

MICHIGAN STATE UNIVERSITY

**Report of
THE UNIVERSITY COMMITTEE ON CURRICULUM
to the Faculty Senate
October 11, 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

October 12, 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

October 11, 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 **Agriculture, Food and Natural Resources Education** in the Department of Community Sustainability. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

a. Under the heading **Requirements for the Bachelor of Science Degree in Agriculture, Food and Natural Resources Education** make the following changes:

(1) In item 3. a. change the total credits from '56 to '61'.

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

CSUS	223A	Seminar in AFRNE Leadership Theory I	1
CSUS	223B	Seminar in AFRNE Leadership Theory II	1
CSUS	223C	Seminar in AFRNE Leadership Theory III	1
TE	101	Social Foundations of Justice and Equity in Education	3
TE	150	Reflections on Learning	3

Add the following courses:

CEP	240	Diverse Learners in Multicultural Perspective	3
CSUS	316	Campus Apprenticeship in Agriculture, Food, and Natural Resources Education	3
CSUS	317	Foundations of Teaching Agriculture, Food, and Natural Resources	3
CSUS	493	Professional Internship in Community Sustainability	6

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

All of the following courses for students admitted into the secondary teacher education program (12 credits):

CSUS	417	Agriculture, Food, and Natural Resources Apprenticeship/Clinical Experience	3
CSUS	817	Instructional Design and Assessment in Agriculture, Food, and Natural Resources Education	3
CSUS	818	Theory and Practice of Program Planning in Agriculture, Food, and Natural Resources Education	3
CSUS	819	Instructional Theory and Practice in Agriculture, Food, and Natural Resources Education	3

(4) Replace item 3. e. with the following:

All of the following courses for students not pursuing secondary teacher education certification (12 credits):

CSUS	430	Non-Profit Organizational Management for Community Sustainability	3
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CSUS 433 Grant Writing and Fund Development 3
An additional 6 credits of electives approved by the student's academic advisor.

Effective Fall 2023.

2. Change the requirements for the **Master of Arts** degree in **Agriculture, Food and Natural Resources Education** in the Department of Community Sustainability. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

a. Under the heading **Requirements for the Master of Arts Degree in Agriculture, Food and Natural Resources Education** make the following changes:

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

TE	801	Professional Roles and Teaching Practice I	3
TE	802	Reflection and Inquiry in Teaching Practice I	3
TE	803	Professional Roles and Teaching Practice II	3
TE	804	Reflection and Inquiry in Teaching Practice II	3

Add the following courses:

CSUS	430	Non-Profit Organizational Management for Community Sustainability	3
CSUS	817	Instructional Design and Assessment in Agriculture, Food, and Natural Resources Education	3
CSUS	818	Theory and Practice of Program Planning in Agriculture, Food, and Natural Resources Education	3
CSUS	819	Instructional Theory and Practice in Agriculture, Food, and Natural Resources Education	3

Effective Fall 2023.

3. Change the requirements for **Disciplinary Teaching Minor in Agriculture, Food and Natural Resource Education** in the Department of Community Sustainability. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

(1) Replace item 3. with the following:

The following course (3 credits):
CSS 210 Fundamentals of Soil Science 3

(2) Replace item 5.b. with the following:

CSUS	317	Foundations of Teaching Agriculture, Food and Natural Resources	3
CSUS	417	Agriculture, Food, and Natural Resources Apprenticeship/Clinical Experience	3

Effective Fall 2023.

4. Change the requirements for **Master of Science** degree in **Community Sustainability** in the Department of Community Sustainability. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

a. Under the heading **Requirements for the Master of Science Degree in Community Sustainability** make the following changes:

(1) Under the heading **Requirements for Plan A and Plan B** make the following changes:

(a) Delete the following course:

CSUS 805 Proposal Development for Interdisciplinary Inquiry 1

(b) Change the total credits from '10' to '9'.

(c) In item 2., change the credits from '11' to '12'.

Effective Spring 2023.

5. Change the requirements for **Master of Science** degree in **Sustainable Tourism and Protected Area Management** in the Department of Community Sustainability. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

a. Under the heading **Requirements for the Master of Science Degree in Sustainable Tourism and Protected Area Management** make the following changes:

(1) Under the heading **Requirements for Plan A and Plan B** change the total credits from '13' to '12' and delete the following course:

CSUS 805 Proposal Development for Interdisciplinary Inquiry 1

(2) In item 2., change the credits from '8' to '9'.

Effective Spring 2023.

COLLEGE OF ARTS AND LETTERS

1. Change the requirements in the **Minor in Arts and Cultural Management** in the College of Arts and Letters.

a. Under the heading **Requirements for the Minor in Arts and Cultural Management** make the following changes:

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

ACM 469 Advocating for Arts and Cultural Organizations 3

(2) Following item 2., add the following note:

Students may take up to three 1-credit special topics courses.

Effective Spring 2023.

2. Change the requirements for the **Minor in Museum Studies** in the College of Arts and Letters.

a. Under the heading **Requirements for the Minor in Museum Studies** make the following changes:

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

MUSM	489	Museum Collections Management and Care	3
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Effective Spring 2023.

3. Change the requirements for the **Master of Arts** degree in **Arts, Cultural Management and Museum Studies** in the College of Arts and Letters. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

a. Under the heading **Requirements for the Master of Arts Degree in Arts, Cultural Management and Museum Studies** make the following changes:

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

MUSM	895	Special Topics in Museum Studies	1 to 3
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Add the following course:

MUSM	892	Special Topics in Museum Studies	1 to 3
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(2) Under the heading **Additional Requirements for Plan B** make the following changes in item 1.:

Delete the following courses:

ACM	871	Internship in Arts and Cultural Management	1 to 3
MUSM	893	Museum Internship	1 to 3

Add the following courses:

ACM	896	Internship in Arts and Cultural Management	1 to 3
MUSM	896	Museum Internship	1 to 3
MUSM	897	Practicum in Museum Studies	1 to 3

Effective Spring 2023.

4. Change the requirements for the **Graduate Certificate in Arts and Cultural Management** in the College of Arts and Letters. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

a. Under the heading **Requirements for the Graduate Certificate in Arts and Cultural Management** make the following changes:

(1) Delete item 2.

(2) Change item 3. to item 2., as "Two of the following courses (6 credits)".

(3) In item 2., delete the note 'ACM 868 and ACM 869 may not be used to fulfil both requirement 2. and 3.'

(4) Renumber item 4. to item 3.

(5) In item 3., change 'ACM 871' to 'ACM 896' and add the following note:

With department approval, requirement 3. may be substituted for a like offering in another department.

Effective Spring 2023.

5. Change the requirements for the **Graduate Certificate in Museum Studies** the College of Arts and Letters. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

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

- a. Under the heading **Requirements for the Graduate Certificate in Museum Studies** make the following changes:

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

MUSM 895 Special Topics in Museum Studies 3

Add the following course:

MUSM 892 Special Topics in Museum Studies 1 to 3

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

MUSM 893 Museum Internship 3

Add the following course:

MUSM 896 Museum Internship 3

Effective Spring 2023.

6. Change the requirements for the **Bachelor of Arts** degree in **Arabic** in the Department of Linguistics, Languages and Cultures. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

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

ARB 360 Arabic Language and Society 3

- (2) In item 3. b. change the total credits from '9' to '6'.

- (3) Delete item 3. d. (Cognate requirement)

- b. Under the heading **Additional Major in Arabic** replace the entire entry with the following:

This option is designed to encourage students to combine a major in Arabic with a major in another field such as business, economics, history, international relations, political science, or another foreign language. Students electing this option must meet the requirements of the College of Arts and Letters for the Bachelor of Arts degree and must complete the requirements 3. a. as well as select one of the courses listed in 3. b. (Arabic 460 or 461) in the Bachelor of Arts degree in Arabic above to fulfill the requirement of 27 semester credits.

Effective Spring 2023.

7. Change the requirements for the **Minor in Arabic** in the Department of Linguistics, Languages and Cultures.

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

- (1) Change the total credits for the minor from '19' to '16'.
- (2) In item 2. Change the requirement from 'Two of the following courses to 'One' of the following courses (3 credits) and delete the following course:

ARB	360	Arabic Language and Society	3
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Effective Spring 2023.

8. Change the requirements for the **Disciplinary Teaching Minor in Arabic** that is available for elementary and secondary teacher certification in the Department of Linguistics, Languages and Cultures. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

a. Under the heading **Arabic** make the following change:

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

ARB	360	Arabic Language and Society	3
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Effective Spring 2023.

ELI BROAD COLLEGE BUSINESS

1. Change the requirements for the **Minor in Sports Business Management** in the Department of Management. The University Committee on Undergraduate Education (UCUE) approved this request at its September 1, 2022 meeting.

a. Add the following section **Admission**:

Students applying to the sports business management minor must have completed at least 56 credits by the end of the Spring semester in which they are applying. Admission decisions will be distributed to students in early April each year. Admission is highly competitive and therefore not guaranteed. By applying to the minor, you are agreeing to allow the admissions committee to review your grades.

b. Under the heading **Requirements for the Minor in Sports Business Management** replace the entire entry with the following:

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

Curriculum Foundations in Sports Business Management

All of the following courses (6 credits):

MGT	479	Sports Business Management	3
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MGT	493A	Sports Business: Internship	3
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or

MGT	493B	Sports Business: Fieldwork Seminar	3
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Foundations in Management

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

HRLR	201	Human Capital and Society	3
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MGT	315	Managing Human Resources and Organizational Behavior	3
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MGT	325	Management Skills and Processes	3
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2. One of the following courses (3 credits):

HRLR	313	Employment Relations	3
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MGT	411	Organizational Staffing	3
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MGT	412	Compensation and Reward Systems	3
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MGT	414	Diversity in the Workplace	3
MGT	460	Capstone for Management Majors (W)	3
MGT	475	Negotiation and Conflict Management	3
Relevant Electives (6 credits)			
Complete at least 6 credits from the following courses:			
<i>Customers and Sales</i>			
ADV	352	Media Sales	3
HB	376	Hospitality Sales Process	3
or			
MKT	313	Consultative Selling	3
MKT	302	Consumer Behavior	3
<i>Media and Branding</i>			
ADV	431	Monitoring and Measuring Social Media of Brands	3
JRN	218	Sports in Contemporary Media	3
MI	334	eSports and Online Broadcasting	3
PR	330	Social Media Management	3
<i>Planning, Operations, and Strategy</i>			
EC	370	Economics of Sports	3
GEO	215	Sports Geography	3
HRLR	314	Legal Environment of Work	3
HB	420	The Business of Golf	3
HB	425	Golf Operations and Management	3
KIN	454	Facility Planning and Construction	3
KIN	456	Ethical Issues in Athletics	2
<i>Sports and Society</i>			
GBL	323	Introduction to Business Law	3
HST	324	History of Sports in America	3
HST	329	College Sports in the United States	3
HST	397	Global Soccer	3
ISS	328	The Social Science of Sports (I)	4
<i>Special Topics</i>			
Selection of either of these courses requires approval by the Department of Management to ensure appropriate content.			
ADV	492	Special Topics in Advertising: Sports and Entertainment Public Relations	3
MGT	491	Special Topics in Management: Women Leadership in Sports	3
A maximum of 3 credits of internship or other work experience may be earned, used as elective credits towards the following degrees: Finance, Human Resource Management, Management, Marketing, Supply Chain Management; a maximum of 2 credits of internship or other work experience may be earned toward the Accounting degree.			

Effective Spring 2023.

COLLEGE OF EDUCATION

1. Change the requirements for the **Master of Science** degree in **Athletic Training** in the Department of Kinesiology. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.
 - a. Under the heading **Admission** make the following change:
 - (1) Replace item 3. with the following:

Competitive scores on the Test of English as a Foreign Language (for international students).

Effective Spring 2023.

COLLEGE OF NATURAL SCIENCE

1. Change the requirements for the **Bachelor of Science** degree in **Human Biology** in the College of Natural Science.

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

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

NSC	495	Capstone in Human Biology (W)	3
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Add the following course:

HBIO	495	Capstone in Human Biology (W)	3
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(2) In item 3. g., add the following:

(7)	PHY	173	Studio Physics for Scientists and Engineers I	5
	PHY	174	Studio Physics for Scientists and Engineers II	5

(3) In item 3. i., add the following courses:

ANP	204	Introduction to Medical Anthropology	3
ANP	206	Introduction to Physical Anthropology	3
ANP	425	Issues in Medical Anthropology	3
ANP	443	Human Adaptability	3
BLD	213L	Clinical Laboratory Methods	2
BLD	430	Molecular Diagnostics	2
HBIO	295	Human Biology and Society	2

Change the note following 3. i. to the following:

With the approval of the director of the human biology major, a maximum of 3 credits in research (HBIO 498), internship (HBIO 497) or independent study (HBIO 496) courses may be used to satisfy this requirement.

Courses used to fulfill requirement 3. h. may not be used to fulfill requirement 3. i.

Effective Spring 2023.

2. Change the requirements for the **Bachelor of Science** degree in **Neuroscience** in the College of Natural Science.

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

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

(3)	LB	271	Organic Chemistry	3
	CEM	252	Organic Chemistry II	3

(2) Add the following to item 3. c.:

(5)	PHY	221	Studio Physics for Life Scientists I	4
	PHY	222	Studio Physics for Life Scientists II	4

(3) In item 3. k. under the **Cellular and Developmental Neuroscience** concentration delete the following courses:

IBIO	343	Genetics Laboratory	3
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NEU	425	Computational Modeling in Neuroscience	3
NEU	435	Ion Channels of Excitable Membranes	3
PLB	400	Introduction to Bioinformatics	3

Add the following courses:

NEU	417	Instrumental Methods of Analysis in Neuroscience	3
NEU	450	The Autonomic Nervous System	3
NEU	460	Current Approaches in Molecular and Cellular Neuroscience	3

- (4) In item 3. k. under the **Behavioral and Systems Neuroscience** concentration delete the following courses:

IBIO	403	Integrative Neurobiology	3
NEU	425	Computational Modeling in Neuroscience	3
PSY	310	Psychology and Biology of Human Sexuality	3
PSY	402	Sensation and Perception (W)	3
PSY	493	Issues in Psychology (W)	3

Add the following courses:

IBIO	405	Neural Basis of Animal Behavior	3
NEU	310	Psychology and Biology of Human Sexuality	3
NEU	417	Instrumental Methods of Analysis in Neuroscience	3
NEU	440	Synaptic Transmission	3
NEU	450	The Autonomic Nervous System	3
NEU	460	Current Approaches in Molecular and Cellular Neuroscience	3
PHM	422	Fundamentals of Neuropharmacology	3
PSY	302	Sensation and Perception	3
PSY	333	The Neurobiology of Food Intake and Overeating	3

Remove PSY 493 from the note following.

- (5) In item 3. k. under the **Cognitive and Computational Neuroscience** concentration delete the following courses:

NEU	425	Computational Modeling in Neuroscience	3
PSL	429	Biomedical Imaging Methods	3
PSY	402	Sensation and Perception (W)	3
PSY	493	Issues in Psychology (W)	3

Add the following courses:

NEU	417	Instrumental Methods of Analysis in Neuroscience	3
PSY	302	Sensation and Perception	3

Remove PSY 493 from the note following.

Effective Spring 2023.

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

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

- (1) In item 3. c., change the total credits from '8' to '8 or 10'.

- (2) In item 3. c., add the following item:

(4)	PHY	173	Studio Physics for Scientists and Engineers I	5
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PHY 174 Studio Physics for Scientists and Engineers II 5

Effective Spring 2023.

4. Change the requirements for the **Bachelor of Arts** degree in **Computational Mathematics** in the Department of Mathematics.

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

(1) In item 3. a., change the total credits from '21' to '19 or 20'.

(2) In item 3. a. (2) change the total credits from '4' to '4 or 5'.

(3) In item 3. a. (2), add the following courses:

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

(4) In item 3. c. (2), change the credits of 'MTH 254H' from '3' to '4'.

Effective Spring 2023.

5. Change the requirements for the **Bachelor of Science** degree in **Computational Mathematics** in the Department of Mathematics.

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

(1) In item 3. a., change the total credits from '28 or 29' to '27 to 31'.

(2) In item 3. a. (4) change the total credits from '8' to '8 to 10'.

(3) In item 3. a. (4) (a), add the following courses:

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

(4) In item 3. a. (4) (b), add the following courses:

PHY	174	Studio Physics for Scientists and Engineers II	5
PHY	294H	Honors Physics II – Electromagnetism	4

(5) In item 3. c. (2), change the credits of 'MTH 254H' from '3' to '4'.

Effective Spring 2023.

6. Change the requirements for the **Bachelor of Science** degree in **Mathematics** in the Department of Mathematics. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

(1) In item 3. a. change the total credits from '20 or 21' to '19 to 23'.

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

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

(a)	PHY	183	Physics for Scientists and Engineers I	4
	PHY	184	Physics for Scientists and Engineers II	4
(b)	PHY	193H	Honors Physics I – Mechanics	4
	PHY	294H	Honors Physics II – Electromagnetism	4
(c)	LB	273	Physics I	4
	LB	274	Physics II	4
(d)	PHY	173	Physics I	5
	PHY	174	Physics II	5

- (3) In item 3. c. (1) change the total credits from '6 to 8' to '7 or 8'.
- (4) In item 3. c. (1) (b) change the credits of MTH 153H from '3' to '4'.
- (5) In item 3. c. (5) delete the following statement:

Students may use no more than one of Mathematics 309, 314, 317H to satisfy this requirement.

Add the following statement:

Students with credit in MTH 235 prior to entering the Mathematics major, only need 24 credits to fulfill this requirement.

- (6) Replace items 3. c. (6) and (7) with the following:

(6)	One of the following courses (3 credits):			
	MTH	310	Abstract Algebra I and Number Theory	3
	MTH	418H	Honors Algebra I	3
(7)	One of the following courses (3 credits):			
	MTH	320	Analysis I	3
	MTH	327H	Honors Analysis I	3

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

One course selected from two of the following groups (6 credits):

a.	MTH	411	Abstract Algebra II	3
	MTH	414	Linear Algebra II	3
	MTH	416	Introduction to Algebraic Coding	3
	MTH	417	Topics in Number Theory	3
	MTH	419H	Honors Algebra II	3
b.	MTH	421	Analysis II	3
	MTH	425	Complex Analysis	3
	MTH	428H	Honors Complex Analysis	3
	MTH	429H	Honors Real Analysis	3
	MTH	442	Partial Differential Equations	3
c.	MTH	441	Ordinary Differential Equations II	3
	MTH	451	Numerical Analysis I	3
	MTH	457	Introduction to Financial Math	3
	MTH	461	Metric and Topological Spaces	3
	MTH	481	Discrete Mathematics I	3

Students with credit in MTH 418H may not use MTH 411 to satisfy this requirement.

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

One of the following courses (4 credits):

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

7. Change the requirements for the **Bachelor of Arts** degree in **Mathematics, Advanced** in the Department of Mathematics. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

(1) Change the total credits of 3. a. from '12 or 13' to '13 or 14'.

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

(a) Change the total credits from '4' to '4 or 5'.

(b) Add the following course:

PHY	173	Studio Physics for Scientists and Engineers I	5
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Effective Spring 2023.

8. Change the requirements for the **Bachelor of Science** degree in **Mathematics, Advanced** in the Department of Mathematics. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

(1) Change the total credits of 3. a. from '17 to 21' to '21 to 25'.

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

(a) Change the total credits from '6 or 8' to '8 or 10'.

(b) Reletter item (c) to item (d).

(c) Add the following item (c):

PHY	173	Studio Physics for Scientists and Engineers I	5
PHY	174	Studio Physics for Scientists and Engineers II	5

Effective Spring 2023.

9. Change the requirements for the **Bachelor of Arts** degree in **Physics** in the Department of Physics and Astronomy. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

a. Under the heading **Requirements for the Bachelor of Arts Degree in Physics** replace item 3. a. with the following:

(1) One of the following courses (3 to 5 credits):

BS	161	Cell and Molecular Biology	3
BS	162	Organismal and Population Biology	3
BS	181H	Honors Cell and Molecular Biology	3
BS	182H	Honors Organismal and Population Biology	3
ENT	205	Pests, Society and Environment	3
IBIO	150	Integrating Biology: From DNA to Populations	3
LB	144	Biology I: Organismal Biology	4
LB	145	Biology II: Cellular and Molecular Biology	5
MMG	141	Introductory Human Genetics	3
MMG	201	Fundamentals of Microbiology	3

	PLB	105	Plant Biology	3
	PSL	250	Introductory Physiology	4
(2)	One of the following groups of courses (5 to 6 credits):			
(a)	CEM	141	General Chemistry	4
	CEM	161	Chemistry Laboratory I	1
(b)	CEM	151	General and Descriptive Chemistry	4
	CEM	161	Chemistry Laboratory I	1
(c)	CEM	181H	Honors Chemistry I	4
	CEM	185H	Honors Chemistry Laboratory I	2
(d)	LB	171	Principles of Chemistry I	4
	LB	171L	Introductory Chemistry Laboratory I	1
(3)	One of the following groups of Mathematics courses (14 or 15 credits):			
(a)	MTH	132	Calculus I	3
	MTH	133	Calculus II	4
	MTH	234	Multivariable Calculus	4
	MTH	235	Differential Equations	3
(b)	MTH	152H	Honors Calculus I	3
	MTH	153H	Honors Calculus II	4
	MTH	254H	Honors Multivariable Calculus	4
	MTH	235	Differential Equations	3
	or			
	MTH	340	Ordinary Differential Equations I	3
(c)	LB	118	Calculus I	4
	LB	119	Calculus II	4
	LB	220	Calculus III	4
	MTH	235	Differential Equations	3
	or			
	MTH	340	Ordinary Differential Equations I	3
(4)	The following course (4 credits):			
	CMSE	201	Computational Modeling and Data Analysis I	4
(5)	One additional mathematics courses at the 300-level or above of at least 3 credits. PHY 415 Methods of Theoretical Physics may be used towards the fulfillment of this requirement.			

- b. Under the heading **Requirements for the Bachelor of Arts Degree in Physics** replace item 3. b. with the following:

The following courses in the Department of Physics and Astronomy (33 to 38 credits):

(1)	One of the following groups of courses (8 to 10 credits):			
(a)	PHY	183	Physics for Scientists and Engineers I	4
	PHY	184	Physics for Scientists and Engineers II	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1
(b)	PHY	193H	Honors Physics I - Mechanics	4
	PHY	294H	Honors Physics II - Electromagnetism	4
	PHY	191	Physics Laboratory for Scientists, I	1
	PHY	192	Physics Laboratory for Scientists, II	1
(c)	PHY	173	Studio Physics for Scientists and Engineers I	5
	PHY	174	Studio Physics for Scientists and Engineers II	5
(d)	LB	273	Physics I	4
	LB	274	Physics II	4
(2)	All of the following courses (12 credits):			
	PHY	215	Thermodynamics and Modern Physics	3
	PHY	321	Classical Mechanics I	3
	PHY	410	Thermal and Statistical Physics	3
	PHY	471	Quantum Physics I	3
(3)	One of the following courses (3 or 4 credits):			
	PHY	431	Optics I	3
	PHY	440	Electronics	4
(4)	One of the following groups of courses (4 or 6 credits):			
(a)	PHY	490	Physics Senior Thesis	4
	Students must complete two enrollments of this course for a total of 4 credits.			
(b)	Two of the following courses:			
	PHY	491	Introduction to Condensed Matter Physics	3

PHY	492	Introduction to Nuclear Physics	3
PHY	493	Introduction to Elementary Particle Physics	3
PHY	494	Survey of Physics Education Research (W)	3

Effective Spring 2023.

10. Change the requirements for the **Bachelor of Science** degree in **Physics** in the Department of Physics and Astronomy. The Teacher Education Council (TEC) approved this request at its September 12, 2022 meeting.

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

(1) In item 3. a. change the total credits from '33 to 39' to '35 to 40.

(2) In item 3. b. (1) add the following new item (c) and reletter item (c) to item (d):

PHY	173	Studio Physics for Scientists and Engineers I	5
PHY	174	Studio Physics for Scientists and Engineers II	5

(3) In item 3. b. (4) (b) add the following course:

PHY	494	Survey of Physics Education Research (W)	3
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Effective Spring 2023.

11. Establish a **Graduate Certificate in Instrumentation in High Energy Physics** in Department of Physics and Astronomy. The University Committee on Graduate Studies (UCGS) approved this request at its March 21, 2022 meeting.

a. **Background Information:**

In 2021, the Department of Energy (DOE) solicited proposals to meet the need for a highly trained workforce in High Energy Physics (HEP) instrumentation. This workforce is critical to carry out the development and operation of large-scale precision particle physics experiments. The presence of this workforce is important for U.S. scientific leadership and economic growth. MSU has a long history of instrumentation projects since the HEP group was established in 1968, with effort currently on upgrades to the ATLAS experiment and the successful operation of CMB-S4 and DUNE experiments. These projects are done with partners at national laboratories around the US, including SLAC Accelerator Laboratory in California, Fermi National Accelerator Laboratory in Illinois, Brookhaven National Laboratory in New York, and Argonne National Laboratory in Illinois. Most of the instrumentation used in HEP is also applicable and valuable for nuclear physics (NP). This is highly relevant as MSU is also the host of the Facility for Rare Isotope Beams (FRIB) facility, which is a nuclear physics laboratory and will host multiple experiments over the coming decades.

With funding from the DOE, MSU now has an opportunity to provide an exciting training opportunity in instrumentation leveraging these strengths. The Instrumentation in High Energy Physics certificate will make use of the partnerships, expertise, and projects underway at MSU and at FRIB. Students who are a part of this certificate program will join a dedicated cohort, have formal and informal mentoring, and the opportunity to work with experts at the national labs, including FRIB. Partnering academic programs at MSU include the Department of Chemistry in the College of Natural Science and can expand to include related engineering fields. The certificate will address all the major need areas highlighted in the recent DOE report: (1) advanced sensors for particle and radiation detection, including quantum devices; (2) application-specific front-end electronics and data acquisition; (3) systems design and engineering for complex instrumentation, including in extreme radiation, temperature, and low-background environments.

Students completing the certificate will be certified, well-trained, and ready for productive careers in HEP instrumentation where there are critical workforce needs nationally.

b. **Academic Programs Catalog Text:**

The Graduate Certificate in Instrumentation in High Energy Physics complements a graduate students' degree in the field of instrumentation applicable to high energy physics. The TRAIN-MI program will bring together MSU's strengths to formulate a curriculum addressing three major areas: (1) advanced sensors for particle and radiation detection, including quantum devices; (2) application-specific front-end electronics and data acquisition' and (3) systems design and engineering for complex instrumentation, including in extreme radiation, temperature, and low-background environments.

Requirements for the Graduate Certificate in Instrumentation in High Energy Physics
CREDITS

Students must complete 9 credits from the following:

1. One of the following courses that includes instruction on particle interactions with matter. The topic must be approved by the Physics and Astronomy Graduate Program Director.

CEM	985	Selected Topics in Nuclear Chemistry	3
		Or	
PHY	959	Special Topics in High-Energy Physics	3
2. Complete 6 credits from the following list of approved courses, or any other 800 or 900- level accelerator science-focused courses as approved by the Physics and Astronomy Graduate Program Director.

CEM	985	Selected Topics in Nuclear Chemistry	3
HRT	860	Scientific Writing Workshop	3
PHY	905	Special Problems	3
PHY	959	Special Topics in High-Energy Physics	3

Topics in CEM 985 and PHY 959 must be different than the topic used to fulfill requirement 1. above and must be approved by the Physics and Astronomy Graduate Program Director.

Students are expected to maintain a minimum cumulative grade-point average of 3.0 in all courses in the certificate.

Effective Spring 2023.

COLLEGE OF NURSING

1. Change the requirements for the **Doctor of Philosophy** degree in **Nursing**. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Nursing** add the following statement:

Part-time Students

Although some students (post-BSN or post-master's in nursing; post-DNP) choose to enroll in the Doctor of Philosophy degree program in Nursing on a part-time basis, all Ph.D. degree candidates will be expected to maintain minimum degree progress standards established by the College of Nursing and published in the College of Nursing Doctor of Philosophy Degree in Nursing Student Handbook. Students are also expected to complete at least one course per semester until the degree is earned.

Effective Spring 2023.

COLLEGE OF SOCIAL SCIENCE

1. Change the requirements for the **Master of International Planning Studies** degree in **International Planning Studies** in the School of Planning, Design and Construction. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

- a. Under the heading **Requirements for the Master of International Planning Studies Degree** replace the entire entry with the following:

The program is available only online under Plan B (without thesis). The student must complete at least 30 credits as specified below.

	CREDITS
The student must	
1. Complete the following core courses (10 credits):	
UP 801 Planning History and Theory	3
UP 854 Economics of Planning and Development	3
UP 884 Community Engagement: Charrette Systems	4
2. Complete one of the following courses (5 credits):	
UP 890 Independent Study	5
UP 893 Internship in Urban Planning	5
3. Complete a minimum of 15 elective credits approved by the student's academic advisor. The electives are tailored to each student's needs and include environment and sustainability, transportation and technology, environmental planning, housing and real estate, with a focus on international content.	
4. Complete a final evaluation.	

Effective Fall 2023.

2. Change the requirements for the **Master in Urban and Regional Planning** degree in **Urban and Regional Planning** in the School of Planning, Design and Construction. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.

- a. Under the heading **Requirements for the Master in Urban and Regional Planning Degree in Urban and Regional Planning** replace the entire entry with the following:

Requirements for Both Plan A and Plan B:

1. Urban planning core courses (25 credits):	
UP 801 Planning History and Theory	3
UP 814 Methods for Investigation of Urban Systems	3
UP 823 Planning Process and Development Review	3
UP 824 Geographic Information Systems for Planning	3
UP 854 Economics of Planning and Development	3
UP 855 Environmental Planning and Climate Change	3
UP 865 Planning and Development Law and Ethics	3
UP 894 Planning Practicum	4
2. Electives: In addition to the core courses, all students complete 9 credits of electives from UP courses at the 400-level and above.	

Additional Requirements for Plan A:

1. Complete the following course (credits):	
UP 816 Advanced Research Methods for Planning and Development	3
2. Students will complete the following two courses in a two-step process by enrolling in 2 credits of UP 889 Master's Research with their major faculty advisor who will chair their research before they can enroll in 4 credits of UP 899 Master's Thesis Research or additional elective course work usually in their second year. A maximum of 6 credits combined can be taken in UP 889 and UP 899.	

Additional Requirements for Plan B:

1. Nine additional credits in two courses approved by the student's academic advisor.
2. Pass a final evaluation.

Effective Fall 2023.

COLLEGE OF VETERINARY MEDICINE

1. Change the requirements for the **Doctor of Veterinary Medicine** degree in **Veterinary Medicine** in the College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) approved this request at its September 19, 2022 meeting.
 - a. Under the heading **Admission to the Professional Program in Veterinary Medicine** make the following changes:
 - (1) Replace item 1. with the following:

Academic performance: A minimum last-3-semester grade-point average (GPA) in combination with a minimum science prerequisite GPA of 3.0 is required for an application to receive review.
 - (2) Delete the following paragraph:

All prerequisite courses must be completed by the spring semester of the year of matriculation with a minimum grade of 2.0 in each course. One Hundred percent of the science prerequisite courses must be complete at the time of application, with a minimum grade of 2.0 in each course.

Add the following paragraph:

All science prerequisite courses must be completed at the time of application with a minimum grade of 2.0 in each course and a minimum science prerequisite GPA of 3.0. Up to 50% of the science prerequisite requirements may be satisfied with binary grading. General education requirements must be completed by July 1 prior to fall matriculation. Each course must receive a minimum grade of 2.0.
 - (3) Under the heading **General Education Requirements** add the following statement:

Prerequisite individual General Education courses must receive a minimum grade of 2.0 (C) on a 4.0 scale. All general education requirements must be completed by July 1 of the matriculation year. If a bachelor's degree will be earned by July 1 of the matriculation year, all general education requirements are considered fulfilled and individual courses will not be reviewed. A Baccalaureate degree is not required.

Effective Spring 2023.

PART II - NEW COURSES

DEPARTMENT OF AEROSPACE STUDIES

- AS 496 Field Study in Aerospace Studies
Fall of every year. Spring of every year. 1 to 3 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Approval of department.
Directed studies in Aerospace Studies in experiential settings
Request the use of the Pass-No Grade (P-N) system.
Effective Fall Semester 2022

DEPARTMENT OF AGRICULTURAL, FOOD, AND RESOURCE ECONOMICS

- AFRE 811 Proofs Strategies and Analysis for Advanced Microeconomic Theory
Spring of every year. 3(3-0) P: EC 301 or AFRE 805
Logic, proof strategies, and real analysis relevant to advanced microeconomic theory, with economic applications
Effective Spring Semester 2023

DEPARTMENT OF COMMUNITY SUSTAINABILITY

- CSUS 316 Campus Apprenticeship in Agriculture, Food, and Natural Resources Education
Fall of every year. 3(1-4) R: Not open to freshmen.
Application of approaches to teaching and learning in place-based agriculture, food, and natural resources settings.
Effective Fall Semester 2023
- CSUS 317 Foundations of Teaching Agriculture, Food, and Natural Resources
Spring of every year. 3(2-2) RB: CSUS 222A and CSUS 222B R: Not open to freshmen.
Foundations of teaching agriculture, food, and natural resources education in formal and non-formal environments. Multiple literacies.
Effective Fall Semester 2023
- CSUS 417 Agriculture, Food and Natural Resources Apprenticeship/Clinical Experience
Fall of every year. 3(1-4) P: CSUS 317 R: Open to students in the Agriscience Secondary Teaching Major.
Analyzing contemporary teaching practices in Agriculture, Food, and Natural Resources Education through clinical experiences in public school settings.
Effective Fall Semester 2023
- CSUS 817 Instructional Design and Assessment in Agriculture, Food, and Natural Resources Education
Fall of every year. 3(3-0) P: CSUS 317 R: Open to students in the Agriscience Secondary Teaching Major.
Instructional design and assessment development and dissemination for diverse learners in agriculture, food, and natural resources education.
Effective Fall Semester 2023
- CSUS 818 Theory and Practice of Program Planning in Agriculture, Food, and Natural Resources Education
Fall of every year. 3(3-0) P: CSUS 317 R: Open to students in the Agriscience Secondary Teaching Major.
Examining the facilitation and evaluation of classroom instruction, student engagement in FFA, and supervised agricultural experiences within a school-based agriculture, food, and natural resources education program.
Effective Fall Semester 2023
- CSUS 819 Instructional Theory and Practice in Agriculture, Food and Natural Resources Education
Spring of every year. 3(3-0) P: CSUS 417 and CSUS 817 and CSUS 818 R: Open to students in the Agriscience Secondary Teaching Major. C: CSUS 493 concurrently.
Exploring the theoretical foundations and practical utilization of advanced pedagogical approaches within agriculture, food, and natural resources education.
Effective Fall Semester 2023

DEPARTMENT OF FINANCE

- FI 824 Deep Learning and Neural Networks in Finance
Spring of every year. 3(3-0)
Basic concepts in deep learning and neural networks in finance and economics. Practical experience implementing deep learning methods with state-of-the-art algorithms in a variety of machine learning packages with applications such as forecasting, algorithmic trading, and fraud detection.
Effective Spring Semester 2023

DEPARTMENT OF INTEGRATIVE BIOLOGY

- IBIO 483 Environmental Physiology (W)
Spring of every year. 4(4-0) P: ((BS 161 or LB 145 or BS 181H) and completion of Tier I writing requirement) and (BS 162 or LB 144 or BS 182H) and (CEM 141 or CEM 151 or CEM 181H or LB 171)
- REINSTATEMENT Aspects of physiology important to the environmental relations of vertebrates and invertebrates: energetics, thermal relations, osmotic-ionic relations, and exercise physiology.
SA: ZOL 483
Effective Spring Semester 2023

DEPARTMENT OF LARGE ANIMAL CLINICAL SCIENCES

- LCS 643 Essentials for the Equine Practitioner
Spring of every year. 6(6-0) P: LCS 616
Advanced clerkship focusing on large animal medicine and surgery as well as equine theriogenology
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Spring Semester 2023

MSU COLLEGE OF LAW

- LAW 535U Trade Secrets, Restrictive Covenants, and Unfair Competition
On Demand. 0 to 6 credits. R: Open to Law students or law advanced students in the MSU College of Law.
Origin, theory, and elements of trade secret, restrictive covenant, and unfair competition law, with a special emphasis on how these cases are litigated, and the proper drafting of enforceable restrictions.
Effective Spring Semester 2023

DEPARTMENT OF LINGUISTICS, LANGUAGES AND CULTURES

- GRM 115 Intensive First Year German
Summer of every year. 5(5-0)
Intensive study of German language, civilization, and culture for beginning students.
Continued work on all language skills with emphasis on speaking.
Effective Fall Semester 2022
- GRM 215 Intensive Second Year German
Fall of every year. Spring of every year. Summer of every year. 5(5-0) P: (GRM 102 or GRM 115) or designated score on German Placement test
Intensive intermediate-level work on all language skills, based on topics such as popular music, literature, film, current events, and culture. Transition course to advanced work in German studies.
Effective Fall Semester 2022

DEPARTMENT OF MARKETING

- MKT 200 Professional Development in Marketing
Fall of every year. Spring of every year. 1(1-0) R: Open to undergraduate students in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Business - Admitted major or approval of department.
Explores the various specialty areas within the field of marketing, including career options for new college graduates and employment trends.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring Semester 2023

PROGRAM IN NEUROSCIENCE

- NEU 101 Frontiers in Neuroscience
Fall of every year. Spring of every year. 1(1-0) R: Open to undergraduate students in the Neuroscience Major or in the Lyman Briggs Neuroscience Coordinate Major.
Introduction to the field of neuroscience and recent trends in neuroscience research, including an overview of careers with a degree in neuroscience. Campus and internet resources to achieve academic success and career goals.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall Semester 2022
- NEU 401 Cellular and Molecular Neuroscience
Fall of every year. Spring of every year. 3(3-0) P: NEU 301 and NEU 302 R: Open to undergraduate students in the Neuroscience Major or in the Lyman Briggs Neuroscience Coordinate Major.
In-depth examination of cellular and molecular mechanisms that regulate function of neurons of the autonomic, sensory, motor, and central nervous systems.
Effective Fall Semester 2022

COLLEGE OF NURSING

- NUR 221 Future of Nursing: Explore Potential Career Opportunities and Graduate Education
Spring of every year. 2(2-0) R: Open to students in the Nursing or Prenursing Major or approval of college.
Fosters student motivation in pursuing advanced degrees in nursing. The course will examine perspectives related to the future of nursing and provide the opportunity for students to explore post-BSN career opportunities and the options for graduate education in nursing.
Effective Spring Semester 2023

DEPARTMENT OF PHYSICS AND ASTRONOMY

- PHY 494 Survey of Physics Education Research (W)
On Demand. 3(3-0) P: (PHY 471 or concurrently) and completion of Tier I writing requirement R: Open to undergraduate students in the Department of Physics and Astronomy or in the Lyman Briggs Physics Coordinate Major or approval of department.
Historical background of physics education research including central findings and relevant learning theories. Topics include student learning and engagement, assessment, attitudes and beliefs, epistemology and framing, and issues of diversity and inclusivity.
Effective Fall Semester 2022

SCHOOL OF PLANNING, DESIGN AND CONSTRUCTION

- UP 816 Advanced Research Methods for Planning and Development
Spring of every year. 3(3-0) P: UP 814 or concurrently R: Open to students in the Master in Urban and Regional Planning Major and open to doctoral students.
Advanced qualitative and quantitative data analysis and research methods for academic research in urban planning and related fields.
Effective Spring Semester 2023

- UP 884 Community Engagement: Charrette Systems
On Demand. 3 to 4 credits. R: Open to students in the Master in Urban and Regional Planning Major.
Introduction to Charrettes. Emphasis on collaboration by design, along with advanced collaborative innovation processes.
Effective Fall Semester 2023

COLLEGE OF SOCIAL SCIENCE

- ESP 810 Understanding Trust in the Environmental Governance Context
Fall of odd years. 3(3-0) RB: A basic understanding of the social sciences.
Environmental governance questions through discussions of the nature and dynamics of trust within and among public and governmental stakeholders.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall Semester 2023

DEPARTMENT OF TEACHER EDUCATION

- TE 910 Youth Language and Literacy in Schools and Communities
Fall of even years. 3(3-0) RB: Courses or work experiences in education, youth or adolescent development and programming, literacy, urban studies, ethnic studies, sociolinguistics
- REINSTATEMENT Contemporary research, theory, and practice critically situate school and beyond school language and literacy learning in the lives of youth and their communities. Focus on social justice-oriented work with youth of color and other young people marginalized by systemic inequalities. Increasing understanding of the oral and written communication many young people engage in through their participation in youth cultures. A study of race, class, gender identity, sexuality, ability, and citizenship status as they are lived through languages and literacies by youth and their communities.
Effective Spring Semester 2023

COLLEGE OF VETERINARY MEDICINE

- VM 850 Independent Study
Fall of every year. Spring of every year. Summer of every year. 1 to 9 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.
Non-thesis research for Plan B master's students.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring Semester 2023
- VM 860 Grant Writing in the Biomedical Sciences
Fall of every year. 2(2-0) RB: Minimum 1 year completed in a graduate program and active engagement in biomedical research R: Open to graduate students in the College of Veterinary Medicine or in the Comparative Medicine and Integrative Biology Major.
Practical approach to grant application development, preparation, and submission
Effective Spring Semester 2023

PART III – COURSE CHANGES

DEPARTMENT OF AGRICULTURAL, FOOD, AND RESOURCE ECONOMICS

- AFRE 851 Agribusiness Operations Management
~~Spring of every year. On Demand.~~ 3(3-0)
Managerial processes for agribusiness operations control. Applications of linear programming. Budgets, simulations, and dynamic programming. Statistical process control. Predictive and prescriptive analysis.
SA: AEC 851
~~Effective Summer Semester 2015~~ Effective Spring Semester 2023
- AFRE 865 Agricultural Benefit-Cost Analysis
~~Fall of every year. On Demand.~~ 3(3-0)
Benefit-cost analysis of agricultural and natural resource projects, including financial and economic analysis. Case studies in project design and appraisal in low and high income countries.
SA: AEC 865
~~Effective Summer Semester 2015~~ Effective Spring Semester 2023
- ~~AFRE 900B~~
AFRE 900 Applied Microeconomics II
Applied Microeconomics
Fall of every year. ~~3 credits.~~ 3(3-0) P: (AFRE 805 or EC 812A) and (AFRE 835 or EC 820A)
Extended empirical analysis of microeconomic problems with emphasis on applications to agriculture, natural resources, and the food sector.
~~SA: AEC 900B~~ SA: AFRE 900B
~~Effective Fall Semester 2020~~ Effective Spring Semester 2023
- AFRE 900A Applied Microeconomics I
Spring of every year. 3 credits. P: (AFRE 805 or EC 812A) and (AFRE 835 or EC 820A)
Empirical analysis of microeconomic problems with emphasis on applications to agriculture, natural resources, and the food sector.
SA: AEC 900A
DELETE COURSE
Effective Spring Semester 2023
- AFRE 930 Dynamic Analysis in Agriculture and Natural Resources
~~Fall of every year. On Demand.~~ 3(3-0) RB: AFRE 801 and EC 812A R: Open to doctoral students in the College of Agriculture and Natural Resources or in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the College of Social Science or approval of department.
Methods of dynamic optimization and their application to agricultural and natural resources problems. Discrete time dynamic programming, calculus of variations, and discrete time maximum principle.
SA: AEC 991E, AEC 930
~~Effective Fall Semester 2020~~ Effective Spring Semester 2023
- AFRE 932 Information Economics and Institutions in Agriculture and Natural Resources
~~Fall of every year.~~ Fall of odd years. 3(3-0) RB: (AFRE 810 or AFRE 841) and (EC 812A and EC 812B) R: Open to doctoral students in the College of Agriculture and Natural Resources or in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the College of Social Science.
Applications to issues in agriculture, agribusiness, the food system, natural resources, and the environment. Asymmetric information, incomplete markets, principal/agent issues, transaction costs, and the design of contracts and other institutions.
SA: AEC 932
~~Effective Summer Semester 2015~~ Effective Spring Semester 2023

DEPARTMENT OF ART, ART HISTORY, AND DESIGN

- ATD 439 Portfolio Development and Exhibition (W)
Fall of every year. 3(3-0) P: (ATD 323) and completion of Tier I writing requirement RB: ATD 335 R:
Open to juniors or seniors.
Apparel and textile design philosophies, roles and ethics. Professional portfolio and
exhibition(s). Capstone course.
~~Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester
after the end of the semester of enrollment.~~
SA: HED 439
~~Effective Summer Semester 2018~~ Effective Spring Semester 2023

COLLEGE OF ARTS AND LETTERS

- ACM 868 ~~Non-Profit for Arts, Cultural, and Museum Management~~
Non-Profit Law for Arts, Cultural, and Museum Management
Fall of every year. Spring of every year. 3(3-0) P: ACM 801 or concurrently R: Open to graduate
students in the College of Arts and Letters or approval of college.
Legal issues pertaining to the creation and operation of cultural business entities,
including nonprofit organizations. Exploration of relevant aspects of nonprofit and
business law, finances and taxes, contracts, intellectual property, constitutional law,
artists' moral and economic rights, estate planning for individuals and organizations.
Historical and contemporary examination of reparations of cultural property.
SA: AL 868
~~Effective Fall Semester 2021~~ Effective Spring Semester 2023
- DH 861 Digital Humanities Pedagogy
Spring of every year. 3(3-0) P: ~~(DH 865 or concurrently) or (HST 812 or concurrently)~~
Teaching with digital tools, technologies, and spaces in the humanities. Key concepts,
issues, and approaches for digital pedagogy in different course spaces (physical, digital).
Course planning, curricular development, engagement and learning, and evaluation and
assessment related to digital humanities pedagogy. Methods for research and scholarship
on digital humanities pedagogy (teacher scholarship).
~~SA: AL 864~~
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- DH 865 Digital Humanities Methods Seminar
Fall of every year. 3 credits. Not to students with credit in HST 812.
Brainstorming, creating, and managing digital humanities research projects. Selecting
appropriate methodologies, methods, and tools for digital humanities research. Applying
project management tools. Seeking funding and support for digital humanities research
projects.
~~SA: AL 865~~
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023

DEPARTMENT OF COMMUNITY SUSTAINABILITY

- CSUS 223B Seminar in Leadership Theory II - Agriculture, Food and Natural Resources Education
Spring of every year. 1(1-0) P: CSUS 223A
Practical applications of leadership theory in agriculture, food and natural resources
education within Michigan communities.
DELETE COURSE
Effective Fall Semester 2023
- CSUS 223C Seminar in Leadership Theory III - Agriculture, Food and Natural Resources Education
Spring of every year. 1(1-0) P: CSUS 223B
Applied mentoring and leadership evaluation in formal and nonformal agriculture, food,
and natural resources education.
DELETE COURSE
Effective Fall Semester 2023

- CSUS 474 **Advanced Topics in Tourism Management**
Spring of every year. 3(3-0) P: CSUS 273 or HB 100 or GEO 259 R: Open to juniors or seniors or graduate students.
Tourism as a form of economic and community development. Tourism planning, marketing and management. Tourism and sustainability. Tourism research.
SA: PRR 474
~~DELETE COURSE~~
Effective Fall Semester 2023
- CSUS 826 **International Development: Theory and Practice**
~~Fall of every year. Spring of every year.~~ 3(3-0) Interdepartmental with Anthropology and Forestry and Political Science and Social Science.
Evolution of international development theory across disciplines. Changing conceptualizations, measurements, processes and effects of development and poverty. Ethnicity, social class, gender, and community influences on socioeconomic processes. Current issues, concerns, and strategic alternatives.
SA: ACR 826, RD 826
~~Effective Fall Semester 2016~~ Effective Fall Semester 2022

COLLEGE OF ENGINEERING

- AESC 210 **Global Systems: Economics, Engineering, Environment**
~~Fall of every year. Spring of every year.~~ 3(3-0) ~~P: (EGR 102 or CSE 231 or CSE 220) and (MTH 133 or LB 110 or MTH 153H) P: (EGR 102 or CSE 231 or CSE 220 or CMSE 202) and (MTH 133 or LB 119 or MTH 153H) R: Not open to freshmen.~~
Globalization as a process driven by economics, enabled by engineering, and constrained by the environment. Development of systems analysis tools for understanding how these themes interact globally. Enhancement of communication skills through teaming, presentations, and active listening.
SA: EGR 210
~~Effective Fall Semester 2018~~ Effective Spring Semester 2023

DEPARTMENT OF EPIDEMIOLOGY AND BIostatISTICS

- ~~LCS 820~~
~~EPI 829~~
- ~~Design and Conduct of Epidemiological Studies and Clinical Trials~~
~~Principles and Methods of Epidemiologic Study Design~~
Spring of every year. ~~3(2-2)~~ 3(3-0) Interdepartmental with Epidemiology P: (VM 533 or EPI 810) ~~and (EPI 808 or EPI 808B) P: EPI 810 RB: EPI 810 R: Open to graduate students in the Department of Epidemiology and Biostatistics or in the Department of Large Animal Clinical Sciences or approval of department.~~
~~Applied analytical methods in experimental design. Assessment of health and disease status of animal and human populations. Risk assessment and interpretation of clinical trials. Principles and methods of epidemiologic study design to maximize etiologic inference in human populations. Covers randomized trials, cohort studies, case-control studies, cross-sectional studies, ecological studies, and sources of bias.~~
SA: LCS 829
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023

DEPARTMENT OF FAMILY MEDICINE

~~HM 618~~
FM 619

Telemedicine Experiences in Rural Clinical Settings
On Demand. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.
P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.
Clinical, biopsychosocial, documentation, and ethical aspects of telehealth to address health conditions and patient needs.
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: HM 618
~~Effective Spring Semester 2020~~ Effective Spring Semester 2023

DEPARTMENT OF GEOGRAPHY, ENVIRONMENT, AND SPATIAL SCIENCES

- GEO 201 Introduction to Plant Geography
Spring of even years. 3(3-0) ~~R: Not open to graduate students.~~
Geographic distribution and characteristics of plants throughout the world; relationships between biomes and aspects of the physical environment (climate, soils, landforms, disturbance); plant ecology; human impacts on vegetation; optional field trip on campus.
~~Effective Spring Semester 2024~~ Effective Spring Semester 2023
- GEO 302 Climates of the World
Fall of odd years. 3(3-0) RB: GEO 206 or GEO 203 ~~R: Not open to freshmen.~~
Regional climates and underlying atmospheric circulation patterns. Climate classification, physical climatic processes, spatial and temporal aspects of climate, climate changes. Sources and use of climate data.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 333 Geography of Michigan and the Great Lakes Region
~~Spring of every year.~~ Spring of odd years. 3(3-0)
Michigan's physical, historical, and economic geography. Interrelationships between the physical environment (rocks, landforms, soils, climate, vegetation, hydrology) and historical and contemporary land uses. Demographic and agricultural patterns. Human history and settlement patterns. Contemporary recreational opportunities.
SA: GEO 233
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 401 Global Plant Geography
Fall of odd years. 3(3-0) P: GEO 201 or FOR 101 or FOR 204 or PLB 218 or IBIO 355 or approval of department ~~R: Not open to freshmen.~~
Patterns of global plant distributions. Plant-atmosphere interactions, ecological processes, biogeographic patterns and predictive models of plant distributions.
~~Effective Fall Semester 2024~~ Effective Spring Semester 2023
- GEO 402 Agricultural Climatology
Fall of even years. 3(3-0) Interdepartmental with Biosystems Engineering. P: MTH 110 or MTH 116
~~R: Not open to freshmen or sophomores.~~
Relationships between climate and agriculture in resource assessment, water budget analysis, meteorological hazards, pests, crop-yield modeling, and impacts of global climate change.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 403 Dynamic Meteorology (W)
Spring of odd years. 3(3-0) P: (MTH 234 and GEO 203) and completion of Tier I writing requirement RB: GEO 405 ~~R: Open to juniors or seniors or master's students or doctoral students.~~
Principles of fluid dynamics and their application to the atmosphere.
~~Effective Spring Semester 2019~~ Effective Spring Semester 2023

- GEO 408 Soil Geomorphology
Fall of odd years. 4(3-2) P: CSS 210 or GEO 306 or GLG 201 or GEO 206 or ISP 203A or ISP 203B or ISP 203L or approval of department ~~R: Not open to freshmen.~~
Soil formation and its relationship to landforms and landscapes. Common geographic relationships among soils, landforms, and vegetation. Description, analysis, and genesis of soils, surficial processes and landscapes.
~~Effective Fall Semester 2020~~ Effective Spring Semester 2023
- GEO 410 Geography of Food and Agriculture
Fall of even years. 3(3-0) RB: GEO 113 or GEO 151 or GEO 204 or GEO 206 ~~R: Not open to freshmen or sophomores.~~
Spatial patterns of contemporary global agriculture and food systems. Human-environment geography of select agricultural practices and food systems. Effects of agricultural practices on natural and human resources.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 411 Stream Systems and Landforms
Spring of even years. 3(3-0) RB: GEO 206 or GEO 306 or GLG 201 or GLG 431 ~~R: Not open to freshmen or sophomores.~~
Themes associated with stream systems. Evolution of drainage basins and channel hydrology. The nature of flowing water, stream discharge, and flooding. Controls of stream behavior. Channel patterns and landform development. Character of Michigan stream systems. Field project.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 413 Urban Geography
Spring of every year. 3(3-0) Interdepartmental with Urban Planning. ~~R: Not open to freshmen or sophomores.~~
Theories and models of urban spatial form. Underlying structures and processes. Socio-spatial dimensions of modern urbanism. Differentiation and locational conflict in residential, commercial, and industrial space.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 414 Geography of Transportation
Fall of odd years. 3(3-0) Interdepartmental with Urban Planning. P: GEO 113 ~~R: Not open to freshmen.~~
Spatial principles of transportation. Theories of interaction, network structures, and location-allocation models. Role of transport and transport planning.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 415 Location Theory and Land Use Analysis
Fall of even years. 3(3-0) Interdepartmental with Urban Planning. P: GEO 113 or UP 201 RB: EC 201 or EC 202 ~~R: Not open to freshmen or sophomores.~~
Classical and neoclassical, static and dynamic models of industrial location and spatial organization. Land rent theory. Central place theory. Multi-locational organization. Growth transmission.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 418 The Ghetto
Fall of odd years. 3(3-0) Interdepartmental with Urban Planning. ~~R: Not open to freshmen or sophomores.~~
Analysis of the ghetto including its spatial organization and structure. Distribution of racial and ethnic populations. Emphasis on U.S. cities.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 435 Geography of Health and Disease
Fall of every year. 3(3-0) ~~R: Not open to freshmen or sophomores.~~
Spatio-environmental concepts and techniques applied to health problems. Disease transmission cycles, community nutrition, and health-care planning.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023

- GEO 436 Spatial Analysis of Populations
Spring of odd years. 3(3-0) ~~R: Not open to freshmen or sophomores.~~
Concepts and methods to measure and evaluate geo-spatial and temporal trends in populations and their components, such as natality, mortality, migration, and characteristics at different geographic scales. Sources of spatial population data. Visualization and analysis of data in a geographical information system.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 440 ~~Critical Geopolitics~~
Geopolitics
Spring of even years. 3(3-0) ~~R: Not open to freshmen.~~
Political geographies of origins and conduct of nation-states. Identity-place dynamics. Colonialism and imperialism. Geopolitics and geopolitical ideas. Resource and environmental politics. Resistance and terrorism.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 441 Cultural Geography
Spring of odd years. 3(3-0) ~~RB: GEO 454 R: Not open to freshmen.~~
Survey of the geographic study of world cultures, cultural ecologies, cultural landscapes, and cultural influences on societies' patterns of spatial organization.
~~Effective Fall Semester 2017~~ Effective Spring Semester 2023
- GEO 480 ~~Seminar in Geography, Environment, and Spatial Sciences (W)~~
Undergraduate Seminar in Geography (W)
Fall of every year. 3(3-0) P: Completion of Tier I Writing Requirement RB: For undergraduate students with a major or minor in the Department of Geography, Environment, and Spatial Sciences
~~Professional development, history, philosophy, and methodology in geography, environment, and spatial sciences.~~ Professional development, history, philosophy, and methodology in the geographic discipline.
Effective Spring Semester 2023

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

- HDFS 322L Interaction and Curriculum for Infants and Toddlers–Laboratory
Fall of every year. Spring of every year. ~~4(0-2)~~ 2(0-4) R: Open to students in the Department of Human Development and Family Studies. C: HDFS 322 concurrently.
Applying principles of interaction to individuals and small groups of infants and toddlers in early childhood settings. Planning developmentally supportive learning opportunities. Supervised practice implementing and evaluating individualized learning opportunities in group care and education settings.
~~Effective Spring Semester 2018~~ Effective Spring Semester 2023
- HDFS 960 Applied Multivariate Data Analysis
~~Fall of every year.~~ Spring of every year. 3(3-0) RB: HDFS 881 R: Open to graduate students in the Department of Human Development and Family Studies.
Application of quantitative techniques to the analysis of multivariate data.
~~Effective Fall Semester 2018~~ Effective Fall Semester 2023

SCHOOL OF HUMAN RESOURCES AND LABOR RELATIONS

- HRLR 819 Negotiation and Conflict Resolution
Spring of every year. 3(3-0) ~~P: HRLR 813 or HRLR 858~~ P: HRLR 813 or approval of school R: Open to graduate students in the School of Human Resources and Labor Relations or approval of school.
Negotiation and conflict resolution in the employment relationship. Use of experiential simulations to develop bargaining styles and interpersonal process skills.
SA: LIR 860
~~Effective Summer Semester 2020~~ Effective Spring Semester 2023

- HRLR 821 Talent Acquisition and Deployment
Spring of every year. 3(3-0) ~~P: HRLR 820~~ R: Open to graduate students in the School of Human Resources and Labor Relations or approval of school.
Process by which organizations acquire, retain, and deploy the organization's workforce. Planning, recruiting, selecting, placing, and managing turnover and evaluation.
~~Effective Summer Semester 2020~~ Effective Spring Semester 2023
- HRLR 825 Compensation
Fall of every year. Spring of every year. 3(3-0) ~~P: HRLR 820~~ R: Open to graduate students in the School of Human Resources and Labor Relations or approval of school.
Concepts, principles, theories, tools and techniques in the design and administration of employee compensation systems. Strategic, managerial, and operational considerations and roles in compensation system design.
SA: LIR 825
~~Effective Summer Semester 2013~~ Effective Spring Semester 2023
- HRLR 899 Master's Thesis Research
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: 9 graduate credits. R: Open to students in the School of Human Resources and Labor Relations. Approval of school.
Master's thesis research.
Request the use of the Pass-No Grade (P-N) system.
SA: LIR 899
~~Effective Summer Semester 2013~~ Effective Spring Semester 2023

DEPARTMENT OF LINGUISTICS, LANGUAGES AND CULTURES

- ARB 360 Arabic Language and Society
Fall of every year. 3(3-0) P: (ARB 202) and completion of Tier I writing requirement
Historical, social, linguistic and cultural developments in the Arabic-speaking world as revealed in textual material in Arabic, including literature, essays, and film. Taught in Arabic and English.
DELETE COURSE
Effective Spring Semester 2023
- FLT 807 Foreign Language Teaching Methods
Fall of every year. Summer of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department.
History of methods in foreign language instruction. Current practices in language teaching, materials design, and classroom management. Techniques in teaching culture, listening, speaking, reading, and writing at various levels of student proficiency in the foreign language. How to motivate and maintain motivation. Strategies instruction and targeting advanced proficiency.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 808 Assessment for Foreign Language Teaching
Spring of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department. Not open to students with credit in LLT 808.
Classroom diagnostic and achievement assessment. Reliability and validity of language tests. Standardized and performance-based testing. Program-level assessment. Measuring language proficiency in listening, speaking, reading, writing, and grammar, and as integrated skills. Formative and summative assessment. Alternative assessment methods.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023

- FLT 815 Teaching Culture in Foreign Language Courses
Spring of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department.
Methodologies for teaching culture in foreign language courses. Definitions of culture.
Interrelatedness of language and culture. Application of theory to development of culture teaching strategies for any foreign language course.
SA: AL 815
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 817 Foreign Language Program Development and Administration
Spring of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department.
Current issues in language program administration and development. Practical application of theory in foreign language program development, marketing, articulation, technology integration, supervision, curriculum design, program evaluation, and teacher training.
SA: AL 817
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 841 Topics in Foreign Language Teaching
Fall of odd years. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department. Not open to students with credit in LLT 841.
Selected topics and issues in foreign language learning and teaching.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 845 Language Concepts for Foreign Language Teaching
Fall of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department.
Methodologies for teaching phonological, morphological, syntactic, lexical, discourse and pragmatic systems in foreign language courses.
SA: AL 845
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 860 Foreign Language Acquisition
Spring of every year. Summer of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department. Not open to students with credit in LLT 860.
Factors in foreign language learning such as age, motivation, language input and interaction, social influences, the role of the native language, and language universals.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023
- FLT 881 Teaching Foreign Language with Technology
Fall of every year. 3(3-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department. Not open to students with credit in AL 881.
Teaching a foreign language with technology. Web applications for online foreign language instruction, hybrid learning, and distance learning. Feedback in online environments, including within computer-mediated communication. Online materials development. Creating interaction online. Online task development, evaluation of online tasks. Creating foreign language class web pages.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023

FLT 898 Master's Comprehensive Foreign Language Teaching Portfolio Examination
Fall of every year. Spring of every year. Summer of every year. 1(1-0) ~~R: Open to graduate students in the Foreign Language Teaching Major or approval of department.~~ R: Open to graduate students in the Foreign Language Teaching Major or in the Foreign Language Teaching Graduate Certificate or approval of department. Not open to students with credit in LLT 899.

Final comprehensive portfolio exam.

~~Effective Fall Semester 2024~~ Effective Spring Semester 2023

GRM 461 Applied Linguistics for German Learners and Teachers
Spring of even years. 3(3-0) P: GRM 301 or GRM 302 or GRM 303 or GRM 304 or GRM 311 or approval of department ~~C: GRM 460 concurrently.~~

Overview of applied linguistic topics relevant for both students of German and future teachers of German. Issues of contemporary language use, the connection between culture and language. Overview of second language acquisition principles. Introduction to effective audiodidactic or pedagogical techniques for language and culture learning.

~~Effective Summer Semester 2020~~ Effective Spring Semester 2023

DEPARTMENT OF MANAGEMENT

MGT 460 Capstone for Management Majors (W)
Fall of every year. Spring of every year. ~~3(2-2)~~ 3(3-0) P: (MGT 315 or concurrently) or (MGT 325 or concurrently) R: Open to seniors in the Human Resource Management Major or in the Management Major or in the Retail Management Minor or in the Sports Business Management Minor.

Topics in management and organizational behavior.

~~Effective Spring Semester 2017~~ Effective Spring Semester 2023

COLLEGE OF NATURAL SCIENCE

NSC 820 Scanning Electron Microscopy; Energy Dispersive X-ray Microanalysis
Fall of every year. Spring of every year. 3(2-2) RB: NSC 802 or concurrently
~~Use of scanning electron microscope and energy dispersive x-ray microanalysis. Machine variables, artifacts, quantitative analysis, specimen preparation, darkroom procedures.~~

Scanning electron microscopy and energy dispersive x-ray microanalysis theory and practice. Machine variables, artifacts, quantitative analysis, specimen preparation

~~Effective Fall Semester 2000~~ Effective Spring Semester 2023

COLLEGE OF NURSING

NUR 220 Introduction to Nursing Scholarship
Fall of every year. ~~Spring of every year.~~ 2(2-0) RB: Open to other majors with College approval. R: Open to students in the Prenursing major or in the Nursing major.

Prepares students to become consumers of research who critically evaluate and base their nursing care on evidence. Research methodologies essential to providing evidence-based nursing care.

~~Effective Spring Semester 2013~~ Effective Spring Semester 2023

NUR 921 Scientific Foundations of Nursing Knowledge Development
Fall of every year. 3(3-0) R: Open to graduate students in the College of Nursing.
~~Philosophical, epistemological, ontological, and ethical foundations of nursing. Historical factors and new perspectives in the evolution of nursing theory. The course will focus on a systematic search and literature synthesis plus identification of a clinical problem and gap in the science related to the students' area of interest. Students will analyze a concept of research interest and evaluate theoretical models and frameworks for exploring the clinical problem.~~

~~Effective Fall Semester 2018~~ Effective Spring Semester 2023

- NUR 939 Improving Health Outcomes: Scientific Foundations
Spring of every year. ~~4(4-0)~~ 3(3-0) P: NUR 921 or approval of college R: Open to doctoral students in the College of Nursing or in the Nursing Major.
Application of the state of the science to wellness, risk reduction and chronic illness outcomes for populations across the lifespan from a nursing perspective.
~~Effective Fall Semester 2018~~ Effective Spring Semester 2023

DEPARTMENT OF PHYSICS AND ASTRONOMY

- AST 207 The Science of Astronomy
Fall of every year. 3(3-0) P: ~~((PHY 231 or concurrently) or (PHY 231C or concurrently) or (PHY 183 or concurrently) or (PHY 183B or concurrently) or (ISP 205 or concurrently) or (LB 273 or concurrently)) and ((MTH 114 or concurrently) or (MTH 116 or concurrently) or (MTH 132 or concurrently))~~ P: ((PHY 231 or concurrently) or (PHY 231C or concurrently) or (PHY 183 or concurrently) or (PHY 183B or concurrently) or (PHY 173 or concurrently) or (LB 273 or concurrently) and ((MTH 114 or concurrently) or (MTH 116 or concurrently) or (MTH 132 or concurrently))
In-depth study of one topic in astronomy with emphasis on key discoveries. Topics may be cosmology, the solar system, and the life of stars.
~~Effective Fall Semester 2013~~ Effective Spring Semester 2023
- AST 208 Planets and Telescopes
Spring of every year. 3(2-2) P: (PHY 183 or PHY 183B or PHY 193H or LB 273) and ((MTH 103 or concurrently) or (MTH 114 or concurrently) or (MTH 116 or concurrently) or (MTH 132 or concurrently) or (LB 118 or concurrently)) RB: AST 207 R: Open to undergraduate students in the Astrophysics Major or in the LB-Astrophysics Coordinate Major.
Origin and nature of the solar system. Planets of the solar system and other star systems. Determination of time and celestial coordinates. Astronomical instruments and observational methods.
SA: AST 303, AST 312
~~Effective Fall Semester 2013~~ Effective Spring Semester 2023
- PHY 174 Studio Physics for Scientists and Engineers II
Fall of every year. Spring of every year. 5(4-2) P: ~~((PHY 173 or LB 273) or (PHY 183 and PHY 191) or (PHY 183B and PHY 191) or (PHY 193H and PHY 191)) and ((MTH 133 or concurrently) or (MTH 153H or concurrently) or (LB 119 or concurrently))~~ P: (PHY 173 or LB 273 or PHY 183 or PHY 183B or PHY 193H) and ((MTH 133 or concurrently) or (MTH 153H or concurrently) or (LB 119 or concurrently)) Not open to students with credit in LB 274 or PHY 184 or PHY 184B or PHY 192 or PHY 222 or PHY 232 or PHY 232c or PHY 234b or PHY 242 or PHY 294H.
Basic principles of electricity and magnetism, development of scientific skills and problem-solving through integrated physics laboratory and discussion.
~~Effective Fall Semester 2020~~ Effective Spring Semester 2023

- PHY 321 Classical Mechanics I
Fall of every year. Spring of every year. 3(3-0) P: ~~((PHY 215 or concurrently) or (PHY 215B or concurrently) or (MTH 235 or concurrently) or (MTH 340 or concurrently) or (MTH 347H or concurrently)) and CMSE 201~~ P: ((MTH 235 or concurrently) or (MTH 340 or concurrently) or (MTH 347H or concurrently)) and CMSE 201 and ((PHY 215 or concurrently) or (PHY 215B or concurrently))
Newtonian point particles. Oscillations. One-particle chaos. Central-force motion. Systems of particles.
~~Effective Spring Semester 2020~~ Effective Spring Semester 2023

SCHOOL OF PLANNING, DESIGN AND CONSTRUCTION

- UP 801 ~~Concepts and Issues in Planning and Development~~
Planning History and Theory
Fall of every year. ~~4(4-0)~~ 3(3-0)
~~Urban and regional planning and development. History of the planning profession. Current urban issues and planning approaches. Examines the concepts, history and theory of urban planning and development in the United States.~~
Effective Spring Semester 2018 Effective Fall Semester 2023

- UP 814 ~~Applied Research Methods for Planning and Development~~
~~Methods for Investigation of Urban Systems~~
Spring of every year. ~~4(3-2)~~ 3(3-0) RB: UP 801
Techniques in urban and regional planning analysis. Forecasting models. Methods of urban project evaluation.
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023
- UP 823 ~~Urban Land Management and the Environment~~
~~Planning Process and Development Review~~
Fall of every year. 3(3-0) RB: UP 801 or concurrently
~~Concepts, principles, tools, and techniques of urban and regional land management. Land use planning, public facilities, infrastructure location, and environmental sensitivity in land management. Introduction to land use including history, approaches, policy, current challenges, and techniques employed by the private and public sector to manage the use of land.~~
~~Effective Summer Semester 2012~~ Effective Fall Semester 2023
- UP 824 ~~Geographic Information Systems and Design Tools for Planning~~
~~Geographic Information Systems for Planning~~
Fall of every year. 3(0-3) R: Open to graduate students in the Master in Urban and Regional Planning or approval of school.
Introduction to geographic information systems and its applicability to planning. Methods and techniques for analyzing land use and planning issues.
~~Effective Fall Semester 2020~~ Effective Fall Semester 2023
- UP 844 Planning Theory and Ethics
Fall of every year. 3(3-0) RB: UP 801
The planning and development process. Decision making in a political context. Professional ethics and practice. Gender, class, race and ethnicity in relationship to planning and development.
DELETE COURSE
Effective Spring Semester 2024
- UP 854 Economics of Planning and Development
Fall of every year. ~~4(4-0)~~ 3(3-0) RB: UP 801
Physical urban environment and local economic development.
~~Effective Spring Semester 2018~~ Effective Fall Semester 2023
- UP 855 ~~Urban Sustainability and Climate Change~~
~~Environmental Planning and Climate Change~~
Fall of even years. 3(3-0) Not open to students with credit in UP 455.
Urban sustainability in the context of the global climate change, tools for sustainability planning, adaptation to climate change, risk and vulnerability in different climate zones
~~Effective Spring Semester 2024~~ Effective Fall Semester 2023
- UP 865 ~~Planning and Development Law~~
~~Planning and Development Law and Ethics~~
Spring of every year. 3(3-0) RB: UP 801
Constitutional and statutory bases for planning and development. Effects of case law on design, administration, and implementation of regulations.
~~Effective Spring Semester 2018~~ Effective Fall Semester 2023
- UP 889 Master's Research
Fall of every year. Spring of every year. Summer of every year. ~~1 to 3 credits, 2(2-0)~~ A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to master's students in the Master in Urban and Regional Planning. Approval of school.
~~Supervised individual research for Plan B master's.~~ Supervised individual master's research.
Request the use of the Pass-No Grade (P-N) system.
~~Effective Fall Semester 2016~~ Effective Fall Semester 2023

UP 899 Master's Thesis Research
Fall of every year. Spring of every year. Summer of every year. ~~4 to 4 credits. 1 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course.~~ A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to master's students in the Master in Urban and Regional Planning. Approval of school.
Master's thesis research.
Request the use of the Pass-No Grade (P-N) system.
~~Effective Fall Semester 2021~~ Effective Fall Semester 2023

DEPARTMENT OF POLITICAL SCIENCE

PLS 491H Senior Honors Thesis
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. ~~P: PLS 491H~~ P: PLS 200 and PLS 201 or approval of department
Original research and writing under direction of a faculty member.
~~Effective Fall Semester 2014~~ Effective Spring Semester 2023

DEPARTMENT OF STATISTICS AND PROBABILITY

STT 200 Statistical Methods
Fall of every year. Spring of every year. Summer of every year. 3(4-0) ~~P: (MTH 101 or MTH 102 or MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or LB 118) or designated score on Mathematics Placement test~~ P: (MTH 102 or MTH 103 or MTH 116 or LB 117 or MTH 124 or MTH 132 or LB 118) or designated score on Mathematics Placement test R: Open to undergraduate students. Not open to students with credit in STT 201 or STT 421.
Data analysis, probability models, random variables, estimation, tests of hypotheses, confidence intervals, and simple linear regression.
~~Effective Spring Semester 2018~~ Effective Spring Semester 2023

STT 201 Statistical Methods
Fall of every year. Spring of every year. Summer of every year. 4(3-2) ~~P: (MTH 101 or MTH 102 or MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or LB 118) or designated score on Mathematics Placement test~~ P: (MTH 102 or MTH 103 or MTH 116 or LB 117 or MTH 124 or MTH 132 or LB 118) or designated score on Mathematics Placement test R: Open to undergraduate students. Not open to students with credit in STT 200 or STT 421.
Probability and statistics with computer applications. Data analysis, probability models, random variables, tests of hypotheses, confidence intervals, simple linear regression.
Weekly lab using statistical software.
~~Effective Spring Semester 2018~~ Effective Spring Semester 2023

STT 464 Statistics for Biologists
Fall of every year. 3(3-0) Interdepartmental with Animal Science and Crop and Soil Sciences. ~~P: MTH 103 or MTH 110 or MTH 116 or MTH 132~~ P: MTH 103 or MTH 116 or MTH 124 or MTH 132
RB: STT 421
Biological random variables. Estimation of population parameters. Testing hypotheses. Linear correlation and regression. Analyses of counted and measured data to compare several biological groups including contingency tables and analysis of variance.
~~Effective Fall Semester 2016~~ Effective Spring Semester 2023

OFFICE OF THE PROVOST

UGS 200H

Honors Research Seminar

Fall of every year. ~~1 to 4 credits. 3(2-2)~~ ~~A student may earn a maximum of 4 credits in all enrollments for this course.~~

R: Open to freshmen or sophomores in the Honors College or approval of college.

Introduction to research and inquiry. Special disciplinary research topics proposed to engage the interests of Honors College students in the scholarly life of the university.

Request the use of the Pass-No Grade (P-N) system.

Request the use of ET-Extension to postpone grading.

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

~~Effective Fall Semester 2015~~ Effective Fall Semester 2023