

MICHIGAN STATE UNIVERSITY

**Report of
THE UNIVERSITY COMMITTEE ON CURRICULUM
to the Faculty Senate
April 18, 2023**

The effective date for new programs subject to Statewide Academic Program review is implemented in accordance with the Statewide Academic Program Review calendar.

MICHIGAN STATE UNIVERSITY
University Committee on Curriculum

April 18, 2023

TO: Faculty Senate

This report is prepared and distributed for the following purposes:

1. To report new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses.
2. To notify the initiating colleges, schools, and departments of approval by the University Committee on Curriculum of their requests for new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses. Any items not approved by the Faculty Senate will be reported to the appropriate college and department or school.
3. To provide information to members of the faculty in each department about academic programs and courses in all colleges, departments, and schools of the University.

Reports of the University Committee on Curriculum to the Faculty Senate are organized as follows:

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES:

Organized by colleges in alphabetical order. For a given college, academic units are organized in alphabetical order. For a given academic unit, degrees, majors, and specializations are organized in alphabetical order.

PART II - NEW COURSES:¹

Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

PART III - COURSE CHANGES:¹

Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

Not all of the above categories, and not all of the colleges and academic units, will necessarily appear in any given Senate Report.

¹One or more of the abbreviations that follow may be included in a course entry:

P: = Prerequisite monitored in SIS
C: = Corequisite
R: = Restriction
RB: = Recommended background
SA: = Semester Alias

MICHIGAN STATE UNIVERSITY

April 18, 2023

TO: Faculty Senate
FROM: University Committee on Curriculum
SUBJECT: New Academic Programs and Program Changes:
New Courses and Course Changes

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. 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) Reletter item 3. e. to item 3. f.
(2) Add the following new item 3. e.:

Completion of a minimum of 3 credits in Experiential Learning. Students must consult with their academic advisor for specific details on this requirement. Completion of this requirement may be fulfilled by enrollment in FSC 475, FSC 493, FSC 499 or other approved experiences.

Effective Fall 2023.

2. Change the requirements for the **Bachelor of Science** degree in **Forestry** in the Department of Forestry.

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

- (1) In item 3. a. change the total credits from '64' to '67'.
(2) In item 3. a. delete the following courses:

FOR	222	Forestry Field Methods	2
FOR	462	Forest Resource Economics and Management	4

Add the following courses:

FOR	222	Forestry Field Methods	3
FOR	438	Forest Resource Economics	3
FOR	468	Forest Management Planning	3

Effective Spring 2024.

3. Change the requirements for the **Minor in Forestry** in the Department of Forestry.
- a. Under the heading **Requirements for the Minor in Forestry** make the following changes:
- (1) Change the total credits for the minor from '16 to 19' to '18 to 19'.
 - (2) In item 1., change the credits of 'FOR 222' from '2' to '3'.
 - (3) In item 3., delete the following course:
FOR 462 Forest Resource Economics and Management 4
Add the following course:
FOR 438 Forest Resource Economics 3

Effective Spring 2024.

4. Change the requirements for the **Minor in Urban and Community Forestry** in the Department of Forestry.
- a. Under the heading **Requirements for the Minor in Urban and Community Forestry** make the following changes:
- (1) Change the total credits from '20 to 22' to '21 to 23'.
 - (2) In item 1., change the total credits from '8' to '9'.
 - (3) In item 1., change the credits of 'FOR 222' from '2' to '3'.

Effective Spring 2024.

5. Change the requirements of the **Bachelor of Science** degree in **Packaging** in the School of Packaging.
- The concentrations in the Bachelor of Science degree in Packaging 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 Packaging** make the following changes:
- (1) In item 3. a. make the following changes:
 - (a) Change the total credits from '55' to '58'.
Add the following course:
PKG 465 Packaging Value Chain 3
 - (b) In items 3. b. and 3. d., delete the note.
 - (c) In item 3. e., delete the concentration requirement (**Packaging Science** and **Packaging Value Chain Management**).
 - (d) Add the following new item 3. e.:
Completion of 9 credits of electives in packaging. Enrollment in a packaging internship completed under PKG 493 (up to 3 credits) and enrollment in a packaging overseas study program completed under

PKG 491 (up to 3 credits) may be used towards this requirement with advisor approval.

Effective Fall 2023.

6. Change the requirements for the **Agricultural Technology Certificate** in **Agricultural Industries** in The Institute of Agricultural Technology.
- a. Under the heading **Requirements for Agricultural Industries** make the following changes:
- (1) Change item 3. to 'One of the following courses'.
 - (2) Change item 5. to '5 to 11' elective credits.
 - (3) Delete the note following item 5.

Effective Summer 2023.

7. Change the requirements for the **Agricultural Technology Certificate** in **Dairy Management** in the Institute of Agricultural Technology.
- a. Under the heading **Requirements for Dairy Management** make the following changes:
- (1) In item 2., change the total credits from '15' to '13' and delete the following courses:

ABM	100	Decision-making in the Agri-Food System	3
ABM	130	Farm Management I	3
ABM	225	Commodity Marketing I	3

Add the following courses:

AFRE	100	Decision-making in the Agri-Food System	3
AFRE	130	Farm Management I	3
AFRE	232	Commodity Marketing I	3
ANS	110L	Introductory Animal Agriculture Laboratory I	1
 - (2) Delete the note following item 2.

Effective Summer 2023.

8. Change the requirements for the **Agricultural Technology Certificate** in **Electrical Technology** in the Institute of Agricultural Technology.
- a. Under the heading **Electrical Technology** make the following changes:
- (1) Add the following statement:

Students must complete 48 credits from the following:
 - (2) Replace the note following item 1. with the following:

Students who demonstrate proficiency through placement testing for AT 045 and AT 071 can take elective course work to substitute the credit in those courses as approved by the program coordinator.
 - (3) Replace item 3. with the following:

Complete a minimum of 7 credits of additional Agricultural Technology courses chosen in consultation with and approved by the program coordinator.

Effective Summer 2023.

9. Change the requirements for the **Agricultural Technology Certificate** in **Landscape and Nursery Management** in the Institute of Agricultural Technology.

a. Under the heading **Requirements for Landscape and Nursery Management** make the following changes:

(1) In item 1. change the total credits from '30 to '31' and delete the following courses:

AT	045	Agricultural Communications	2
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Add the following courses:

HRT	218	Irrigation Systems for Horticulture	2
HRT	218L	Irrigation Systems for Horticulture Laboratory	1
PLP	105	Fundamentals of Applied Plant Pathology	1
PLP	105L	Fundamentals of Applied Plant Pathology Lab	1

(2) Replace item 2. With the following:

'Complete a minimum of 8 credits from the following:'

Delete the following courses:

HRT	204	Plant Propagation	2
HRT	218	Irrigation Systems for Horticulture	3
HRT	219	Landscape Computer Aided Design	2
HRT	220	Annual and Aquatic Landscape Plants	3
HRT	221	Greenhouse Structures and Management	3

Add the following courses:

AE	151	Fabrication Technology	2
AT	202	Agricultural Regulation, Compliance and Safety	3
HRT	203	Introduction to Horticulture	3

(3) Replace item 3. with the following:

Complete 9 additional elective credits in the college as approved by the program coordinator in the Institute of Agricultural Technology.

Effective Summer 2023.

RESIDENTIAL COLLEGE IN THE ARTS AND HUMANITIES

1. Establish a **Minor in Design Justice** in the Residential College in the Arts and Humanities. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its January 19, 2023 meeting.

a. **Background Information:**

The minor came out of existing collaboration between the College of Engineering and the Residential College in the Arts and Humanities (RCAH) called the Peace Engineering

Initiative. Students have requested more opportunities to consider the relationship between design thinking, used by engineers and other creators, and justice. Researched existing programs at U.S. colleges and universities, using various combinations of design, justice, peace engineering, and sustainability discovered there appear to be no design justice-or design sustainability-specific undergraduate minors in the Big Ten or connected to U.S. R1 universities. The University of Minnesota and The Ohio State University appear to be contemplating the development of a curricular pathway in design justice as both have co-curricular initiatives underway. Oregon State University offers a minor in Humanitarian Engineering that requires 27 credits and a study away. However, the focus is different than relationship between design, justice and sustainability that we contemplate with the proposed minor. The University of St. Thomas Minnesota offers a Peace Engineering program that results in a minor in Peace and Justice Studies. The rest of the minors discovered did not involve colleges of engineering or were minors offered for graduate study related to design, justice and sustainability involved certificates, initiatives or co-curricular programs. MSU has major and minor programs related to design or engineering., Peace and Justice Studies is one that is most well-known and focused on peace and justice, and programs related to sustainability or environmental studies. However, there are no programs that combine the study of design, justice and sustainability available at MSU.

The RCAH Minor in Design Justice offered in collaboration with the College of Engineering offers students to critically examine how design and justice relate critically to one another in the pursuit of justice, and sustainable communities. Design justice draws on and builds upon the commitment of both Engineering and the RCAH to building a just and sustainable world.

b. **Academic Programs Catalog Text:**

The Minor in Design Justice prepares students to address the challenges of global conflict, globalization, climate change and sustainability and how we design for justice and human sustainability. Students will learn to identify, design and implement creative solutions that address and acknowledge human conflict. The minor also offers experiential learning opportunities in community-engaged design projects, education abroad programs and collaborations with organizations working to find solutions to complex design problems at home, at work, in community, and around the globe.

The minor is available as an elective to students who are enrolled in bachelor’s degree programs at Michigan State University. With the approval of the department and college that administer the student’s degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor’s degree.

Students who plan to complete the requirements of the minor should consult the undergraduate advisor in the Residential College in the Arts and Humanities.

Requirements for the Minor in Design Justice

			CREDITS
Students must complete a minimum of 16 credits from the following:			
1.	Both of the following courses (6 credits):		
	EGR 100	Introduction to Engineering Design	2
	RCAH 205	Transcultural Relations through the Ages: Design Justice	4
2.	One of the following courses (3 or 4 credits):		
	RCAH 203	Transcultural Relations through the Ages	4
	RCAH 235	Introduction to Language and Culture Studies	4
	RCAH 316	Topics in the Arts	3
3.	One of the following courses (4 credits):		
	RCAH 112	Writing, Research and Technologies	4
	RCAH 202	The Presence of the Past	4
4.	One of the following courses (3 or 4 credits):		
	RCAH 325	Methods in Community Engagement	4
	RCAH 326	Topics in Community Engagement	3

COLLEGE OF ARTS AND LETTERS

1. Establish a **Minor in Literature and Cultural Studies** in the Department of English. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 2, 2023 meeting.

- a. **Background Information:**

This proposal for a Minor in Literature and Cultural Studies originated out of discussions about declining enrollments nationally in English since ca 2010, including discussions among and consultations with Big Ten English Department chairs. While enrollments in English BA programs (including ours) have since steadied, we believe this minor will be a good option for students who might wish to complete extensive course work in literary studies, but also wish to concentrate their studies in a degree program they consider more immediately "marketable."

We believe the minor will be an exciting option for students in many fields of study, developing and enhancing their ability to analyze complex texts, to think critically, to write effectively, and to imagine new and potentially different social possibilities. The minor is not a "mini"-English major. For example, it lacks the historical breadth typical of an English BA degree program. Instead, it focuses on the study of literature through the lens of cultural studies. The minor complements current minors offered by English (in Creative Writing, Film Studies, Fiction Filmmaking, and Popular Culture Studies) without duplicating them.

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

The Minor in Literature and Cultural Studies focuses on the study of literature through the lens of cultural studies. The minor provides extensive course work in literary studies, and provides the option for students to develop and enhance their ability to analyze complex texts, to think critically, to write effectively, and to imagine new and potentially different social possibilities.

Requirements for the Minor in Literature and Cultural Studies

CREDITS

Students must complete 18 credits from the following:

1. Both of the following courses (6 credits):

	ENG	210	Introduction to Literary Studies	3
	ENG	280	Introduction to Literary Theories	3
2. One of the following courses (3 credits):

	ENG	350	Readings in African, African American, or African Diaspora Literature	3
	ENG	351	Readings in Chicano and Latino Literatures	3
	ENG	352	Readings in Asian/Asian American/Asian Diaspora Literature and Visual Culture	3
	ENG	353	Readings in Women Writers	3
	ENG	354	Readings in Native American Literature	3
	ENG	355	Readings in Sexuality and Literature	3
	ENG	356	Readings in Jewish Literature	3
	ENG	360	Studies in Postcolonial and Diaspora Literature (W)	3
	ENG	448	Seminar in Gender and Literature	3
	ENG	449	Seminar in Race, Ethnicity, and Literature	3
	ENG	450	Seminar in African American Literature	3
	ENG	460	Seminar in Global and Postcolonial Literature	3
	ENG	466	Seminar in Literatures of the Pacific Rim	3
	ENG	482	Seminar in Feminist Literary and Cultural Theory	3
3. Complete 9 additional credits in courses in the Department of English with at least one at the 300-400 level. Literature courses in translation in other languages may be used to fulfill this requirement.

ELI BROAD COLLEGE OF BUSINESS

1. Change the requirements for the **Master of Science** degree in **Healthcare Management** in the Eli Broad College of Business. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its February 20, 2023 meeting.

The concentrations in the Master of Science degree in Healthcare Management are noted on the student's academic record when the requirements for the degree have been completed. After this change is approved, the concentrations will no longer be available.

- a. Under the heading **Admission**, make the following changes:
 - (1) Delete item 5.
 - (2) Delete paragraph three.
- b. Under the heading **Requirements for the Master of Science Degree in Healthcare Management** make the following changes:
 - (1) Change the introductory paragraph to the following:

The Master of Science degree in Healthcare Management degree is available only online and only under Plan B (without thesis). A total of 34 credits are required for the degree. The degree consists of a business core and a capstone. Other courses as approved by the program director may be used to fulfill degree requirements.
 - (2) Delete item 2. which consists of two concentrations, one in **Healthcare Compliance** and one in **Healthcare Leadership**.
 - (3) Renumber item 3. to item 2.

Effective Fall 2023.

COLLEGE OF COMMUNICATION ARTS AND SCIENCES

1. Change the requirements for **Master of Arts Degree in Media and Information**. The University Committee on Graduate Studies (UCGS) approved this request at its March 20, 2023 meeting.
 - a. Under the heading **Admission**, in the first paragraph, remove the reference to 'scores on the General Test of the Graduate Record Examination (GRE)'.
 - b. Under the heading **Master of Arts Degree in Media and Information** in item 1., delete the following course:

MI	852	Media and Information Economics	3
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Effective Fall 2023.

COLLEGE OF EDUCATION

1. Change the name of the **Doctor of Philosophy** degree in **Rehabilitation Counselor Education to Counselor Education and Supervision** in the Department of Counseling, Educational Psychology, and Special Education. The University Committee on Graduate Studies (UCGS) approved this request at its March 20, 2023 meeting.

Students admitted to the major prior to Fall 2023 will be awarded a Doctor of Philosophy Degree in Rehabilitation Counselor Education. Students admitted to the major Fall 2023 and forward will be awarded a Doctor of Philosophy Degree in Counselor Education and Supervision. Effective Fall 2031, coding for the program in Rehabilitation Counselor Education will be discontinued and the program will no longer be available in the Department of Counseling, Educational Psychology and Special Education. Students who have not met the requirements for the Doctor of Philosophy degree in Rehabilitation Counselor Education through the Department of Counseling, Educational Psychology and Special Education prior to Fall 2031 will have to change their major.

Effective Fall 2023.

2. Change the requirements for the **Doctor of Philosophy** degree in **Counselor Education and Supervision** in the Department of Counseling, Educational Psychology, and Special Education. The University Committee on Graduate Studies (UCGS) approved this request at its March 20, 2023 meeting.

- a. Under the heading **Admission**, in paragraph two, replace items 1. through 10. with the following:

1. A bachelor's degree from an accredited institution with a grade-point average of 3.0 on the 4.0 system (B) or better.
2. A master's degree from an accredited institution in a relevant field such as counseling, or human services with a grade-point average of 3.0 (B) or better.
3. Relevant work history in counseling.
4. A 2-3 page, single spaced written statement about academic goals and career objectives that are consistent with the training mission of the doctoral program in Counselor Education and Supervision.
5. Three letters of recommendation from professors, employers, and/or clinical supervisors to indicate one's academic aptitude, clinical skills, personal qualifications, and/or professional work ethic.
6. Professional writing sample that demonstrates scholarly and/or graduate level writing skills.
7. Verbal, quantitative, and analytical writing scores from the Graduate Record Examination are optional.

- b. Under the heading **Requirements for the Doctor of Philosophy Degree in Counselor Education and Supervision** replace the entire entry with the following:

The student must meet the requirements specified below.

			CREDITS
1.	Educational Inquiry and Research.		
	All of the following courses (17 credits):		
	CEP 932	Quantitative Methods in Educational Research I	3
	CEP 933	Quantitative Methods in Educational Research II	3
	CEP 934	Multivariate Data Analysis I	4
	CEP 968	Research Methods in Counseling and School Psychology	3
	CEP 995	Practicum in Research Design and Data Analysis	1
	TE 931	Introduction to Qualitative Methods in Educational Research	3
2.	Ethics and Professional Practice of Counseling.		
	Both of the following courses (6 credits):		
	CEP 963	Ethics in Counseling and School Psychology	3
	EAD 965	Diversity and Equity in Postsecondary Education	3
3.	Counseling Education and Supervision Core.		
	All of the following courses (9 credits):		
	CEP 960	Theoretical Foundations of Counseling	3

- | | | | | |
|----|--|------|--|---|
| | CEP | 944A | Counselor Education Pedagogy | 3 |
| | CEP | 969 | Clinical Supervision in Counseling and School Psychology | 3 |
| 4. | Counseling, Education and Supervision Professional Preparation/Applied Core. | | | |
| | All of the following courses (10 credits): | | | |
| | CEP | 944B | Teaching Internship in Counselor Education and Supervision | 3 |
| | CEP | 944C | Clinical Practice Practicum in Counselor Education and Supervision | 3 |
| | CEP | 944D | Clinical Supervision Internship in Counselor Education and Supervision | 3 |
| | CEP | 967 | Practice in Leadership, Advocacy and Grants in Counselor Education | 1 |
| 5. | Successful completion and defense of the dissertation. Students may not earn more than 30 credits in CEP 999 Doctoral Dissertation Research, of which 24 are required. | | | |

Effective Fall 2023.

COLLEGE OF MUSIC

1. Change the requirements for the **Doctor of Philosophy** degree in **Music Education** in the College of Music. The University Committee on Graduate Studies (UCGS) approved this request at its March 20, 2023 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Music Education** replace item 1. with the following:
 1. Complete a minimum of 36 credits of course work as specified below:
 - a. **Research Core**
All of the following courses (9 credits):

MUS	864	Research in Music Education	3
MUS	965	Seminar in Quantitative Research in Music Education	3
MUS	966	Seminar in Qualitative Research in Music Education	3
 - b. **Music Education Core**
 - (1) Both of the following courses (6 credits):

MUS	962	Advanced Studies in the Philosophy of Music Education	3
MUS	967	Music Teaching and Learning Across the Lifespan	3
 - (2) A minimum of 2 credits from the following courses:

MUS	488	Disability Studies and Music Education	2
MUS	859	Race Issues in Music Teaching	3
MUS	860	Philosophical Considerations in Music Education	3
MUS	861	Seminar in Psychology of Music Education	3
MUS	862	Seminar in Music Curriculum and Methodology	3
MUS	863	Seminar in the Sociology of Music Education	3
MUS	888	Seminar in Disability Studies and Music Education	1
MUS	964	Seminar in College Music Teaching	2

 If MUS 488 is used to satisfy this requirement, the student must enroll concurrently in MUS 888.
 - c. **Music Cognate.** Nine credits in graduate courses in one of the following areas: composition, conducting, jazz, musicology, theory, or

- d. performance. Students may also design their own cognate within or outside of the College in consultation with their guidance committee.
Electives. Nine credits in graduate courses within or outside the College of Music as approved by the student's guidance committee.

Effective Spring 2024.

2. Change the requirements for the **Master of Music in Music Theory** in the College of Music. The University Committee on Graduate Studies (UCGS) approved this request at its March 20, 2023 meeting.
- a. Under the heading **Requirements for the Master of Music Degree in Music Theory** make the following changes:
- (1) In item 3. delete the following note:
- Students who take both MUS 873 and 974 may count one of these courses toward requirement 4., below.
- (2) In item 4., delete the following course:
- | | | | |
|-----|-----|--------------------------|---|
| MUS | 972 | Advanced Keyboard Skills | 3 |
|-----|-----|--------------------------|---|

Effective Fall 2023.

COLLEGE OF NATURAL SCIENCE

1. Change the requirements for the **Minor in Environmental and Sustainability Studies** in the College of Natural Science.
- a. Under the heading **Minor in Environmental and Sustainability Studies** make the following changes:
- (1) Under **Biological and Physical Dimensions** delete the following course:
- | | | | |
|-----|-----|----------------|---|
| FOR | 404 | Forest Ecology | 3 |
|-----|-----|----------------|---|
- Add the following course:
- | | | | |
|-----|-----|----------------|---|
| FOR | 340 | Forest Ecology | 3 |
|-----|-----|----------------|---|
- (2) Under **Coupled Human and Natural Systems** delete the following courses:
- | | | | |
|-----|-----|------------------------------------|---|
| EEM | 320 | Environmental Economics | 3 |
| EEM | 405 | Corporate Environmental Management | 3 |
| WRA | 341 | Nature and Environmental Writing | 3 |
- Add the following courses:
- | | | | |
|------|-----|------------------------------------|---|
| AFRE | 360 | Environmental Economics | 3 |
| AFRE | 465 | Corporate Environmental Management | 3 |
- (3) Delete item 4.:
- Freshmen students who elect the RISE Option are required to complete Natural Science 192.

Effective Fall 2023.

2. Change the requirements for the **Bachelor of Arts** degree in **Mathematics** in the Department of Mathematics. The Teacher Education Council (TEC) approved this request at its March 13, 2023 meeting.

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

- (1) In item 3. a. change the total credits from '13' to '11 or 12'.
- (2) In item 3. a. (2), change the total credits from '4' to '4 or 5' and add the following courses:

PHY	173	Studio Physics for Scientists and Engineers I	5
PHY	193H	Honors Physics I – Mechanics	4

- (3) Change item 3. c. (6) to the following:

One of the following courses (3 credits):

MTH	310	Abstract Algebra I and Number Theory	3
MTH	418H	Honors Algebra I	3

- (4) Change item 3. a. (7) to the following:

One of the following courses (3 credits):

MTH	320	Analysis I	3
MTH	327H	Honors Introduction to Analysis	3

- (5) Add the following item 3. c. (9):

Two courses selected from two of the following three groups (6 credits):

(a)	MTH	411	Abstract Algebra II	3
	MTH	414	Linear Algebra II	3
	MTH	416	Introduction to Algebraic Coding	3
	MTH	417	Topics in Number Theory	3
	MTH	419H	Honors Algebra II	3
(b)	MTH	421	Analysis II	3
	MTH	425	Complex Analysis	3
	MTH	428H	Honors Complex Analysis	3
	MTH	429H	Honors Real Analysis	3
(c)	MTH	442	Partial Differential Equations	3
	MTH	441	Ordinary Differential Equations II	3
	MTH	451	Numerical Analysis I	3
	MTH	457	Introduction to Financial Mathematics	3
	MTH	461	Metric and Topological Spaces	3

MTH 481 Discrete Mathematics I 3
 Students with credit in 418H may not use MTH 411 to satisfy this requirement.

- (6) Add the following item 3. d.:

One of the following courses (4 credits):

CSE	231	Introduction to Programming I	4
CMSE	202	Computational Modeling and Data Analysis II	4

Effective Fall 2023.

3. Establish a **Minor in Physics** in the Department of Physics and Astronomy. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its January 19, 2023 meeting.

(1) **Background Information:**

Physics is a fundamental science that is intimately connected to all other natural sciences, including chemistry, biology and geology. Students in many other fields also express an interest in learning physics because it emphasizes problem-solving, building mathematical models, and analytical skills. The proposed Minor in Physics will be administered by the Department of Physics and Astronomy (PA), in collaboration with the Department of Computational Mathematics, Science, and Engineering (CMSE). The minor will provide students with a deep understanding of the discipline of physics and to the fundamental physical laws at play in the world around us –and in the universe as a whole. The minor complements other majors where additional physics knowledge beyond the introductory level is beneficial. It will prepare students to apply scientific methodology, to think critically and quantitatively, and to understand the experimental and theoretical methods used in modern physics. These methods include computational skills which are increasingly essential for many 21st century jobs (see for example, <https://www.forbes.com/sites/bernardmarr/2022/08/22/the-top-10-most-in-demand-skills-for-the-next-10-years/>).

A substantial number of universities offer minors in physics, for the same reasons given above. The requirements and scope of the minor are quite similar to those offered by peer institutions. However, the inclusion of the computational course in our program sets it apart from other physics minors.

Michigan State, through the Department of Physics and Astronomy, already offers a Disciplinary Teaching Minor in Physics, in partnership with the College of Education. However, this minor is available only for students in Teacher Education. In contrast, the proposed minor is available for MSU undergraduates at large. The requirements of the Disciplinary Teaching Minor in Physics overlap substantially with the Physics minor. The most notable difference is the inclusion of the computational course.

(2) **Academic Programs Catalog Text:**

The Minor in Physics provides students with a deep understanding of the discipline of physics and to the fundamental physical laws at play in the world around us –and in the universe as a whole. The minor complements other majors where additional physics knowledge beyond the introductory level is beneficial. It prepares students to apply scientific methodology, to think critically and quantitatively, and to understand the experimental and theoretical methods used in modern physics.

The minor is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University other than the Bachelor of Arts and Bachelor of Science Degrees in Physics, the Bachelor of Science Degree in Chemical Physics, and the Bachelor of Science Degree in Astrophysics. The minor is not available to students pursuing teacher certification through the Disciplinary Teaching Minor in Physics.

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

Students who plan to complete the requirements of the minor should consult the undergraduate advisor in the Department of Physics and Astronomy. Admission to the minor requires approval by the Physics and Astronomy undergraduate program director to ensure students are informed of the minor requirements, and have adequate preparation, including the math prerequisites.

Requirements for the Minor in Physics

CREDITS

Students must complete a minimum of 18 credits from the following:

1. One of the following (5 credits):
 - (a) PHY 173 Studio Physics for Scientists and Engineers I 5
 - (b) PHY 183 Physics for Scientists and Engineers I 4
PHY 191 Physics Laboratory for Scientists, I 1
 - (c) PHY 191 Physics Laboratory for Scientists, I 1
PHY 193H Honors Physics I – Mechanics 4
 - (d) LB 273 Physics I 4
2. One of the following (5 credits):
 - (a) PHY 174 Studio Physics for Scientists and Engineers II 5
 - (b) PHY 184 Physics for Scientists and Engineers II 4
PHY 192 Physics Laboratory for Scientists, II 1
 - (c) PHY 192 Physics Laboratory for Scientists, II 1
PHY 294H Honors Physics II – Electromagnetism 4
 - (d) LB 274 Physics II 4
3. The following course (3 credits):
PHY 215 Thermodynamics and Modern Physics 3
4. One of the following courses (3 or 4 credits):
PHY 431 Optics I 3
PHY 440 Electronics 4
PHY 451 may be substituted for PHY 431 or PHY 440.
5. The following course (4 credits):
CMSE 201 Computational Modeling and Data Analysis I 4

Effective Fall 2023.

PART II - NEW COURSES

DEPARTMENT OF COUNSELING, EDUCATIONAL PSYCHOLOGY, AND SPECIAL EDUCATION

- CEP 967 Practice in Leadership, Advocacy and Grants in Counselor Education
Spring of every year. 1(1-0)
Practical training in diverse areas of counselor education, including organizational leadership, advocacy and grant writing.
Effective Spring Semester 2024

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

- FSC 499 Undergraduate Research in Food Science
Fall of every year. Spring of every year. Summer of every year. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. ~~R: Open to undergraduate students. Approval of department.~~ R: Open to undergraduate students. Approval of department. A student may earn a maximum of 10 credits BMB 499, CSS 499, FSC 499, HNF, 499, MMG 499, NSC 499, PKG 499, and PSL 499.
Undergraduate research experience is intended to give each student practical experience in the field of food science.
Effective Spring Semester 2023

DEPARTMENT OF FORESTRY

- FOR 438 Forest Resource Economics
Fall of every year. 3(2-2) P: ((EC 201 and completion of Tier I writing requirement) and (MTH 124 or MTH 132 or LB 118) and (STT 201 or STT 224 or STT 231 or STT 421) R: Not open to freshmen or sophomores.
Basic economic and social science principles and techniques that govern human consumption and production of forest resources, including investment and benefit-cost, and regional impact analysis, and social impact assessment.
SA: FOR 464, FOR 462
Effective Fall Semester 2023
- FOR 468 Forest Management Planning
Spring of every year. 3(2-2) P: ((FOR 419 or concurrently) and FOR 420 and FOR 438) and completion of Tier I writing requirement R: Not open to freshmen or sophomores.
Management of forests for timber production in a multiple-use context. Analytical techniques, forecasting models, and financial analysis to support forest resource management decisions.
SA: FOR 408
Effective Fall Semester 2023

COLLEGE OF MUSIC

- MUS 488 Disability Studies and Music Education
Fall of odd years. 2(2-0) R: Open to undergraduate students in the College of Music.
Ways that music educators can best serve all students in their classrooms, including those with physical disabilities, mental health issues, and learning disabilities.
Effective Fall Semester 2023
- MUS 888 Seminar in Disability Studies and Music Education
Fall of odd years. 1(1-0) R: Open to graduate students in the College of Music. C: MUS 488 concurrently.
Theory in disability studies and models for thinking about disability. Current discourse about disability in music education.
Effective Fall Semester 2023

MUS 967 Music Teaching and Learning Across the Lifespan
Spring of odd years. 3(3-0) R: Open to doctoral students in the College of Music.
Theories of learning, including how children, adolescents, and adults learn music. Critical examination of research on pedagogy and andragogy from across social and cultural contexts and music learning settings. Applications for research and practice in music teacher education.

Effective Spring Semester 2024

DEPARTMENT OF RELIGIOUS STUDIES

REL 250 Religion and the Arts
Spring of even years. 3(3-0)
Exploration of the ancient but ongoing interaction of art and religion across time and religious traditions, with particular attention to artworks that have played a role in social movements for equality and freedom.
Effective Spring Semester 2024

RESIDENTIAL COLLEGE IN THE ARTS AND HUMANITIES DEAN

RCAH 205 Transcultural Relations through the Ages: Design Justice
Fall of every year. Spring of every year. 4(4-0) Not open to students with credit in RCAH 203.
Key theoretical issues in the study of transcultural relationships. Broad historical perspective. Earliest development of societies. Interaction of early cultures. Crucial technological developments. Transcultural interactions today with additional thematic focus on Design Justice, Sustainability and Community Engagement.
SA: RCAH 201
Effective Fall Semester 2023

PART III – COURSE CHANGES

COLLEGE OF ARTS AND LETTERS

- AL 270 Citizen Scholars: Creating Meaningful Impact
Fall of every year. ~~2(2-0)~~ 1 to 2 credits. A student may earn a maximum of 2 credits in all enrollments for this course. R: Open to undergraduate students in the College of Arts and Letters. Not open to students with credit in AL 491.
~~Gateway course for the College of Arts and Letters Citizen Scholars program. Activities will prepare students for a lifetime of social justice, human rights, global awareness, and equity work in the arts and humanities by connecting their academic work with community engagement.~~ Gateway course for the College of Arts and Letters Citizen Scholars program. Activities will prepare students for a lifetime of social justice, human rights, global awareness, and equity work in the arts and humanities by connecting their academic work to experiential learning and community engagement.
~~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 2024~~ Effective Spring Semester 2024

COLLEGE OF COMMUNICATION ARTS AND SCIENCES

- CAS 899 Master's Thesis Research
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. ~~R: Open to master's students in the Health and Risk Communication Major.~~ R: Open to master's students in the College of Communication Arts and Sciences or in the Health and Risk Communication Major.
Master's thesis research.
Request the use of the Pass-No Grade (P-N) system.
~~Effective Fall Semester 2019~~ Effective Fall Semester 2023

DEPARTMENT OF COUNSELING, EDUCATIONAL PSYCHOLOGY, AND SPECIAL EDUCATION

- CEP 922 Psychometric Theory II
Fall of odd years. 3(3-0) RB: (CEP 921) and one statistics course. ~~R: Open only to Ph.D. students.~~ R: Open to doctoral students.
~~Expansion of generalizability theory, test and item bias, and equating. Measurement of change, profile analysis, scaling approaches, and validity generalization.~~ Scale construction and development and extensions with discrete items, missing data, clustering effects, nonnormality, population heterogeneity; unidimensional and multidimensional item response theory in multilevel and mixture settings; Bayesian item response theory.
~~Effective Fall Semester 1995~~ Effective Fall Semester 2023
- CEP 944A ~~Rehabilitation Counselor Pedagogy~~
Counselor Education Pedagogy
Fall of odd years. 3(3-0) R: Open to doctoral students in the Rehabilitation Counselor Education Major.
~~Pedagogical tools and issues associated with teaching and learning in pre-service rehabilitation counseling preparation programs.~~ Pedagogical tools and issues associated with teaching and learning in pre-service counseling preparation programs.
~~Effective Fall Semester 2005~~ Effective Fall Semester 2023
- CEP 944B ~~Teaching Internship in Rehabilitation Counselor Education~~
Teaching Internship in Counselor Education and Supervision
Fall of every year. Spring of every year. Summer of every year. ~~3(0-12)~~ 3(3-0) R: Open to doctoral students in the Rehabilitation Counselor Education Major.
Course design and teaching experience under the direct supervision of a faculty member.
~~Effective Summer Semester 2019~~ Effective Fall Semester 2023

- CEP 944C ~~Clinical Practice Practicum in Rehabilitation Counseling~~
Clinical Counseling Internship in Counselor Education and Supervision
Fall of every year, Spring of every year, Summer of every year. ~~4 to 6 credits.~~ 3(3-0) R: Open to doctoral students in the Rehabilitation Counselor Education Major.
~~Supervised counseling experience in human services, rehabilitation or educational settings to further develop skills, knowledge, and behaviors appropriate for professional counseling practice.~~ Supervised counseling experience in human services to further develop skills, knowledge, and behaviors for professional counseling practice.
~~Effective Fall Semester 2024~~ Effective Fall Semester 2023
- CEP 944D ~~Clinical Supervision Internship in Rehabilitation Counselor Education~~
Clinical Supervision Internship in Counselor Education and Supervision
Fall of every year. Spring of every year. ~~Summer of every year. 3(1-6)~~ 3(3-0) ~~A student may earn a maximum of 6 credits in all enrollments for this course.~~ R: Open to doctoral students in the Rehabilitation Counselor Education Major.
~~Theory and practice of supervising prospective counselors. Approaches, models, and strategies.~~ Theory, practice, approaches, models, and strategies for supervising prospective counselors.
~~Effective Summer Semester 2019~~ Effective Fall Semester 2023

DEPARTMENT OF FISHERIES AND WILDLIFE

- FW 101L Fundamentals of Fisheries and Wildlife Ecology and Management Lab
Fall of every year. 2(0-4) P: FW 101 or concurrently ~~R: Open to undergraduate students in the Fisheries and Wildlife major or in the Lyman Briggs Fisheries and Wildlife Coordinate major.~~ R: Open to undergraduate students in the Department of Fisheries and Wildlife or Lyman Briggs College.
Natural history and ecology of primary terrestrial, wetland, and aquatic ecosystems. Species and communities in Michigan and the United States. Species identification in various ecosystem types. Impacts of disturbances on ecosystems. Field trips required.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2024
- FW 238 Introductory Fisheries and Wildlife Field Experience
Summer of odd years. 3(1-4) RB: Introductory Biology, Botany, Zoology, Forestry, Natural Resources, Plant Biology, Fisheries and Wildlife course R: Approval of department; application required.
Terrestrial and aquatic field research techniques and their application to current issues. Interaction with professionals. Field trips required.
DELETE COURSE
Effective Fall Semester 2023
- FW 410 ~~Upland Ecosystem Management~~
Upland Ecology and Management
Spring of every year. 3(2-3) ~~P: (IBIO 355 or FOR 404) or completion of Tier I writing requirement~~ P: ((IBIO 355 or concurrently) or (FOR 340 or concurrently)) and Completion of Tier I Writing Requirement
~~Analysis and management of upland ecosystems to meet wildlife management and biodiversity objectives. Mitigation of human impact. Field trips required.~~ Analysis and management of upland ecosystems to meet wildlife management and biodiversity objectives. Mitigation of human impact. Field trips during class time and for class project. Field trips required.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024
- FW 413 Wildlife Research and Management Techniques
Fall of every year. 3(2-3) ~~P: (FW 101L or FW 238) and completion of Tier I writing requirement~~ P: (FW 101L) and completion of Tier I writing requirement
Field techniques used in collecting, analyzing, and communicating data on wild animal populations and their habitats. Field trips required.
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023

- FW 416 ~~Marine Ecosystem Management~~
Marine Ecology and Management
Fall of every year. 3(3-0) ~~P: (IBIO 355) and completion of Tier I writing requirement~~ P: (BS 162 or BS 182H or LB 144) and Completion of Tier I Writing Requirement RB: FW 110 or IBIO 303 or IBIO 353 RB: (IBIO 355) and (FW 110 or GLG 303 or IBIO 353)
Management of marine ecosystems and populations for ecological and socio-economic objectives. Anthropogenic impacts, mitigation, and marine resource conservation strategies. Field trips required.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024
- FW 417 Wetland Ecology and Management
Fall of every year. 3(2-3) ~~P: (IBIO 355) and completion of Tier I writing requirement~~ P: (BS 162 or BS 182H or LB 144 or FOR 340) and Completion of Tier I Writing Requirement RB: IBIO 355
Biological, physical, and chemical processes controlling wetland structure and function. Utilization, mitigation, and conservation of wetlands on a sustainable basis.
SA: FW 412
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023
- FW 420 Stream Ecology
Fall of every year. 3(3-0) Interdepartmental with Integrative Biology. ~~P: IBIO 355 or approval of department~~ P: IBIO 355 or concurrently or approval of department RB: CEM 141
Biological and environmental factors determining structure and function of stream ecosystems.
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023
- FW 424 ~~Population Analysis and Management~~
Wildlife Population Analysis and Management
Fall of every year. ~~4(3-2)~~ 3(2-2) P: (IBIO 355) and (STT 224 or STT 231 or STT 421) and (MTH 124 or MTH 132 or LB 118) P: (IBIO 355 or concurrently) and (STT 201 or STT 224 or STT 231 or STT 421 or STT 464) RB: MTH 124 or MTH 132 or LB 118
~~Statistical, ecological and management concepts and methods needed to analyze and interpret demographic data and manage fish and wildlife populations.~~ Statistical, ecological and management concepts and methods needed to analyze and interpret demographic data and manage wildlife populations.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024
- FW 444 Conservation Biology
Spring of every year. 3(3-0) Interdepartmental with Integrative Biology. ~~P: (IBIO 355 or FOR 404 or PLB 441) and completion of Tier I writing requirement~~ P: (BS 162 or BS 182H or LB 144 or FOR 340) and completion of Tier I writing requirement RB: IBIO 355 or PLB 441
Ecological theories and methodologies to manage species, communities and genetic diversity on a local and global scale.
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023
- FW 446 Innovations for Conservation
Spring of every year. 4(4-0) P: WRA 101 R: Open to sophomores or juniors or seniors.
Principles of applied conservation practice. Innovations, implementation, and evaluation of solutions for global problems in conservations.
DELETE COURSE
Effective Fall Semester 2023
- FW 471 Ichthyology
Spring of every year. 4(3-3) Interdepartmental with Integrative Biology. ~~P: ((BS 162 and BS 172) or (BS 182H and BS 192H) or LB 144) and Completion of Tier I Writing Requirement~~ P: {BS 162 or BS 182H or LB 144} and Completion of Tier I Writing Requirement
Fish morphology and physiology. Development, behavior, evolution, and ecology. World fishes with emphasis on freshwater fishes. Field trips required.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024

- FW 472 Limnology
Spring of every year. 3(3-0) Interdepartmental with Integrative Biology. ~~P: (CEM 141 or LB 171) and IBIO 355~~ P: BS 162 or BS 182H or LB 144 RB: IBIO 355
Ecology of lakes with emphasis on interacting physical, chemical, and biological factors affecting their structure and function.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024
- FW 474 Field and Laboratory Techniques for Aquatic Studies
Fall of every year. 3(2-3) Interdepartmental with Integrative Biology. ~~P: (FW 101L or FW 238) and completion of Tier I writing requirement~~ P: (FW 101L) and completion of Tier I writing requirement
Field and laboratory techniques for the investigation and analysis of lake and stream ecosystems and their biota. Field trips required.
SA: FW 470
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023
- FW 479 ~~Fisheries Management~~
Fish Population Analysis and Management
Spring of every year. 3(2-2) ~~P: IBIO 355 and (FW 364 or concurrently) or approval of department~~
P: (IBIO 355 or concurrently) and (STT 201 or STT 224 or STT 231 or STT 421 or STT 464) RB:
MTH 124 or MTH 132 or LB 118
Quantitative analysis of fish populations. Case study of ecological interactions linking fish to aquatic ecosystems and the challenge of balancing multiple human values in managing fisheries resources.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2024

DEPARTMENT OF FORESTRY

- FOR 222 Forestry Field Methods
Fall of every year. ~~2(1-3)~~ 3(2-3)
Basic field techniques including forest survey methods, tree and forest measurements, GPS land navigation and orienteering.
~~Effective Fall Semester 2013~~ Effective Spring Semester 2024
- FOR 462 Forest Resource Economics and Management
Spring of every year. 4(3-2) P: ((EC 201) and completion of Tier I writing requirement) and (MTH 124 or MTH 132) and (STT 201 or STT 224 or STT 231 or STT 421) R: Not open to freshmen or sophomores.
Economic concepts, analytical techniques, computer simulation/forecasting models, and geographic information systems to assess economic and ecological impacts of resource management decisions at a range of spatial and temporal scales. Geospatial tools, multiple ownerships. Individual forest stands to complex multi-use landscape scales.
DELETE COURSE
Effective Summer Semester 2023

DEPARTMENT OF MATHEMATICS

- MTH 126 Survey of Calculus II
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: MTH 124 Not open to students with credit in MTH 133 or MTH 153H.
Application of partial derivatives, integrals, optimization of functions of several variables and differential equations.
~~Effective Fall Semester 2013~~ Effective Fall Semester 2023

COLLEGE OF MUSIC

MUS 960 Seminar in Measurement in Music Education
Spring of odd years. 3(3-0) RB: MUS 864 and MUS 965 R: Open to graduate students in the College of Music.
Theory and practice of measuring musical behavior in terms of aptitude and achievement. Current trends in cognitive, affective, and psychomotor measurement in music.
DELETE COURSE
Effective Fall Semester 2023

MUS 965 ~~Conducting Research in Music Education~~
Seminar in Quantitative Research in Music Education
Spring of even years. 3(3-0) ~~P: MUS 864 or approval of college~~ P: MUS 864 or approval of college ~~R: Open to graduate students in the College of Music. R: Open to doctoral students in the College of Music.~~
Music education research projects using a diverse array of methods, designs, and analytical techniques. Techniques of quantitative research in educational settings. A focus of quantitative design and analysis, with a critical review of selected current research studies in music education.
~~Effective Summer Semester 2016~~ Effective Spring Semester 2024

COLLEGE OF NURSING

NUR 220 Introduction to Nursing Scholarship
Fall of every year. 2(2-0) RB: Open to other majors with College approval. R: Open to students in the Prenursing major or in the Nursing major.
Prepares students to become consumers of research who critically evaluate and base their nursing care on evidence. Research methodologies essential to providing evidence-based nursing care.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer Semester 2023

DEPARTMENT OF RADIOLOGY

MUS 960 ~~Core Radiology Clerkship~~
Advanced Imaging
Fall of every year. Spring of every year. Summer of every year. ~~4 to 20 credits. 1 to 3 credits. A student may earn a maximum of 30 credits in all enrollments for this course. A student may earn a maximum of 3 credits in all enrollments for this course.~~ P: RAD 609 R: Open to graduate-professional students in the College of Osteopathic Medicine. R: Open to graduate-professional students in the College of Osteopathic Medicine or in the College of Human Medicine.
Diagnostic imaging consultation. Participation in image interpretation and observation in hospital or out-patient radiology setting.
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 4 semesters after the end of the semester of enrollment.
~~Effective Summer Semester 2014~~ Effective Spring Semester 2024

MUS 960 ~~Interventional Radiology~~
Interventional Radiology
Fall of every year. Spring of every year. Summer of every year. 3 to 12 credits. ~~A student may earn a maximum of 24 credits in all enrollments for this course. A student may earn a maximum of 30 credits in all enrollments for this course.~~ P: RAD 609 or RAD 610 R: Open to graduate-professional students in the College of Human Medicine or in the College of Osteopathic Medicine.
Fundamentals of radiation biology, diagnostic and therapeutic techniques, safety, and follow-up of interventional radiology procedures.
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 2020~~ Effective Spring Semester 2024