

**MICHIGAN STATE UNIVERSITY**

**Report of  
THE UNIVERSITY COMMITTEE ON CURRICULUM  
to the Faculty Senate  
March 19, 2024**

*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

March 19, 2024

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.
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:<sup>1</sup>

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:<sup>1</sup>

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.

<sup>1</sup>One 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

March 19, 2024

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 **Disciplinary Teaching Minor in Agriculture, Food and Natural Resource Education** in the Department of Community Sustainability. The Teacher Education Council (TEC) approved this request at its February 12, 2024 meeting.

a. Under the heading **AGRICULTURE, FOOD AND NATURAL RESOURCE EDUCATION** make the following changes:

(1) In item 1. change the total credits from '14' to '16' and delete the following courses:

TE	409	Crafting Teaching Practices in the Secondary Teaching Minor	1
TE	503	Internship in Teaching Diverse Learners in Additional Endorsement Areas	1

Add the following courses:

CSS	210	Fundamentals in Soil Science	3
CSUS	493	Professional Internship in Community Sustainability	1

(2) Delete item 3. and renumber items 4. and 5. Respectively.

(3) Change the total number of credits required for the minor from '28 or 29' to '28'.

Effective Fall 2024.

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 '67' to '68'.

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

FOR	340L	Forest Ecology Laboratory	1
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Add the following course:

FOR	340L	Forest Ecology Laboratory	2
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Effective Fall 2024.

**COLLEGE OF ARTS AND LETTERS**

1. Change the requirements for the **Disciplinary Teaching Minor in English** that is available for secondary certification in the Department of English. The Teacher Education Council (TEC) approved this request at its February 12, 2024 meeting.

a. Under the heading **ENGLISH** replace the entire entry with the following:

1.	All of the following courses (12 credits):		
	ENG 210	Introduction to Literary Studies	3
	ENG 280	Introduction to Literary Theories	3
	ENG 302	Introduction to English Language Studies	3
	ENG 308	Readings in Literature for Young Adults	3
2.	One of the following courses (3 credits):		
	ENG 360	Studies in Postcolonial and Diaspora Literature (W)	3
	ENG 362	Studies in Modern/Contemporary Literature (W)	3
	ENG 364	Studies in 18th-/19th-Century Literature (W)	3
	ENG 368	Studies in Medieval/Early Modern Literature (W)	3
3.	One of the following courses (3 or 4 credits):		
	ENG 408	Critical Literacies and Communities	4
	ENG 413	Critical Questions in Language and Composition (W)	3
4.	All of the following courses (7 credits):		
	TE 310	Clinical Experience in English Education I	3
	TE 411	Seminar in English Education I	3
	TE 503	Internship in Teaching Diverse Learners in Additional Endorsement Areas	1

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25 or 26

Effective Fall 2024.

**ELI BROAD COLLEGE OF BUSINESS**

1. Change the requirements for the **Master of Business Administration** degree in **STEM** in The Eli Broad College of Business and Graduate School of Management. The University Committee on Graduate Studies (UCGS) approved this request at its February 19, 2024 meeting.

a. Under the heading **Requirements for the STEM Master of Business Administration Degree** make the following changes:

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

	FI 859	Mergers and Acquisitions	1.5
	FI 863	Corporate Restructuring and Governance	1.5
	FI 875	Behavioral Finance I	1.5
	MKT 811	Brand Insights	1.5
	MKT 829	Digital Marketing	1.5

Effective Fall 2024.

**COLLEGE OF COMMUNICATION ARTS AND SCIENCES**

1. Establish a **Graduate Certificate in Health and Risk Communication** in the College of Communication Arts and Sciences. The University Committee on Graduate Studies (UCGS) approved this request at its January 22, 2024 meeting.

- a. **Background Information:**

The existent Master of Arts Degree in Health Communication has traditionally been a strong-suit of MSU – with a Health and Risk Communication Center of over 50 faculty, multiple NIH- and foundation grants, and connections to university-, state-, federal-, and global health authorities. Moreover, at both the undergraduate as well as the doctoral level, health communication is one of the most widely studied communication context in the college (next to media).

Critically, however, there is a strong demand for sub-areas of expertise within health communication that would benefit working professionals wanting to upgrade their knowledge and skills in a shorter period and in a way more commensurate with the working professionals’ needs and expectations. Currently, the master’s program recruits primarily from on-campus students and while some of them work, they are not working professionals. The certificate would open an entire new target audience – working professionals from the broad fields of health communication, public health, and health education, who want to upgrade their career, but would not enroll directly in an on-site master’s program. This provides a world-class professional development opportunity for individuals to enhance their expertise in health communication. The work world of mid-career health communication professionals is changing rapidly, and they need a way to update their skills, particularly with regard to the cutting-edge developments in health communication on social media, new forms of health interventions/promotion in an ever-changing media environment, and new challenges as evidenced by Covid.

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

The Graduate Certificate in Health and Risk Communication is designed for working professionals seeking to master the art of effective communication in vital health and risk contexts. The program equips students with the skills to create and disseminate health information, communicate strategically about risk, and confidently engage diverse audiences in digital, community, and workplace settings to foster healthy behaviors and reduce unhealthy or risky behavior patterns.

**Admission**

To be considered for admission to the Graduate Certificate in Health and Risk Communication, applicants must:

1. have completed a bachelor’s degree;
2. provide a personal statement which includes the motivations, expectations, and prior experience relevant to the certificate program;
3. provide a resume or curriculum vitae;
4. submit test scores of English language proficiency if English is not their first language.

**Requirements for the Graduate Certificate in Health and Risk Communication**

CREDITS

Students must complete 9 credits from the following courses:

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

CAS	825	Mass Communication and Public Health	3
CAS	826	Health Communication for Diverse Populations	3
2. One of the following courses (3 credits):

COM	828	Cross-Cultural Communication	3
COM	860	Persuasion	3
CAS	892	Special Topics	3

Students selecting CAS 892 Special Topics must enroll in the Risk Communication section or the Communication and Technology section.

2. Change the requirements for the **Bachelor of Arts** degree in **Communication** in the Department of Communication.
- a. Under the heading **Requirements for the Bachelor of Arts Degree in Communication** make the following changes:
- (1) In item 3. a. (4) (b) under the **Communication Science, Analytics and Research Methods** concentration, replace item 1. with the following:
- Both of the following courses (6 credits):
- |     |     |   |   |
|-----|-----|---|---|
| COM | 301 | Special Topics I Communication Sciences, Analytics and Research Methods | 3 |
| COM | 494 | Practicum in Communication Research and Instruction                     | 3 |
- The topic taken in COM 301 must be different than the topic taken in COM 301 in item 2. if COM 301 is used to fulfill the requirement in item 2.
- (2) In item 3. a. (4) (b) under the **Communication Science, Analytics and Research Methods** concentration, replace the note in item 2. with the following:
- Students who use COM 301 to fulfill this requirement must take a different topic than the topic taken in requirement 1. COM 301 may be taken two times to fulfill this requirement with different topics.
- (3) In item 3. a. (4) (b) under the **Health Communication** concentration, in item 2. delete the following course:
- |    |     |                               |   |
|----|-----|-------------------------------|---|
| HM | 101 | Introduction to Public Health | 3 |
|----|-----|-------------------------------|---|
- Add the following course:
- |    |     |                               |   |
|----|-----|-------------------------------|---|
| PH | 101 | Introduction to Public Health | 3 |
|----|-----|-------------------------------|---|
- (4) In item 3. a. (4) (b) under the **Intercultural Communication** concentration, in item 2. delete the following course:
- |      |     |  |   |
|------|-----|--|---|
| CSUS | 250 | Global Issues in Agriculture and Natural Resources | 3 |
|------|-----|--|---|
- (5) In item 3. a. (4) (b) under the **Mediated Communication** concentration, in item 2. delete the following course:
- |     |     |                             |   |
|-----|-----|-----------------------------|---|
| WRA | 425 | Advanced Multimedia Writing | 3 |
|-----|-----|-----------------------------|---|

Effective Summer 2024.

3. Change the requirements for **Master of Arts Degree in Media and Information**. The University Committee on Graduate Studies (UCGS) approved this request at its February 19, 2024 meeting.
- a. Under the heading **Master of Arts Degree in Media and Information** replace items 1. and 2. with the following:
1. The following core course (1 credit):
- |    |     |                               |   |
|----|-----|-------------------------------|---|
| MI | 810 | Media and Information Seminar | 1 |
|----|-----|-------------------------------|---|
2. At least one of the following theories courses (3 credits):
- |    |     |  |   |
|----|-----|--|---|
| MI | 820 | Theories of Media and Information        | 3 |
| MI | 831 | Theories of Games and Interaction Design | 3 |
3. At least one of the following methods courses (3 credits):
- |    |     |   |   |
|----|-----|---|---|
| MI | 803 | Introduction to Quantitative Research Methods | 3 |
| MI | 841 | Advanced Methods of Understanding Users       | 3 |
4. At least three of the following specialization classes (9 credits):
- |    |     |                                  |   |
|----|-----|----------------------------------|---|
| MI | 839 | Game and Project Design Studio I | 3 |
| MI | 844 | Interaction Design               | 3 |

	MI	845	Interactive Usability and Accessibility: Design and Evaluation	3
	MI	846	Game and Project Design Studio II	3
	MI	847	Special Topics in Games	3
	MI	850	Media and Information Policy	3
	MI	851	Analytical Research Methods for User Generated Content	3
	MI	861	Media and Information Technologies in Organizations	3
	MI	862	Media and Information Project Management	3
	MI	875	Information and Communication Technology and Development	3
	MI	891	Special Topics in Media and Information (any section)	3
5.			Additional elective course work at the 400-level or above to meet the 30 credits required for the degree. Students may take up to three different sections of MI 891. The course work must be approved by the student's academic advisor. Not more than 6 elective credits may be taken from outside the college. Not more than 6 credits in media and information independent study or internship courses combined may be counted toward the requirements for the Master of Arts degree in Media and Information.	

Effective Fall 2024.

### COLLEGE OF EDUCATION

1. Change the requirements for the **Doctor of Education** degree in **Educational Leadership** in the Department of Educational Administration. The University Committee on Graduate Studies (UCGS) approved this request at its February 19, 2024 meeting.
  - a. Under the heading **Requirements for the Doctor of Education Degree in Educational Leadership** make the following changes:
    - (1) In item 1., delete the following courses:
 

EAD	921	Educational Leadership and Transformation	3
EAD	922	Analyzing Education Systems	3

 Add the following courses:
 

EAD	921A	Educational Leadership and Transformation I	2
EAD	921B	Educational Leadership and Transformation II	1
EAD	922A	Analyzing Education Systems I	2
EAD	922B	Analyzing Education Systems II	1
    - (2) In item 2., delete the following course:
 

EAD	924	Data and Decisions	3
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 Add the following courses:
 

EAD	924A	Data and Decisions I	3
EAD	924B	Data and Decisions II	1
    - (3) In item 3., change the credits of 'EAD 980' from '3' to '2'.

Effective Fall 2024.

**COLLEGE OF ENGINEERING**

1. Change the requirements in the **Bachelor of Science** degree in **Computational Data Science** in the Department of Computer Science and Engineering.

- a. Under the heading **Requirements for the Bachelor of Science Degree in Computational Data Science** make the following change:

- (1) In item 3. b. change the total credits from '44' to '47' and add the following course:

CSE	380	Information Management and the Cloud	3
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Effective Fall 2024.

2. Change the requirements in the **Bachelor of Science** degree in **Computer Science** in the Department of Computer Science and Engineering. The University Committee on Undergraduate Education (UCUE) approved this request at its February 8, 2024 meeting.

*The concentrations in the Bachelor of Science degree in Computer 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 Computer Science** make the following changes:

- (1) In item 3. b. change the total credits from '35' to '32' and delete the following courses:

CSE	425	Introduction to Computer Security	3
MTH	314	Matrix Algebra with Computational Applications	3

Add the following course:

CSE	380	Information Management and the Cloud	3
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- (2) In item 3. b. add the following note:

Students must have a minimum grade of 2.0 in each of the following courses: CSE 300, CSE 320, CSE 325, CSE 331, CSE 335, CSE 380.

- (3) Reletter item 3. c. to item 3. d. and item 3. d. to item 3. e. respectively.

- (4) Add the following item 3. c.:

c.	One of the following courses (3 or 4 credits):			
	MTH	314	Matrix Algebra with Computational Applications	3
	MTH	317H	Honors Linear Algebra	4

- (5) In item 3. d. add the following course:

CSE	425	Introduction to Computer Security	3
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- (6) Add the following transcriptable concentrations:

**Concentrations in Computer Science**

The Department offers the following concentrations to students wishing an area of specialization in their degree. The concentrations are available to, but not required of, any student enrolled in the Bachelor of Science degree program in Computer Science. NOTE: Completing the Bachelor of Science degree in Computer Science with a concentration may require more than 120 credits. Upon completion of the required courses for a concentration, certification will appear on the student's official transcript. Students may select no more than one concentration.

For any concentration, 3 credits of CSE 499 Undergraduate Research related to the subject area may be applied with approval of the Department of Computer Science and Engineering.

### Artificial Intelligence

To complete a Bachelor of Science degree in Computer Science with an artificial intelligence concentration, students must complete the requirements for the bachelor's degree, including the following:

Two of the following courses (6 credits):

CSE	404	Intro to Machine Learning	3
CSE	440	Introduction to Artificial Intelligence	3
CSE	482	Big Data Analysis	3

Three of the following courses not taken above (9 to 12 credits):

CSE	402	Biometrics and Pattern Recognition	3
CSE	404	Intro to Machine Learning	3
CSE	434	Autonomous Vehicles	3
CSE	440	Introduction to Artificial Intelligence	3
CSE	482	Big Data Analysis	3
CSE	803	Computer Vision	3
ADV	401	Neuromarketing and Consumer Decisions	3
LIN	401	Introduction to Linguistics	4
LIN	424	Introduction to Phonetics and Phonology	3
LIN	427	Laboratory Phonetics	3
LIN	431	Introduction to Morphology	3
LIN	434	Introduction to Syntax	3
LIN	437	Introduction to Semantics and Pragmatics	3
LIN	463	Introduction to Cognitive Science	3
LIN	471	Sociolinguistics	3
MI	484	Human Robot Interaction (W)	3
MTH	468	Predictive Analysis	3
NEU	301	Introduction to Neuroscience I	3
NEU	302	Introduction to Neuroscience II	3
PHL	330	Formal Deductive Reasoning	4
PHL	331	Formal Practical Reasoning	4
PHL	432	Logic and its Metatheory	4
PSY	301	Cognitive Neuroscience	3

### Computer Systems

To complete a Bachelor of Science degree in Computer Science with a computer systems concentration, students must complete the requirements for the bachelor's degree, including the following:

All of the following courses (9 credits):

CSE	410	Operating Systems	3
CSE	422	Computer Networks	3
CSE	450	Translation of Programming Languages	3

Two of the following courses (6 credits):

CSE	415	Introduction to Parallel Programming	3
CSE	420	Computer Architecture	3
CSE	425	Introduction to Computer Security	3
CSE	434	Autonomous Vehicles	3
CSE	472	Computer Graphics	3
CSE	480	Database Systems	3

### Cybersecurity

To complete a Bachelor of Science degree in Computer Science with a cybersecurity concentration, students must complete the requirements for the bachelor's degree, including the following:

All of the following courses (6 credits):

CSE	402	Biometrics and Pattern Recognition	3
CSE	425	Introduction to Computer Security	3

Three of the following courses (9 credits):

CSE	410	Operating Systems	3
CSE	422	Computer Networks	3
CSE	431	Algorithm Engineering	3

CSE	434	Autonomous Vehicles	3
CSE	480	Database Systems	3
CSE	482	Big Data Analysis	3
MI	239	Digital Footprints: Privacy and Online Behavior	3
MTH	416	Introduction to Algebraic Coding	3

**Multimedia and Graphics**

To complete a Bachelor of Science degree in Computer Science with a multimedia and graphics concentration, students must complete the requirements for the bachelor's degree, including the following:

Two of the following courses (6 credits):

CSE	471	Media Processing and Multimedia Computing	3
CSE	472	Computer Graphics	3
CSE	476	Mobile Application Development	3
CSE	477	Web Application Architecture and Development	3

Three of the following courses not taken above (8 or 9 credits):

CSE	471	Media Processing and Multimedia Computing	3
CSE	472	Computer Graphics	3
CSE	476	Mobile Application Development	3
CSE	477	Web Application Architecture and Development	3
CSE	803	Computer Vision	3
CMSE	402	Data Visualization Principles and Techniques	3
FLM	230	Introduction to Film	3
FLM	260	Introduction to Digital Film and Emergent Media	3
MI	231	Game and Interactive Media Development	3
MI	247	Three-Dimensional Graphics and Design	3
MI	337	Compositing and Special Effects	3
MI	347	Advanced Three-Dimensional Computer Animation	3
MI	350	Evaluating Human-Centered Technology	3
MI	377	Advanced 3D Modeling	3
MI	445	Game Design and Development I	3
MI	450	Creating Human-Centered Technology	3
MI	455	Game Design and Development II	3
MI	462	Social Media and Social Computing	3
MI	482	Building Virtual Worlds (W)	3
MI	497	Game Design Studio	3
STA	380	Electronic Art	3
STA	384	Experiments in Digital Video	3
THR	205	Media Acting I	2
THR	419	Projection Design for Live Performance	3

**Software Engineering**

To complete a Bachelor of Science degree in Computer Science with a software engineering concentration, students must complete the requirements for the bachelor's degree, including the following:

The following course (3 credits):

CSE	435	Software Engineering	3
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Four of the following courses (12 credits):

CSE	431	Algorithm Engineering	3
CSE	476	Mobile Application Development	3
CSE	477	Web Application Architecture and Development	3
CSE	480	Database Systems	3
CSE	870	Advanced Software Engineering	3
MI	350	Evaluating Human-Centered Technology	3
MI	420	Interactive Prototyping	3
MI	450	Creating Human-Centered Technology (W)	3

**Theory**

To complete a Bachelor of Science degree in Computer Science with a theory concentration, students must complete the requirements for the bachelor's degree, including the following:

The following course (3 credits):

CSE	460	Computability and Formal Language Theory	3
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One of the following courses (3 credits):			
CSE	431	Algorithm Engineering	3
CSE	830	Design and Theory of Algorithms	3
Three of the following courses (9 or 10 credits):			
CSE	835	Algorithmic Graph Theory	3
CSE	860	Foundations of Computing	3
MTH	299	Transitions	4
MTH	416	Introduction to Algebraic Coding	3
MTH	417	Topics in Number Theory	3
MTH	880	Combinatorics I	3
MTH	882	Combinatorics II	3

Effective Fall 2024.

3. Change the requirements in the **Minor in Computer Science** in the Department of Computer Science and Engineering.

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

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

CSE	300	Social, Ethical, and Professional Issues in Computing	1
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(2) In item 1., change the total credits from '12' to '13'.

(3) In item 2 add the following courses:

CSE	380	Information Management and the Cloud	3
CSE	434	Autonomous Vehicles	3

Effective Fall 2024.

**COLLEGE OF NATURAL SCIENCE**

1. Change the requirements for the **Bachelor of Science** degree in **Environmental Biology/Zoology** in the Department of Integrative Biology.

a. Under the heading **Requirements for the Bachelor of Science Degree in Environmental Biology/Zoology** make the following changes:

(1) In item 1., replace paragraph two with the following:

The University's Tier II writing requirement for the Environmental Biology/Zoology major is met by completing both of the following courses: Zoology 355L and 445. Those courses are referenced in item 3. below.

(2) Replace item 3. d. with the following:

One of the following groups of courses (8 or 10 credits):

(1)	PHY	221	Studio Physics for Life Scientists I	4
	PHY	222	Studio Physics for Life Scientists II	4
(2)	PHY	231	Introductory Physics I	3
	PHY	232	Introductory Physics II	3
	PHY	251	Introductory Physics Laboratory I	1
	PHY	252	Introductory Physics Laboratory II	1
(3)	PHY	183	Physics for Scientists and Engineers I	4
	PHY	184	Physics for Scientists and Engineers II	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1

(4)	LB	273	Physics I	4
	LB	274	Physics II	4
(5)	PHY	193H	Honors Physics I-Mechanics	4
	PHY	294H	Honors Physics II-Electromagnetism	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1
(3)	In item 3. g. delete the following courses:			
	IBIO	306	Invertebrate Biology	4
	IBIO	483	Environmental Physiology (W)	4
	Add the following courses:			
	GEO	221	Introduction to Geographic Information	3
	GEO	221L	Introduction to Geographic Information Laboratory	1
	Replace the note with the following:			
	Both Geography 221 and 221L must be completed to satisfy this requirement. Forestry 419 may be substituted for GEO 221/221L. Forestry 340 may be substituted for Plant Biology 441.			
(4)	Replace item 3. h. with the following:			
	At least one course from each of the following three groups of courses totaling at least 13 credits:			
(1)	FW	471	Ichthyology	4
	IBIO	306	Invertebrate Biology	4
	IBIO	328	Comparative Anatomy and Biology of Vertebrates	4
	IBIO	360	Biology of Birds	4
	IBIO	365	Biology of Mammals	4
	IBIO	384	Biology of Amphibians and Reptiles (W)	4
(2)	PLB	218	Plants of Michigan	3
	PLB	418	Plant Systematics	3
(3)	FW	416	Marine Ecology and Management	3
	FW	420	Stream Ecology	3
	FW	444	Conservation Biology	3
	FW	472	Limnology	3
	GEO	324	Remote Sensing of the Environment	4
	GLG	421	Environmental Geochemistry	4
	IBIO	353	Marine Biology (W)	4
	IBIO	357	Global Change Biology (W)	3
	IBIO	446	Environmental Issues and Public Policy	3
	IBIO	483	Environmental Physiology	3
	IBIO	485	Tropical Biology	3
	PLB	424	Algal Biology	3

Effective Fall 2024.

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

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

(1) In item 1., replace paragraph two with the following:

The University's Tier II writing requirement for the Zoology major is met by completing both of the following courses: Zoology 355L and 445. Those courses are referenced in item 3. below.

(2) Replace item 3. d. with the following:

One of the following groups of courses (8 or 10 credits):

(1)	PHY	221	Studio Physics for Life Scientists I	4
	PHY	222	Studio Physics for Life Scientists II	4
(2)	PHY	231	Introductory Physics I	3
	PHY	232	Introductory Physics II	3
	PHY	251	Introductory Physics Laboratory I	1
	PHY	252	Introductory Physics Laboratory II	1
(3)	PHY	183	Physics for Scientists and Engineers I	4
	PHY	184	Physics for Scientists and Engineers II	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1
(4)	LB	273	Physics I	4
	LB	274	Physics II	4
(5)	PHY	193H	Honors Physics I-Mechanics	4
	PHY	294H	Honors Physics II-Electromagnetism	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1

(3) In item 3. j. delete the following course:

IBIO	483	Environmental Physiology (W)	4
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Add the following course:

IBIO	483	Environmental Physiology	3
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Effective Fall 2024.

3. Change the requirements for the **Bachelor of Arts** degree in **Zoology** in the Department of Integrative Biology.

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

(1) In item 1., replace paragraph two with the following:

The University's Tier II writing requirement for the Zoology major is met by completing both of the following courses: Zoology 355L and 445. Those courses are referenced in item 3. below.

(2) In item 3. d., add the following course:

PHY	221	Studio Physics for Life Scientists I	4
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(3) In item 3. i. (1) **Writing**, delete the following course:

- |     |   |     |   |   |
|-----|---|-----|---|---|
|     | WRA   | 341 | Nature, Environmental, and Travel Writing                             | 3 |
| (4) | In item 3. i. (2) <b>Communications</b> , delete the following courses:   |     |   |   |
|     | CSUS  | 325 | Study and Practice of Communication for Sustainability (W)            | 3 |
|     | FW  | 435 | Integrated Communications for the Fisheries and Wildlife Professional | 3 |
| (5) | In item 3. i. (3) <b>Computer Systems</b> , delete the following courses: |     |   |   |
|     | CSE   | 101 | Computing Concepts and Competencies                                   | 3 |
|     | CSE   | 201 | Fundamentals of Information Technology                                | 3 |
|     | NSC   | 204 | Introduction to Computational Modeling                                | 4 |
|     | Add the following course:   |     |   |   |
|     | CMSE  | 201 | Computational Modeling and Data Analysis I                            | 4 |

Effective Fall 2024.

4. Change the requirements for the **Bachelor of Science** degree in **Zoology** in the Department of Integrative Biology.

*The concentrations in the Bachelor of Science degree in Zoology 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 Zoology** make the following changes:

- (1) Replace item 3. d. with the following:

One of the following groups of courses (8 or 10 credits):

- |     |     |      |   |   |
|-----|-----|------|---|---|
| (1) | PHY | 221  | Studio Physics for Life Scientists I    | 4 |
|     | PHY | 222  | Studio Physics for Life Scientists II   | 4 |
| (2) | PHY | 231  | Introductory Physics I                  | 3 |
|     | PHY | 232  | Introductory Physics II                 | 3 |
|     | PHY | 251  | Introductory Physics Laboratory I       | 1 |
|     | PHY | 252  | Introductory Physics Laboratory II      | 1 |
| (3) | PHY | 183  | Physics for Scientists and Engineers I  | 4 |
|     | PHY | 184  | Physics for Scientists and Engineers II | 4 |
| (4) | LB  | 273  | Physics I                               | 4 |
|     | LB  | 274  | Physics II                              | 4 |
| (5) | PHY | 193H | Honors Physics I-Mechanics              | 4 |
|     | PHY | 294H | Honors Physics II-Electromagnetism      | 4 |
|     | PHY | 191  | Physics Laboratory for Scientists, I    | 1 |
|     | PHY | 192  | Physics Laboratory for Scientists, II   | 1 |

- (2) In item 3. g. **Animal Behavior and Neurobiology** concentration, make the following changes:

- (a) In item (2), delete the following course:

IBIO	402	Neurobiology	3
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Add the following course:

IBIO	300	Neurobiology	3
------	-----	--------------	---

- (b) Replace item (3) with the following:

One of the following, either (a) or (b) (4 or 8 credits):

- (a) One of the following courses (4 credits):
- |      |     |  |   |
|------|-----|--|---|
| IBIO | 306 | Invertebrate Biology                           | 4 |
| IBIO | 328 | Comparative Anatomy and Biology of Vertebrates | 4 |
- (b) Two of the following courses (8 credits):
- |      |     |  |   |
|------|-----|--|---|
| FW   | 471 | Ichthyology                            | 4 |
| IBIO | 360 | Biology of Birds                       | 4 |
| IBIO | 365 | Biology of Mammals                     | 4 |
| IBIO | 384 | Biology of Amphibians and Reptiles (W) | 4 |
- (c) In item (4) delete the following courses:
- |      |     |   |   |
|------|-----|---|---|
| ANS  | 405 | Endocrinology of Reproduction   | 4 |
| FW   | 419 | Applications of Geographic Information Systems to Natural Resource Management | 4 |
| GEO  | 324 | Remote Sensing of the Environment   | 4 |
| GEO  | 325 | Geographic Information Systems  | 3 |
| IBIO | 483 | Environmental Physiology (W)  | 4 |
| PSY  | 402 | Sensation and Perception (W)  | 3 |
- Add the following courses:
- |      |     |   |   |
|------|-----|---|---|
| FOR  | 419 | Applications of Geographic Information Systems to Natural Resource Management | 4 |
| IBIO | 483 | Environmental Physiology  | 3 |
| NEU  | 310 | Psychology and Biology of Human Sexuality                                     | 3 |
| NEU  | 416 | Development of the Nervous System Through the Lifespan                        | 3 |

- (3) Delete the **Cell and Developmental Biology** concentration.

*Students currently enrolled in the major have until US28 to complete the requirements for this concentration and have it noted on the student's academic record.*

- (4) In item 3. g. **Ecology, Evolution, and Organismal Biology** concentration make the following changes:

- (a) Replace item (2) with the following:
- Two of the following courses (8 credits):
- |      |     |  |   |
|------|-----|--|---|
| FW   | 471 | Ichthyology                                    | 4 |
| IBIO | 306 | Invertebrate Biology                           | 4 |
| IBIO | 328 | Comparative Anatomy and Biology of Vertebrates | 4 |
| IBIO | 360 | Biology of Birds                               | 4 |
| IBIO | 365 | Biology of Mammals                             | 4 |
| IBIO | 384 | Biology of Amphibians and Reptiles (W)         | 4 |
- (b) In item (3) delete the following courses:
- |      |     |                              |   |
|------|-----|------------------------------|---|
| IBIO | 316 | General Parasitology         | 3 |
| IBIO | 483 | Environmental Physiology (W) | 4 |
- Add the following course:
- |      |     |                          |   |
|------|-----|--------------------------|---|
| IBIO | 483 | Environmental Physiology | 3 |
|------|-----|--------------------------|---|
- (c) In item (4) delete the following courses:
- |     |     |                                   |   |
|-----|-----|-----------------------------------|---|
| GEO | 324 | Remote Sensing of the Environment | 4 |
| GEO | 325 | Geographic Information Systems    | 3 |

- (5) Delete the **Genetics** concentration.

*Students currently enrolled in the major have until US28 to complete the requirements for this concentration and have it noted on the student's academic record.*

- (6) Delete the **General Zoology** concentration.

*Students currently enrolled in the major have until US28 to complete the requirements for this concentration and have it noted on the student's academic record.*

- (7) In item 3. g. **Marine Biology** concentration, make the following changes:

- (a) In item (1) change the total credits from '23' to '21'.

- (b) In item (1) delete the following courses:

IBIO	303	Oceanography	4
IBIO	483	Environmental Physiology (W)	4

Add the following courses:

GLG	303	Oceanography	3
IBIO	483	Environmental Physiology	3

- (c) Replace item (2) with the following:

One course from each of the following groups of courses (7 or 8 credits):

(a)	FW	471	Ichthyology	4
	IBIO	306	Invertebrate Biology	4
	IBIO	360	Biology of Birds	4
	IBIO	365	Biology of Mammals	4
	IBIO	384	Biology of Amphibians and Reptiles (W)	4
(b)	BMB	401	Comprehensive Biochemistry	4
	CEM	383	Introductory Physical Chemistry I	3
	FW	416	Marine Ecology and Management	3
	FW	424	Wildlife Population Analysis and Management	3
	GEO	221	Introduction to Geographic Information	3
	And			
	GEO	221L	Introduction to Geographic Information Laboratory	1
	IBIO	357	Global Change Biology (W)	3
	MMG	425	Microbial Ecology	3

Both GEO 221 and 221L must be completed to satisfy this requirement.

- (d) In item (3) delete the following courses:

ENT	469	Biomonitoring of Streams and Rivers	3
FW	474	Field and Laboratory Techniques for Aquatic Studies	3
IBIO	440	Field Ecology and Evolution	4
PLB	424	Algal Biology	4

Add the following course:

PLB	424	Algal Biology	3
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- (8) Replace the **Zoo and Aquarium Science** concentration with the following:

(1)	All of the following courses (25 credits):			
	IBIO	313	Animal Behavior	3
	IBIO	341	Fundamental Genetics	4
	IBIO	355	Ecology	3

	IBIO	355L	Ecology Laboratory (W)	1
	IBIO	369	Zoo Animal Biology and Conservation	3
	IBIO	369	Introduction to Zoo and Aquarium Science	3
	IBIO	445	Evolution (W)	3
	IBIO	489	Seminar in Zoo and Aquarium Science	1
	IBIO	498	Internship in Zoo and Aquarium Science	4
(2)	Two of the following courses (8 credits):			
	FW	471	Ichthyology	4
	IBIO	306	Invertebrate Biology	4
	IBIO	328	Comparative Anatomy and Biology of Vertebrates	4
	IBIO	360	Biology of Birds	4
	IBIO	365	Biology of Mammals	4
	IBIO	384	Biology of Amphibians and Reptiles (W)	4
(3)	Three additional courses of at least 3 credits selected from a list of approved courses that is available from the Department of Integrative Biology.			
(4)	Integrative Biology courses that are not listed above must be approved in advance by the student's academic advisor. Courses offered by other departments may be substituted if approved in advance by the student's academic advisor.			

Effective Fall 2024.

### **COLLEGE OF SOCIAL SCIENCE**

1. Change the requirements for the **Disciplinary Teaching Minor** available for secondary certification in **Psychology** in the Department of Psychology. The Teacher Education Council (TEC) approved this request at its February 12, 2024 meeting.
  - a. Under the heading **Psychology** make the following changes:
    - (1) Delete the following course:

TE	409	Crafting Teaching Practices in the Secondary Teaching Minor	1
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    - Add the following course:

TE	438	Teaching High School Psychology	3
----	-----	---------------------------------	---
  - (2) Change the total credits from '24' to '26'.

Effective Fall 2024.

## **PART II - NEW COURSES**

### **DEPARTMENT OF ART, ART HISTORY, AND DESIGN**

- GD 191 Special Topics in Graphic Design  
Fall of every year. Spring of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
Researching and designing special topics in Graphic Design. Topics vary.  
Effective Fall Semester 2024

### **DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

- CE 840 Introduction to Transportation Engineering  
Fall of every year. Spring of every year. 3(3-0) R: Open to graduate students in the Department of Civil and Environmental Engineering. Not open to students with credit in CE 341.  
Introduction to transportation engineering, including: transportation planning, traffic engineering, geometric design, traffic flow and highway capacity, queuing theory, traffic control, and highway safety  
Effective Fall Semester 2024

### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

- CSE 380 Information Management and the Cloud  
Fall of every year. Spring of every year. 3(3-0) P: CSE 232 R: Open to students in the College of Engineering or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Introduction to information management and cloud computing  
Effective Fall Semester 2024
- CSE 493 Selected Topics in Computing  
Fall of every year. Spring of every year. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Approval of department; application required.  
Topics selected to supplement and enrich existing courses and lead to the development of new courses.  
Effective Fall Semester 2024
- CSE 494 Independent Study in Data Science  
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. Interdepartmental with Computational Mathematics, Science, and Engineering R: Open to students in the Computational Data Science Major or in the Computer Engineering Major or in the Computer Science Major or in the Data Science Major. Approval of department; application required.  
Supervised individual study in an area of Data Science  
Effective Fall Semester 2024

### **DEPARTMENT OF EDUCATIONAL ADMINISTRATION**

- EAD 921A Educational Leadership and Transformation I  
Fall of every year. 2(2-0)  
Creating organizational value through leadership. Leading through conflict. Personal and collective leadership development. Connecting schools with civic life. Convening community groups for democratic deliberation.  
SA: EAD 921  
Effective Fall Semester 2024
- EAD 921B Educational Leadership and Transformation II  
Spring of every year. 1(1-0) P: EAD 921A  
Creating organizational value through leadership. Leading through conflict. Personal and collective leadership development. Connecting schools with civic life. Convening community groups for democratic deliberation.  
SA: EAD 921  
Effective Spring Semester 2025

- EAD 922A Analyzing Educational Systems I  
Fall of every year. 1(1-0)  
Analyzing systems of educational organizations, including schools, local education agencies, and state education agencies. Theory and research on educational organizations to actual cases in order to identify interdependent strengths and weaknesses that support and/or undermine instructional improvement.  
SA: EAD 922  
Effective Fall Semester 2024
- EAD 922B Analyzing Education Systems II  
Spring of every year. 2(2-0) P: EAD 922A  
Analyzing systems of educational organizations, including schools, local education agencies, and state education agencies. Theory and research on educational organizations to actual cases in order to identify interdependent strengths and weaknesses that support and/or undermine instructional improvement.  
SA: EAD 922  
Effective Spring Semester 2025
- EAD 924A Data and Decisions I  
Fall of every year. 3(3-0) R: Open to graduate students in the Educational Leadership Major.  
Data collection and analysis for school improvement. Decision making criteria. Assessment of resource use and instructional learning outcomes. Data management. Legal and ethical use of data. Communication strategies. Basic quantitative statistics.  
SA: EAD 924  
Effective Fall Semester 2024
- EAD 924B Data and Decisions II  
Spring of every year. 1(1-0) P: EAD 924A  
Data collection and analysis for school improvement. Decision making criteria. Assessment of resource use and instructional learning outcomes. Data management. Legal and ethical use of data. Communication strategies.  
SA: EAD 924  
Effective Spring Semester 2025

### **CENTER FOR INTEGRATIVE STUDIES IN GENERAL SCIENCE**

- ISE 800 Problems in Science or Mathematics for Teachers  
Fall of every year. Spring of every year. Summer of every year. 1 to 5 credits. A student may earn a maximum of 15 credits in all enrollments for this course. RB: Secondary certification in biological sciences, physical sciences or chemistry; secondary certification in Mathematics or Mathematics Education. R: Approval of college.
- REINSTATEMENT Supervised study of problems or issues in biological science, or physical sciences, or mathematical sciences.  
SA: NSC 800, SME 800  
Effective Fall Semester 2024

### **JAMES MADISON COLLEGE**

- MC 294 Qualitative Research Methods  
Fall of every year. 4(3-0) P: MC 111 and MC 201 and MC 202 or approval of college R: Open to undergraduate students in the James Madison College.  
Introduces students to qualitative methods of social science inquiry.  
Effective Fall Semester 2024
- MC 483 Simulating International Relations  
Spring of odd years. 4(3-0) RB: ((MC 220 or concurrently) and MC 221) and completion of Tier I writing requirement  
Theories of conflict and cooperation in international politics, diplomatic tools to navigate those issues, simulations to apply theory to real-world scenarios such as climate change, humanitarian intervention or border disputes.  
Effective Fall Semester 2025

### **DEPARTMENT OF MEDIA AND INFORMATION**

- MI 810            Media and Information Seminar  
Fall of every year. Spring of every year. Summer of every year. 1(1-0) R: Open to master's students in the College of Communication Arts and Sciences or in the Department of Media and Information or in the Media and Information Major.  
Overview of scholarship, industry expectations, and job opportunities in the areas of media and information  
Effective Fall Semester 2024
- MI 847            Special Topics in Games  
Fall of every year. Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Media and Information.  
Topics in games studies. Emerging technologies, sociological impacts of games, making games inclusive, and accessibility for games, using industry standard tools for game development.  
Effective Fall Semester 2024

### **DEPARTMENT OF RELIGIOUS STUDIES**

- GNL 832            Project Management Principles for Nonprofits  
On Demand. 2(2-0)  
Management of projects in the nonprofit sector. Management of project lifecycle, time, quality, and costs. Project management tools and processes for efficient planning and implementation.  
Effective Fall Semester 2024
- GNL 855            Monitoring, Evaluation, and Learning for Nonprofits  
On Demand. 2(2-0)  
Concepts, theories, and tools for Monitoring, Evaluation, and Learning. Strategies and techniques for designing and implementing monitoring and evaluation plans. Fundamentals of project learning tools and ethical guidelines for data collection and reporting.  
Effective Fall Semester 2024

### **DEPARTMENT OF TEACHER EDUCATION**

- TE 860            Practice and Inquiry in Science Education  
Spring of every year. 3(3-0)
- REINSTATEMENT    Teaching science subjects. Emphasis on learner diversity, learning community, conceptual understanding, subject matter content, and learners' prior knowledge.  
Effective Fall Semester 2024
- TE 964            Critical Whiteness Studies in Education  
Fall of even years. 3(3-0) RB: TE 963 and/or TE 903 R: Open to doctoral students.  
Engage with various theoretical and empirical approaches to unveiling and disrupting whiteness and white supremacy in individual, institutional, and social contexts. Explore different ways of understanding the structures and impacts of white supremacy as a global project and its co-formations with other systems of oppression. Reflect on the material and epistemic impacts of whiteness in individual and collective lives, schooling experiences, scholarly contexts, and research approaches. Consider the possibilities of resisting and refusing these systems.  
Effective Fall Semester 2024

**DEPARTMENT OF THEATRE**

- THR 363      Costume Crafts  
Fall of odd years. 3(2-4) A student may earn a maximum of 6 credits in all enrollments for this course. P: THR 111 RB: THR 212 or concurrently  
Craft techniques used in theatrical costuming. Projects and topics variable by term.  
Effective Fall Semester 2024
- THR 365      Props Design and Crafts for Theatre  
Fall of even years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. RB: THR 111 or concurrently  
Artistic and technical principles of prop design and crafts. Play analysis, research and creative interpretation of props design.  
Effective Fall Semester 2024
- THR 815      Drafting for Theatre  
Spring of odd years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Introduction to the principles of hand and CAD drafting for theatre including terminology, best practices and fundamentals, scale and dimension drawings, sections, ground plans, auxiliary views and reproduction processes.  
Effective Fall Semester 2024
- THR 861      Lighting Technology for Theatre  
Spring of even years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Study of contemporary lighting equipment, electrical practices, and advanced light board operation.  
Effective Fall Semester 2024
- THR 862      Costume Construction  
Fall of even years. 3(2-4) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Sewing and Patterning methods used in theatrical costuming including flat patterning, draping, tailoring, pattern alteration, advanced stitching techniques.  
Effective Fall Semester 2024
- THR 863      Costume Crafts  
Fall of odd years. 3(2-4) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Craft techniques used in theatrical costuming. Projects and topics variable by term.  
Effective Fall Semester 2024
- THR 864      Scene Painting for Theatre  
Spring of odd years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Hands on study of traditional and contemporary techniques for painting 2D and 3D theatrical set pieces.  
Effective Fall Semester 2024
- THR 865      Props Design and Crafts for Theatre  
Fall of even years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
Artistic and technical principles of prop design and crafts. Play analysis, research and creative interpretation of props design.  
Effective Fall Semester 2024
- THR 869      Media and Audio Engineering for Theatre  
Fall of odd years. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Theatre or approval of department.  
System design and installation for media and audio technology use in theatre.  
Effective Fall Semester 2024

**OFFICE OF THE PROVOST**

UGS 105

First-Year Seminar Reflection

Fall of every year. 1 credit. A student may earn a maximum of 2 credits in all enrollments for this course. P: UGS 102 or UGS 103 R: Open to freshmen. A student may earn a maximum of 8 credits UGS 102, 103, and 105

Application of global and experiential learning to personal and professional growth.

Connection between prior learning experiences off-campus with campus engagement.

Offered first half of semester.

Request the use of ET-Extension to postpone grading.

The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

Effective Fall Semester 2024

## **PART III – COURSE CHANGES**

### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

- CSE 415 Introduction to Parallel Computing  
Spring of every year. 3(3-0) ~~P: (CSE 320 or ECE 331) and (MTH 314 or ECE 280) and CSE 331~~ P: (MTH 314 or MTH 317H or ECE 280) and CSE 331 R: Open to juniors or seniors in the College of Engineering or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Data Science Major. Not open to students with credit in CMSE 401.  
Principles and techniques of parallel computing including architectures, programming models, and algorithm design.  
Effective Fall Semester 2024
- CSE 425 Introduction to Computer Security  
~~Fall of every year. Spring of every year.~~ Spring of every year. 3(3-0) ~~P: CSE 325~~ P: CSE 325 and CSE 380 R: Open to juniors or seniors in the College of Engineering or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Theory and practice of computer security engineering.  
Effective Fall Semester 2025
- CSE 476 Mobile Application Development  
Spring of every year. 3(3-0) ~~P: CSE 320 or CSE 331 or CSE 335~~ P: CSE 380 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Software development techniques for mobile devices such as smart phones and tablet computers.  
Effective Fall Semester 2025
- CSE 477 Web Application Architecture and Development  
Spring of every year. 3(3-0) ~~P: CSE 320 or CSE 331 or CSE 335~~ P: CSE 380 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
~~Fundamentals of World Wide Web (WWW) programming, including protocols, client-server interaction, markup languages, client- and server-side programming, databases, and remote procedure calls. Development of a WWW server and WWW sites with browser-based interfaces to remote databases. Students will incorporate scaling, throughput, and latency considerations in the development of widely distributed systems.~~ Fundamentals of World Wide Web (WWW) programming, including protocols, client-server interaction, markup languages, client- and server-side programming, databases, and remote procedure calls. Development of a WWW server and WWW sites with browser-based interfaces to remote databases.  
Effective Fall Semester 2025
- CSE 480 Database Systems  
Spring of every year. 3(3-0) ~~P: CSE 331 or CSE 335~~ P: CSE 380 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Data Science Major.  
Principles and technologies for database systems, algorithms, languages, and applications.  
SA: CPS 480  
Effective Fall Semester 2025
- CSE 482 Big Data Analysis  
Spring of every year. 3(3-0) ~~P: (CSE 331) and (STT 351 or STT 380 or STT 430 or STT 441) and MTH 314 and (MTH 234 or MTH 254H or LB 220)~~ P: (CSE 331 and CSE 380) and (STT 351 or STT 380 or STT 430 or STT 441) and (MTH 314 or MTH 317H) and (MTH 234 or MTH 254H or LB 220) R: Open to juniors or seniors in the College of Engineering or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Data Science Major.  
Principles and techniques for large-scale data analysis and applications.  
Effective Fall Semester 2025

CSE 498 Collaborative Design (W)  
Fall of every year. Spring of every year. 4(2-4)-P: (CSE 402 or CSE 415 or CSE 422 or CSE 431 or CSE 440 or CSE 450 or CSE 471 or CSE 476 or CSE 477 or CSE 482) and (CSE 402 or CSE 420 or CSE 425 or CSE 435 or CSE 440 or CSE 460 or CSE 472 or CSE 477 or CSE 480 or CSE 482) and ((CSE 300 and CSE 325 and CSE 335) and completion of Tier I writing requirement) P: (CSE 402 or CSE 415 or CSE 422 or CSE 431 or CSE 440 or CSE 450 or CSE 471 or CSE 476 or CSE 477 or CSE 482) and (CSE 402 or CSE 420 or CSE 425 or CSE 435 or CSE 440 or CSE 460 or CSE 472 or CSE 477 or CSE 480 or CSE 482) and ((CSE 300 and CSE 325 and CSE 335 and CSE 380) and completion of Tier I writing requirement) R: Open to students in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major.  
Development of a comprehensive software and/or hardware solution to a problem in a team setting with emphasis on working with a client. Participation in a design cycle including specification, design, implementation, testing, maintenance, and documentation. Issues of professionalism, ethics, and communication. Students may be asked to sign a non-disclosure agreement (“NDA”) or an assignment of intellectual property rights (“IP Assignment”) to work with some project sponsors.  
SA: CSE 449, CSE 478, CSE 479  
Effective Fall Semester 2025

### **DEPARTMENT OF EDUCATIONAL ADMINISTRATION**

EAD 921 Educational Leadership and Transformation  
Fall of every year. 3(3-0) R: Open to graduate students in the Educational Leadership Major.  
Creating organizational value through leadership. Leading through conflict. Personal and collective leadership development. Connecting schools with civic life. Convening community groups for democratic deliberation.  
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.  
DELETE COURSE  
Effective Summer Semester 2024

EAD 922 Analyzing Education Systems  
Fall of every year. 3(3-0)  
Analyzing systems of educational organizations, including schools, local education agencies, and state education agencies. Theory and research on educational organizations to actual cases in order to identify interdependent strengths and weaknesses that support and/or undermine instructional improvement.  
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.  
DELETE COURSE  
Effective Summer Semester 2024

EAD 924 Data and Decisions  
Fall of every year. 3(3-0) R: Open to graduate students in the Educational Leadership Major.  
Data collection and analysis for school improvement. Decision making criteria. Assessment of resource use and instructional learning outcomes. Data management. Legal and ethical use of data. Communication strategies.  
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.  
DELETE COURSE  
Effective Summer Semester 2024

EAD 980 Engaged Educational Leadership  
Summer of every year. ~~4 to 3 credits.~~ 2(2-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.  
Developing skills for engaged leadership. Convening forums to discuss and disseminate ideas for improvement of educational organizations and educational policy. Developing leadership skills that encourage and support agency of stakeholders.  
Request the use of the Pass-No Grade (P-N) system.  
Effective Summer Semester 2024

### DEPARTMENT OF FORESTRY

FOR 340L Forest Ecology Laboratory  
Fall of every year. ~~4(0-3)~~ 2(0-6) P: ((CSS 210) and completion of Tier I writing requirement) and (FOR 340 or concurrently) and (PLB 105 or BS 162 or LB 144) RB: IBIO 355  
~~Field studies and data analysis of ecological processes central to the sustainable management of forest ecosystems. Field exercises cover primary production, community structure, soil resources, biodiversity, succession, nutrient cycling, critiques of primary literature. Weekend field trips required. Field studies and data analysis of ecological processes central to the sustainable management of forest ecosystems. Field exercises cover primary production, community structure, soil resources, biodiversity, succession, nutrient cycling, critiques of primary literature. Pre-semester field camp required.~~  
Field studies and data analysis of ecological processes central to the sustainable management of forest ecosystems. Field exercises cover primary production, community structure, soil resources, biodiversity, succession, nutrient cycling, critiques of primary literature. Pre-semester field camp required.  
SA: FOR 404L  
Effective Fall Semester 2024

### JAMES MADISON COLLEGE

MC 320 ~~Politics, Society and Economy in the Third World~~ Problems and Paradoxes in Global Development.  
Fall of every year. 4(3-0) P: (MC 221 or MC 231 or MC 281) and Completion of Tier I Writing Requirement R: Open to students in the James Madison College or approval of college.  
~~Politics of social and economic change. Policies and strategies of development and of state and nation building in Third World countries. Impact of international political, security, and economic structures on the process of state and nation building in the Third World. Analyze the historical, political, economic and social dimensions of global development as both a paradigm and project. Contextualize nation-and-state building efforts in the postcolonial world.~~  
Politics of social and economic change. Policies and strategies of development and of state and nation building in Third World countries. Impact of international political, security, and economic structures on the process of state and nation building in the Third World. Analyze the historical, political, economic and social dimensions of global development as both a paradigm and project. Contextualize nation-and-state building efforts in the postcolonial world.  
Effective Fall Semester 2024

### DEPARTMENT OF MARKETING

IBUS 393 Introduction to International Business  
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. Interdepartmental with Accounting, Finance, General Business and Business Law, Hospitality Business, Management, Supply Chain Management R: ~~Open to students in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the School of Hospitality Business.~~ R: Open to students in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the School of Hospitality Business or approval of college.  
Introduction to the context of international business delivered on-site in foreign settings. Fundamental concepts and principles of globalization such as multinational corporations, foreign markets and economies, internal and external market transactions, international law, cultural influences, and multinational business strategies.  
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.  
SA: MKT 393  
Effective Spring Semester 2024

### DEPARTMENT OF MEDIA AND INFORMATION

- MI 841 ~~Understanding Users~~ Advanced Methods of Understanding Users  
Fall of every year. 3(3-0) RB: Direct experience with the creative process in interactive media. R: Open to students in the College of Communication Arts and Sciences or in the Media and Information Major or in the Serious Game Design and Research Certificate or in the Educational Technology Major or in the Educational Technology Graduate Certificate or approval of department.  
Methods of user-centered research to support game, media and interaction design.  
Iterative cycles of user and product conceptualization.  
SA: TC 841  
Effective Fall Semester 2024
- MI 851 ~~Understanding and Managing Social Media~~ Data Analytics for User Generated Content  
Spring of every year. 3(3-0) R: Open to graduate students in the College of Communication Arts and Sciences or approval of department.  
~~Overview of social media applications and services, social media history, social media affordances, effects on individuals, organizations, and society, and best practices for the management and study of social media. History and methodology of emerging research methods, including big data analysis. Insights into how to apply these findings in multiple domains, such as games or usability of apps.~~  
SA: TC 851  
Effective Fall Semester 2024
- MI 862 ~~Managing Digital Enterprises~~ Media and Information Project Management  
Spring of every year. 3(3-0) RB: MI 861 R: Open to graduate students in the College of Communication Arts and Sciences or approval of department.  
~~History and current status of e-commerce, e-commerce strategies and approaches, and new directions in e-commerce. Challenges of developing and marketing an online commerce site. Management of projects in digital enterprises. Current tools, project management best practices and experience in managing a project.~~  
SA: TC 862  
Effective Fall Semester 2024
- MI 877 Global Media and Communications  
Fall of even years. 3(3-0) R: Open to graduate students in the College of Communication Arts and Sciences or approval of department.  
Comparative and international perspectives on approaches to traditional and new media and their transformations by increased global connectivity. Addresses broadcasting, cable TV, satellite, fixed networks, mobile communications, and the Internet. Political economy of media, economic, institutional and content issues. Interactions and media flows among countries. International governance bodies.  
SA: TC 877  
DELETE COURSE  
Effective Fall Semester 2024

### DEPARTMENT OF PLANT, SOIL AND MICROBIAL SCIENCES

- CSS 865 Environmental Organic Chemistry  
~~Spring of even years. Fall of odd years.~~ 3(3-0) RB: Students with an environmental science background and course training in general or organic chemistry  
Fate and transformation of organic contaminants in the environment  
Effective Fall Semester 2025

CSS 880 Scientific Communication and Professional Development  
~~Spring of every year. Fall of every year. 4(0-2) 2(2-0)~~ RB: Recommended for graduate students in CSS  
~~Interactive professional experiences including grant preproposal preparation and presentation, scientific presentations, mock position interviews, and resume preparation. Career management and pathways, scientific communication, and leadership skills designed to prepare students to become successful professionals in STEM. Request the use of the Pass No Grade (P-N) system.~~  
Effective Fall Semester 2025

### **DEPARTMENT OF ROMANCE AND CLASSICAL STUDIES**

ITL 101 Elementary Italian I  
~~Fall of every year. Spring of every year. 4(4-1) 4(3-2)~~ Fall of every year. Spring of every year. Summer of every year. 4(4-1) 4(3-2) RB: No previous experience in Italian or approval of department. R: Not open to seniors.  
Practice in using and understanding Italian to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.  
Effective Fall Semester 2024

ITL 102 Elementary Italian II  
~~Fall of every year. Spring of every year. 4(4-1) 4(3-2)~~ Fall of every year. Spring of every year. Summer of every year. 4(4-1) 4(3-2) P: ITL 101  
Further practice in using and understanding Italian to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.  
Effective Fall Semester 2024

ITL 201 Second-Year Italian I  
~~Fall of every year. Spring of every year. 4(4-0) 4(3-2)~~ Fall of every year. Spring of every year. Summer of every year. 4(4-0) 4(3-2) P: ITL 102  
Intermediate-level review and development of aural comprehension, speaking, reading, and writing skills. Topics in Italian culture.  
Effective Fall Semester 2024

ITL 202 Second-Year Italian II  
~~Spring of every year. Fall of every year. 4(4-0) 4(3-2)~~ Fall of every year. Spring of every year. Summer of every year. 4(4-0) 4(3-2) P: ITL 201  
Further review and development of aural comprehension, speaking, reading, and writing skills. Topics in Italian culture.  
Effective Fall Semester 2024

ITL 330 Italian Culture and Civilization  
~~Fall of every year. Spring of every year. 3(3-0)~~ 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: ITL 202  
Diverse aspects of political, social, economic, intellectual, artistic, and literary life of Italy. Class discussion in Italian of readings, films, television programs, and musical selections.  
Effective Fall Semester 2024

ITL 350 ~~Introduction to Italian Literature~~ Overview of Italian Literature  
~~Spring of every year. Fall of every year. 3(3-0)~~ Fall of every year. Spring of every year. 3(3-0) P: (ITL 320) and completion of Tier I writing requirement P: (ITL 202) and completion of Tier I writing requirement  
Italian literature from its origins to the present. Reading and discussion in Italian of representative works from all genres.  
Effective Fall Semester 2024

**DEPARTMENT OF THEATRE**

- THR 211 Introduction to Lighting Design  
~~Fall of every year. Spring of every year. Summer of every year.~~ Fall of every year. Spring of every year. 3(2-2)-P: THR 111 and THR 111L P: THR 111  
Design and technical aspects regarding the design process and electrical production of stage lighting.  
Effective Fall Semester 2024
- THR 212 Introduction to Costume Design  
~~Fall of odd years. Spring of even years.~~ Fall of every year. Spring of every year. 3(2-2)-P: THR 111 and THR 111L P: THR 111  
Design and technical aspects regarding the process and production of stage costumes and costume history.  
Effective Fall Semester 2024
- THR 214 Introduction to Scene Design  
~~Fall of every year. Spring of every year. Summer of every year.~~ Fall of every year. Spring of every year. 3(2-2)-P: THR 111 and THR 111L P: THR 111  
Design and technical aspects regarding the design process and production of stage scenery.  
Effective Fall Semester 2024
- THR 216 Introduction to Sound Design  
~~Fall of odd years. Spring of even years.~~ Fall of every year. Spring of every year. 3(2-2)-P: THR 111 and THR 111L P: THR 111  
Design and technical aspects regarding the process and production of sound performance media, composition and sound reinforcement for the stage.  
Effective Fall Semester 2024
- THR 219 Introduction to Projection Design for the Stage  
~~Fall of even years. Spring of odd years.~~ Fall of every year. Spring of every year. 3(2-2)-P: THR 111 and THR 111L P: THR 111  
Design and technical aspects regarding the design process and production of projection performance media.  
Effective Fall Semester 2024
- THR 314 ~~Stagecraft~~ Stagecraft: Scenic Construction Techniques  
~~Fall of every year. Spring of every year.~~ 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. P: THR 111 and THR 111L RB: (THR 211 and THR 211L) or (THR 214 and THR 214L) RB: THR 111 or concurrently  
~~Theory and techniques of stagecraft for theatrical production.~~ Introduction to the use of tools, materials, and techniques in theatrical scenic construction.  
Effective Fall Semester 2024
- THR 361 ~~Topics in Lighting Technology~~ Lighting Technology for Theatre  
~~Fall of even years. Spring of even years.~~ Spring of even years. 1 to 6 credits. 3(2-2)-A student may earn a maximum of 9 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for this course. P: THR 214 RB: THR 211 or concurrently  
~~Topics supplementing regular design and technology course offerings on a group study basis.~~ Study of contemporary lighting equipment, electrical practices, and advanced light board operation.  
Effective Fall Semester 2024
- THR 362 ~~Topics in Costume Technology~~ Costume Construction  
~~Fall of odd years. Spring of odd years.~~ Fall of even years. 1 to 6 credits. 3(2-4)-A student may earn a maximum of 9 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for this course. P: THR 212 P: THR 111 RB: THR 212 or concurrently  
~~Topics supplementing regular design and technology course offerings on a group study basis.~~ Sewing and Patterning methods used in theatrical costuming including flat patterning, draping, tailoring, pattern alteration, advanced stitching techniques.  
Effective Fall Semester 2024

- THR 364 ~~Topics in Scenery Technology~~ Scene Painting for Theatre  
~~Fall of odd years. Spring of odd years. Spring of odd years. 1 to 6 credits. 3(2-2) A student may earn a maximum of 9 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for this course. P: THR-214 RB: THR 111 or concurrently~~  
Topics supplementing regular design and technology course offerings on a group study basis. Hands on study of traditional and contemporary techniques for painting 2D and 3D theatrical set pieces.  
Effective Fall Semester 2024
- THR 369 ~~Topics in Digital Technology~~ Media and Audio Engineering for Theatre  
~~Fall of even years. Spring of even years. Fall of odd years. 1 to 6 credits. 3(2-2) A student may earn a maximum of 9 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for this course. P: THR-216 or THR-219 RB: THR 111 or concurrently~~  
Topics supplementing regular design and technology course offerings on a group study basis. System design and installation for media and audio technology in theatre.  
Effective Fall Semester 2024