

MICHIGAN STATE UNIVERSITY

**Report of
THE UNIVERSITY COMMITTEE ON CURRICULUM
to the Faculty Senate
April 19, 2022**

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 19, 2022

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 19, 2022

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

Students who are enrolled in the Food Science major leading to the Bachelor of Science degree in the Department of Food Science and Human Nutrition may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Biological Science 161, Chemistry 161 and 162, and Physics 221, 231, 241 or Lyman Briggs 273. The completion of Chemistry 161 and 162 satisfies the laboratory requirement. Biological Science 161, Chemistry 161 and 162 and Physics 221, 231, 241 or Lyman Briggs 273 may be counted toward both the alternative track and the requirements for the major referenced in item 3. below.

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

PHY	231	Introductory Physics I	3
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- (3) In item 3. a. change the total credits from '54' to '51'.

- (4) Add the following new item 3. b. and reletter items 3. b., 3. c., and 3. d. respectively:

One of the following courses (3 or 4 credits):

LB	273	Physics I	4
PHY	221	Studio Physics for Life Scientists I	4
PHY	231	Introductory Physics I	3
PHY	241	Physics for Cellular and Molecular Biologists I	4

- (5) In item 3. e. under the **Basic Food Science** concentration, item (2) add the following course:

LB	274	Physics II	4
PHY	222	Studio Physics for Life Scientists II	4
PHY	242	Physics for Cellular and Molecular Biologists II	4

Only one physics course (LB 274, PHY 222, PHY 232, PHY 242) can be counted towards the 9 credits.

- (6) In item 3. e. under the **Food Business and Industry** concentration, in item (2) delete the following courses:

ABM	100	Decision-making in the Agri-Food System	3
ABM	222	Agribusiness and Food Industry Sales	3

ABM	435	Financial Management in the Agri-Food System	3
FI	311	Financial Management	3
FIM	335	Food Marketing Management	3

Add the following courses:

AFRE	100	Decision-making in the Agri-Food System	3
AFRE	222	Agribusiness and Food Industry Sales	3
AFRE	435	Financial Management in the Agri-Food System	3
or			
FI	320	Introduction to Finance	3
AFRE	440	Food Marketing Management	3

- (7) In item 3. e. under the **Food Packaging** concentration, change the credits of PKG 221 from '3' to '2' and the total credits from '26' to '25'.

Effective Fall 2022.

2. Change the requirements for the **Master of Science** degree in **Nutrition and Dietetics** in the Department of Food Science and Human Nutrition. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.
- a. Under the heading **Requirements for the Master of Science Degree in Nutrition and Dietetics** make the following changes:
- (1) In item 1., change the credits of HNF 898 from '4' to '1'.
 - (2) In item 1., change the total credits from '21' to '18'.
 - (3) In item 2., change the credits from '9' to '12'.

Effective Fall 2022.

3. Change the requirements for the **Bachelor of Science** degree in **Horticulture** in the Department of Horticulture.

The concentrations in the Bachelor of Science degree in Horticulture 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 Horticulture** make the following changes:
- (1) In item 3. a. delete the following course:

HRT	205	Plant Mineral Nutrition	1
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Add the following course:

HRT	494	Horticulture Career Development II	1
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 - (2) In item 3. b. under **Horticultural Science** make the following changes:
 - (a) Change the total credits from '30' to '29'.
 - (b) Replace item (1) with the following:

Both of the following courses (8 credits):

ENT	404	Fundamentals of Entomology	4
PLP	405	Plant Pathology	4
 - (c) In item (2) delete the following course:

HRT	405	Sustainable Practices for Horticultural Food Crop Production	1
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Add the following courses:

HRT	351	Hydroponic Food Production	2
HRT	351L	Hydroponic Food Production Lab	2

(d) In item (3) add the following course:

CSS	441	Biotechnology and Plant Breeding	3
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(3) In item 3. b. under **Sustainable and Organic Horticulture** make the following changes:

(a) Change the total credits from '31' to '32'.

(b) In item (1) change the credits of PLP 405 from '3' to '4'.

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

CSS	221	Greenhouse Structures and Management	3
HRT	405	Sustainable Practices for Horticultural Food Crop Production	1

Add the following courses:

HRT	351	Hydroponic Food Production	2
HRT	351L	Hydroponic Food Production Lab	2

(d) In item (3) delete the following course:

CSS	451	Biotechnology Applications for Plant Breeding and Genetics	3
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(4) In item 3. b. under **Horticulture Landscape Design, Construction, and Management** make the following changes:

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

HRT	219	Landscape Computer Aided Design	2
LA	230	Site Construction Materials and Methods	4

Effective Fall 2022.

4. Establish a **Agricultural Technology Certificate in Forest Technology** in the Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 3, 2022 meeting.

a. **Background Information:**

Certificate programs and workshops in the areas of production agriculture and horticulture were developed and launched in 1894 as campus-based programs. In 1994, the Institute of Agricultural Technology started to offer programs in collaboration with community colleges. There is currently no certificate program available for individuals interested in Forest Technology within the state of Michigan.

The nation and state of Michigan face an overall shortage of trained graduates in the field of forestry, where aging demographics will result in a wave of retirements in the coming years. In addition, as evidenced in letters of support for our USDA Higher Education Challenge Grant, there is tremendous employer demand for trained foresters (e.g., Michigan Department of Natural Resources, Michigan Association of Timbermen and Lyme Great Lakes Timberlands). These agency and industry partners have consistently stressed concerns in regard to shortages of trained graduates. Despite

growing societal recognition of the importance of forests and trees and the growing demand for trained professionals, undergraduate enrollments in forestry have been in decline for decades. At the same time, there are limited options, especially for postsecondary and non-traditional students who are place-bound and unable to enroll in a traditional 4-year bachelor’s program. Given these issues, there is a need to reinvigorate forestry education programs to meet the changing needs of forestry practice and to train the upcoming generation of forestry professionals.

MSU is one of only two universities in the state that currently offers a Bachelor of Science degree in Forestry; therefore, the Institute of Agricultural Technology in partnership with the Department of Forestry, has the experience and expertise to deliver a certificate in Forest Technology as well. If MSU can be the first university to offer such a program, we expect to bring in new students who would not otherwise consider our existing bachelor’s degree program.

b. **Academic Programs Catalog Text:**

The Forest Technology program prepares graduates for a wide range of employment and career choices. Each student receives personal, one-on-one help in selecting their program of study, including a workplace internship. Students will collect and manage forestry-related data, plan and perform forest management activities, prepare timber for harvest and administer timber sales. They also support fire management activities and coordinate forestry workforce.

Requirements for Forest Technology

				CREDITS
Students must complete 63 credits from the following:				
1.	All of the following courses (33 courses):			
	AT	293	Professional Internship in Agricultural Technology	3
	CSS	143	Introduction to Soil Science	2
	ENT	110	Applied Entomology of Economic Plants	3
	FOR	115	Field Exploration of Topics in Forest Technology	1
	FOR	116	Career Development in Forestry Technology	1
	FOR	117	Natural Resources Equipment and Worker Safety	1
	FOR	130	Fundamentals of Forest Management Planning	1
	FOR	135	Forest Issues and Policy	1
	FOR	204	Forest Vegetation	3
	FOR	222	Forestry Field Methods	2
	FOR	250	Introduction to Forest Ecology and Silviculture	3
	FOR	260	Applied Forest Management	3
	FOR	265	Crew Leadership and Management of Forest Technology	2
	FOR	270	Forest Business Operations	2
	FOR	275	Timber Harvest Planning and Systems	3
	PLP	105	Fundamentals of Applied Plant Pathology	2
2.	Complete 30 credits of additional course work through Bay College. All course work must be approved by the program coordinator in the Institute of Agricultural Technology.			

Effective Fall 2022.

5. Establish a **Agricultural Technology Certificate in Urban Forest Management** in the Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 3, 2022 meeting.

a. **Background Information:**

Certificate programs and workshops in the areas of production agriculture and horticulture were developed and launched in 1894 as campus-based programs. In 1994, the Institute of Agricultural Technology started to offer programs in collaboration with community colleges. There is currently no certificate program available for individuals interested in Urban Forest Management within the state of Michigan. The nation and state of Michigan face an overall shortage of trained graduates in the field of forestry, especially in urban forest management, where aging demographics will result in a wave of retirements in the coming years. In addition, as evidenced in letters of support for our USDA Higher Education Challenge

Grant, there is tremendous employer demand for trained urban and community foresters (e.g., Michigan Department of Natural Resources and International Society of Arboriculture – Michigan). These agency and industry partners have consistently stressed concerns in regard to shortages of trained graduates. Despite growing societal recognition of the importance of urban forests and trees and the growing demand for trained professionals, undergraduate enrollments in forestry have been in decline for decades. At the same time, there are limited options, especially for post-secondary and non-traditional students who are place-bound and unable to enroll in a traditional 4-year bachelor's program. Given these issues, there is a need to reinvigorate forestry education programs to meet the changing needs of forestry practice and to train the upcoming generation of forestry professionals.

MSU is one of only two universities in the state that currently offers a Bachelor of Science degree in Forestry; therefore, the Institute of Agricultural Technology in partnership with the Department of Forestry, has the experience and expertise to deliver a certificate in Forest Technology as well. If MSU can be the first university to offer such a program, we expect to bring in new students who would not otherwise consider our existing bachelor's degree program.

b. Academic Programs Catalog Text:

The Urban Forest Management program prepares graduates for a wide range of employment and career choices. Each student receives personal, one-on-one help in selecting their program of study, including a workplace internship. Students will collect and analyze urban and community forestry data, coordinate planning activities, manage field operations, provide technical expertise and lead staff. Students also implement bidding and contracting processes and develop and maintain stakeholder relationships.

Requirements for Urban Forest Management

CREDITS

Students must complete 60 to 61 credits from the following:

1. All of the following courses (36 courses):

	AT	293	Professional Internship in Agricultural Technology	3
	CSS	143	Introduction to Soil Science	2
	ENT	110	Applied Entomology of Economic Plants	3
	FOR	111	Field Exploration of Urban and Community Forestry	1
	FOR	112	Career Development in Urban and Community Forestry	1
	FOR	113	Urban Tree Care Equipment and Worker Safety	2
	FOR	114	Introduction to Climbing and Aerial Tree Work	1
	FOR	120	Survey of Urban and Community Forestry	2
	FOR	125	Methods of Engagement in Urban and Community Forestry	2
	FOR	222	Forestry Field Methods	2
	FOR	225	Urban Forestry Information Technology	3
	FOR	235	Urban Tree Care Practicum	3
	FOR	240	Crew Leadership and Management in Arboriculture	2
	FOR	245	Capstone Experience in Urban and Community Forestry	2
	HRT	211	Landscape Plants I	3
	HRT	213	Landscape Maintenance	2
	PLP	105	Fundamentals of Applied Plant Pathology	2
2. Complete 24 or 25 credits of additional course work through Muskegon Community College. All course work must be approved by the program coordinator in the Institute of Agricultural Technology.

Effective Fall 2022.

COLLEGE OF ARTS AND LETTERS

1. Change the requirements for the **Graduate Certificate in Digital Humanities** in the College of Arts and Letters. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.

- a. Under the heading **Requirements for the Graduate Certificate in Digital Humanities** replace the entire entry with the following:

Students must complete 9 credits from the following:

1. One of the following foundation courses (3 credits):

DH	865	Digital Humanities Methods Seminar	3
HST	812	History in the Digital Age	3

2. Complete a Pedagogical Experience (3 credits):
The digital humanities pedagogy experience may be fulfilled through a teaching-related course. The following courses may be used to fulfill this requirement:

AL	891	Special Topics in Arts and Humanities	
DH	861	Digital Humanities Pedagogy	
DH	890	Digital Humanities Independent Study	
DH	893	Digital Humanities Internship	

A specific, focused, supervised pedagogy project completed in conjunction with another course may also fulfill this requirement. The project may include: (1) taking another pedagogical methods course with a digital humanities emphasis; (2) completing a Graduate Assistantship or interning in a digital humanities unit in which teaching and the creation of educational materials is at the center of the work; (3) teaching or serving as the Teaching Assistant in a course which incorporated digital humanities methods; (4) completing the Cultural Heritage Informatics Fellowship with a pedagogically focused project. This project and its associated course will be documented in the final portfolio, reviewed by the Digital Humanities Curriculum Committee, and approved by the Associate Dean for Graduate Studies in the College of Arts and Letters.

3. Complete a Research Experience (3 credits):
A digital humanities research experience may be fulfilled by participating in a digital humanities project. The following courses may be used to fulfill this requirement:

DH	863	Digital Humanities Research	
DH	890	Digital Humanities Independent Study	
DH	893	Digital Humanities Internship	

A specific, focused, supervised research experience completed in conjunction with another course may also fulfill this requirement.

The project may include: (1) taking a course in which digital humanities work is a substantial part; (2) taking a disciplinary course in which a digital humanities project is undertaken by the student; (3) completing a Graduate Assistantship or interning in a digital humanities unit on campus or with a faculty member engaged in digital humanities work; (4) completing the Digital Scholarship Lab Graduate Arts Fellowship; (5) completing the Cultural Heritage Informatics Fellows Program; (6) completing an individual digital humanities research project based on previous course work, leading to a substantial academic output.

Portfolio

Upon completion of the above requirements, students will submit a portfolio that illustrates the learning outcomes and educational objectives of the Graduate Certificate in Digital Humanities no later than the last day of instruction of the semester the student intends to graduate. The portfolio must include (1) a reflective narrative; (2) documentation that demonstrates how the student has met the pedagogy and research requirements; (3) samples of work such as papers or creative work as appropriate.

The portfolio will be reviewed by the Digital Humanities Curriculum Committee, and if approved, sent to the Associate Dean for Graduate Studies in the College of Arts and Letters for final approval.

2. Change the requirements for the **Minor in Philosophy and Law** in the Department of Philosophy.
- a. Under the heading **Requirements for the Minor in Philosophy and Law** make the following change:

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

PHL	331	Formal Practical Reasoning	4
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Effective Fall 2022.

3. Change the requirements for the **Bachelor of Arts** degree in **Philosophy** in the Department of Philosophy.

The concentration in the Bachelor of Arts degree in Philosophy is 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 Arts Degree in Philosophy** make the following changes:

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

PHL	331	Formal Practical Reasoning	4
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(2) In the concentration **Philosophy and the Law**, make the following changes:

(a) In item 2. add the following course:

PHL	331	Formal Practical Reasoning	4
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(b) In item 6. delete the following course:

PHL	444	Philosophical Issues in Biomedicine	4
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Effective Fall 2022.

4. Change the requirements for the **Minor in Philosophy** in the Department of Philosophy.

- a. Under the heading **Requirements for the Minor in Philosophy** make the following changes:

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

PHL	331	Formal Practical Reasoning	4
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Effective Fall 2022.

5. Change the requirements for the **Disciplinary Teaching Minor in French** that is available for elementary and secondary teacher certification in the Department of Romance and Classical Studies. The Teacher Education Council (TEC) approved this request at its March 14, 2022 meeting.

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

FRN	310	Stepping into the 20 th Century and Beyond	3
FRN	320	Exploring Diversity and Minorities in the Francosphere	3
FRN	330	Progressing in French Pronunciation	3
FRN	340	Connecting with the Literatures of the Francosphere (W)	3
FRN	350	Connecting with the Cultures of the Francosphere (W)	3
FRN	430	Perspectives in the French Language	3
LLT	307	Methods of Second and Foreign Language Teaching	3
TE	409	Crafting Teaching Practices in the Secondary Teaching Minor	1
TE	503	Internship in Teaching Diverse Learners in Additional Endorsement Areas	1
A 400-level FRN elective			<u>3</u>
			26

Effective Fall 2022.

6. Change the requirements for the **Disciplinary Teaching Minor in Spanish-Elementary** that is available for elementary teacher certification in the Department of Romance and Classical Studies. The Teacher Education Council (TEC) approved this request at its March 14, 2022 meeting.

- a. Under the heading **SPANISH-ELEMENTARY** make the following changes:

- (1) Add the following required courses:

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

- (2) Change the total credits from '24' to '26'.

Effective Fall 2022.

7. Change the requirements for the **Disciplinary Teaching Minor in Spanish-Secondary** that is available for secondary teacher certification in the Department of Romance and Classical Studies. The Teacher Education Council (TEC) approved this request at its March 14, 2022 meeting.

- a. Under the heading **SPANISH-SECONDARY** make the following changes:

- (1) Delete the following course:

FLT	807	Foreign Language Teaching Methods	3
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- (2) Add the following required courses:

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

- (2) Change the total credits from '24' to '26'.

Effective Fall 2022.

8. Change the requirements for the **Bachelor of Fine Arts** degree in **Theatre** in the Department of Theatre.

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

(1) In the **Acting for Stage, Screen, and New Media** concentration, under item (2) add the following courses:

THR	205	Media Acting I	2
THR	206	Musical Theatre I	2
THR	305	Media Acting II	2
THR	306	Musical Theatre II	2
THR	405	Media Acting III	2
THR	406	Musical Theatre III	2
THR	409	Auditioning	2

Effective Fall 2022.

9. Delete the curriculum and degree requirements for the **Master of Arts** degree in **Critical Studies in Literacy and Pedagogy** in the Department of Writing, Rhetoric and American Cultures. The University Committee on Graduate Studies (UCGS) provided consultative commentary to the Provost after considering this request. The Provost made the determination to discontinue the program after considering the consultative commentary from the University Committee on Graduate Studies.

No new students are to be admitted to the program effective Fall 2021. No students are to be readmitted to the program effective Fall 2021. Effective Fall 2022, coding for the program will be discontinued and the program will no longer be available in the Department of Writing, Rhetoric and American Cultures. Students who have not met the requirements for the Master of Arts Degree in Critical Studies in Literacy and Pedagogy through the Department of Writing, Rhetoric and American Cultures prior to Fall 2022 will have to change their major.

10. Delete the curriculum and degree requirements for the **Master of Arts** degree in **Digital Rhetoric and Professional Writing** in the Department of Writing, Rhetoric and American Cultures. The University Committee on Graduate Studies (UCGS) provided consultative commentary to the Provost after considering this request. The Provost made the determination to discontinue the program after considering the consultative commentary from the University Committee on Graduate Studies.

No new students are to be admitted to the program effective Fall 2021. No students are to be readmitted to the program effective Fall 2021. Effective Fall 2022, coding for the program will be discontinued and the program will no longer be available in the Department of Writing, Rhetoric and American Cultures. Students who have not met the requirements for the Master of Arts Degree in Digital Rhetoric and Professional Writing through the Department of Writing, Rhetoric and American Cultures prior to Fall 2022 will have to change their major.

COLLEGE OF COMMUNICATION ARTS AND SCIENCES

1. Change the requirements for the **Bachelor of Arts** degree in **Journalism** in the School of Journalism.

The concentrations in the Bachelor of Arts degree in Journalism 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 Arts Degree in Journalism** make the following changes:

- (1) Under the heading **Broadcast Journalism** delete the following course:

JRN	406	Advanced TV News Storytelling and Producing	3
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Add the following courses:

One of the following courses (3 credits):

JRN	303	On-Air Announcing, Interviewing and Hosting	3
JRN	406A	Broadcast News III: Advanced Reporting	3
JRN	406B	Broadcast News Producing	3

- (2) Under the heading **Environment, Science and Health Reporting**, in the 6-credit requirement add the following courses:

JRN	485	Environmental Communication Education Abroad	3
JRN	488	Visual Storytelling in Kenya	4

- (3) Under the heading **Information Graphics** delete the following course:

Study Abroad, Creative Journey: Barcelona to Berlin	3
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Add the following courses to the 3-credit requirement:

JRN	487	Creative Journey Education Abroad	6
JRN	488	Visual Storytelling in Kenya	4

- (4) Under the heading **International Reporting** add the following courses to the 3-credit requirement:

JRN	483	Photo Communication in Europe	6
JRN	484	Sports Journalism Education Abroad	6
JRN	485	Environmental Communication Education Abroad	6
JRN	486	British and Irish Mass Media Education Abroad	6
JRN	487	Creative Journey Education Abroad	6
JRN	488	Visual Storytelling in Kenya	4

- (5) Under the heading **Media Design** add the following courses to the 3-credit requirement:

JRN	487	Creative Journey Education Abroad	6
JRN	488	Visual Storytelling in Kenya	4

- (7) Under the heading **Media Relations** add the following course to the 2-credit requirement:

JRN	488	Visual Storytelling in Kenya	4
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- (8) Under the heading **Photojournalism** delete the following courses from the 3-credit requirement:

CAS	396	Integrated Media Arts Special Topics	3
CAS	496	Advanced Media Project Design and Production (W)	3
JRN	488	Visual Storytelling in Kenya	4

- (9) Under the heading **Writing, Reporting and Editing** add the following course to the elective requirement:

JRN	486	British and Irish Mass Media Education Abroad	6
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Delete the following course:

Study Abroad in Mass Media with a writing component	3
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- (10) In item 3. d. (2) add the following courses:

PLS	100	Introduction to American Politics	3
PLS	302	Urban Politics	3
PLS	304	Minority Politics	3

- (11) Change item 3. e. to the following:

Journalism majors must complete a minimum of 60 credits in courses outside of the College of Communication Arts and Sciences.

Effective Fall 2022.

2. Change the requirements in the **Minor in Broadcast Journalism** in the School of Journalism.

- a. Under the heading **Requirements for the Minor in Broadcast Journalism** make the following changes:

- (1) Delete the following course:
- | | | | |
|-----|-----|------------------|---|
| JRN | 406 | Advanced TV News | 3 |
|-----|-----|------------------|---|

Add the following courses:

One of the following courses (3 credits):

JRN	406A	Broadcast News III: Advanced Reporting	3
JRN	406B	Broadcast News Producing	3

Effective Fall 2022.

3. Change the requirements for the **Minor in Media Photography** in the School of Journalism.

- a. Under the heading **Requirements for the Minor in Media Photography** make the following changes:

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

CAS	205	Photography in Media Settings	1
JRN	488	Visual Storytelling in Kenya	4

- (2) In item 2., replace the note with the following:

Students enrolling in JRN 492 must have advisor approval to ensure appropriate content. Students who reenroll in JRN 492 must select a different topic for each enrollment.

Effective Fall 2022.

COLLEGE OF MUSIC

1. Change the requirements for the **Master of Music** degree in **Collaborative Piano** in the College of Music. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.
 - a. Under the heading **Requirements for the Master of Music Degree in Collaborative Piano** make the following changes:
 - (1) In item 1. delete the following courses:

MUS	849	Piano Performance	2
MUS	850A	Piano	4
MUS	850B	Collaborative Piano	2
MUS	856	Chamber Music	2
MUS	896	Master's Recital Performance	4

Add the following course:

MUS	896	Master's Performance	14
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 - (2) Replace item 3. with the following:

Complete a 3-credit course in musicology at the 400-level or above.
 - (3) Replace item 4. with the following:

Complete 3 to 5 elective credits in music courses at the 400-level or above, exclusive of additional credits in MUS 896.
 - (4) Delete item 5. and renumber items 6. and 7. respectively.
 - (5) Delete the following:

Academic Standards

A grade of 3.0 or higher is required for Music 896.

Effective Spring 2023.

COLLEGE OF NATURAL SCIENCE

1. Change the requirements for the **Doctor of Philosophy** degree in **Neuroscience** in the Program in Neuroscience. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Neuroscience** make the following changes:
 - (1) In item 1. delete the following course:

NEU	815	Quantitative Skills in Neuroscience Research	3
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Add the following courses:

CMSE	890	Selected Topics in Computational Mathematics, Science, and Engineering	3
		or	
FOR	875	R Programming for Data Sciences	3

Students who choose CMSE 890 must complete three separate enrollments in a specific topic approved by the student's guidance committee.

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

Complete in the first year of enrollment in the program, a minimum of 2, and no more than 3 laboratory rotations (NEU 890) with each of two or three members of the faculty. Each rotation is established by mutual agreement of the faculty member and the student.

Effective Fall 2022.

2. Establish a **Graduate Certificate in Sports Analytics** in the Department of Mathematics. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 24, 2022 meeting.

a. **Background Information:**

The proposed certificate is a natural outgrowth of the experiential and teamwork-based course MTH 491B offered in the Actuarial Science major. Traditionally, students in MTH 491B learn to work in teams towards product delivery (code and documentation) using insurance data, making use of tools in mathematics, statistics, and coding. Since the early 2010's, the department has added a section that leverages these tools and adapts them to problems in sports analytics. This has been very successful, and one of the results are students who have minimal or no background in sports, but have technical skills in math, statistics, and coding and can be quickly trained in sports analytics. The proposed certificate seeks to offer the same experiential, hands-on approach to learning tools in sports analytics, tailored to the needs of those working in the sports management and coaching fields. It introduces them to quantitative and risk-management tools that address challenges in sports modeling and data analysis.

In terms of accreditation, because of the overall novelty of the field of sports analytics, there aren't many accrediting agencies. One that does exist is the International Society of Performance Analysis in Sports (ISPAS) which is connected to the University of Canberra's sports analytics certificate. Graduates of the Canberra program are eligible to apply for Level 2 accreditation in the ISPAS. More information on the Canberra program can be found at <https://www.canberra.edu.au/course/363JA/1/2022>. Beyond the Canberra program, there are a few, but not many, similar certificate programs. These are listed at <https://www.datascienceprograms.org/online/sports-analytics> and include Certificate programs and concentrations/specializations within master's programs offered by American University, the University of West Alabama, Northwestern University, and Temple Universities. Detailed information on the curricula and timeline for completion for these programs can be found at the link.

There are many strong points that the proposal addresses. First, there is the overall lack of programs offered in this space, especially one that combines the approach combining training in mathematics, statistics, and machine learning with sports analysis, including guest lectures from alumni and others working in the field of professional and amateur sports. Second, the flexibility of online training, combined with on-campus training with MSU Hockey, is a definite benefit. Third, very few universities can compete with the strength in quantitative pedagogy that MSU possesses, and we believe that our reputation in this area will be attractive to graduates and professionals seeking to elevate their skill-sets in sports analytics in the two semester program duration, compared to 20 months required for the American University's Master's Program.

Upon completion of this certificate, students will use advanced mathematics and statistics to address issues in sports analytics, individually and in groups, and develop further areas of inquiry that bring value to their organization. They will develop code comprehension and communication skills that will allow them to direct the analytics teams that are rapidly developing within sports organizations, and communicate their findings to the balance of the organization.

b. **Academic Programs Catalog Text:**

The Sports Analytics graduate certificate provides students with quantitative and applicable skills in support of the analysis of sports performance. Students develop analytic techniques in stochastic and statistical analysis with written and verbal communication skills. They will be able to transfer

data on player performance into metrics, develop analytical models to differentiate player performance, and communicate effectively with non-quantitative decision makers. The applications draw from quantitative issues in management of day-to-day operations, player developing and assessment, and player recruitment. The certificate is targeted at professionals in the sports industry or college athletics, former athletes transitioning into sports analytics, and quantitatively literate people who are transitioning into sports analytics. The certificate is available online only.

Admission

Students must:

1. Complete an application with approval from both the Department of Mathematics and Department of Statistics and Probability.
2. Have background in mathematical and statistical foundations normally acquired through course work in multivariable calculus, linear algebra, and statistics and probability.

Requirements for the Graduate Certificate in Sports Analytics

			CREDITS
Students must complete 12 credits from the following:			
MTH	801	Machine Learning Algorithms: Mathematical Analysis	3
MTH	803	Sports Decision Analytics	3
STT	832	Data Visualization and Programming in R	3
STT	834	Sports Analytics Capstone	3

Effective Fall 2022.

3. Change the requirements for the **Graduate Certificate in Accelerator Science and Engineering** in the Department of Physics and Astronomy. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.

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

- a. Under the heading **Requirements for the Graduate Certificate in Accelerator Science and Engineering** make the following changes:

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

ECE	835	Advanced Electromagnetic Fields and Waves I	3
ME	814	Convective Heat Transfer	3
ME	840	Computational Fluid Dynamics and Heat Transfer	3
ME	842	Advanced Turbomachinery	3
ME	940	Selected Topics in Thermal Science	3

- (2) Replace the note following item 2. with the following:

Students who enroll in ME 940 and PHY 905 must obtain approval of the Physics and Astronomy Graduate Program Director to ensure appropriate content. PHY 905 may be taken more than once as long as the topic taken is different.

Effective Fall 2022.

4. Establish a **Graduate Certificate in Computational Plant Science** in the Department of Plant Biology. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 24, 2022 meeting.

a. **Background Information:**

Integrated training Model in Plant and Computational Sciences (IMPACTS) is an NSF funded program for training doctoral students to employ advanced computational/data science approaches to address grand challenges in plant biology. This National Science Foundation Research Traineeship (NRT) was awarded to Michigan State University to address the demand for next-generation scientists with both an understanding of plant biology and computational skills. By training doctoral students to employ advanced computational and data science approaches to address grand challenges in plant biology this critical need could be addressed.

The training program offers three courses as part of the curriculum which is a requirement for getting the fellowship. The creation of this proposed graduate certificate will broaden participation from graduate students in diverse departments and promote interdisciplinary approaches to research and problem-solving in complex and real-world contexts. In addition, the program's focus on computational skills is consistent with broader initiatives in STEM nationally and at MSU to promote quantitative and computational approaches as a core component of STEM training.

Although graduate training in genomics and bioinformatics is widespread, the advanced training in computation and modeling required to handle increasingly heterogeneous, multiscale data from the molecular to ecosystem levels, is lacking. The ability to understand and integrate these diverse types of data is key to modeling complex cellular system functions, relationships between genotypes, environment, and phenotypes, and impacts of global change on ecosystems. The program will be distinct from other biological science graduate programs or from what is provided by most bioinformatics training programs in the United States which emphasize predominantly molecular level problems. The goal of this program certification will be aligned with MSU's mission to advance life science research and training with a focus on –omics and computation. Cross-disciplinary applications and collaboration between biologists and computational scientists will lessen disciplinary boundaries and enable students to leverage methodological advances in the data revolution for solving complex, multi-system problems in life science. The highly interdependent, multi-dimensional, noisy, and sparse datasets typical of biological observations provide unique challenges to stimulate the development of novel computational tools and models.

Beyond training a cadre of highly skilled computational plant scientists, the pedagogical approaches developed will broadly inform training practices for infusing computational/data science in any biological discipline. The pedagogical approaches developed as part of this training grant will broadly inform training practices for interdisciplinary education and infuse computational/data science in numerous biological disciplines.

b. **Academic Programs Catalog Text:**

The Graduate Certificate in Computational Plant Science provides interdisciplinary training that intersects plant biology and computational and data sciences. The certificate address pressing problems in their respective fields and synthesizes these disciplines to address vast challenges in plant biology.

Requirements for the Graduate Certificate in Computational Plant Science

CREDITS

Students must complete a minimum of 9 credits from the following:

1. All of the following courses (7 credits):

	CSS 844	Frontiers in Computational and Plant Sciences	3
	HRT 841	Foundation in Computational and Plant Sciences	3
	PLB 843	Forum in Computational and Plant Sciences	1
2. Complete a minimum of 2 credits from the following courses:

Biologists relevant courses:

	CMSE 491	Selected Topics in Computational Mathematics, Science, and Engineering	1 to 4
	CMSE 801	Introduction to Computational Modeling	3

CMSE	820	Mathematical Foundations of Data Science	3
CMSE	822	Parallel Computing	3
CMSE	823	Numerical Linear Algebra	3
CMSE	890	Selected Topics in Computational Mathematics, Science, and Engineering	1 to 4
<i>Non-Biologists relevant courses:</i>			
BMB	801	Molecular Biology	3
BMB	978	Seminar in Biochemistry	1
HRT	894	Horticulture Seminar	1
IBIO	445	Evolution (W)	3
PLB	400	Introduction to Bioinformatics	3
PLB	801	Foundations of Plant Biology	3
PLB	812	Principles and Applications of Plant Genomics	3

Effective Summer 2022.

COLLEGE OF SOCIAL SCIENCE

1. Establish a **Minor in Climate Science** in the Department of Geography, Environment, and Spatial Sciences. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its January 10, 2022 meeting.

a. **Background Information:**

An interdepartmental academic program in Atmospheric Science was first created in the early 2000s at MSU, and was moved to the Department of Geography, Environment, and Spatial Sciences (GEO) around 2016. This existing academic program is an Atmospheric and Climate Sciences concentration as an option within the Bachelor of Science Degree in Environmental Geography. The concentration requires 24 credits of CEM, MTH, and PHY course work and includes an additional 12 to 16 credits of selective course work in CSE, GEO, and GLG. Currently, no academic program exists at MSU that focuses entirely on Climate Science course work offered by GEO. A program that does not require course work in CEM, CSE, GLG, MTH, and PHY will complement a number of MSU's BA/BS degree programs spanning both arts (e.g., Journalism BA) and sciences (e.g. Data Science BS).

Currently, there is no Climate Science minor is offered by any Michigan university. University of Michigan offers a Climate and Space Sciences and Engineering minor, while Western Michigan University offers a Climate Change Studies minor. Central Michigan University offers a Meteorology BS program, but no minor program is available. MSU has long housed Michigan's State Climatologist office, which leads the way in furthering our understanding of Michigan and Great Lakes climate science, making MSU an appropriate home for a Climate Science minor.

Michigan's State Climatologist office resides within MSU-GEO. A number of faculty members in the department have climate science expertise, including five in the tenure system, as well as other faculty and staff in the continuing and fixed-term systems. Completing a minor of required and selected course work will provide an undergraduate with a strong foundation of climate science.

Students will be exposed to introductory and advanced information regarding climate science. Students will use climate science information, as well as qualitative, quantitative, and geospatial application in order to better understand climate problems and solutions. Students will practice effective verbal and written communication of introductory and advanced climate science information, application, problems, and solutions.

b. **Academic Programs Catalog Text:**

The Minor in Climate Science, which is administered by the Department of Geography, Environment, and Spatial Sciences, provides a foundation to students who are interested in issues related to climate and climate change, including students who wish to prepare themselves for degree programs in communication, data science, environmental geoscience, environmental science, environmental studies, environmental policy, journalism, quantitative risk analytics, sustainability, or related fields.

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 Science Degree Environmental Geography with the Atmospheric and Climate Sciences concentration in the Department of Geography, Environment, and Spatial Sciences. 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 for the minor should consult the undergraduate academic advisor in the Department of Geography, Environment, and Spatial Sciences.

Requirements for the Minor in Climate Science

	CREDITS
Students must complete a minimum of 18 credits from the following:	
1. Both of the following courses (6 credits):	
GEO 203 Introduction to Meteorology	3
GEO 409 Global Climate Change and Variability	3
2. One of the following courses (3 credits):	
GEO 302 Climates of the World	3
GEO 303 Severe and Hazardous Weather	3
3. Three of the following courses (9 to 11 credits):	
GEO 402 Agricultural Climatology	3
GEO 403 Dynamic Meteorology (W)	3
GEO 405 Weather Analysis and Forecasting	4
GEO 410 Geography of Food and Agriculture	3
GEO 424 Advanced Remote Sensing	4
GEO 429 Geoprocessing	3

Effective Fall 2022.

PART II - NEW COURSES

COLLEGE OF ARTS AND LETTERS

- ACM 469 Advocating for Arts and Cultural Organizations
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: ACM 271 or concurrently
Not open to students with credit in ACM 869.
Advocacy for local cultural nonprofit organizations. Local, regional, national and international policies and practices for resource development in the nonprofit sector. Strategic messaging, assessment, organizational advocacy tactics and community engagement.
Effective Fall 2022
- ACM 896 Internship in Arts and Cultural Management
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: ACM 801 or concurrently R: Open to graduate students. Approval of department.
Supervised internship with arts and cultural organizations associated with management and operational studies.
Request the use of the Pass-No Grade (P-N) system.
SA: ACM 871
Effective Fall 2022
- MUSM 892 Special Topics in Museum Studies
Fall of every year. Spring of every year. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: MUSM 885 or concurrently R: Open to graduate students.
Current issues in museum studies.
SA: MUSM 895
Effective Fall 2022
- MUSM 896 Museum Internship
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: MUSM 885 or concurrently R: Open to graduate students. Approval of department.
Supervised applied experience in a museum, zoo, garden or other learning environment related to a student's area of study.
Request the use of the Pass-No Grade (P-N) system.
SA: MUSM 893
Effective Fall 2022

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

- HNF 255 Professional Development and Career Planning in Nutrition
Fall of every year. Spring of every year. 1(1-0) P: HNF 150 R: Open to students in the Nutritional Sciences Major or in the Lyman Briggs Nutritional Sciences Coordinate Major.
Experiential learning and career opportunities in nutrition. Skills for professional and career development.
SA: HNF 250L
Effective Fall 2022
- HNF 822 Nutrition for Human Performance and Sport
Fall of every year. 3(3-0) RB: Undergraduate degree in Dietetics R: Open to master's students in the Nutrition and Dietetics Major or approval of department.
Nutritional guidelines to optimize performance of athletes.
Effective Fall 2022

DEPARTMENT OF FORESTRY

- FOR 115 Field Exploration of Topics in Forest Technology
Summer of every year. 1 credit. R: Open to agricultural technology students.
Introduction to forest technology careers and opportunities in Michigan.
Effective Summer 2022
- FOR 116 Career Development in Forest Technology
Spring of every year. 1(1-0) P: FOR 115 R: Open to agricultural technology students.
Preparation for academic success and professional careers in forest technology. Effective
communication, problem solving, and time management.
Effective Fall 2022
- FOR 117 Natural Resources Equipment and Worker Safety
Fall of every year. 1(0-3) R: Open to agricultural technology students.
Introduction to the power equipment commonly used in the field of Natural Resources.
Effective Fall 2022
- FOR 130 Fundamentals of Forest Management Planning
Spring of every year. 1(1-0) R: Open to agricultural technology students.
Introductory course to emerging elements of forest technology and the forest management
plan.
Effective Fall 2022
- FOR 135 Forest Issues and Policy
Fall of every year. 1(1-0) R: Open to agricultural technology students.
Ethical and legal issues, policy, and law from a scientific view-point, with emphasis on the
environmental, ecological, social, and economic factors of a working forest.
Effective Fall 2022
- FOR 250 Introduction to Forest Ecology and Silviculture
Spring of every year. 3(3-0) P: FOR 204 and FOR 222 R: Open to agricultural technology
students.
Biological principles and environmental factors governing the natural establishment,
development, care, and harvesting of forest trees and stands. Field trips required.
Effective Fall 2022
- FOR 260 Applied Forest Management
Fall of every year. 3(1-4) P: FOR 130 and FOR 250 R: Open to agricultural technology students.
Hands on experience working with field data and databases, inventories, mapping, and
drone technology to manage forest resources.
Effective Fall 2022
- FOR 265 Crew Leadership and Management in Forest Technology
Spring of every year. 2(1-3) P: FOR 260 or approval of department R: Open to agricultural
technology students.
Aspects of crew leadership in forest technology.
Effective Fall 2022
- FOR 270 Forest Business Operations
Spring of every year. 2(1-2) P: FOR 260 and (FOR 265 or concurrently) or approval of department
R: Open to agricultural technology students.
Basic human relations, business structures, and accounting practices used in forest
management.
Effective Fall 2022
- FOR 275 Timber Harvest Planning and Systems
Spring of every year. 3(1-4) P: FOR 260 and (FOR 270 or concurrently) R: Open to agricultural
technology students.
Preparation for, and administration of, timber harvest and sales.
Effective Fall 2022

DEPARTMENT OF HORTICULTURE

- HRT 351 Hydroponic Food Production
Fall of every year. 2(2-0) P: HRT 203 and HRT 204 R: Open to juniors or seniors.
Principles and practices of commercial controlled environment hydroponic production.
Nutrient solution chemistry and management, system design and operation, crop
physiology, and environmental and cultural management.
Effective Fall 2022
- HRT 351L Hydroponic Food Production Lab
Fall of every year. 2(0-4) P: HRT 203 and HRT 204 and (HRT 351 or concurrently) R: Open to
juniors or seniors in the Horticulture Major.
Greenhouse hydroponic production of leafy greens, microgreens, and fruiting crops.
Hands-on experience with monitoring and managing nutrient solutions, scouting, and
identifying pests, disease, and physiological disorders, measuring environmental
parameters, and food safety practices.
Effective Fall 2022
- HRT 494 Horticulture Career Development II
Fall of every year. 1(1-0) P: Completion of Tier I Writing Requirement RB: HRT 207 R: Open to
seniors in the Department of Horticulture.
Development of critical professional skills, including critical research and professional
writing skills, resume/curriculum vitae, letters of application, communication and
presentation skills.
Effective Fall 2022

COLLEGE OF HUMAN MEDICINE

- HM 845 Informatics and Information Technology
Spring of odd years. 3(3-0) P: HM 842 and HM 843 RB: Academic or professional background in
public health and/or public health related discipline, experience with databases R: Open to students
in the Public Health major or approval of college.
- REINSTATEMENT Information technology for health informatics systems, principles of relational database
systems, operations, information systems, data sets, data standards and classification
systems.
Effective Spring 2023

CENTER FOR INTEGRATIVE STUDIES IN SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES

- ISS 205 Big Ideas in the Social Sciences
Fall of every year. Spring of every year. Summer of every year. 4(4-0)
Introduction to the inquiry and research of complex issues in the social, behavioral, and
economic sciences. Special topics to engage new students' interests, analyze complex
ideas, and consider empirical evidence.
Effective Fall 2022

SCHOOL OF JOURNALISM

- JRN 830 News Media Law and Ethics
Fall of every year. Spring of every year. 3(3-0) A student may earn a maximum of 3 credits in all
enrollments for this course. R: Open to graduate students or master's students or graduate-
professional students.
Legal, ethical and moral concerns associated with news gathering and dissemination.
Principles and issues associated with the First Amendment. Libel, invasion of privacy,
prior restraint and access to information, objectivity, sensitivity, covering victims and
survivors, and source relations.
Effective Fall 2022

MSU COLLEGE OF LAW

LAW 593K Business Ethics and the Law
On Demand. 0 to 6 credits. P: LAW 500M R: Open to Law students or law advanced students in the MSU College of Law.
Exploration of prominent moral and ethical codes as expressed in U.S. business law and policy, including legal definitions of “unfair competition” and “the morals of the marketplace.”
Effective Spring 2023

DEPARTMENT OF MATHEMATICS

MTH 801 Machine Learning Algorithms: Mathematical Analysis
Fall of every year. Spring of every year. 3(3-0)
Introduction to the mathematical basis of machine learning and predictive analytics. Linear and ridge regression, principal component analysis, classification methods, and neural networks. Convergence of algorithms.
Effective Fall 2022

MTH 803 Sports Decision Analytics
Fall of every year. Spring of every year. 3(3-0) P: MTH 501
Theories of sports decisions are developed and assessed through quantitative and stochastic techniques.
Effective Fall 2022

DEPARTMENT OF MILITARY SCIENCE

MS 110L Army Leadership and Officer Development Laboratory
Fall of every year. 1(0-2) RB: MS 110 or concurrently
Introduction to leader tasks in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022

MS 120L Introduction to Army Leadership and Problem-Solving Laboratory
Spring of every year. 1(0-2) RB: MS 110 and MS 110L and MS 120
Introduction to team operations and tactics in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022

MS 210L Values and Ethics of Army Leaders Laboratory
Fall of every year. 1(0-2) RB: MS 110 and MS 110L and MS 120 and MS 120L and (MS 210 or concurrently)
Introduction to squad-level operations and tactics in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022

MS 220L Army Doctrine and Team Development Laboratory
Spring of every year. 1(0-2) RB: MS 110 and MS 110L and MS 120 and MS 120L and MS 210 and MS 210L and (MS 220 or concurrently)
Application of advanced squad-level operations and tactics in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022

- MS 310L Leading and Problem Solving in Army Units Laboratory
Fall of every year. 1(0-2) RB: MS 110 and MS 110L and MS 120 and MS 120L and MS 210 and MS 210L and MS 220 and MS 220L and (MS 310 or concurrently)
Introduction to platoon-level operations and tactics in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022
- MS 320L Army Small Unit Tactics and Leadership Laboratory
Spring of every year. 1(0-2) RB: (MS 320 or concurrently) MS 120 and MS 120L and MS 210 and MS 210L and MS 220 and MS 220L and MS 310 and MS 310L
Application of advanced platoon-level operations and tactics in a field environment, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022
- MS 410L Adaptive Army Leadership Laboratory
Fall of every year. 1(0-2) RB: (MS 410 or concurrently) and MS 320 and MS 320L and MS 120L and MS 210 and MS 210L and MS 220 and MS 220L and MS 310 and MS 310L
Application of Army planning and training processes to introduce MS 110, 210 and 310 students to platoon and below operations in field settings, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022
- MS 420L Army Leadership in a Complex World Laboratory
Spring of every year. 1(0-2) RB: (MS 420 or concurrently) and MS 410L and MS 410 and MS 320L and MS 320 and MS 310L and MS 310 and MS 220L and MS 220 and MS 210L
Application of Army planning and training processes to teach advanced tactics to MS 110, 210 and 310 students for platoon and below operations in field settings, regular practical exercises and fitness evaluations per Army, Army Reserve, and National Guard standards.
Effective Fall 2022

COLLEGE OF MUSIC

- MUS 427 Early Music
Spring of odd years. 2(2-0) P: MUS 212 R: Open to undergraduate students in the College of Music.
Exploration of musical styles of the Middle Ages and Renaissance globally. Understanding how contact between different cultures resulted in new musical practices.
Effective Spring 2023

SCHOOL OF PACKAGING

- PKG 450 Automotive and Industrial Packaging
Fall of every year. 2(2-0) P: MTH 124 or MTH 132 or LB 118 or MTH 152H
- REINSTATEMENT Returnable and expendable packaging for part shipments to assembly plants, cost justification, service parts packaging, logistical systems, and material handling.
SA: PKG 440
Effective Summer 2022

DEPARTMENT OF PHILOSOPHY

- PHL 305 Podcasting Philosophy
Fall of every year. Spring of every year. 3(3-0)
Podcasting as a media for philosophy understood as public, engaged dialogue. Topics include dialogue and conversation as a philosophical methodology, and the creation of philosophical podcasts. Philosophical topics vary by instructor.
Effective Fall 2022

- PHL 331 Formal Practical Reasoning
Fall of every year. Spring of every year. 4(4-0) RB: PHL 130
Formal methods in practical reasoning. Decision theory, including decisions under
ignorance and risk, and game theory.
Effective Fall 2022
- PHL 360 Philosophy of Language
Spring of every year. 3(3-0) RB: One PHL course.
- REINSTATEMENT Elementary topics in semantics, linguistic pragmatics, and philosophy of language.
Meaning, denotation, speech acts, and linguistic relativity.
Effective Fall 2022

DEPARTMENT OF STATISTICS AND PROBABILITY

- STT 832 Data Visualization and Programming in R
Fall of every year. 3(3-0) R: Open to students. Approval of department.
Development of sports data predictive models. Extraction and management of sport data,
graphical and numerical summaries using visualization tools to model practical sports
scenarios. Compilation of written reports on test results and performance outputs.
Effective Fall 2022
- STT 834 Sports Analytics Capstone
Spring of every year. 3(3-0) P: MTH 501 and STT 502 and MTH 503 R: Approval of department.
Development of quantitative models, based on complex sports-related data sets, to
support personnel or revenue-based decision-making from the perspective of a coach,
manager, or player agent. Reports, presentations, and code repositories will be delivered.
Effective Fall 2022

DEPARTMENT OF THEATRE

- THR 205 Media Acting I
On Demand. 2(1-3) P: THR 101
Introduction to On-Camera Acting technique and pertinent film production terminology.
SA: THR 204
Effective Fall 2022
- THR 206 Musical Theatre I
On Demand. 2(1-3) P: THR 101
Introduction to the Musical Theatre canon, new musical development and performance.
Effective Fall 2022
- THR 305 Media Acting II
On Demand. 2(1-3) P: THR 205
Intensive on-camera scene study across a variety of genres.
Effective Fall 2022
- THR 306 Musical Theatre II
On Demand. 2(1-3) P: THR 206
Advanced approach to Musical Theatre canon, new musical development, and
performance.
Effective Fall 2022
- THR 405 Media Acting III
On Demand. 2(1-3) P: THR 305
Reel scene production and professional skills building in on-camera acting.
Effective Fall 2022
- THR 406 Musical Theatre III
On Demand. 2(1-3) P: THR 306
Professionalization in Musical Theatre, new musical development and performance.
Effective Fall 2022

THR 409 Auditioning
 On Demand. 2(2-2) P: THR 101
 Auditioning for work as an actor in stage, screen, and new media.
 Effective Fall 2022

PART III – COURSE CHANGES

DEPARTMENT OF ADVERTISING AND PUBLIC RELATIONS

- PR 225 Writing for Public Relations
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0)
Theory and practice of preparing written business communications for public relations.
~~Effective Fall 2024~~ Effective Summer 2023
- PR 260 Principles of Public Relations
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0)
Role and function of public relations in society. History of the field. Roles of practitioners and understanding the unique professional areas within the field of public relations.
SA: ADV 227, ADV 260
~~Effective Fall 2024~~ Effective Summer 2023
- PR 300 Public Relations Theory and Ethics
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: ADV 260 or concurrently
Theories of public relations, persuasion, social media interaction and mass communication as they apply to public relations, audience analysis and application of social media strategies. Theories of ethics, ethical codes in public relations and the ethical challenges in this field.
~~Effective Summer 2020~~ Effective Summer 2023
- PR 305 Methods of Public Relations Inquiry
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: (ADV 260 or concurrently) and (MTH 101 or MTH 102 or STT 200)
Nature and conduct of public relations inquiry. Formative research methods, data analytics and evaluative measures used for public relations campaign planning. Drawing samples, collecting and analyzing data, interpreting and reporting results.
~~Effective Summer 2020~~ Effective Summer 2023
- PR 310 Diversity, Equity, and Inclusion in Public Relations and Advertising
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: ADV 260 or concurrently
Exploration of issues pertaining to diversity, equity and inclusion (DEI) as they impact the practice of public relations and advertising within the United States and globally. Effective cross-cultural communication practices.
~~Effective Summer 2020~~ Effective Summer 2023
- PR 320 Public Relations Storytelling for Digital, Video and Print
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: PR 300 and PR 305 and PR 310 R: Open to students in the Public Relations major.
Theory and application of storytelling for corporate and public relations purposes in the digital environment. Examination of established and emerging digital and social media platforms. Content creation for public relations purposes in established and emerging digital and social media platforms.
~~Effective Fall 2020~~ Effective Summer 2023
- PR 325 Intermediate Social Media and Public Relations Techniques
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: (COM 300 or STT 200 or STT 201) or (PR 300 and PR 305 and PR 310) R: Open to students in the Public Relations Minor or in the Public Relations major.
Production of social media and public relations messages to achieve strategic organizational communication objectives. Techniques for measuring success. Development of public relations portfolio.
SA: ADV 325
~~Effective Fall 2020~~ Effective Summer 2023

- PR 335 **Advanced Social Media and Public Relations Techniques**
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: PR 300 and PR 305 and PR 310 and PR 325 R: Open to students in the Public Relations Minor or in the Public Relations major.
Advanced production of written, social media and video public relations messages to achieve strategic organizational communication objectives. Techniques for measuring success. Refinement of public relations portfolio.
~~Effective Fall 2020~~ Effective Summer 2023
- PR 425 **Public Relations Strategy and Ethics in a Digital World**
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: (COM 300 or STT 200 or STT 201) or (PR 300 and PR 305 and PR 310) R: Open to students in the Public Relations Minor or in the Public Relations major.
Strategic planning and ethical considerations in public relations, social media and digital media.
SA: ADV 425
~~Effective Fall 2020~~ Effective Summer 2023
- PR 485 **Integrated Public Relations Campaigns (W)**
Fall of every year. Spring of every year. ~~Summer of every year.~~ 3(3-0) P: (PR 300 and PR 305 and PR 310 and PR 320 and PR 335 and PR 325 and PR 425) and completion of Tier I writing requirement R: Open to students in the Public Relations major.
Development of public relations campaigns for clients. Relationship-building, creative, social media and digital marketing communication elements.
~~Effective Fall 2020~~ Effective Summer 2023
- PR 492 **Special Topics in Public Relations**
Fall of every year. Spring of every year. ~~Summer of every year.~~ 1 to 8 credits. A student may earn a maximum of 9 credits in all enrollments for this course. RB: ADV 260 and ADV 225 R: Open to students in the Public Relations major.
Varied topics pertaining to the study of public relations processes. Not open to freshmen.
~~Effective Fall 2020~~ Effective Summer 2023

COLLEGE OF ARTS AND LETTERS

- ACM 461 **Financial Management and Planning of Arts, Cultural and Museum Management**
Fall of every year. Spring of every year. Summer of every year. 3(2-2) P: ACM 271 or concurrently Not open to students with credit in ACM 861.
Strategic theory, financial, and planning approaches for arts, cultural, and museum organization administration and management. Budget development and financial strategy; strategic planning. Staffing and human resource management.
SA: AL 461
~~Effective Fall 2021~~ Effective Summer 2022
- ACM 871 **Internship in Arts and Cultural Management**
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: ACM 801 or concurrently R: Approval of department.
Supervised internship with arts and cultural organizations associated with management and operational studies.
SA: AL 871
DELETE COURSE
Effective Summer 2022
- ACM 872 **Practicum in Arts and Cultural Management**
On Demand. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: ACM 801 or concurrently R: Open to graduate students in the College of Arts and Letters. Approval of college.
Practical experience in arts and cultural management, which may involve project-oriented activities.
Request the use of the Pass-No Grade (P-N) system.
~~Effective Fall 2020~~ Effective Summer 2022

- MUSM 485 Foundations of Museum Studies
Fall of every year. 3(3-0) Interdepartmental with Anthropology and History of Art. R: Not open to freshmen. Not open to students with credit in MUSM 885.
Activities, functions, and organization of museums. Changing role of museums as cultural institutions.
SA: AL 485
~~Effective Spring 2022~~ Effective Summer 2022
- MUSM 487 Museums, Arts and Culture in the Digital Future
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with Anthropology. P: MUSM 485 or concurrently Not open to students with credit in MUSM 887.
Theoretical and practical approaches to the ways digital technologies are changing the definitions of audiences, visitor experiences, arts and cultural professionals, and organizations.
~~Effective Fall 2024~~ Effective Summer 2022
- MUSM 488 Museum Curatorial Practices
Spring of every year. 3(3-0) Interdepartmental with Anthropology and History of Art. P: (MUSM 485) and ((MUSM 489 or concurrently) or (MUSM 494 or concurrently) or (MUSM 498 or concurrently))
R: Not open to freshmen. Not open to students with credit in MUSM 888.
Methods and practices for the development, care, and use of museum collections in research, education, and exhibition activities.
~~SA: HA 488, AL 488~~ SA: AL 488, HA 488
~~Effective Spring 2022~~ Effective Summer 2022
- MUSM 489 Museum Collections Management and Care
Fall of every year. Spring of every year. 3(3-0) P: MUSM 485 or concurrently Not open to students with credit in MUSM 889.
Introduction to the organization, preventative care, and meaning of objects held in museum collections. Basic collection management, registration, and preservation skills are introduced from acquisition to deaccession. Explore the constructed meanings of museum objects by professionals and visitors to contextualize the care and organization of museum collections.
~~Effective Fall 2024~~ Effective Summer 2022
- MUSM 497 Practicum in Museum Studies
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. P: MUSM 485 or concurrently RB: MUSM 485 R: Open to students in the Museum Studies Minor and open to students in the Museum Studies Graduate Certificate or approval of college.
Practical experience in museum studies.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
SA: AL 497
~~Effective Spring 2022~~ Effective Summer 2022
- MUSM 498 Learning and Experience in Museums
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with History of Art. P: MUSM 485 or concurrently ~~R: Open to juniors or seniors.~~ R: Not open to freshmen. Not open to students with credit in MUSM 898.
Theoretical and practical approaches to understanding and enhancing ways visitors experience museums, zoos, botanical gardens, and other informal learning environments. Educational and interpretive planning and programming with individuals, groups, and communities.
SA: HA 487
~~Effective Fall 2024~~ Effective Summer 2022

- MUSM 887 The Digital Museum
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with Anthropology and History. P: MUSM 885 or concurrently R: Open to graduate students in the College of Arts and Letters or approval of college. Not open to students with credit in MUSM 487.
Exploration, application, and innovation of the most current uses of the digital in museums, the arts, and other cultural organizational settings.
SA: AL 887
~~Effective Spring 2022~~ Effective Summer 2022
- MUSM 893 Museum Internship
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: MUSM 885 or concurrently R: Approval of college.
Supervised applied experience in a museum, zoo, garden or other learning environment related to a student's field of study.
Request the use of the Pass-No Grade (P-N) system.
SA: AL 893
DELETE COURSE
Effective Summer 2022
- MUSM 895 Special Topics in Museum Studies
Fall of every year. Spring of every year. 1 to 6 credits. Interdepartmental with Anthropology. A student may earn a maximum of 6 credits in all enrollments for this course. P: MUSM 885 or concurrently R: Approval of college.
Current issues in museum studies.
SA: AL 895
DELETE COURSE
Effective Summer 2022
- MUSM 897 Practicum in Museum Studies
On Demand. 1 to 3 credits. Interdepartmental with Anthropology and Community Sustainability and History. A student may earn a maximum of 6 credits in all enrollments for this course. P: MUSM 885 or concurrently R: Approval of college.
Practical experience in museum studies, which may involve project-oriented activities to fulfill the Plan B requirement.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
SA: AL 897
~~Effective Fall 2024~~ Effective Summer 2022

BIOMEDICAL LABORATORY DIAGNOSTICS PROGRAM

- BLD 805 Communication in the Sciences
~~Fall of every year.~~ Summer of every year. 2(2-0)
Professional communication in clinical laboratory science, including article and proposal writing, thesis writing, posters, and presentations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Spring 2022~~ Effective Fall 2022
- BLD 811 Fundamentals of Scientific Research
~~Fall of every year.~~ Spring of every year. 1(1-0) R: Open to master's students in the Biomedical Laboratory Diagnostics Program.
Best practices for the research enterprise. Ethical conduct of research. Critical evaluation of scientific literature.
SA: MT 810
~~Effective Fall 2016~~ Effective Spring 2023

- BLD 815 Cell Biology in Health and Disease I
~~Spring of every year.~~ Spring of even years. 2(2-0) RB: Undergraduate course in Biochemistry and Physiology.
Experience in a clinical laboratory
Principles and theories of cell biology and biochemistry are presented with a focus on applications to clinical pathology.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Spring 2023
- BLD 816 Cell Biology in Health and Disease II
~~Summer of every year.~~ Summer of even years. 2(2-0) P: BLD 815 RB: Undergraduate course in biochemistry and physiology. Experience in a clinical laboratory
Continuation of BLD 815.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Summer 2022
- BLD 831 Clinical Application of Molecular Biology
Spring of every year. ~~Summer of every year.~~ 2(2-0) P: BLD 830 RB: Basic biochemistry, medical or research laboratory experience
Molecular diagnostic principles. Diagnostic outcomes in traditional and non-traditional laboratory disciplines.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 831
~~Effective Summer 2017~~ Effective Spring 2023
- BLD 832 Molecular Pathology Laboratory
~~Summer of every year.~~ Summer of even years. 2(0-4) P: BLD 831 or concurrently
Equipment operation, DNA extraction and measurement, electrophoresis, hybridization and transfers, amplification and detection including techniques and automated sequencing. Clinical applications.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Summer 2022
- BLD 835 Hemostasis, Thrombosis and Effective Resource Management
~~Fall of every year.~~ Fall of even years. 3(3-0) RB: Background in hemostasis, thrombosis and blood product management.
Theories of coagulation, thrombosis and effective blood product management. Needs and particular stresses during an active bleeding crisis.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Fall 2022
- BLD 836 Adverse Transfusion Outcomes: Detection, Monitoring and Prevention
~~Spring of every year.~~ Spring of odd years. ~~Summer of every year.~~ 2(2-0) RB: Medical technology and clinical laboratory sciences laboratory professionals.
Adverse transfusion outcomes (ATO) covering cause, methods of detection, monitoring paradigms and prevention.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Spring 2016~~ Effective Spring 2023

- BLD 837 Transfusion Service Operations and Management
~~Fall of every year.~~ Fall of even years. ~~Spring of every year.~~ 1(1-0) RB: Clinical transfusion service practical experience.
Management and operational practices needed to meet both the fiscal and regulatory oversight of a transfusion service.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Fall 2010~~ Effective Fall 2022
- BLD 838 Clinical Context of Blood Product Management
~~Fall of every year.~~ Fall of even years. 1(1-0) RB: Experience in transfusion medicine
Effective blood product management in the context of high use, high demand clinical settings.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Fall 2010~~ Effective Fall 2022
- BLD 842 Managing Biomedical Laboratory Operations
~~Fall of every year.~~ Fall of even years. ~~Spring of every year.~~ 2(2-0) R: Open to graduate students or lifelong graduate students or approval of department.
Integration of the roles of legislative, regulatory, technological and economic factors that influence the practice and management of biomedical laboratory operations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 842
~~Effective Fall 2016~~ Effective Fall 2022
- BLD 844 Topics in Biomedical Laboratory Operations
~~Spring of every year.~~ Spring of odd years. 1(1-0) P: BLD 842 R: Open to graduate students or lifelong graduate students or approval of department.
Current issues relevant to biomedical laboratory operations from an interdisciplinary perspective with an emphasis on efficient laboratory operations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 844
~~Effective Fall 2016~~ Effective Spring 2023
- BLD 846 Decision Processes for Biomedical Laboratory Operations
~~Fall of every year.~~ Fall of odd years. 2(2-0) P: BLD 842 R: Open to master's students or lifelong graduate students or approval of department.
Integrative case studies presented in a problem-based learning format. Strategies for decision-making in the operations of a biomedical laboratory. Cases integrate scientific principles, management principles and regulatory factors.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 846
~~Effective Summer 2010~~ Effective Fall 2022
- BLD 850 Concepts in Immunodiagnostics
Fall of every year. ~~Spring of every year.~~ 2(2-0) RB: An undergraduate course in biochemistry or cell biology.
Immunology principles and theory applied to diagnostic evaluation of the host immune response during health and disease.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 850
~~Effective Summer 2017~~ Effective Fall 2022

- BLD 851 Clinical Application of Immunodiagnostic Principles
~~Spring of every year. Summer of every year.~~ 2(2-0) P: BLD 850
Immunodiagnostic theories and principles applied to clinical assay development and method evaluation.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
SA: MT 851
~~Effective Summer 2017~~ Effective Spring 2023
- BLD 852 Immunodiagnostics Laboratory
~~Summer of every year.~~ Summer of even years. 2(2-0) P: BLD 850
Performance of immunopurifications, in vitro diagnostic assays and basic flow cytometry. Data analysis and quality control evaluation.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Summer 2022
- BLD 853 Advanced Flow Cytometry
~~Summer of every year.~~ Summer of odd years. 2(2-0) P: BLD 850 and BLD 851 and (BLD 852 or concurrently) or approval of department
Flow cytometry systems, software and reagents. Data analysis and experimental design of complex flow cytometric assays. Flow cytometry applications in medicine and research.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2017~~ Effective Summer 2022
- BLD 854 Advanced Flow Cytometry Laboratory
~~Summer of every year.~~ Summer of odd years. 2(0-4) P: BLD 852 RB: Experience in Flow Cytometry R: Open to graduate students. C: BLD 853 concurrently.
Flow cytometry and analyses exercises that emphasize controls, reagent titrations, assay validation, determination of assay sensitivity, and assay development using 6 to 8 fluorochromes.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2018~~ Effective Summer 2022
- BLD 870 Clinical Mass Spectrometry Theory
~~Fall of every year.~~ Fall of odd years. 2(2-0) RB: One course in Biochemistry or concurrent.
The theory and principles of mass spectrometry. Principles of instrumentation, liquid and gas chromatography theory and data analysis as it applies to the clinical laboratory.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Spring 2016~~ Effective Fall 2022
- BLD 871 Applied Clinical Mass Spectrometry
~~Spring of every year.~~ Spring of even years. 2(2-0) P: BLD 870 or approval of department RB: One course in protein chemistry or concurrent
Data interpretation and quality control in clinical mass spectrometry. Principles of sample preparation, platform selection, data analysis, and clinical applications as it applies to the clinical laboratory.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2016~~ Effective Spring 2023

BLD 872 Clinical Mass Spectrometry Laboratory
~~Summer of every year.~~ Summer of even years. 2(1-2) P: BLD 870 and BLD 871 or approval of department RB: One course in protein chemistry or concurrent enrollment in same.
Sample preparation, instrument operation, data interpretation, and instrument maintenance as it relates to the clinical practice.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2016~~ Effective Summer 2022

COLLEGE OF COMMUNICATION ARTS AND SCIENCES

CAS 203 Design in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
Essential techniques for creating single and multiple page layouts for print communication products.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 204 Web Design in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
Professional web authoring techniques including technology standards, aesthetics and production in media settings.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 205 Photography in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
Essential techniques for capturing, processing and outputting digital images in media settings.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 206 Graphics and Illustration in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
Essential techniques for creating digital illustrations and graphics for media projects.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 207 Animation in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
Fundamentals of animation including principles, technology and design techniques for stand-alone and web-based applications in media settings.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 208 Interactivity in Media Settings
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to undergraduate students in the College of Communication Arts and Sciences.~~
User interface and programming techniques for interactive design.
~~Effective Fall 2017~~ Effective Fall 2022

CAS 209 Introduction to Video Production
Fall of every year. Spring of every year. Summer of every year. 2(2-0) ~~R: Open to students.~~
Professional video techniques, technologies, standards, aesthetics, and procedures.
SA: CAS 201, CAS 202
~~Effective Summer 2021~~ Effective Fall 2022

DEPARTMENT OF COMMUNITY SUSTAINABILITY

- CSUS 811 Community, Food and Agriculture: A Survey
~~Fall of every year.~~ Fall of odd years. 3(3-0)
Philosophical, socio-economic, health and political issues related to food and farming in the United States.
SA: ACR 811
~~Effective Fall 2014~~ Effective Fall 2022
- CSUS 833 Program Evaluation in Agriculture and Natural Resources
~~Spring of every year.~~ Spring of even years. 3(3-0)
Concepts, theories, procedures and applications of program evaluation. Planning and implementing evaluations of food, agriculture and natural resources programs. Logic models, evaluation plans and instruments, data analysis and written reports.
SA: ACR 833
~~Effective Summer 2016~~ Effective Fall 2022
- CSUS 838 Participatory Modes of Inquiry
~~Fall of every year.~~ Fall of odd years. 3(3-0) RB: CSUS 800, CSUS 802, a graduate philosophy of science course, or a graduate-level research methods course.
Participatory and action research literature across the disciplines. Epistemological and theoretical foundations, fields of application, points of emphasis for practice. Skill building in reflexivity, surfacing assumptions, dialogue, and active listening.
SA: ACR 838
~~Effective Fall 2016~~ Effective Fall 2022
- CSUS 848 Community Based Natural Resource Management in International Development
~~Spring of every year.~~ Spring of odd years. 3(3-0)
Community-based natural resource management in developing countries. Determinants of conservation, productivity, and income distribution. Interaction of human and natural systems, perceptions of scarcity, property rights, collective action, and governance. Policy tools for promoting conservation.
SA: ACR 848, RD 823
~~Effective Fall 2014~~ Effective Fall 2022

DEPARTMENT OF COMPUTATIONAL MATHEMATICS, SCIENCE, AND ENGINEERING

- CMSE 495 Experiential Learning in Data Science (W)
Fall of every year. Spring of every year. 4(2-4) Interdepartmental with Computer Science and Engineering and Statistics and Probability. P: (CSE 232 and CMSE 382) and completion of Tier I writing requirement R: Open to seniors.
~~Team-based data science projects on realistic, large scale data.~~ Team-based data science projects working with real-world data in collaboration with client/company sponsors. Practice in software development, data collection, curation, modeling, scientific visualization and presentation of results. Students may be required to sign a non-disclosure agreement (“NDA”) or an assignment of intellectual property rights (“IP Assignment”) to work with some project sponsors.
~~Effective Fall 2019~~ Effective Spring 2023

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

- CSE 802 Pattern Recognition and Analysis
Spring of every year. 3(3-0) ~~P: CSE 840~~ RB: (CSE 331 and MTH 314 and STT 441) or CSE 331 and MTH 314 and STT 441 ~~R: Open to graduate students in the Department of Computer Science and Engineering or in the Department of Electrical and Computer Engineering.~~ R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.
~~Algorithms for classifying and understanding data. Statistical and syntactic methods, supervised and unsupervised machine learning. Cluster analysis and ordination. Exploratory data analysis. Methodology for design of classifiers. Introduction to salient topics in statistical pattern recognition. These include concepts in Bayesian decision theory, parametric and non-parametric density estimation schemes, linear discriminant functions, perceptrons and unsupervised clustering. The project component of this course will test the student's ability to design and evaluate classifiers on datasets.~~
~~Effective Spring 2010~~ Effective Fall 2023
- CSE 803 Computer Vision
Fall of every year. 3(3-0) ~~P: CSE 840~~ RB: CSE 331 and MTH 314 and STT 351 ~~R: Open only to Computer Science or Electrical Engineering majors.~~ R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.
Visual information processing problems. Human and machine vision systems. Image formation and transforms. Encoding, enhancement, edge detection, segmentation. 2D and 3D object description and recognition. Scene analysis. Applications.
SA: CPS 803
~~Effective Summer 2000~~ Effective Fall 2023
- CSE 814 ~~Formal Methods in Software Development~~
Computer Aided Verification
~~Fall of odd years. Spring of every year. 3(3-0) RB: MTH 472 RB: CSE 260 R: Open only to majors in the Department of Computer Science and Engineering or approval of department.~~ R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.
Formal specification languages, integrating verification with development. Design and the implementation of term project.
SA: CPS 814
~~Effective Fall 2024~~ Effective Spring 2023
- CSE 841 Artificial Intelligence
Fall of every year. 3(3-0) ~~P: CSE 840~~ RB: CSE 440 ~~R: Open only to Computer Science or Electrical Engineering majors.~~ R: Open to graduate students in the Department of Computer Science and Engineering.
Types of intelligence, knowledge representation, cognitive models. Goal-based systems, heuristic search and games, expert systems. Language understanding, robotics and computer vision, theorem proving and deductive systems, and learning.
SA: CPS 841
~~Effective Summer 1999~~ Effective Fall 2023
- CSE 847 Machine Learning
Spring of every year. 3(3-0) ~~P: CSE 844~~ P: CSE 840 RB: Algorithms, programming in C or equivalent, probability and statistics, artificial intelligence. ~~R: Open only to students in the Department of Computer Science and Engineering or approval of department.~~ R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.
Computational study of learning and data mining. Strengths and limitations of various learning paradigms, including supervised learning, learning from scalar reward, unsupervised learning, and learning with domain knowledge.
~~Effective Fall 2002~~ Effective Fall 2023

CSE 849 Deep Learning
Spring of every year. 3(3-0) P: CSE 840 and CSE 847 RB: MTH 314 and STT 441 or equivalent CSE 841 or 842 or 847 R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.

Overview of both the foundational ideas and the recent advances in deep neural network algorithms and applications.

~~Effective Fall 2022~~ Effective Fall 2023

CSE 881 Data Mining
~~Fall of every year.~~ Spring of every year. 3(3-0) P: CSE 840 or CSE 482 RB: Programming skills in C, C++, Java and Matlab. Basic knowledge in calculus, probability and statistics. R: Open to graduate students in the Department of Computer Science and Engineering or approval of department.

Techniques and algorithms for knowledge discovery in databases, from data preprocessing and transformation to model validation and post-processing. Core concepts include association analysis, sequential pattern discovery, anomaly detection, predictive modeling, and cluster analysis. Application of data mining to various application domains.

~~Effective Fall 2004~~ Effective Fall 2023

DEPARTMENT OF COUNSELING, EDUCATIONAL PSYCHOLOGY, AND SPECIAL EDUCATION

CEP 868 Medical Aspects of Disability
Spring of every year. ~~Summer of every year.~~ 3(3-0)
Medical terminology, medical aspects of physical, sensory and developmental disabilities. Impact on function, accommodation, and adjustment. Implications for service provision.
~~Effective Summer 2024~~ Effective Spring 2023

CEP 894G Special Education Practicum: Children and Youth with Learning Disabilities
Fall of every year. Spring of every year. ~~4 to 10 credits.~~ 1 to 6 credits. ~~A student may earn a maximum of 10 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for this course.~~ R: Open only to graduate students in the Special Education major. R: Open to graduate students in the Special Education Major. C: CEP 802A concurrently and CEP 804A concurrently.

Supervised field experience with students who have learning disabilities. Planning, implementing, and critiquing instruction in elementary and secondary school settings.

~~Effective Spring 1999~~ Effective Fall 2022

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

HNF 250 Contemporary Issues in Human Nutrition
Fall of every year. ~~3(2-2)~~ 3(4-0) P: (HNF 150) and completion of Tier I writing requirement R: Open to students in the Nutritional Sciences Major or in the Lyman Briggs Nutritional Sciences Coordinate Major.

Current topics and controversies in nutrition, health, and chronic disease. Concepts of health. Credible sources of nutrition information and research. Governing agencies and policy. Ethical issues related to nutrition.

~~Effective Fall 2018~~ Effective Fall 2022

HNF 250L Professional Development and Career Planning in Nutrition
Fall of every year. Spring of every year. 1(0-2) P: HNF 150 R: Open to students in the Nutritional Sciences Major and open to students in the Lyman Briggs Nutritional Sciences Coordinate Major.
Experiential learning and career opportunities in nutrition. Skills for professional and career development.

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 Spring 2022

- HNF 415 Global Nutrition
Fall of every year. ~~Spring of every year.~~ 3(3-0) ~~P: HNF 350~~ P: HNF 250 R: Open to seniors or juniors in the Nutritional Sciences Major or in the Lyman Briggs Nutritional Sciences Coordinate Major.
Burdens, causes, and consequences of undernutrition globally. Interaction of nutrition with illness, obesity, and reproductive health. Approaches, policies, and programs to prevent undernutrition.
~~Effective Spring 2021~~ Effective Fall 2022

DEPARTMENT OF HORTICULTURE

- HRT 205 Plant Mineral Nutrition
Spring of every year. 1(3-0) P: CSS 210 RB: HRT 203
Mineral elements required by plants. Essential elements, effect of soil and potting media on nutrient availability, absorption and function in plant physiology, and nutrient deficiency and toxicity symptoms. Methods of monitoring and managing plant nutrient levels. Class meets first five weeks of semester.
~~DELETE COURSE~~
Effective Fall 2022
- HRT 219 Landscape Computer Aided Design
Spring of even years. 2(3-0) RB: CSE 101 or CSS 110
Computer Aided Design (CAD) for landscape design. Calculations, take offs, perspective drawings using AutoCAD software. Offered first ten weeks of semester.
~~DELETE COURSE~~
Effective Fall 2022
- HRT 361 Applied Plant Physiology
Fall of every year. 3(3-0) P: PLB 105 or BS 161 or BS 171 RB: HRT 203 and HRT 204
~~Whole plant physiological and growth responses of plants to light, temperature, and gases during commercial plant production. Coordination and management of growth for optimum production and quality. Fundamental aspects of whole plant physiology (i.e. anatomy, water and solute movement, mineral nutrition, photosynthesis, respiration, hormones, and responses to the environment) as well as the application of these principles in plant systems.~~
~~Effective Fall 2014~~ Effective Fall 2022

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

- HDFS 881 Quantitative Methods in Human Development
~~Fall of every year.~~ ~~Spring of every year.~~ 3(3-0) RB: (HDFS 880) or equivalent course in research methods. R: Open to master's students or doctoral students in the Department of Human Development and Family Studies.
Application of quantitative techniques to the analysis of human development and family studies research data.
SA: FCE 881
~~Effective Summer 2018~~ Effective Fall 2022
- HDFS 901 Contemporary Scholarship in Human Development and Family Studies
~~Fall of every year.~~ Spring of every year. 3(3-0) R: Open to doctoral students in the Department of Human Development and Family Studies.
Multiple perspectives on human development and family studies scholarship. Emerging research; professional development strategies.
SA: FCE 901
~~Effective Fall 2010~~ Effective Fall 2022

DEPARTMENT OF LINGUISTICS, LANGUAGES AND CULTURES

- GRM 898 Master's Research Project
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to graduate students in the German Studies Major or approval of department.
~~Directed research leading to a master's project in partial fulfillment of Plan B master's degree requirements.~~ Directed research in support of Plan B master's degree requirements.
~~Effective Fall 1999~~ Effective Spring 2023
- LLT 496 Practicum in Adult English as a Second Language Teaching
Spring of every year. 3(3-0) ~~P: LLT 346 and LLT 306 and (LLT 361 or concurrently)~~ P: LLT 306 R: Open to undergraduate students.
Practical experience in adult ESL teaching. Classroom observations, tutoring, teaching demonstrations, lesson planning, and materials development.
~~Effective Fall 2017~~ Effective Fall 2022

PROGRAM IN MATHEMATICS EDUCATION

- MTHE 840 Critical Content of School Mathematics: Numbers and Operations
~~Spring of odd years. On Demand. 3(3-0) R: Open to graduate students.~~
Mathematical foundations of numbers, number systems, and related algorithms. Historical development. Development in school curriculum. Research on teaching and learning.
SA: SME 840
~~Effective Summer 2013~~ Effective Spring 2022
- MTHE 841 Critical Content of School Mathematics: Algebra
~~Fall of odd years. On Demand. 3(3-0) RB: MTH 310 and MTH 320 R: Open to graduate students.~~
Mathematical foundations of algebra. Historical development. Development in school curriculum. Research on teaching and learning.
SA: SME 841
~~Effective Summer 2013~~ Effective Spring 2022
- MTHE 842 Critical Content of School Mathematics: Geometry
~~Spring of even years. On Demand. 3(3-0) RB: MTH 330 or MTH 432 R: Open to graduate students.~~
Mathematical foundations of geometry. Instructional materials. Historical development. Development of geometry in school curriculum. Research on teaching and learning.
SA: SME 842
~~Effective Summer 2013~~ Effective Spring 2022

DEPARTMENT OF MILITARY SCIENCE

- MS 110 Army Leadership and Officer Development
Fall of every year. ~~4 to 2 credits. 1(1-0)~~ RB: MS 110L or concurrently
Duties and responsibilities of the Army officer and noncommissioned officer. Organizational structure of the Army, Army Reserve, and National Guard. The Army's role in joint operations. Introduction to Army values, leadership, customs, and traditions.
SA: MS 101, MS 101A
~~Effective Fall 2015~~ Effective Fall 2022
- MS 120 Introduction to Army Leadership and Problem Solving
Spring of every year. ~~4 to 2 credits. 1(1-0)~~ ~~RB: MS 110~~ RB: MS 110 and MS 110L and (MS 120L or concurrently)
Fundamentals of basic Army leadership. Military problem solving process. Military briefing and writing skills. Goal setting and time management. Introduction to the Army's developmental counseling program.
~~Effective Fall 2015~~ Effective Fall 2022

- MS 210 Values and Ethics of Army Leaders
Fall of every year. ~~2 to 3 credits, 2(2-0) RB: MS 120 and MS 110 and MS 110L and MS 120L and (MS 210L or concurrently)~~ RB: MS 120 and MS 110 and MS 110L and MS 120L and (MS 210L or concurrently)
~~Application of military case studies. Critical dilemmas in combat situations and the ethical decisions Army leaders make to ensure mission success. Understanding how to improve Army organizations and soldier performance. Introduction to the Army's leadership development program, battle drills, land navigation, and combat decision making. Critical dilemmas in combat situations and the ethical decisions Army leaders make to ensure mission success. Understanding how to improve Army organizations and soldier performance. Introduction to the Army's leadership development program, battle drills, land navigation, and combat decision making.~~
Application of military case studies. Critical dilemmas in combat situations and the ethical decisions Army leaders make to ensure mission success. Understanding how to improve Army organizations and soldier performance. Introduction to the Army's leadership development program, battle drills, land navigation, and combat decision making.
SA: MS 201, MS 201A
~~Effective Summer 2018~~ Effective Fall 2022
- MS 220 Army Doctrine and Team Development
Spring of every year. ~~2 to 3 credits, 2(2-0) RB: MS 110 or MS 120 or MS 210 RB: MS 110 and MS 120 and MS 210 and MS 110L and MS 120L and MS 210L and (MS 220L or concurrently)~~ RB: MS 110 and MS 120 and MS 210 and MS 110L and MS 120L and MS 210L and (MS 220L or concurrently)
Application of Army doctrine to field-based leadership decisions. Army values, teamwork, and warrior ethos in relationship to the law of land warfare and philosophy of military service. Investigation of leading and following using case studies and exercises in small units up to squad-level.
SA: MS 202A, MS 202B
~~Effective Summer 2018~~ Effective Fall 2022
- MS 310 Leading and Problem Solving in Army Units
Fall of every year. ~~3 to 4 credits, 3(3-0) RB: (MS 110 and MS 120 and MS 210 and MS 220) and Completion of basic training, or the leader training course. RB: (MS 110 and MS 120 and MS 210 and MS 220 and MS 110L and MS 120L and MS 210L and MS 220L and (MS 310L or concurrently)) and Completion of basic training, or the leader training course.~~ RB: (MS 110 and MS 120 and MS 210 and MS 220 and MS 110L and MS 120L and MS 210L and MS 220L and (MS 310L or concurrently)) and Completion of basic training, or the leader training course.
Planning and executing military activities in small Army units. Recognizing and analyzing problems in challenging situations. Implementing the skills required to communicate decisions and supervise subordinates. Applying fundamentals of map reading and land navigation.
SA: MS 301
~~Effective Fall 2015~~ Effective Fall 2022
- MS 320 Army Small Unit Tactics and Leadership
Spring of every year. ~~3 to 4 credits, 3(3-0) RB: MS 110 and MS 120 and MS 210 and MS 220 and MS 310 and MS 320 RB: (MS 320L or concurrently) and MS 120 and MS 210 and MS 220 and MS 310 and MS 120L and MS 210L and MS 220L and MS 310L and MS 110~~ RB: (MS 320L or concurrently) and MS 120 and MS 210 and MS 220 and MS 310 and MS 120L and MS 210L and MS 220L and MS 310L and MS 110
Fundamentals of military tactics and battle drills. Applying troop leading procedures to military tactical operations. Implementing tactical skills and making decisions to lead small Army units on the battlefield. Integrate terrain analysis into military planning and operations.
SA: MS 302
~~Effective Fall 2015~~ Effective Fall 2022
- MS 410 Adaptive Army Leadership
Fall of every year. ~~3 to 4 credits, 3(3-0) RB: MS 110 and MS 120 and MS 210 and MS 220 and MS 310 and MS 320 RB: (MS 410L or concurrently) and MS 120 and MS 210 and MS 220 and MS 310 and MS 320 and MS 210L and MS 220L and MS 310L and MS 320L~~ RB: (MS 410L or concurrently) and MS 120 and MS 210 and MS 220 and MS 310 and MS 320 and MS 210L and MS 220L and MS 310L and MS 320L
Application of military case studies. Skills and attributes military leaders use to make decisions in combat situations. Practical exercises in problem solving and crisis counseling. Fundamentals of Army Training Management, the military justice system, and the law of land warfare.
SA: MS 401
~~Effective Fall 2015~~ Effective Fall 2022

MS 420 Army Leadership in a Complex World
Spring of every year. ~~3 to 4 credits. 3(3-0) RB: MS 110 and MS 120 and MS 210 and MS 220 and MS 310 and MS 320 and MS 410~~ RB: (MS 420L or concurrently) and MS 410 and MS 410L and MS 320 and MS 320L and MS 310 and MS 310L and MS 220 and MS 220L and MS 210
Application of military case studies to the principles of the law of land warfare, and rules of engagement in the face of international terrorism. Importance of ethics in military leadership. Integration of the media into military operations. Evaluation of interaction with non-governmental organizations, civilians, and host nation support on the battlefield.
SA: MS 402
~~Effective Fall 2015~~ Effective Fall 2022

COLLEGE OF MUSIC

MUS 494 Musicians' Health and Wellness
~~Fall of even years. Fall of odd years. Spring of even years.~~ 2(2-0) R: Open to undergraduate students in the College of Music and open to graduate students in the College of Music and not open to freshmen in the College of Music.
Healthy musical and lifestyle habits and choices.
~~Effective Spring 2017~~ Effective Fall 2023

MUS 894 Seminar in Musicians' Health and Wellness
Fall of even years. ~~Spring of even years.~~ 1(1-0) R: Open to graduate students in the College of Music. C: MUS 494 concurrently.
Critical reading of research and scholarly resources in the area of performing arts.
~~Effective Spring 2017~~ Effective Fall 2023

DEPARTMENT OF PHILOSOPHY

PHL 130 ~~Logic and Reasoning~~
Reasoning and Argumentation
Fall of every year. Spring of every year. 3(3-0) ~~Not open to students with credit in PHL 330.~~
~~Deductive and inductive reasoning. Topics such as rational argumentation, fallacies, definition, meaning, truth and evidence. Techniques for critical reading and thinking.~~
Deductive, inductive, and practical reasoning. Topics such as rational argumentation, fallacies, definition, meaning, truth, and evidence. Techniques for critical reading and thinking.
~~Effective Fall 2015~~ Effective Fall 2022

PHL 330 ~~Formal Reasoning~~
Formal Deductive Reasoning
Fall of every year. Spring of every year. 4(4-0) RB: PHL 130 ~~Not open to students with credit in PHL 432.~~
Formal methods in deductive reasoning. Logic of connectives and quantifiers including identity, functions, and descriptions.
~~Effective Fall 2015~~ Effective Fall 2022

PHL 432 Logic and its Metatheory
Spring of odd years. 4(4-0) ~~RB: PHL 130 RB: PHL 330 Not open to students with credit in PHL 330.~~
Logical consequence, first-order predicate logic with identity, including functions and descriptions. Proof theory and model theory. Topics in metatheory such as completeness, compactness, and the Lowenheim-Skolem Theorems. The axiomatic method and Godel's Incompleteness Theorems.
~~Effective Fall 2015~~ Effective Fall 2022

- PHL 492 Capstone for Majors (W)
Spring of every year. 3(3-0) P: Completion of Tier I Writing Requirement ~~RB: (PHL 130 or PHL 330 or PHL 432) and ((PHL 210 and PHL 214) and 20 total credits in Philosophy)~~ ~~RB: (PHL 130 or PHL 330 or PHL 331 or PHL 432) and ((PHL 210 and PHL 211 and PHL 212 and PHL 213 and PHL 214) and 20 total credits in Philosophy)~~ R: Open to seniors in the Department of Philosophy or approval of department.
Advanced, variable topic seminar for undergraduate majors. Presentations, substantial written work.
~~Effective Spring 2014~~ Effective Fall 2022
- PHL 499 Senior Thesis (W)
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: (PHL 130 or PHL 330 or PHL 432) and completion of Tier I writing requirement~~ P: Completion of Tier I Writing Requirement ~~RB: 20 credits in Philosophy~~ R: Open to seniors in the Department of Philosophy. Approval of department. ~~R: Open to seniors in the Department of Philosophy. Approval of department; application required.~~
Individual research project supervised by a faculty member that demonstrates the student's ability to do independent research and submit or present a major paper.
Individual research project supervised by a faculty member that demonstrates the student's ability to: do independent research, report that research in the format of a written thesis, defend the thesis in oral examination, and submit, present, or publish that research.
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 2016~~ Effective Fall 2022

DEPARTMENT OF PHYSIOLOGY

- PSL 475L Capstone Laboratory in Physiology
Fall of every year. Spring of every year. Summer of every year. 2(1-3) ~~P: (PSL 431) and completion of Tier I writing requirement~~ P: (PSL 431 and PSL 432) and completion of Tier I writing requirement ~~RB: (PSL 432) and anatomy and statistics~~ RB: anatomy and statistics ~~R: Open to juniors or seniors in the Physiology Major or in the Lyman Briggs Physiology Coordinate Major.~~ R: Open to seniors in the Physiology Major or in the Lyman Briggs Physiology Coordinate Major.
Laboratory exercises in human and animal physiology, including cardiovascular, respiratory, neural, muscle, sensory, and hormonal function, as well as systems physiology studies in exercise and systemic reflexes.
~~Effective Spring 2014~~ Effective Fall 2022

DEPARTMENT OF WRITING, RHETORIC AND AMERICAN CULTURES

- WRA 202 Introduction to Professional and Public Writing
Fall of every year. Spring of every year. 3(3-0) P: Completion of Tier I Writing Requirement ~~R: Open to students in the Professional and Public Writing Major or approval of department.~~
Principles of rhetoric and writing applied to professional and public writing, with emphasis on writing as social and professional action. Definition and major theories of the field, research tools and practices, genres and conventions, and professional style.
SA: AL 202
~~Effective Fall 2010~~ Effective Spring 2023
- WRA 210 Introduction to Web Authoring
Fall of every year. Spring of every year. 3(3-0) ~~P: (WRA 202 or concurrently) or (WRA 260 or concurrently)~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or approval of department.~~
Analyzing, evaluating, and authoring Web sites through principles of design rhetoric. Practices of Web accessibility, usability, and sustainability by using HTML and CSS.
~~Effective Fall 2010~~ Effective Spring 2023

- WRA 225 Introduction to Composing Digital for Video
Fall of every year. 3(3-0) ~~P: (WRA 202 or concurrently) or (WRA 260 or concurrently)~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Professional and Public Writing Major.~~
Rhetorical and design theories applied to digital video composing and producing.
Analyzing and composing digital video for professional and public contexts.
SA: WRA 417
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 260 Writing, Rhetoric, Cultures, and Community
Fall of every year. Spring of every year. 3(3-0) P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Experience Architecture Major or in the Professional and Public Writing Major or approval of department.~~
Introduction to rhetorical practices, processes, and strategies. Study of intersections of rhetorical theories and cultural engagement, with emphasis on analyzing and composing for different professional and public settings. Exploration of different knowledge-making processes and influences on writing. Reading- and discussion-intensive course.
SA: AL 260
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 320 Technical Communication (W)
Spring of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Experience Architecture Major or in the Forestry Major or in the Professional and Public Writing Major or approval of department.~~
Principles and practices of communicating technical and procedural information for different audiences. Methods of audience-based research, information design, project management, and technical style.
SA: AL 320
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 325 Writing and Multimodality
Fall of every year. Spring of every year. 3(3-0) ~~P: (WRA 202 or concurrently) or (WRA 260 or concurrently)~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~
Rhetorical and cultural dimensions of composing in digital spaces. Study of and practice with the rhetorical affordances and expectations of different writing spaces. Practice in messaging across contexts and composing with multiple technologies.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 330 Writing Research in Communities and Cultures
Fall of every year. 3(3-0) ~~P: (WRA 202 or concurrently) or (WRA 260 or concurrently)~~ P: Completion of Tier I Writing Requirement ~~RB: ISS 300-level course~~ ~~R: Open to undergraduate students in the Professional and Public Writing Major or approval of department.~~
Writing and research methods in and with local, global, and online communities and organizations. Topics include methods of field research and textual analysis, working with quantitative and qualitative data, and ethics of representation. Focus on the ways in which culture informs and influences community and writing by/with communities.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 331 Writing in the Public Interest (W)
Spring of every year. 3(3-0) ~~P: (WRA 202 or WRA 260) and completion of Tier I writing requirement~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Forestry Major or in the Professional and Public Writing Major or approval of department.~~
Various forms of public writing and rhetoric and their roles in civic and public culture. Emphasis on nonprofit communication practices, tools, and genres, and orientation toward culture and its influence on public and community writing. Practice in modes of public and civic discourse, including deliberative strategies and a range of public literacies with attention to cultural engagement.
SA: AL 331
~~Effective Fall 2019~~ Effective Spring 2023

- WRA 333 Writing in Corporate Contexts
Spring of every year. Summer of every year. 3(3-0) ~~P: WRA 202 or concurrently~~ P: Completion of Tier I Writing Requirement
Rhetorical and cultural dimensions of corporate writing. Practice in messaging across corporate contexts and composing for professional and consumer audiences.
~~Effective Spring 2022~~ Effective Spring 2023
- WRA 335 Writing in Scientific Contexts
Spring of every year. Summer of every year. 3(3-0) ~~P: WRA 202 or concurrently~~ P: Completion of Tier I Writing Requirement
Rhetorical and cultural dimensions of medical and scientific writing. Study of and practice with rhetorical affordances and expectations in scientific contexts.
~~Effective Spring 2022~~ Effective Spring 2023
- WRA 337 Writing and Public Policy
Fall of every year. Summer of every year. 3(3-0) ~~P: WRA 202 or concurrently~~ P: Completion of Tier I Writing Requirement
Rhetorical and cultural dimensions of composing in public and civic spaces. Study of and practice with policy research, analysis, evaluation, narration, advocacy, and argumentation.
~~Effective Spring 2022~~ Effective Spring 2023
- WRA 350 Sound Writing and Rhetoric
Spring of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement
~~R: Open to undergraduate students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~
Theories and principles of sound composing. Intensive reading and practice with emphasis on rhetorical dimensions of listening to and composing sound. Expectation of the roles of editing, equalization, and mastering as rhetorical variables that affect how audiences respond to sound. Practice with accessible and ethical audio writing and editing techniques.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 355 Writing for Publication Workshop
Summer of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement
~~R: Open to undergraduate students in the Professional and Public Writing Major or approval of department.~~
Workshop for students developing writing for a variety of print and online publications. Discussion of and practice with freelance writing, author guidelines, and editorial processes.
SA: AL 355
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 360 Design of Print and Digital Documents
Fall of every year. Spring of every year. 4(4-0) ~~P: (WRA 202 or concurrently) or (WRA 260 or concurrently)~~ P: Completion of Tier I Writing Requirement
~~R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or approval of department.~~
Rhetorical and cultural dimensions of composing and designing print and digital documents. Analysis and composing of documents with attention to rhetorical affordances including typography, and color theory.
SA: AL 360
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 370 Introduction to Grammar and Editing (W)
Fall of every year. Spring of every year. 3(3-0) ~~P: (WRA 202 or WRA 260) and completion of Tier I writing requirement~~ P: Completion of Tier I Writing Requirement
~~R: Open to undergraduate students in the Professional and Public Writing Major or approval of department.~~
Principles and practices of copyediting for professional and public writers, with special attention to grammar, style, and rhetorical issues.
~~Effective Fall 2019~~ Effective Spring 2023

- WRA 401 Rhetoric, Leadership, and Innovation
Spring of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Professional and Public Writing Major or approval of department.~~
Exploration of rhetorical theories applied to managing and leading communication in civic and professional organizations. Emphasis on team dynamics and on managing and leading teams and projects. Discussion of entrepreneurial thinking in professional and public writing.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 410 Advanced Web Authoring
Spring of every year. 3(3-0) ~~P: (WRA 202 or WRA 260) and WRA 210~~ P: WRA 210 ~~R: Open to students in the Digital Rhetoric and Professional Writing Major or in the Experience Architecture Major or in the Professional and Public Writing Major or approval of department.~~ R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or in the Writing Minor and open to graduate students in the Rhetoric and Writing Major or approval of department.
Introduction to team-based approaches to web development, with focus on rhetorical strategies and ethical practices. Visual design, usability, media integration, site management and sustainability, and web accessibility. Grounded in content-management systems and advanced programming languages.
SA: AL 410
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 415 Digital Rhetoric
Fall of every year. Spring of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Digital Rhetoric and Professional Writing Major or in the Professional and Public Writing Major or approval of department.~~
Rhetorical, social, political, economic, and ethical dimensions of digital communication, including identity, community, genre, and events. Rhetorical dynamics of communication across digital spaces such as apps, websites, software, and other experiences.
SA: AL 415
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 420 Content Strategy
Spring of every year. 3(3-0) ~~P: WRA 320~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major and open to graduate students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~ R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or in the Writing Minor and open to graduate students in the Rhetoric and Writing Major or approval of department.
Exploration of theory, practice, and ethics of content strategy in professional and public writing settings. Understanding the content management life cycle, aligning content strategy to various goals, assessing communication needs for audiences and participants. Issues in project leadership, management, intellectual property, and organizational communication for creating flexible, dynamic content and content structures.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 441 Social Justice as Rhetorical Practice
Fall of odd years. 3(3-0) ~~P: (WRA 202 or WRA 260) and completion of Tier I writing requirement~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~
Rhetorical, cultural, and historical analyses of significant texts in peace and justice movements. Production of effective texts in support of social, economic, and environmental justice and social entrepreneurship.
~~Effective Fall 2019~~ Effective Spring 2023

- WRA 453 Grant and Proposal Writing
Fall of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Department of Forestry and open to students in the Professional and Public Writing Major or approval of department.~~
Researching and writing grants and proposals for corporations, nonprofit organizations, businesses, and government agencies. Rhetorical dimensions of pitching and proposing, with various moves and methods of support such as preparing rationale statements, and creating budgets.
SA: AL 453
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 471 Rhetoric of Grammar
Spring of every year. 3(3-0) ~~P: WRA 370~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Professional and Public Writing Major or approval of department.~~
Rhetorical, cultural, and ethical dimensions of grammar and style, paying special attention to the role of rhetorical context in ideas of grammaticality and appropriateness.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 480 Publication Management
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. ~~P: WRA 370 or approval of department~~ P: Completion of Tier I Writing Requirement ~~R: Open to students in the Professional and Public Writing Major or approval of department.~~ R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or in the Writing Minor and open to graduate students in the Rhetoric and Writing Major or approval of department.
Experience in publication processes: creating, designing, editing, and managing periodical, book, or online publications. Copyediting, developmental editing, design and layout, distribution and publicity. Rhetorical approaches to editing. Team processes involved in designing and editing publications.
SA: WRA 380
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 482 Information and Interaction Design
Fall of even years. 3(3-0) ~~P: WRA 240~~ P: Completion of Tier I Writing Requirement RB: At least one of the following: web design, database design, graphic design, document design. ~~R: Open to students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~ R: Open to students in the Experience Architecture Major or in the Professional and Public Writing Major or in the Writing Minor and open to graduate students in the Rhetoric and Writing Major or approval of department.
Design of information systems for professional and public writers. Activity analysis, object-oriented modeling, prototyping, technical specifications, and implementation planning. Pitching ideas. Developing information and interfaces. User-centered design lifecycle.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 483 Community Publishing
Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. ~~P: (WRA 202 or WRA 260) and (WRA 360 or WRA 370)~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~
Project-based focus on developing and producing writing projects coordinated with the Digital Publishing Lab. Emphasis on collaborative action, drafting, and editing, defining goals; managing publication distribution.
~~Effective Fall 2019~~ Effective Spring 2023
- WRA 484 Ethics in Writing
Fall of every year. 3(3-0) ~~P: WRA 202 or WRA 260~~ P: Completion of Tier I Writing Requirement ~~R: Open to undergraduate students in the Department of Writing, Rhetoric and American Cultures or approval of department.~~
Ethical issues related to professional and public writing including censorship, copyright, ethical practices and philosophies of editing, open access, privacy, preservation, and accessibility. Attention to cultural issues, including cultural appropriation and culturally relevant practices.
~~Effective Fall 2019~~ Effective Spring 2023