

SUBCOMMITTEE A – AGENDA

Via Zoom
November 9, 2023
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish a **Minor in Environmental Soil Science** in the Department of Plant, Soil and Microbial Sciences. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its September 28, 2023 meeting.

- a. **Background Information:**

Soil science has always been an interdisciplinary field involving chemistry, physics, biology, and geology. Most soil science programs have historically focused on row crop production, a vital application of soil science. Soil science also impacts forestry, wetland management, urban stormwater planning, archeology, and many other related disciplines. Soil scientists are hired by Federal agencies including the U.S. Department of Agriculture, the U.S. Forest Service, the U.S. Geological Survey, and the Environmental Protection Agency. These Federal jobs, and many analogous state jobs across the country, require applicants to meet the Federal OPM Soil Science Series 0470 job requirements, which include 15 credits in soil science and at least 30 credits of supporting scientific course work. The Certified Professional Soil Scientist (CPSS) program, administered by the Soil Science Society of America, essentially mirrors these Federal job requirements for many private sector jobs; many soil scientists working in the septic services industry and other industries pursue certification as a CPSS after graduation.

Current MSU students who are interested in pursuing one of these Federal, state, or private sector soil science jobs have limited educational opportunities. If they pursue a B.S. in Crop and Soil Sciences (CSS), they will meet the soil science credit requirements for most jobs, but they will not meet the course work requirements to be competitive applicants for jobs in forest soils, wetland soils, and other environments that are not represented in the CSS curriculum. Similarly, MSU students who pursue majors such as Forestry or Fisheries and Wildlife will find that they have enough supporting course work to pursue jobs in those fields, but that they lack enough soil science credits to apply for soil scientist positions in those diverse environments.

The purpose of the Minor in Environmental Soil Science is to fill this educational gap at MSU. A student who wants to work as a soil scientist in nearly any environment can pursue whatever major they prefer to specialize in an environment (e.g., vineyard, urban, forest, wetland), while pursuing the Minor in Environmental Soil Science in order to meet the specific requirements of many soil science jobs. The minor is flexible enough to allow students who are more generally interested in soil health, regenerative agriculture, and similar topics to still pursue substantial course work in soil science while allowing up to 6 credits of closely related electives.

- b. **Academic Programs Catalog Text:**

The Minor in Environmental Soil Science is intended to serve students and professionals who plan to pursue careers in soil science, soil health, or related agricultural, natural resource, and environmental sciences with a focus on the sustainable management of soils to produce food, fiber, and other products while conserving or regenerating natural and managed ecosystems.

The requirements meet the soil science course work requirements for Federal and state employment as soil scientists, as well as the course work requirements necessary to become a Certified Professional Soil Scientist (CPSS).

At least 9 credits counted towards the requirements for this minor must be unique. Unique credits must not be used to fulfill another university, college, or major requirement in the student's program.

With the approval of the department and college that administer the student's degree program, 6 credits of course work that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the bachelor's degree.

Students who are interested in enrolling should contact an undergraduate advisor in the Department of Plant, Soil and Microbial Sciences.

Requirements for the Minor in Environmental Soil Science

CREDITS

Complete all of the following courses (15 credits):

1.	The following course (3 credits):		
	CSS 210	Fundamentals of Soil Science	3
2.	Complete 12 credits from the following, with a minimum of 6 credits in Soil Science courses:		
	<i>Soil Science</i>		
	CSS 203	World of Soils	2
	CSS 330	Soil Chemistry	2
	CSS 340	Applied Soil Physics	2
	CSS 360	Soil Biology	2
	CSS 470	Soil Resources	3
	CSS 480	Soil Fertility and Management	3
	<i>Approved Electives</i>		
	ANS 418	Animal Agriculture and the Environment	3
	CSS 411	Fire and Environmental Quality	3
	CSS 420	Cover Crops in Agroecosystems	3
	CSS 442	Agricultural Ecology	3
	CSS 460	Plant-Microbe Interactions	3
	CSS 488	Agricultural Cropping Systems: Integration and Problem Solving	3
	CSUS 354	Water Resources Management	3
	CSUS 453	Watershed Planning and Management	3
	FOR 340	Forest Ecology	3
	FOR 406	Applied Forest Ecology: Silviculture	3
	FOR 413	Wildland Fire Ecology and Management	3
	FW 410	Upland Ecology and Management	3
	FW 416	Marine Ecology and Management	3
	FW 417	Wetland Ecology and Management	3
	FW 472	Limnology	3
	GEO 221	Introduction to Geographic Information	3
	GEO 306	Environmental Geomorphology	3
	GEO 324	Remote Sensing of the Environment	4
	GEO 325	Geographic Information Systems	3
	GEO 402	Agricultural Climatology	3
	GLG 411	Hydrogeology	3
	GLG 412	Glacial Geology and the Record of Climate Change	4
	GLG 431	Sedimentology and Stratigraphy	4
	GLG 446	Ecosystems Modeling, Water and Food Security	3
	HRT 332	Tree Fruit Production and Management	3
	HRT 336	Viticulture and Berry Production	2
	HRT 341	Vegetable Production and Management	3
	PLB 402	Biology of Fungi	4
	PLB 415	Plant Physiology	3
	PLB 418	Plant Systematics	3
	PLB 441	Plant Ecology	3

Effective Spring 2024.

2. Request to establish a **Master of Science** degree in **Global Plant Breeding** in the Department of Plant, Soil and Microbial Sciences. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its September 18, 2023 meeting.

a. **Background Information:**

The world opening to online education has provided Michigan State University (MSU) with an opportunity to offer its educational programs beyond the borders of Michigan and the United States. Faculty members in the Department of Plant, Soil and Microbial Sciences (PSM) and other departments at MSU have been developing and offering online courses. The online professional certificate course, "Plant Breeding 2 Fight Hunger (<https://www.canr.msu.edu/courses/plantbreeding-2-fight-hunger>)," was offered by the PSM department to an international audience during the pandemic. The course was well-received with participants expressing interest in an online M.S. degree option.

MSU has a unique opportunity to be a leader in providing online Plant Breeding education to a global audience. Only Texas A&M University and Iowa State University currently offer online M.S. degree programs in Plant Breeding. In the College of Agriculture and Natural Resources, we have faculty in the Plant Breeding, Genetics, and Biotechnology (PBGB) program who have expertise in plant breeding and have built decades of collaborations with partner countries and institutions around the world. People working in plant breeding and studying this field throughout the world would be interested in and benefit from the opportunity to obtain a post graduate degree from MSU while still working and studying in their home state or country. Online education offers a cost-effective opportunity for students to obtain a valuable degree from MSU without having to leave their current employment, families, or countries. In addition, this online M.S. degree program offers MSU an opportunity to increase student numbers and graduation rates by providing admission to a professional degree program where on-campus graduate research and teaching assistantships are limited by the availability of funding.

The goal of the online Master of Science degree in Global Plant Breeding is to attract professionals currently employed at seed companies, fruit breeding companies, CGIAR centers, and National Agricultural Research Systems (NARS). We have received letters of support for this online M.S. degree program from several private companies in the United States, including Corteva, Bayer, Simplot, Driscoll, NARS, and several potential students from the certificate course and employed outside of the U.S. in plant breeding. This program is not focused on MSU students that are in an existing degree program at MSU.

Plant Breeding is a rapidly evolving field. Developing a new online M.S. degree program offers opportunities to develop new courses for the plant breeding curriculum that offer all students in graduate programs in plant breeding on campus new knowledge in laws and regulations, design thinking and leadership, and global seed systems.

b. **Academic Programs Catalog Text:**

The Master of Science Degree in Global Plant Breeding provides opportunities for working professionals to obtain new knowledge in laws and regulations, design thinking and leadership, and global seed systems.

In addition to meeting the requirements of the University and of the College of Agriculture and Natural Resources, students must meet the requirements specified below.

Admission

The student must:

1. have earned a bachelor's degree with a grade-point average of 3.0;
2. provide all undergraduate transcripts;
3. provide three letters of recommendation;
4. provide a personal statement describing the applicants interest and experience in plant breeding and their personal career goals;
5. provide a resume or test scores from a standardized graduate or professional school test such as the GRE, GMAT, MCAT, DAT, or LSAT, which may be waived if the applicant has a previously conferred graduate or professional degree
6. provide test scores from an English proficiency examination if from non-English speaking country;

7. have completed at least one college level introductory course in Advanced Mathematics, Biology, and Genetics;
8. have completed 15 undergraduate credit hours in plant science course work.

Guidance Committee

The Global Plant Breeding Committee is composed of the director of the Global Plant Breeding program and two additional regular MSU faculty members.

Requirements for the Master of Science Degree in Global Plant Breeding

A minimum of 30 credits is required for the degree under Plan B (without thesis). The program is available only online.

			CREDITS
1.	Complete all of the following courses (24 credits):		
	CSS 441	Plant Breeding and Biotechnology	3
	CSS 451	Biotechnology Applications for Plant Breeding and Genetics	3
	CSS 815	Statistics for Plant Breeders	3
	CSS 816	R Modules for Plant Breeders	2
	CSS 817	Global Plant Breeding Regulations	2
	CSS 818	Design Thinking and Leadership for Plant Breeders	2
	CSS 830	Breeding for Quantitative Traits	3
	CSS 831	Breeding for Biotic and Abiotic Stresses	3
	CSS 832	Global Seed Systems	3
2.	Complete both of the following courses (6 credits):		
	CSS 870	Capstone in Global Plant Breeding	3
	CSS 890	Independent Study	3
3.	Complete training in Responsible Conduct of Research (RCR)		
4.	Successfully pass a final oral evaluation in defense of a final professional breeding project.		

Effective Summer 2024.

COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the **Bachelor of Science** degree in **Medical Laboratory Science** in the Biomedical Laboratory Diagnostics Program. The University Committee on Undergraduate Education (UCUE) will consider this request at its November 9, 2023 meeting.
 - a. Under the heading **Admission** make the following changes:
 - (1) In paragraph one, delete the last sentence:

Students are admitted as Biomedical Laboratory Science major until the application process for Medical Laboratory Science is completed.
 - (2) In paragraph two, replace item 3. with the following:
 3. Have completed BMB 401, MMG 365, MMG 365L, BLD 324, and BLD 434.
 - b. Under the heading **Academic Standards** replace the first sentence with the following:

To progress to the clinical phase of the curriculum, students must earn a grade-point average of 2.50 or higher in MMG 465, MMG 465L, BLD 402, BLD 424, BLD 424L, BLD 430, BLD 435, and BLD 435L.

Effective Spring 2024.

2. Request to change the requirements for the **Doctor of Philosophy** degree in **Chemistry** in the Department of Chemistry. The University Committee on Graduate Studies (UCGS) will consider this request at its November 20, 2023 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Chemistry** replace the entire entry with the following:
 1. Complete a minimum of one year of teaching requirement
 2. Complete a minimum of 12 to 18 credits of 800-900 level courses through a minimum of 6 courses.
 3. Complete the following courses (2 credits):

CEM	890	Chemical Problems and Reports (section 1 Faculty Seminar)	1
CEM	890	Chemical Problems and Reports (section 2 Second Year Oral)	1
 4. Complete 2 credits of seminar course work from one of the following areas: Analytical, Inorganic, Nuclear, Organic, or Physical to demonstrate research preparedness and as a defense of the dissertation. The student's course work must be planned and approved by their academic advisor.
 5. Satisfactory performance on doctoral comprehensive examinations of the cumulative type is required. Details about these and the qualification examinations may be obtained from the department.
 6. Complete at least 24 credits and no more than 36 credits of CEM 999 Doctoral Dissertation Research.
 7. All students must complete Responsible Conduct of Research Training - <https://grad.msu.edu/recr>
 8. Additional details on applicable course work can be found in the CEM graduate handbook at www.chemistry.msu.edu.

Effective Spring 2024.

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

- FW 423 Principles of Fish and Wildlife Disease
Fall of odd years. 3(3-0) Interdepartmental with Large Animal Clinical Sciences. ~~P: (BS 162 and BS 172) or (BS 182H and BS 192H) or LB 144~~ P: BS 162 or BS 182H or LB 144 RB: Additional course work in ecology, zoology, microbiology or environmental science. R: Open to juniors or seniors or graduate students in the College of Agriculture and Natural Resources or in the College of Natural Science or in the College of Veterinary Medicine or approval of department.
Diseases of fish and wildlife species. Disease detection and diagnosis. Ecological and epidemiological analysis and management of major classes of wildlife diseases.
Threatened and endangered species, game species, and fish and wildlife species that serve as vectors or reservoirs of human and domestic animal diseases.
~~Effective Fall Semester 2014~~ Effective Fall Semester 2023
- FW 463 Wildlife Disease Ecology
Spring of even years. 3(3-0) Interdepartmental with Large Animal Clinical Sciences. ~~P: IBIO 355 or approval of department~~ P: BS 162 or approval of department RB: ~~(FW 423) or additional course work in integrative biology, microbiology and environmental sciences.~~ RB: ((IBIO 355 or concurrently) and FW 423) or additional course work in integrative biology, microbiology and environmental sciences. R: Open to juniors or seniors or approval of department. Not open to students with credit in FW 863.
Role of wildlife disease in ecological interactions. Factors underlying pathogen emergence. Disease modeling. Conservation medicine.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024
- CSS 815 Statistics for Plant Breeders
Spring of every year. 3(3-0) RB: Undergraduate level statistics course R: Approval of department.
NEW Statistical concepts used in plant breeding. Trait distribution and inheritance patterns.
Interpreting data from case studies.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Spring Semester 2024
- CSS 816 R Modules for Plant Breeders
Summer of every year. 2(2-0) P: CSS 815 RB: Agricultural or plant breeding background R: Approval of department.
NEW Use of R software for obtaining, managing, summarizing, and visualizing plant breeding data. Ethical issues in data science and communication with data.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer Semester 2024
- CSS 817 Global Plant Breeding Regulations
Fall of every year. 2(2-0) P: CSS 451 RB: Agricultural or plant breeding background R: Approval of department.
NEW Regulatory approvals in plant breeding, including use of marker-assisted plant breeding, gene editing, and genetic engineering tools. Requirements for approval of development and deployment of biotechnology crops in various countries.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Fall Semester 2024

- CSS 818 Design Thinking and Leadership for Plant Breeders
Fall of every year. 2(2-0) P: CSS 441 RB: Agricultural or Plant breeding background R: Approval of department.
- NEW Leadership skills in plant breeding. Design thinking in development of new varieties.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Fall Semester 2024
- CSS 830 Breeding for Quantitative Traits
Summer of every year. 3(3-0) P: CSS 441 R: Approval of department.
- NEW Plant breeding theories and approaches for quantitative traits.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer Semester 2024
- CSS 831 Breeding for Biotic and Abiotic Stresses
Summer of every year. 3(3-0) P: CSS 441 R: Approval of department.
- NEW Tools and technologies to develop crops resistant to biotic and abiotic stresses. Factors that determine the success in developing climate-resilient, disease, and pest-resistant crops.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer Semester 2024
- CSS 832 Global Seed Systems
Fall of every year. 3(3-0) RB: Agricultural or plant breeding background R: Approval of department.
- NEW Components of agricultural seed systems. Biological, economic, social, and ecological elements impacting agricultural diversity, variety adoption, and genetic conservation.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Fall Semester 2023
- CSS 865 ~~Environmental Fate of Organic Contaminants in Soils~~
Environmental Organic Chemistry
Spring of even years. 3(3-0) ~~RB: Undergraduate level coursework in general and organic chemistry, and introductory microbiology~~ RB: Students with an environmental science background and course training in general or organic chemistry
~~Chemistry and biology of toxicants in soils as determinants of environmental fate. Fate and transformation of organic contaminants in the environment~~
~~Effective Fall Semester 2013~~ Effective Spring Semester 2024
- CSS 870 Capstone in Global Plant Breeding
Spring of every year. 3(3-0) P: CSS 815 and CSS 816 and CSS 817 and CSS 818 and CSS 830 and CSS 831 and CSS 832 R: Approval of department.
- NEW Development of a breeding strategy in a crop using available tools and technologies by applying knowledge gained from all previous courses and experiences.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Spring Semester 2025

COLLEGE OF HUMAN MEDICINE

- HM 544 Medical School III for Dual Degree Pathway
Summer of every year. 14(14-0) RB: Degree in DDS or DMD ~~R: Open to graduate-professional students in the College of Human Medicine.~~ R: Open to graduate-professional students in the College of Human Medicine. A student may earn a maximum of 32 credits
- NEW The beginning of an interdisciplinary, patient centered experience, integrating necessary biomedical and social sciences and humanities with clinical skills and professional development. Includes history and physical exam basics.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer Semester 2024
- HM 549 Medical School V for Dual Degree Pathway
Spring of every year. 10(10-0) A student may earn a maximum of 20 credits in all enrollments for this course. P: HM 555 RB: Degree in DDS or DMD R: Open to graduate-professional students in the College of Human Medicine.
- NEW Continuation of an interdisciplinary, patient centered experience, integrating necessary biomedical and social sciences and humanities with clinical skills and professional development.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer Semester 2024
- PHD 604 Neonatology
Fall of every year. Spring of every year. Summer of every year. ~~6 to 12 credits. 3 to 12 credits.~~ A student may earn a maximum of 12 credits in all enrollments for this course. ~~RB: PHD 600 RB: PHD 641 R: Open only to graduate-professional students in College of Human Medicine.~~ R: Open to graduate-professional students in the College of Human Medicine.
Clinical experiences: modern neonatal techniques and care patterns for neonates including follow up.
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 Semester 1995~~ Effective Fall Semester 2023

COLLEGE OF NATURAL SCIENCE

- HBIO 410 Cellular Basis of Disease
Spring of every year. 3(3-0) P: BS 161 and BS 162 R: Open to juniors or seniors in the Human Biology Major or in the Lyman Briggs Human Biology Coordinate Major or approval of department.
Not open to students with credit in MMG 409.
- NEW Exploration of cell biology through the study of human diseases. Application of cell biological concepts and research methods to understand recent advances in cell biology through analysis of primary cell biology literature.
Effective Spring Semester 2024

COLLEGE OF OSTEOPATHIC MEDICINE

NOP 617 **Neurology Clerkship**
Clinical Experience in Neurology
Fall of every year. Spring of every year. Summer of every year. ~~2 to 12 credits~~ 3 to 6 credits. A student may earn a maximum of ~~12 credits~~ 6 credits in all enrollments for this course. P: HM 556 ~~RB: MED 608~~ R: ~~Open only to graduate professional students in College of Human Medicine.~~ Open to graduate professional students in the College of Human Medicine.
~~Office and inpatient experience. Evaluation and management of neurological disease. Clinical diagnosis and treatment of the patient presenting with a neurological concern.~~
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.
~~SA: MED 617~~
~~Effective Summer Semester 2004~~ Effective Spring Semester 2024

NOP 630 Senior Clinical Elective in Neurology
Fall of every year. Spring of every year. Summer of every year. 6 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.

NEW Clinical diagnosis and treatment of the patient with neurological disease. Intended for students considering application to a Neurology Residency.
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 Spring Semester 2024

COLLEGE OF NURSING

NUR 945 Basic Pharmacology for Nurse Anesthesia
Summer of every year. 3(3-0) P: NUR 907 and NUR 908 R: Open to graduate students in the College of Nursing or in the Master of Science in Nursing or in the Nursing Practice Major.

NEW Perioperative pharmaceutical management of altered health states across the lifespan.
Effective Fall Semester 2023

NUR 946 Principles of Regional Anesthesia and Point-of-Care Ultrasound
Fall of every year. 4(4-0) P: NUR 909 R: Open to doctoral students in the College of Nursing or in the Nursing Practice Major.

NEW Comprehensive instruction in the use of ultrasonography for therapeutic, procedural and diagnostic anesthetic care.
Effective Fall Semester 2023