open to doctoral students or approval of department.
Cellular and molecular mechanisms of drug actions on organ systems of humans and other mammals.
~~Effective Spring 2018~~ Effective Spring 2019
- PHM 809 Drug Discover and Medicinal Chemistry
Spring of even years. 2(2-0) Interdepartmental with Chemistry. RB: BS in Biomedical science discipline (including, but not limited to chemistry, biochemistry, pharmacology, chemical engineering, molecular biology, biology, pharmacy, human biology, physiology.) R: Open to doctoral students in the Department of Chemistry or in the Department of Pharmacology and Toxicology or approval of department.
- NEW Drug discover is a complicated and fascinating adventure, engaging multiple disciplines, strategic decision-making and problem-solving skills. In this course, we will cover the fundamentals necessary for the drug discover process including but not limited to basic chemical knowledge, drug design principles, high-throughput screening, computational modeling and drug metabolic pathway. The goal of this course is to equip students with the fundamentals of discovery pharmaceutical research and to prepare them ultimately to work as a team-member in a discovery program.
Effective Spring 2020