MICHIGAN STATE UNIVERSITY
University Committee on Curriculum

SUBCOMMITTEE A – AGENDA

Via Teams
October 9, 2025
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

. COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to delete the curriculum and degree requirements for the **Graduate Certificate** in **Conservation Law** in the Department of Fisheries and Wildlife. The University Committee on Graduate Studies (UCGS) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Graduate Studies.

   No new students are to be admitted to the program effective Spring 2023. No students are to be readmitted to the program effective Spring 2023. Effective Spring 2023, coding for the program will be discontinued and the program will no longer be available in the Department of Fisheries and Wildlife. Students who have not met the requirements for the Graduate Certificate in Conservation Law through the Department of Fisheries and Wildlife prior to Spring 2023 will have to change their certificate.

   Note: This program has been in moratorium since Spring 2023.

2. Request to change the requirements for the **Bachelor of Science** degree in **Dietetics** in the Department of Food Science and Human Nutrition.

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

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

ANTR	350	Human Gross Anatomy for Pre-Health Professionals	3

      Add the following course:

ANTR	350	Human Gross Anatomy for Pre-Health Professionals	4

      (2) In item 3. b. (1) change the total credits from ‘30’ to ‘31’.

      (3) In item 3. b. change the total credits from ’36 to 39’ to ’37 to 40’.

   Effective Spring 2026.

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

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

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

      (1) In item 3. a., make the following changes:

         (a) Change the total credits from ‘51’ to ‘52’.

         (b) Delete the following courses:

CEM	142	General and Inorganic Chemistry	3
MMG	301	Introductory Microbiology	3

         Add the following courses:

CEM	142	General and Inorganic Chemistry	4

MGI	301	Introductory Microbiology	3

(2) In item 3. b., delete the following course:

PHY	241	Physics for Cellular and Molecular Biologists I	4

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

(a) In the **Basic Food Science** concentration, make the following changes:

(i) Change the total credits from ‘25’ to ‘27’.

(ii) In item (1) change the total credits from ‘16’ to ‘18’.

(iii) In item (1) delete the following courses:

CEM	251	Organic Chemistry I	3
CEM	252	Organic Chemistry II	3

Add the following courses:

CEM	251	Organic Chemistry I	4
CEM	252	Organic Chemistry II	4

(iv) In item (2) delete the following courses:

MMG	409	Eukaryotic Cell Biology	3
MMG	425	Microbial Ecology	3
MMG	431	Microbial Genetics	3
MMG	445	Microbial Biotechnology (W)	3
MMG	451	Immunology	3

Add the following courses:

MGI	409	Eukaryotic Cell Biology	3
MGI	425	Microbial Ecology	3
MGI	431	Microbial Genetics	3
MGI	451	Immunology	3

Effective Spring 2026.

4. Request to change the requirements for the **Minor in Beverage Science and Technology** in the Department of Food Science and Human Nutrition.

a. Under the heading **Minor in Beverage Science and Technology** in item 1. make the following change:

(1) Delete the following courses:

MMG	201	Fundamentals of Microbiology	3
MMG	301	Introductory Microbiology	3

Add the following courses:

MGI	201	Fundamentals of Microbiology	3
MGI	301	Introductory Microbiology	3

Effective Spring 2026.

5. Request to establish a **Bachelor of Science** degree in **Cropping Systems 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 4, 2025 meeting.

a. **Background Information**:

Michigan State University has had an academic major in Crop and Soil Sciences with three concentrations for over forty years. The concentrations are currently: Crop and Soil Sciences, Turfgrass Management, and Advanced Studies. The department completed a curriculum review in 2023-2024 and the curriculum committee recommended and received support from the faculty in a ballot vote to put the current Crop and Soil Sciences major into moratorium and create three new majors. The three new majors are Cropping Systems Science, Turfgrass Science and Management, and Environmental Soil and Water Science. There are no accrediting agencies or federal regulations related to this request.

Michigan State University began as Michigan Agricultural College (MAC) and has a long history of academic majors connected to agriculture and the environment. The Crop and Soil Sciences major has been housed for over 40 years in the Department of Crop and Soil Sciences, and more recently in the Department of Plant, Soil, and Microbial Sciences (a merger of the Departments of Crop and Soil Sciences and Plant Pathology). Michigan State University is the leading university in Michigan to offer a degree in crop and soil sciences.

In recent years, the Crop and Soil Sciences department merged with Plant Pathology and the new department was named Plant, Soil and Microbial Sciences. The Crop and Soil Sciences major with three concentrations, the Minor in Agronomy, the Minor in Turfgrass Management, and the Minor in Environmental Soil Science is housed in this department.

The major in Cropping Systems Science will teach students to: (1) characterize crop development and physiology; (2) explain abiotic and biotic stresses on crop plants and methods for alleviating these stresses; (3) describe weather and climate and the impact on crop production; (4) describe the components of precision agriculture and the impact on sustainable cropping systems; (5) demonstrate practical skills in identification of crop and weed plants and seeds, insects and plant diseases, soil texturing and diagnosis of problems in fields; (6) describe farming systems and practices for growing Michigan's key agronomic crops; (7) interpret soil texture, structure, fertility, and soil management and their impact on cropping systems; (8) describe the characteristics of and design economically, environmentally, and socially sustainable cropping systems; (9) describe and explain the importance of crop genetics and plant breeding in advancing crop production; and (10) be competent in oral and written communication, computer use, problem solving, and critical analysis.

b. **Academic Programs Catalog Text**:

The Bachelor of Science degree in Cropping Systems Science is designed to prepare students for career opportunities as agronomists and cropping system scientists, as farmers and consultants, in private and public businesses, and with government agencies. Cropping systems science involves the application of biological, chemical, and physical science principles to produce plants grown for human food, animal feed, biofuel, and fiber to meet global demand. The use of biotechnology, digital technologies and precision agriculture are important aspects of agricultural food systems today. Cropping systems scientists, agronomists, and farmers strive to improve soil health and develop cropping sequences and management techniques to improve the economic, environmental, and social sustainability of farms. Conserving soil and water and maintaining long-term farm field productivity and resilience depends largely on the management of cropping systems. This major provides students with the opportunity to understand the challenges and opportunities to integrate scientific innovations with the practice of crop production. Students take courses in crop production, physiology, genetics, precision agriculture, pest management, soil science, meteorology, and professional development courses to prepare for careers in cropping systems science.

Requirements for the Bachelor of Science Degree in Cropping Systems Science

CREDITS

1. The University requirements for bachelor's degrees as described in the *Undergraduate Education* section of this catalog; 120 credits, including general elective credits, are required for the Bachelor of Science Degree in Cropping Systems Science.

The University's Tier II writing requirement for the Cropping Systems Science major is met by completing CROP 313 and CROP 492. Those courses are referenced in item 3. below.

Students who are enrolled in the Cropping Systems Science major leading to the Bachelor of Science degree in the Department of Plant, Soil and Microbial Sciences, may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Plant Biology 105 and 106 combined; and Chemistry 141, 143, and 161. The completion of Plant Biology 106 and Chemistry 161 satisfies the laboratory requirement. Plant Biology 105 and 106 combined and Chemistry 141, 143, and 161 may be counted toward both the alternative track and the requirements for the major referenced in item 3. below.

The completion of the College of Agriculture and Natural Resources mathematics requirement may also satisfy the University mathematics requirement.

2. The requirements of the College of Agriculture and Natural Resources for the Bachelor of Science degree.

Certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate.

3. The following requirements for the major:

				CREDITS
a.	One of the following courses (3 or 5 credits):			
	MTH	103	College Algebra	3
	MTH	116	College Algebra and Trigonometry	5
b.	One of the following courses (3 or 4 credits):			
	STT	200	Statistical Methods	3
	STT	201	Statistical Methods	4
	STT	224	Introduction to Probability and Statistics for Ecologists	3
	STT	421	Statistics I	3
c.	One of the following courses (4 credits):			
	CEM	143	Survey of Organic Chemistry	4
	CEM	251	Organic Chemistry I	4
d.	One of the following courses (3 credits):			
	EC	201	Introduction to Microeconomics	3
	EC	202	Introduction to Macroeconomics	3
e.	All of the following courses (45 credits):			
	CEM	141	General Chemistry	4
	CEM	161	Chemistry Laboratory I	1
	CROP	101	Introduction to Crop Science	3
	CROP	101L	Introduction to Crop Science Laboratory	1
	CROP	110	Computer Applications in Agronomy	2
	CROP	192	Professional Development Seminar I	1
	CROP	212	Advanced Crop Production	2
	CROP	226L	Weed Science Laboratory	1
	CROP	313	Data Interpretation and Writing in the Agronomic Sciences (W)	2
	CROP	326	Weed Science	2
	CROP	350	Introduction to Plant Genetics	3
	CROP	488	Agricultural Cropping Systems: Integration and Problem Solving	3
	CROP	492	Professional Development Seminar II (W)	1
	ENT	404	Fundamentals of Entomology	4
	PLB	105	Plant Biology	3
	PLB	106	Plant Biology Laboratory	1
	PLP	405	Plant Pathology	4
	SOIL	210	Fundamentals of Soil Science	3
	SOIL	480	Soil Fertility and Management	4
f.	One of the following courses (3 credits):			
	HRT	361	Applied Plant Physiology	3
	PLB	301	Introductory Plant Physiology	3
g.	Complete 8 credits from the following courses: (8 credits):			
	SOIL	330	Soil Chemistry	2
	SOIL	340	Applied Soil Physics	2

	SOIL	360	Soil Biology	3
	SOIL	470	Soil Resources	3
h.	Two of the following courses: (4 to 6 credits):			
	AFRE	130	Farm Management I	3
	CROP	124	Introduction to Sustainable Agriculture and Food Systems	2
	CROP	135	Crop Scouting and Investigation	3
	CROP	151	Seed and Grain Quality	2
	CROP	201	Forage Crops	3
	CROP	292	Leadership Development in Agriculture	2
i.	One of the following courses (3 credits):			
	GEO	103	Introduction to Climate Change Studies	3
	GEO	203	Introduction to Meteorology	3
	GEO	402	Agricultural Climatology	3
j.	One of the following, either i. or ii. (3 or 4 credits):			
	(i) GEO	221	Introduction to Geographic Information	3
	(ii) BE	221	Introduction to Smart Agriculture	1
	BE	321	Principles of Precision Agriculture	3
k.	One of the following courses (3 credits):			
	CROP	420	Cover Crops in Agroecosystems	3
	CROP	431	International Agricultural Systems	3
	CROP	441	Plant Breeding and Biotechnology	3
	CROP	442	Agricultural Ecology	3
	CROP	451	Biotechnology Applications for Plant Breeding and Genetics	3
	CROP	460	Plant-Microbe Interactions	3
	CROP	467	Bioenergy Feedstock Production	3
	CROP	485	Physiology in Plant Nutrition	3
	GEO	409	Global Climate Change and Variability	3
	GEO	410	Geography of Food and Agriculture	3
l.	One of the following experiential courses (3 credits):			
	CROP	493	Professional Internship in Crop and Soil Sciences	3
	CROP	499	Undergraduate Research	3

Effective Fall 2026.

6. Request to establish a **Bachelor of Science** degree in **Environmental Soil and Water 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 4, 2025 meeting.

a. **Background Information**:

Michigan State University has had an academic major in Crop and Soil Sciences with three concentrations for over forty years. The concentrations are currently: Crop and Soil Sciences, Turfgrass Management, and Advanced Studies. The department completed a curriculum review in 2023-2024 and the curriculum committee recommended and received support from the faculty in a ballot vote to put the current Crop and Soil Sciences major into moratorium and create three new majors. The three new majors are Cropping Systems Science, Turfgrass Science and Management, and Environmental Soil and Water Science. There are no accrediting agencies or federal regulations related to this request.

Michigan State University began as Michigan Agricultural College (MAC) and has a long history of academic majors connected to agriculture and the environment. The Crop and Soil Sciences major has been housed for over 40 years in the Department of Crop and Soil Sciences, and more recently in the Department of Plant, Soil, and Microbial Sciences (a merger of the Departments of Crop and Soil Sciences and Plant Pathology). Michigan State University is the leading university in Michigan to offer a degree in crop and soil sciences.

In recent years, the Crop and Soil Sciences department merged with Plant Pathology and the new department was named Plant, Soil and Microbial Sciences. The Crop and Soil Sciences major with three concentrations, the Minor in Agronomy, the Minor in Turfgrass Management, and the Minor in Environmental Soil Science is housed in this department.

The major in Environmental Soil and Water Science will teach students (1) the role that soils play as components of ecosystems; (2) the abiotic and biotic factors and processes that govern soil properties and functions; (3) to evaluate the impact of weather and climate on soil formation and properties.; (4) the role that water plays in soil and landscape development and management; (5) to demonstrate practical skills in the identification of plants and soil types, and in diagnosis of environmental issues; (6) major environmental issues facing modern society, and the role that land and water management play in addressing those issues; (7) to interpret soil texture, structure, fertility, and soil management and their impact on different environments; (8) to design economically, environmentally, and socially sustainable land and water uses;)9) to articulate the origin and purpose of environmental and natural resource policies; and (10) to demonstrate competence in oral and written communication, computer use, problem-solving, and critical analysis.

b. **Academic Programs Catalog Text**:

The Bachelor of Science degree in Environmental Soil and Water Science is designed to prepare students for career opportunities assoil scientists, ecosystem ecologists, environmental restorationists, watershed managers, and consultants, in private and public businesses, and with government agencies.

Soil and water science involves the application of biological, chemical, and physical science principles to protect soil and water quality as landscapes are used to meet human needs for recreation, waste disposal, food production and others. Protecting and restoring soil and water resources is necessary for building sustainable communities. The major provides students with the opportunity to recognize the challenges and opportunities to integrate scientific innovations in land management. Students take courses in soil science, water resource management, ecology, biology, geology, meteorology, and professional development to prepare for careers where expertise in soil and water science is required.

Requirements for the Bachelor of Science Degree in Environmental Soil and Water Science

CREDITS

1. The University requirements for bachelor's degrees as described in the *Undergraduate Education* section of this catalog; 120 credits, including general elective credits, are required for the Bachelor of Science Degree in Environmental Soil and Water Science.

   The University's Tier II writing requirement for the Cropping Systems Science major is met by completing CROP 313 and CROP 492. Those courses are referenced in item 3. below.

   Students who are enrolled in the Environmental Soil and Water Science major leading to the Bachelor of Science degree in the Department of Plant, Soil and Microbial Sciences, may complete an alternative track to Integrative Studies in Biological and Physical Sciences by completing items 3.a., 3.b., and 3.c. below. The completion of Biological Sciences 171 or 172 and Chemistry 161 satisfies the laboratory requirement. Completion of items 3.a., 3.b., and 3.c below will be counted toward both the alternative track and the requirements for the major.

   The completion of the College of Agriculture and Natural Resources mathematics requirement may also satisfy the University mathematics requirement.

2. The requirements of the College of Agriculture and Natural Resources for the Bachelor of Science degree.

   Certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate.

3. The following requirements for the major:

CREDITS

a. All of the following courses (38 credits):

BS	161	Cell and Molecular Biology	3
BS	162	Organismal and Population Biology	3
CEM	141	General Chemistry	4
CEM	161	Chemistry Laboratory I	1
CROP	110	Computer Applications in Agronomy	2
CROP	192	Professional Development Seminar I	1

	CROP	313	Data Interpretation and Writing in the Agronomic Sciences (W)	2
	CROP	492	Professional Development Seminar II (W)	1
	GLG	201	Introduction to Earth and Planetary Sciences	4
	SOIL	210	Fundamentals of Soil Science	3
	SOIL	330	Soil Chemistry	2
	SOIL	340	Applied Soil Physics	2
	SOIL	360	Soil Biology	3
	SOIL	470	Soil Resources	3
	SOIL	480	Soil Fertility and Management	4
b.	One of the following biology laboratory courses (2 credits)			
	BS	171	Cell and Molecular Biology Laboratory	2
	BS	172	Organismal and Population Biology Laboratory	2
c.	One of the following organic chemistry courses (4 credits)			
	CEM	143	Survey of Organic Chemistry	4
	CEM	251	Organic Chemistry I	4
d.	One of the following plant courses (3 or 4 credits):			
	CROP	101	Introduction to Crop Science	3
	FOR	202	Introduction to Forestry	3
	FOR	204	Forest Vegetation	3
	GEO	201	Introduction to Plant Geography	3
	HRT	203	Introduction to Horticulture	3
	PLB	105	Plant Biology	3
	PLB	203	Biology of Plants	4
	PLB	218	Plants of Michigan	3
e.	One of the following ecology courses (3 credits):			
	CROP	326	Weed Science	2
	and			
	CROP	226L	Weed Science Laboratory	1
	FOR	340	Forest Ecology	3
	IBIO	355	Ecology	3
	PLB	441	Plant Ecology	3
f.	Two of the following water courses (6 or 7 credits)			
	CSUS	453	Watershed Planning and Management	3
	GEO	406	Geomorphology of River and Coastal Systems	3
	GLG	411	Hydrogeology	3
	GLG	421	Environmental Geochemistry	4
	SOIL	455	Environmental Pollutants in Soil and Water	3
g.	One of the following climate or weather courses (3 credits)			
	GEO	103	Introduction to Climate Change Studies	3
	GEO	203	Introduction to Meteorology	3
	GEO	402	Agricultural Climatology	3
	GEO	409	Global Climate Change and Variability	3
	IBIO	357	Global Change Biology (W)	3
h.	One of the following math courses (3 credits)			
	MTH	103	College Algebra	3
	MTH	124	Survey of Calculus I	3
	MTH	132	Calculus I	3
i.	One of the following statistics courses (3 or 4 credits):			
	STT	200	Statistical Methods	3
	STT	201	Statistical Methods	4
	STT	224	Introduction to Probability and Statistics for Ecologists	3
	STT	421	Statistics I	3
j.	One of the following policy courses (3 credits):			
	CSUS	320	Environmental Planning and Management	3
	CSUS	354	Water Resources Management	3
	CSUS	464	Environmental and Natural Resource Policy in Michigan	3
	FOR	466	Natural Resource Policy	3
	GEO	211	Environmental Policy and Practice	3
l.	One of the following specialization courses (3 or 4 credits):			
	CROP	460	Plant-Microbe Interactions	3

	GLG	422	Field Methods in Environmental Science	3
	GLG	435	Geomicrobiology (W)	4
	GLG	446	Sustainable Food Systems	3
	MGI	425	Microbial Ecology	3
	PLB	443	Restoration Ecology	3

m. One of the following experiential courses (3 credits):

CROP	493	Professional Internship in Crop and Soil Sciences	3
SOIL	499	Undergraduate Research	3

Complete 3 credits in an Education Abroad, International Internship, International Research Experience, or Study Away with approval by the advisor for the major.

Effective Fall 2026.

7. Request to establish a **Bachelor of Science** degree in **Turfgrass Science and Management** in the Department of Plant, Soil and Microbial Sciences. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its September 4, 2025 meeting.

a. **Background Information**:

Michigan State University has had an academic major in Crop and Soil Sciences with three concentrations for over forty years. The concentrations are currently: Crop and Soil Sciences, Turfgrass Management, and Advanced Studies. The department completed a curriculum review in 2023-2024 and the curriculum committee recommended and received support from the faculty in a ballot vote to put the current Crop and Soil Sciences major into moratorium and create three new majors. The three new majors are Cropping Systems Science, Turfgrass Science and Management, and Environmental Soil and Water Science. There are no accrediting agencies or federal regulations related to this request.

Michigan State University began as Michigan Agricultural College (MAC) and has a long history of academic majors connected to agriculture and the environment. The Crop and Soil Sciences major has been housed for over 40 years in the Department of Crop and Soil Sciences, and more recently in the Department of Plant, Soil, and Microbial Sciences (a merger of the Departments of Crop and Soil Sciences and Plant Pathology). Michigan State University is the leading university in Michigan to offer a degree in crop and soil sciences.

In recent years, the Crop and Soil Sciences department merged with Plant Pathology and the new department was named Plant, Soil and Microbial Sciences. The Crop and Soil Sciences major with three concentrations, the Minor in Agronomy, the Minor in Turfgrass Management, and the Minor in Environmental Soil Science is housed in this department.

The major in Turfgrass Science and Management will explain turfgrass development and physiology; characterize soil texture, structure, fertility, and soil management and their impact on turf systems and their surrounds; study practices for establishing and maintaining all species of turfgrasses; explain abiotic and biotic stresses on turfgrass plants and cultural methods for managing these stresses; demonstrate practical skills in identification of turfgrasses, weeds, ornamentals, plants, insects, pathogens, and diagnosis of abiotic problems in turf management; describe the characteristics and design of economic, environmental, and socially sustainable performance-turf systems; integrate turfgrass genetics and its potential use to advance turfgrass performance and functionality; study weather and climate and the impact on turfgrass growth, turf management, and usability; apply business management principles to turf operations; demonstrate oral and written communication, computer use, problem solving, and critical analysis; and learn the impact of turfgrass science and management on society in both technical and everyday language.

b. **Academic Programs Catalog Text**:

The Bachelor of Science degree in Turfgrass Science and Management is designed to prepare students for career opportunities as golf course superintendents, sports turf managers, lawn care professionals, grounds managers for private and public businesses, green industry salespersons and managers, and positions within governmental and institutional entities.

Turfgrass Science and Management involves the application of biological, chemical, and physical science principles to establish and care for turfgrasses that are used to provide biological, structural, functional, and aesthetic benefits. This major provides students the opportunity to understand the challenges and opportunities to integrate scientific innovations with the science and art of turfgrass management.

Requirements for the Bachelor of Science Degree in Turfgrass Science and Management

1. The University requirements for bachelor's degrees as described in the *Undergraduate Education* section of this catalog; 120 credits, including general elective credits, are required for the Bachelor of Science Degree in Turfgrass Science and Management.

   The University's Tier II writing requirement for the Cropping Systems Science major is met by completing TURF 402. That course is referenced in item 3. below.

   Students who are enrolled in the Environmental Soil and Water Science major leading to the Bachelor of Science degree in the Department of Plant, Soil and Microbial Sciences, may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Plant Biology 105 and 106 combined; and Chemistry 141, 143, and 161. The completion of Plant Biology 106 and Chemistry 161 satisfies the laboratory requirement. Plant Biology 105 and 106 combined and Chemistry 141, 143, and 161 may be counted toward both the alternative track and the requirements for the major referenced in item 3. below.

   The completion of the College of Agriculture and Natural Resources mathematics requirement may also satisfy the University mathematics requirement.
2. The requirements of the College of Agriculture and Natural Resources for the Bachelor of Science degree.

   Certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate.
3. The following requirements for the major:

				CREDITS
a.	One of the following courses (3 to 5 credits):			
	MTH	103	College Algebra	3
	MTH	116	College Algebra and Trigonometry	5
b.	One of the following courses (3 or 4 credits):			
	STT	200	Statistical Methods	3
	STT	201	Statistical Methods	4
	STT	224	Introduction to Probability and Statistics for Ecologists	3
	STT	421	Statistics I	3
c.	One of the following courses (4 credits):			
	CEM	143	Survey of Organic Chemistry	4
	CEM	251	Organic Chemistry I	4
d.	All of the following courses (58 credits):			
	CEM	141	General Chemistry	4
	CEM	161	Chemistry Laboratory I	1
	COM	100	Human Communication	3
	CROP	110	Computer Applications in Agronomy	2
	CROP	226L	Weed Science Lab	1
	CROP	326	Weed Science	2
	ENT	264	Turfgrass Entomology	3
	PLB	105	Plant Biology	3
	PLB	106	Plant Biology Lab	1
	PLP	266	Turf Pathology	3
	SOIL	210	Fundamentals of Soil Science	3
	TURF	178	Turf Irrigation	3
	TURF	181	Pesticide and Fertilizer Application Technology	3
	TURF	202	World of Turf	2
	TURF	212	Turfgrass Biology	3
	TURF	232	Turf Cultural Practices	2
	TURF	262	Turf Management Seminar I	1

	TURF	267	Performance Turf Design and Construction	2
	TURF	269	Turf Management Strategies	2
	TURF	272	Turf Soil Fertility	2
	TURF	282	Turfgrass Physiology	2
	TURF	402	Turf in the Environment and Society (W)	3
	TURF	462	Turf Management Seminar II	1
	TURF	469	Advanced Turf Management Strategies	1
	TURF	472	Advanced Turf Soil Fertility	1
	TURF	482	Advanced Turfgrass Physiology	1
	TURF	493	Professional Internship in Turfgrass Science and Management	3
e.	One of the following courses: (3 credits):			
	CROP	350	Introduction to Plant Genetics	3
	CROP	441	Plant Breeding and Biotechnology	3
f.	One of the following courses: (3 credits):			
	GEO	103	Introduction to Climate Change Studies	3
	GEO	203	Introduction to Meteorology	3
	GEO	402	Agricultural Climatology	3
g.	Two of the following courses: (5 or 6 credits):			
	ACC	230	Survey of Accounting Concepts	3
	HB	425	Golf Operations and Management	3
	MGT	325	Management Skills and Processes	3
	TURF	171	Operations Budgeting for Golf Course Managers	2
h.	A minimum of 3 credits from the following courses:			
	CROP	451	Biotechnology Applications in Plant Breeding and Genetics	3
	CROP	460	Plant-Microbe Interactions	3
	CROP	485	Physiology in Plant Nutrition	3
	CSUS	354	Water Resources Management	3
	ENT	404	Fundamentals of Entomology	4
	ENT	477	Pesticides in Pest Management	3
	GLG	411	Hydrogeology	3
	MGI	425	Microbial Ecology	3
	PLP	405	Plant Pathology	4
	PLP	407	Diseases and Insects of Forest and Shade Trees	4
	SOIL	330	Soil Chemistry	2
	SOIL	340	Applied Soil Physics	2
	SOIL	360	Soil Biology	3
	SOIL	455	Environmental Pollutants in Soil and Water	3
	SOIL	470	Soil Resources	3

Effective Fall 2026.

8. Request to change the requirements for the **Minor in Agronomy** in the Department of Plant, Soil and Microbial Sciences.

a. Under the heading **Minor in Agronomy** replace the entire entry with the following:

Complete a minimum of 16 credits from the following:

1.	All of the following courses (7 credits):			
	CROP	101	Introduction to Crop Science	3
	CROP	101L	Introduction to Crop Science Laboratory	1
	SOIL	210	Fundamentals of Soil Science	3
2.	One of the following courses (3 credits):			
	CROP	420	Cover Crops Agroecosystems	3
	CROP	488	Agricultural Cropping Systems: Integration and Problem Solving	3

3. Complete 6 credits from the following:

CROP	135	Crop Scouting and Investigation	3
CROP	151	Seed and Grain Quality	2
CROP	201	Forage Crops	3
CROP	212	Advanced Crop Production	2
CROP	326	Weed Science	2
and			
CROP	226L	Weed Science Laboratory	1
CROP	350	Introduction to Plant Genetics	3
CROP	441	Plant Breeding and Biotechnology	3
CROP	442	Agroecology Ecology	3
CROP	467	Bioenergy Feedstock Production	3
HRT	251	Organic Farming Principles and Practices	3
SOIL	330	Soil Chemistry	2
SOIL	340	Applied Soil Physics	2
SOIL	360	Soil Biology	3
SOIL	470	Soil Resources	3

Effective Spring 2026.

9. Request to change the requirements for the **Minor** in **Environmental Soil Science** in the Department of Plant, Soil and Microbial Sciences.

a. Under the heading **Requirements for the Minor in Environmental Soil Science** make the following changes:

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

CSS	210	Fundamentals of Soil Science	3

Add the following course:

SOIL	210	Fundamentals of Soil Science	3

(2) In item 2., delete the following courses:

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

Add the following courses:

SOIL	203	World of Soils	2
SOIL	330	Soil Chemistry	2
SOIL	340	Applied Soil Physics	2
SOIL	360	Soil Biology	2
SOIL	470	Soil Resources	3
SOIL	480	Soil Fertility and Management	3

(3) In item 3., delete the following courses:

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

Add the following courses:

CROP	411	Fire and Environmental Quality	3
CROP	420	Cover Crops in Agroecosystems	3
CROP	442	Agricultural Ecology	3
CROP	460	Plant-Microbe Interactions	3
CROP	488	Agricultural Cropping Systems: Integration and Problem Solving	3

Effective Fall 2026.

10. Request to establish a **Minor** in **Plant Pathology** in the Department of Plant, Soil and Microbial Sciences. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its September 4, 2025 meeting.

a. **Background Information**:

Plant pathology is an interdisciplinary field involving agronomy, biology, chemistry, environmental sciences, forestry, and horticulture. Emphasis areas in plant pathology include bacteriology, epidemiology, host-parasite interactions, mycology, molecular biology, soil microbiology, and virology. Plant pathologists are hired by colleges/universities, government agencies, and private industry to monitor plant diseases and improve plant health.

MSU is a nationally recognized university offering several undergraduate degree programs in the plant sciences. The diverse array of students interested in plant science careers would benefit from a minor in plant pathology.

Students will develop a view of phytopathogens as dynamic components of managed and natural environments; recognize applications, requirements, and limitations of principles and methods in plant pathology; and demonstrate the relationship of cross-disciplinary fields and approaches in plant pathology.

b. **Academic Programs Catalog Text**:

The Minor in Plant Pathology provides the principles and methods in plant pathology.

The minor is available as an elective to all students who are enrolled in bachelor's degree programs at Michigan State University. The minor is administered by the Department of Plant, Soil and Microbial Sciences.

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.

Students who plan to complete the program should consult the undergraduate advisor in the Department of Plant, Soil and Microbial Sciences.

Requirements for the Minor in Plant Pathology

Students must complete 15 credits from the following:

					CREDITS
1.	One of the following courses (3 or 4 credits):				
	CROP	101		Introduction to Crop Science	3
	HRT	203		Introduction to Horticulture	3
	FOR	202		Introduction to Forestry	3
	FOR	204		Forest Vegetation	3
	PLB	203		Biology of Plants	4
2.	One of the following options (4 or 5 credits):				
	a.	PLP	405	Plant Pathology	4
	b.	MGI	301	Introductory Microbiology	3
		PLP	481	Plant Pathogen Omics and Evolution	2
	c.	MGI	301	Introductory Microbiology	3
		PLP	482	Methods in Plant Pathology	2

3. Complete 5 to 7 credits from the following courses:

CROP	460	Plant-Microbe Interactions	3
PLB	402	Biology of Fungi	4
PLP	266	Turf Pathology	3
PLP	407	Diseases and Insects of Forest and Shade Trees	4
PLP	481	Plant Pathogen Omics and Evolution	2
PLP	482	Methods in Plant Pathology	2
PLP	492	Seminar	2
PLP	498	Undergraduate Research	1 to 4

Courses may not be used to fulfill requirement 2. and 3.

5. Additional courses complete 15 credits:

CROP	135	Crop Scouting and Investigation	3
ENT	477	Pesticides in Pest Management	3
ENT	478	Integrated Pest Management (W)	3
ENT	479	Organic Pest Management (W)	3
MGI	302	Introductory Laboratory for General and Allied Health Microbiology	1
MGI	425	Microbial Ecology	3
MGI	461	Molecular Pathogenesis	3
MGI	499	Undergraduate Research	1 to 3

Effective Fall 2026.

COLLEGE OF VETERINARY MEDICINE

1. Request to change the requirements for the **Graduate Certificate** in **Food Safety** in the Department of Large Animal Clinical Sciences. The University Committee on Graduate Studies (UCGS) approved this request at its September 15, 2025 meeting.

The Graduate Certificate in Food Safety is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in Food Safety".

a. Under the heading **Requirements for the Graduate Certificate in Food Safety** make the following changes:

(1) In item 2., delete the following courses:

VM	817	Livestock Pre-Harvest Food Safety	3
VM	824	Global Food Safety	3
VM	835	Food Safety for Produce	3

Add the following courses:

VM	826	Creating a Food Safety Culture	3
VM	827	Food Safety Modernization Act and Hazard Analysis and Critical Control Point Systems	3

Effective Spring 2026.

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ENT 848 Biological Control of Insects and Weeds
Spring of odd years. 3(2-2) RB: (ENT 404) or Ecology
REINSTATEMENT Principles and practices in the application of natural enemies to control arthropod and weed pests. Identification and biology of beneficial species (parasitoids, predators, pathogens) and the ecological basis for their use in pest management systems.
Effective Spring Semester 2026

FW 854 Uncertainty in Natural Resource Management
Spring of odd years. 3(2-2) RB: IBIO 355
REINSTATEMENT Methods and challenges associated with accounting for uncertainty in natural resource decision making. Decision analysis, structured decision making, and adaptive management.
Effective Fall Semester 2026

FSC 423 Functional Foods and Human Health
Spring of even years. 3(3-0) ~~P: {(FSC 211) or HNF 150} and (MMG 201 or MMG 301 or FSC 342) and ((BMB 200 or concurrently) or (BMB 401 or concurrently))~~ P: {(FSC 211) or HNF 150} and (MGI 201 or MGI 301 or FSC 342) and ((BMB 200 or concurrently) or (BMB 401 or concurrently))
Concept, nature and classification of functional foods. Spectrum of biological activity. Positive and negative impacts on health, and regulatory aspects.
Effective Spring Semester 2026

FSC 440 Food Microbiology
Fall of every year. 3(3-0) ~~Interdepartmental with Microbiology and Molecular Genetics~~ Interdepartmental with Microbiology, Genetics, and Immunology ~~P: (MMG 201 or MMG 301) and completion of Tier I writing requirement.~~ P: (MGI 201 or MGI 301) or completion of Tier I writing requirement R: Not open to freshmen.
Major groups of microorganisms of importance to the food industry. Ecological, physiological, and public health aspects.
Effective Spring Semester 2026

FSC 442 Hazard Analysis Critical Control Point Training and Certification
Fall of every year. 1(1-0) ~~P: (FSC 325) and (MMG 301 or concurrently)~~ P: (FSC 325) and (MGI 301 or concurrently) RB: FSC 440 R: Open to juniors or seniors.
Design and implementation of Hazard Analysis Critical Control Point (HACCP) programs for the food industry. Offered second half of semester.
Effective Spring Semester 2026

HNF 453 Nutrition and Human Development
Spring of every year. 3(3-0) ~~P: (HNF 375 or HNF 377) and (PSL 250 or PSL 310 or PSL 431)~~ P: (HNF 377) and (PSL 250 or PSL 310 or PSL 431) R: Open to juniors or seniors in the Dietetics Major or in the Nutritional Sciences Major or in the Lyman Briggs Nutritional Sciences Coordinate Major.
Role of nutrients in anatomical, physiological, and biochemical processes as related to human growth and development. Nutrition throughout the life cycle. Nutritional assessment integrating the nutrition care process and age specific programs.
SA: HNF 376
Effective Spring Semester 2025

~~CSS 292~~
CROP 292 Career Leadership in Agriculture
Spring of every year. 2(2-0) Interdepartmental with Agricultural, Food, and Resource Economics, Animal Science, Horticulture Not open to students with credit in AT 214.
Leadership development, styles, and evaluations within agriculture.
~~SA: AEE 110, AEE 111~~ SA: AEE 110, AEE 111, CSS 292
Effective Fall Semester 2026

PLP 481 Plant Pathogen Omics and Evolution
Fall of every year. 2(2-0) P: MGI 301 or CSS 360 or approval of department RB: A general knowledge of eukaryotic and prokaryotic cell structure and function, plant pathology, plant physiology, basic concepts and techniques of molecular biology and biochemistry.
NEW Omics techniques in the study of plant pathogen evolution. Experimental design and dataset analyses.
Effective Spring Semester 2026

PLP 482 Methods in Plant Pathology
Fall of every year. 2(2-0) P: MGI 301 or CSS 360 or approval of department
NEW Advanced microbiological and molecular genetic techniques to study, manipulate, and identify plant pathogens.
Effective Spring Semester 2026

~~CSS 171~~
TURF 171 Operations Budgeting for Golf Course Managers
Spring of every year. ~~2(3-0)~~ 2(2-0) ~~RB: CSS 232 and CSS 210~~ RB: (CSS 232 and CSS 210) and CSS 232 and CSS 210
Budgeting. Financial analysis. Purchasing and materials management for golf course operations. Offered first ten weeks of semester.
SA: CSS 071
Effective Fall Semester 2025

COLLEGE OF ENGINEERING

EGR 440 Science and Engineering Entrepreneurship
Fall of every year. 3(3-0) R: Open to juniors or seniors in the College of Engineering or in the College of Natural Science or approval of college. Not open to students with credit in EGR 840.
Technical skills to enable and engage in science and engineering related entrepreneurship at all levels. Discovery, evaluation, and engagement of entrepreneurial opportunities starting with technology development to solve a problem, bring about desired change that is scalable, and the application of science and engineering principles in business related endeavors.
Effective Fall Semester 2026

EGR 840 Science and Engineering Entrepreneurship
Fall of every year. 3(3-0) R: Open to graduate students in the College of Engineering or in the College of Natural Science. Not open to students with credit in EGR 440.
Technical skills to enable and engage in engineering related entrepreneurship at all levels. Discovery, evaluation, and engagement of entrepreneurial opportunities starting with technology development to solve a problem, bring about desired change that is scalable, and the application of engineering principles in business related endeavors.
Effective Fall Semester 2026

MSE 460 Electronic Structure and Bonding in Materials and Devices
Spring of every year. 3(3-0) ~~P: MSE 260~~ P: (MSE 250) and ((PHY 184 or concurrently) or (PHY 294H or concurrently) or (LB 274 or concurrently) or (PHY 232 or concurrently)) ~~R: Open to seniors or juniors in the Department of Chemical Engineering and Materials Science or in the Materials Science and Engineering Minor.~~ R: Open to juniors or seniors in the College of Engineering.
Relationship between quantum mechanics and material properties. Free electron theory. Energy bands, semiconductors. Dielectrics and ferroelectrics. Dia-, para-, ferro-, and antiferro-magnetism. Superconductivity. Thermal properties.
Effective Fall Semester 2026

COLLEGE OF HUMAN MEDICINE

FM 623 Street Medicine: Go to the People
Fall of every year. Spring of every year. Summer of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: HM 549 or HM 556 RB: Able to communicate in English. Interest in care of the underserved. R: Open to graduate-professional students in the College of Human Medicine.

NEW
Immersive hands-on street medicine elective in the care of the unhoused. Work with multi-disciplinary teams to provide clinical care to people experiencing homelessness.
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 2025

COLLEGE OF NATURAL SCIENCE

PLB 480 Epigenetics
Spring of even years. 3(3-0) Interdepartmental with Integrative Biology P: IBIO 341 or CSS 350 R: Approval of college.

REINSTATEMENT
Molecular mechanisms of epigenetic modifications of eukaryotic genomes and their roles in biological processes, human diseases and cancer, plant development, and production.
Effective Fall Semester 2026

STT 467 Insurance Operations
~~Spring of every year.~~ Fall of every year. 3(3-0) Interdepartmental with Mathematics P: (ACC 230 and FI 321 and MTH 360) and completion of Tier I writing requirement RB: STT 441

Regulation, marketing and distribution, underwriting, risk control, premium auditing, the claim function, actuarial operations, and reinsurance.
Effective Spring Semester 2026

COLLEGE OF OSTEOPATHIC MEDICINE

OMM 602 Osteopathic Principles and Practice Clerkship
Fall of every year. Spring of every year. Summer of every year. 2 credits. R: Open to graduate-professional students in the College of Osteopathic Medicine.

Integration of osteopathic manipulative medicine and osteopathic principles and practice during clerkship rotations.
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.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 6 semesters after the end of the semester of enrollment.
Effective Fall Semester 2025

OST 584 Health Disparities and Health Equity
Summer of every year. 1(1-0) A student may earn a maximum of 2 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of department.

NEW
OST 584 is a 1-credit elective that will supplement instruction around health equity and health disparities. This course in intended to train osteopathic students to recognize disparities in healthcare that exist across race, ethnicity, geographic residence, gender, sexual orientation, recognition, age, poverty, and disability status. Over the duration of the course, osteopathic medical students will gain a deeper understanding of health disparities and will learn how to identify and develop the skills to provide interventions and solutions toward achieving health equity.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer Semester 2026

OST 596 Voices and Values in Medicine
Spring of every year. 1(1-0) A student may earn a maximum of 2 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine or approval of department.

NEW This student-led, discussion-based elective provides osteopathic medical students with a structured space to explore critical but often under-addressed topics in healthcare, including health equity, systemic bias, and the social determinants of health. Through open dialogue and reflective conversations, students will examine issues such as lack of access to care, substance use, care for underserved populations, and the role of shame in medicine.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring Semester 2026

OST 604 Essential Clinical Skills for the Senior Medical Student
Fall of every year. Spring of every year. Summer of every year. 2(1-2) Interdepartmental with Osteopathic Manipulative Medicine R: Open to seniors in the College of Osteopathic Medicine.
Longitudinal experience addressing essential skills for senior osteopathic medical students.
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.~~
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 6 semesters after the end of the semester of enrollment.
Effective Fall Semester 2025

COLLEGE OF VETERINARY MEDICINE

PHM 809 Drug Discovery and Medicinal Chemistry
Spring of odd years. 2(2-0) ~~Interdepartmental with Chemistry~~ Interdepartmental with Biochemistry and Molecular Biology, Chemistry A student may earn a maximum of 4 credits in all enrollments for this course. 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 Biochemistry and Molecular Biology or in the Pharmacology and Toxicology Major or approval of department.~~ R: Open to doctoral students in the Department of Chemistry or in the Department of Biochemistry and Molecular Biology or in the Pharmacology and Toxicology Major or approval of department. A student may earn a maximum of 2 credits
Fundamentals of pharmaceutical drug discovery including basic chemistry, drug-design principles, high throughput screening, computational modeling, and drug metabolic pathways.
Effective Spring Semester 2026

PHM 843 Introduction to Medical Device Toxicology
Summer of every year. 2(2-0) A student may earn a maximum of 2 credits in all enrollments for this course. RB: Science / Biology / Chemistry / Physiology R: Open to graduate students in the Integrative Pharmacology Major or in the Pharmacology and Toxicology Major.

NEW This class outlines the foundations of medical device biocompatibility and toxicology, including a review of the regulatory expectations and standards, endpoint assessment, and the data needed for toxicological risk assessment (TRA) to assess safety of medical devices. Course instructors and contributors are experts in the field from industry, contract research organizations, and regulatory agencies.
Effective Summer Semester 2026

PHM 851 Intellectual Property and Patent Law for Biomedical Sciences
~~Fall of every year.~~ Fall of odd years. 2(2-0) RB: Strong reading and writing skills helpful.
Fundamentals of intellectual property and patent law encountered by biomedical scientists, including issues of prevention, patent prosecution, and enforcement of patents in a litigation setting.
Effective Fall Semester 2026