MICHIGAN STATE UNIVERSITY
University Committee on Curriculum

SUBCOMMITTEE A – AGENDA

Via Teams
April 22, 2025
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to change the requirements for the **Bachelor of Science** degree in **Applied Conservation Biology** in the Department of Fisheries and Wildlife.

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

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

      Two of following courses (5 credits):

CEM	141	General Chemistry	4
CEM	161	Chemistry Laboratory I	1
LB	171	Principles of Chemistry I	4
LB	171L	Principles of Chemistry Laboratory I	1

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

STT	464	Statistics for Biologists	3

      (3) In item 3. g. add the following course:

PHL	214	Indigenous Philosophy	3

      (4) In item 3. m. delete the following course:

IBIO	353	Marine Biology (W)	4

      Add the following course:

FW	353	Marine Biology (W)	3

      (5) In item 3. o. add the following course with FW 417:

FW	417L	Wetland Ecology and Management Lab	1

      (6) In item 3.p. delete the following courses:

ANP	443	Human Adaptability	3
ANP	486	Environmental Archaeology	3

      (7) In item 3.r. add the following course:

FW	494	Marine Biology and Ecosystem Experience	1 to 3

Effective Fall 2025.

2. Request to change the requirements for the **Bachelor of Science** degree in **Aquatic Ecology and Management** in the Department of Fisheries and Wildlife.

a. Under the heading **Requirements for the Bachelor of Science Degree in Aquatic Ecology and Management** make the following changes:

(1) Replace item 3. c. with the following:

Two of following courses (5 credits):

CEM	141	General Chemistry	4
CEM	161	Chemistry Laboratory I	1
LB	171	Principles of Chemistry I	4
LB	171L	Principles of Chemistry Laboratory I	1

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

STT	464	Statistics for Biologists	3

(3) In item 3. h. add the following course:

PHL	214	Indigenous Philosophy	3

(4) In item 3. j. add the following course with FW 417:

FW	417L	Wetland Ecology and Management Lab	1

(5) In item 3. k. delete the following courses:

IBIO	353	Marine Biology (W)	4
MMG	425	Microbial Ecology	3

Add the following courses:

FW	353	Marine Biology (W)	3
MGI	425	Microbial Ecology	3

(6) In item 3. p. delete the following courses:

ANP	443	Human Adaptability	3
ANP	486	Environmental Archaeology	3

(7) In item 3. q. add the following course:

FW	494	Marine Biology and Ecosystem Experience	1 to 3

Effective Fall 2025.

3. Request to change the requirements for the **Bachelor of Science** degree in **Fish Ecology and Management** in the Department of Fisheries and Wildlife.

a. Under the heading **Requirements for the Bachelor of Science Degree in Fish Ecology and Management** make the following changes:

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

Two of following courses (5 credits):

CEM	141	General Chemistry	4
CEM	161	Chemistry Laboratory I	1
LB	171	Principles of Chemistry I	4
LB	171L	Principles of Chemistry Laboratory I	1

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

STT	464	Statistics for Biologists	3

(3) In item 3. h. add the following course:

PHL	214	Indigenous Philosophy	3

(4) In item 3. n. delete the following courses:

ANP	443	Human Adaptability	3
ANP	486	Environmental Archaeology	3

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

FW	494	Marine Biology and Ecosystem Experience	1 to 3

Effective Fall 2025.

4. Request to change the requirements for the **Bachelor of Science** degree in **Wildlife Ecology and Management** in the Department of Fisheries and Wildlife.

a. Under the heading **Requirements for the Bachelor of Science Degree in Wildlife Ecology and Management** make the following changes:

(1) In item 3. a. change the total credits from ‘34’ to ‘35’ and add the following course:

FW	417L	Wetland Ecology and Management Lab	1

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

Two of following courses (5 credits):

CEM	141	General Chemistry	4
CEM	161	Chemistry Laboratory I	1
LB	171	Principles of Chemistry I	4
LB	171L	Principles of Chemistry Laboratory I	1

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

STT	464	Statistics for Biologists	3

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

PHL	214	Indigenous Philosophy	3

(5) In item 3. n. delete the following courses:

ANP	443	Human Adaptability	3
ANP	486	Environmental Archaeology	3

(6) In item 3. o. add the following course:

FW	494	Marine Biology and Ecosystem Experience	1 to 3

Effective Fall 2025.

5. Request to change the requirements for the **Bachelor of Science** degree in **Forestry** in the Department of Forestry.

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

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

      The University's Tier II writing requirement for the Forestry major is met by completing Forestry 340L, 406L and 468. Those courses are referenced in item 3. a. below.

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

      Students who are enrolled in the Forestry major leading to the Bachelor of Science degree in the Department of Forestry may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Forestry 175 and Chemistry 141 and 161.

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

      The completion of Chemistry 161 satisfies the laboratory requirement. Forestry 175, and Chemistry 141 and 161 may be counted toward both the alternative track and the requirements for the major referenced in item 3. below.

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

      The completion of Mathematics 124 or 132 satisfies the College's mathematics requirement.

      (5) In item 3. a., add the following course:

FOR	175	Tree Biology	4

      Delete the following courses:

PLB	105	Plant Biology	3
PLB	106	Plant Biology Laboratory	1

      (6) Delete item 3. b. and reletter items 3. b. through 3. f. respectively.

   Effective Fall 2025.

6. Request to change the requirements of the **Bachelor of Science** degree in **Packaging** in the School of Packaging. The University Committee on Undergraduate Education (UCUE) will consider this request at its April 10, 2025 meeting.

   a. Under the heading **Admission**, replace item 2. b. with Mathematics 132.

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

      (1) In item 3. b., update 'MMG 201' to 'MGI 201'.

   Effective Fall 2025.

COLLEGE OF ENGINEERING

1. Request to change the requirements for the **Minor** in **Smart Agricultural Systems** in the Department of Department of Biosystems and Agricultural Engineering.

   a. Under the heading **Requirements for the Minor in Smart Agricultural Systems** make the following changes:

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

ECE	416	Digital Control	3
ECE	417	Robotics	3

      Add the following courses:

ECE	416	Digital Control	4
ECE	417	Robotics	4
FOR	419	Applications of GIS to Natural Resources Management	3
TNG	335	Computer Security Fundamentals	3
TNG	355	Networks and Network Security	3
TNG	440	Robotics, Automation, and Controls	3

      (2) Delete the following statement:

      At least 10 unique credits counted towards the requirements for a student's minor must not be used to fulfill the requirements for that student's major.

   Effective Spring 2026.

2. Request to change the requirements in the **Bachelor of Science** degree in **Computer Science** in the Department of Computer Science and Engineering.

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

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

      (1) In item 3. a., under **Bioscience** change the "MMG" courses to "MGI".

      (2) Under the **Concentrations in Computer Science** make the following changes:

         (a) Under **Multimedia and Graphics** delete the following course:

MI	337	Compositing and Special Effects	3

         Add the following course:

THR	337	Compositing and Special Effects for Stage and Screen	3

   Effective Fall 2025.

COLLEGE OF HUMAN MEDICINE

1. Request to change the administrative responsibility for the **Master of Public Health** degree in **Public Health** from the College of Human Medicine to the Department of Public Health. The University Committee on Graduate Studies (UCGS) will consider this request at its April 21, 2025 meeting.

   Effective Summer 2025.

2. Request to change the administrative responsibility for the **Graduate Certificate** in **Public Health** from the College of Human Medicine to the Department of Public Health. The University Committee on Graduate Studies (UCGS) will consider this request at its April 21, 2025 meeting.

   Effective Summer 2025.

LYMAN BRIGGS COLLEGE

1. Request to change the name of the **Coordinate Major** in **Genomics and Molecular Genetics** in Lyman Briggs College to **Genetics and Genomics**.

   Effective Fall 2025, no new students are to be admitted to the Coordinate Major in Genomics and Molecular Genetics. Effective Fall 2025, no students are to be readmitted to the Coordinate Major in Genomics and Molecular Genetics. Effective Fall 2025, coding for the Coordinate Major in Genomics and Molecular Genetics will be discontinued and the program will no longer be available in Lyman Briggs College. Effective Fall 2025, students admitted to the Coordinate Major will be awarded a LB Bachelor of Science Degree in Genetics and Genomics.

2. Request to change the requirements for the **Minor** in **Bioethics** in Lyman Briggs College.

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

      (1) Replace item 1. with the following:

      The following course (2 credits):

LB	240	Bioethics: Theories and Methods	2

      (2) Add the following new item 2., and renumber respectively.

      One of the following courses (4 credits)

LB	326A	Medicine and Health – Arts and Humanities (W)	4
LB	326B	Medicine and Health – Social Sciences (W)	4
PHL	344	Ethics Issues in Health Care	4

      (3) In item 3., delete the following courses and note the 'Courses used in Requirement 2. cannot be applied to these 15 credits':

ANP	423	Psychological Anthropology	3
ANP	471	The Anthropology of Alternative Medicine	3
ANS	427	Environmental Toxicology and Society	3
HNF	375	Community Nutrition	3
PHL	444	Philosophical Issues in Biomedicine	4
PHL	485	Philosophy of Social Science	3

   Effective Fall 2025.

COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the **Admission to the College** in **Natural Science** in the College of Natural Science. The University Committee on Undergraduate Education (UCUE) will consider this request at its April 10, 2025 meeting.

   a. Under the heading **Admission to the College of Natural Science** replace item 3. with the following:

      Medical Laboratory Science majors are admitted at the senior level each fall semester. For specific details see the program statement in the Biomedical Laboratory Diagnostics Program section.

   Effective Fall 2025.

2. Request to delete the curriculum and degree requirements for the **Bachelor of Science** degree in **Biological Science Secondary Education** in the College of Natural Science. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

   No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the College of Natural Science. Students who have not met the requirements for the Bachelor of Science Degree in Biological Science Secondary Education through the College of Natural Science prior to Fall 2030 will have to change their major.

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

3. Request to 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** replace the entry with the following:

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

         The University's Tier II writing requirement for the Human Biology major is met by completing HBIO 495. That course is referenced in item 3. f. below.

         Students who are enrolled in the College of Natural Science may complete the alternative track to Integrative Studies in Biological and Physical Sciences that is described in item 1. under the heading Graduation Requirements in the College statement. Certain courses referenced in requirement 3. below may be used to satisfy the alternative track.
      2. The requirements of the College of Natural Science for the Bachelor of Science degree.

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

				CREDITS
a.	One course from each of the following groups (6 to 8 credits):			
(1)	MTH	124	Survey of Calculus I	3
	MTH	132	Calculus I	3
	MTH	152H	Honors Calculus I	4
	LB	118	Calculus I	4
(2)	MTH	126	Survey of Calculus II	3
	MTH	133	Calculus II	4
	MTH	153H	Honors Calculus II	4
	LB	119	Calculus II	4
	STT	201	Statistical Methods	4
	STT	231	Statistics for Scientists	3
	STT	421	Statistics I	3

b.	One of the following groups of courses (9 to 12 credits):				
	(1)	CEM	141	General Chemistry	4
		CEM	142	General and Inorganic Chemistry	3
		CEM	161	Chemistry Laboratory I	1
		CEM	162	Chemistry Laboratory II	1
	(2)	CEM	151	General and Descriptive Chemistry	4
		CEM	152	Principles of Chemistry	3
		CEM	161	Chemistry Laboratory I	1
		CEM	162	Chemistry Laboratory II	1
	(3)	CEM	181H	Honors Chemistry I	4
		CEM	182H	Honors Chemistry II	4
		CEM	185H	Honors Chemistry Laboratory I	2
	(4)	LB	171	Principles of Chemistry I	4
		LB	172	Principles of Chemistry II	3
		LB	171L	Introductory Chemistry Laboratory I	1
		LB	172L	Principles of Chemistry II - Reactivity Laboratory	1
c.	One of the following groups of courses (9 or 10 credits):				
	(1)	BS	161	Cell and Molecular Biology	3
		BS	162	Organismal and Population Biology	3
		BS	171	Cell and Molecular Biology Laboratory	2
		BS	172	Organismal and Population Biology Laboratory	2
	(2)	BS	181H	Honors Cell and Molecular Biology	3
		BS	182H	Honors Organismal and Population Biology	3
		BS	191H	Honors Cell and Molecular Biology Laboratory	2
		BS	192H	Honors Organismal and Population Biology Laboratory	2
	(3)	LB	144	Biology I: Organismal Biology	4
		LB	145	Biology II: Cellular and Molecular Biology	5
d.	One of the following groups of courses (8 or 10 credits):				
	(1)	PHY	221	Studio Physics for Life Scientists I	4
		PHY	222	Studio Physics for Life Scientists II	4
	(2)	PHY	191	Physics Laboratory for Scientists, I	1
		PHY	192	Physics Laboratory for Scientists, II	1
		PHY	193H	Honors Physics I–Mechanics	4
		PHY	294H	Honors Physics II–Electromagnetism	4
	(3)	LB	273	Physics I	4
		LB	274	Physics II	4
e.	All of the following courses (8 credits):				
	CEM	251		Organic Chemistry I	3
	CEM	252		Organic Chemistry II	3
	CEM	255		Organic Chemistry Laboratory	2
f.	Both of the following courses (5 credits):				
	HBIO	295		Human Biology and Society	2
	HBIO	495		Capstone in Human Biology (W)	3
g.	One of the following, either (1) or (2) (4 or 6 credits):				
	(1)	BMB	401	Comprehensive Biochemistry	4
	(2)	BMB	461	Advanced Biochemistry I	3
		BMB	462	Advanced Biochemistry II	3
h.	One of the following, either (1) or (2) (4 or 8 credits):				
	(1)	PSL	310	Physiology for Pre-Health Professionals	4
	(2)	PSL	431	Human Physiology I	4
		PSL	432	Human Physiology II	4
i.	One of the following courses (3 credits):				
	BLD	434		Clinical Immunology	3
	HBIO	410		Cellular Basis of Disease	3
	HBIO	425		Cells and Development (W)	4
	MGI	409		Eukaryotic Cell Biology	3
	MGI	413		Virology	3
	MGI	451		Immunology	3
j.	At least 12 credits from the following courses:				
	ANP	204		Introduction to Medical Anthropology	3
	ANP	206		Introduction to Physical Anthropology	3

ANP	270	Women and Health: Anthropological and International: Perspectives	3
ANP	370	Culture, Health, and Illness	3
ANP	425	Issues in Medical Anthropology	3
ANP	441	Osteology and Forensic Anthropology	4
ANP	443	Human Adaptability	3
ANTR	355	Human Gross Anatomy Laboratory	2
BLD	204	Mechanisms of Disease	3
BLD	213L	Clinical Laboratory Methods	2
BLD	324	Hematology and Hemostasis	3
BLD	430	Molecular Diagnostics	2
BLD	439	Histocompatibility and Immunogenetics	1
BLD	446	Immunobiology of Neoplasia	1
BLD	447	Immunomodulation and Immunotherapy	1
HBIO	300	Special Topics in Human Biology	1 to 3
HNF	310	Nutrition in Medicine for Pre-Health Professionals	3
IBIO	341	Fundamental Genetics	4
IBIO	408	Histology	4
IBIO	425	Cells and Development (W)	4
IBIO	445	Evolution (W)	3
IBIO	450	Cancer Biology (W)	3
EPI	390	Disease in Society: Introduction to Epidemiology and Public Health	4
MGI	301	Introductory Microbiology	3
MGI	302	Introductory Laboratory for General and Allied Health Microbiology	1
MGI	365	Medical Microbiology	3
MGI	365L	Medical Microbiology Laboratory	1
MGI	404	Human Genetics	3
MGI	431	Microbial Genetics	3
MGI	461	Molecular Pathogenesis	3
MGI	465	Advanced Medical Microbiology	3
MGI	465L	Advanced Medical Microbiology Laboratory	2
NEU	300	Neurobiology	3
NEU	310	Psychology and Biology of Human Sexuality	3
OST	450	Introduction to Global Health	3
PH	101	Introduction to Public Health	3
PHM	351	Fundamentals of Drug Safety	3
PHM	422	Fundamentals of Neuropharmocology	2
PHM	321	Common Drugs	3
PHM	350	Introductory Human Pharmacology	3
PHM	430	Human Pharmacology	3
PHM	431	Pharmacology of Drug Addiction	3
PHM	450	Introduction to Chemical Toxicology	3
PHM	461	Tropical Medicine Pharmacology	2
PSL	311L	Physiology Laboratory for Pre-Health Professionals	2
PSY	320	Health Psychology	3
PSY	333	The Neurobiology of Food Intake and Overeating	3

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.

k. One of the following courses (4 credits):

ANTR	350	Human Gross Anatomy for Pre-Health Professionals	4
IBIO	320	Developmental Biology	4
IBIO	328	Comparative Anatomy and Biology of Vertebrates	4

Effective Fall 2025.

4. Request to delete the curriculum and degree requirements for the **Bachelor of Science** degree in **Physical Science Secondary Education** in the College of Natural Science. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

   No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the College of Natural Science. Students who have not met the requirements for the Bachelor of Science Degree in Physical Science Secondary Education through the College of Natural Science prior to Fall 2030 will have to change their major.

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

5. Request to delete the curriculum and degree requirements for the **Dual Major Doctor of Philosophy** degree in **Quantitative Biology** in the College of Natural Science. The University Committee on Graduate Studies (UCGS) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Graduate Studies.

   No new students are to be admitted to the program effective Spring 2018. No students are to be readmitted to the program effective Spring 2018. Effective Fall 2025, coding for the program will be discontinued and the program will no longer be available in the College of Natural Science. Students who have not met the requirements for the Dual Major Doctor of Philosophy Degree in Quantitative Biology through the College of Natural Science prior to Fall 2025 will have to change their major.

   Note: This program has been in moratorium since Spring 2018.

6. Request to delete the curriculum and degree requirements for the **Disciplinary Teaching Minor** available for secondary certification in **Biology** in the College of Natural Science. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

   No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the College of Natural Science. Students who have not met the requirements for the Disciplinary Teaching Minor in Biology through the College of Natural Science prior to Fall 2030 will have to change their minor.

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

7. Request to change the requirements for the **Bachelor of Science** degree in **Biochemistry and Molecular Biology** in the Department of Biochemistry and Molecular Biology.

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

      (1) In item 3. a. change the total credits from ’58 to 64’ to ’59 to 66’.

      (2) Replace item 3. a. (5) with the following:

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

(a)	CEM	251	Organic Chemistry I	4
	CEM	351	Organic Chemistry I	4
	LB	271	Organic Chemistry	3
(b)	CEM	252	Organic Chemistry II	4
	CEM	352	Organic Chemistry II	4

   Effective Fall 2025.

8. Request to change the requirements for the **Bachelor of Science** degree in **Biochemistry and Molecular Biology/Biotechnology** in the Department of Biochemistry and Molecular Biology.

   a. Under the heading **Requirements for the Bachelor of Science Degree in Biochemistry and Molecular Biology/Biotechnology** make the following changes:

      (1) In item 3. a. change the total credits from ’63 to 71’ to ’64 to 73’.

      (2) In item 3. a. (3) (b) change the credits of ‘CEM 142 and CEM 152’ from ‘3’ to ‘4’.

      (3) Replace item 3. a. (5) with the following:

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

(a)	CEM	251	Organic Chemistry I	4
	CEM	351	Organic Chemistry I	4
	LB	271	Organic Chemistry	3
(b)	CEM	252	Organic Chemistry II	4
	CEM	352	Organic Chemistry II	4

      (4) In item 3. a. (9) change ‘CSS 451’ to ‘CROP 451’.

      (5) In item 3. a. (10) change ‘CSS 350’ to ‘CROP 350’.

   Effective Fall 2025.

9. Request to delete the curriculum and degree requirements for the **Disciplinary Teaching Minor** available for secondary certification in **Chemistry** in the Department of Chemistry. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

   No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the Department of Chemistry. Students who have not met the requirements for the Disciplinary Teaching Minor in Chemistry through the Department of Chemistry prior to Fall 2030 will have to change their minor.

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

10. Request to delete the curriculum and degree requirements for the **Disciplinary Teaching Minor** available for secondary certification in **Earth Science** in the Department of Earth and Environmental Sciences. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

    No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the Department of Earth and Environmental Sciences. Students who have not met the requirements for the Disciplinary Teaching Minor in Earth Science through the Department of Earth and Environmental Sciences prior to Fall 2030 will have to change their minor.

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

11. Request to change the requirements for the **Bachelor of Science** degree in **Integrative Biology** in the Department of Integrative Biology.

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

       (1) Replace item 3. c. with the following:

       All of the following courses (8 credits):

CEM	251	Organic Chemistry I	3
CEM	252	Organic Chemistry II	3
CEM	255	Organic Chemistry Laboratory	2

(2) In item 3. g., change ‘MMG 301’ to ‘MGI 301’.

(3) In item 3. i., change ‘MMG 409’ to ‘MGI 409’.

(4) In item 3. l. change ‘MMG 302’ to ‘MGI 302’.

Effective Fall 2025.

12. Request to change the requirements for the **Bachelor of Science** degree in **Zoology** in the Department of Integrative Biology.

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

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

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

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

IBIO	306	Invertebrate Biology	4

Add the following course:

NEU	306	Invertebrate Biology	4

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

(a) In item (2) (b) change ‘MMG 425’ to ‘MGI 425’.

Effective Fall 2025.

13. Request to change the requirements for the **Bachelor of Arts** degree in **Mathematics** in the Department of Mathematics. The Teacher Education Council (TEC) will consider this request at its April 17, 2025 meeting.

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

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

The University’s Tier II writing requirement for the Mathematics major is met by completing Mathematics 496 and Mathematics 309 or 310 or 418H. Those courses are referenced in item 3. below.

(2) In item 3. a. (1) make the second sentence its own item (2) and renumber items (2) and (3) respectively.

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

PHY	173	Studio Physics for Scientists and Engineers I	5

(4) In item 3. a. add the following item (5):

A minimum of 6 credits beyond the university requirements in courses from the College of Arts and Letters or the College of Social Science approved by the student's academic advisor.

(5) Delete item 3. b. and reletter items 3. c. and 3. d. respectively.

(6) In item 3. b. (4) delete the following sentence:

Students in the teacher certification program may substitute Mathematics 396 Capstone in Mathematics for Secondary Education for Mathematics 496.

(7) Replace item 3. b. (5) with the following:

A total of 27 credits in approved Mathematics courses at the 300–level or above. At least 4 of the approved Mathematics courses must be at the 400–level or above. Students may use no more than one of MTH 309, 314, 317H to satisfy this requirement. One course from a list of approved cognates available in the Department of Mathematics may be used to satisfy this requirement. Statistics and Probability 351 or 430 or 441 may be substituted for one 300-level mathematics course. The 300-400 level courses referenced in item 3. c. partially
satisfy this requirement. Students with credit in MTH 235 prior to entering the Mathematics major, only need 24 credits to fulfill this requirement.

(8) In item 3. b. (8) delete the following:

Students in the teacher certification program must take either Mathematics 330 or 432. Students not in the teacher certification program must take Mathematics 340 or 347H. Students not in the teacher certification program with prior credit in Mathematics 235 may substitute an approved 400-level Mathematics course for Mathematics 340.

(9) In item 3. c. delete the following course:

CMSE	202	Computational Modeling and Data Analysis II	4

Add the following course:

CMSE	201	Computational Modeling and Data Analysis I	4

Effective Fall 2025.

14. Request to change the requirements for the **Bachelor of Science** degree in **Mathematics** in the Department of Mathematics. The Teacher Education Council (TEC) will consider this request at its April 17, 2025 meeting.

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

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

The University’s Tier II writing requirement for the Mathematics major is met by completing Mathematics 496 and Mathematics 309 or 310 or 418H. Those courses are referenced in item 3. c. below.

(2) In item 3. a. (1) make the second sentence its own item (2) and renumber items (2) and (3) respectively.

(3) In item 3. a. (4), delete the following item (d):

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

(4) Delete item 3. b. and reletter items 3. c. and 3. d. respectively.

(6) In item 3. b. (4) delete the following sentence:

Students in the teacher certification program may substitute Mathematics 396 Capstone in Mathematics for Secondary Education for Mathematics 496.

(7) Replace item 3. b. (5) with the following:

A total of 27 credits in approved Mathematics courses at the 300–level or above. At least 4 of the approved Mathematics courses must be at the 400–level or above. Students may use no more than one of MTH 309, 314, 317H to satisfy this requirement. One course from a list of approved cognates available in the Department of Mathematics may be used to satisfy this requirement. Statistics and Probability 351 or 430 or 441 may be substituted for one 300-level mathematics course. The 300-400 level courses referenced in item 3. b. partially
satisfy this requirement. Students with credit in MTH 235 prior to entering the Mathematics major, only need 24 credits to fulfill this requirement.

(8) In item 3. b. (8) delete the following:

Students in the teacher certification program must take either Mathematics 330 or 432. Students not in the teacher certification program must take Mathematics 340 or 347H. Students not in the teacher certification program with prior credit in Mathematics 235 may substitute an approved 400-level Mathematics course for Mathematics 340.

(9) In item 3. c. delete the following course:

CMSE	202	Computational Modeling and Data Analysis II	4

Add the following course:

CMSE	201	Computational Modeling and Data Analysis I	4

Effective Fall 2025.

15. Request to delete the curriculum and degree requirements for the **Disciplinary Teaching Minor** available for secondary certification in **Physics** in the Department of Physics and Astronomy. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Undergraduate Education.

No new students are to be admitted to the program effective Fall 2023. No students are to be readmitted to the program effective Fall 2023. Effective Fall 2030, coding for the program will be discontinued and the program will no longer be available in the Department of Physics and Astronomy. Students who have not met the requirements for the Disciplinary Teaching Minor in Physics through the Department of Physics and Astronomy prior to Fall 2030 will have to change their minor.

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

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ANS 200B Introduction to Meat Evaluation
Fall of every year. 2(0-4) RB: ANS 201 and ANS 211
NEW Classifying and grading carcasses, wholesale cuts, and subprimal cuts of beef, pork, and lamb; assessing factors influencing quality, cutability, and value. Field trips required.
Effective Fall Semester 2025

ANS 300B Advanced Meat Judging
Fall of every year. Spring of every year. 2(0-4) A student may earn a maximum of 4 credits in all enrollments for this course. P: ANS 200B RB: ANS 201 and ANS 211 R: Not open to freshmen. A student may earn a maximum of 8 credits ANS 200A, ANS 200B, ANS 200C, ANS 200D, ANS 200E, ANS 300A, ANS 300B, ANS 300C, ANS 300D, ANS 300E, ANS 300F.
NEW Classifying and grading carcasses, wholesale cuts, and subprimal cuts of beef, pork, and lamb; assessing factors influencing quality, cutability, and value to rank exhibits. Out of state travel required to intercollegiate judging competitions. Field trips required.
Effective Fall Semester 2025

COLLEGE OF HUMAN MEDICINE

ANES 619 Introduction to Anesthesiology - An Anesthesia Primer
Fall of every year. Spring of every year. Summer of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: HM 556 R: Open to graduate-professional students in the College of Human Medicine.
NEW Introduction to basic clinical and professional concepts in anesthesiology for those considering a career path in the field or for those simply interested in exploring general anesthesiology concepts.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall Semester 2024

ANES 620 Chronic Pain Management
Fall of every year. Spring of every year. Summer of every year. 6(6-0) A student may earn a maximum of 12 credits in all enrollments for this course. P: FM 641 and MED 641 and OGR 641 and PHD 641 and PSC 641 and SUR 642 R: Open to graduate-professional students in the College of Human Medicine.
NEW Clinical rotation in the sub specialty field of chronic pain management.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall Semester 2024

ANES 621 Concepts in Clinical Anesthesiology I
Fall of every year. Spring of every year. Summer of every year. 6(6-0) A student may earn a maximum of 12 credits in all enrollments for this course. P: FM 641 and MED 641 and OGR 641 and PHD 641 and PSC 641 and SUR 642 R: Open to graduate-professional students in the College of Human Medicine.
NEW In-depth clinical experience in the field of anesthesiology for those committed to applying to anesthesiology residency and ultimately pursuing a career in the field of anesthesiology.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall Semester 2024

ANES 622 Concepts in Clinical Anesthesiology II
Fall of every year. Spring of every year. Summer of every year. 6(6-0) A student may earn a maximum of 12 credits in all enrollments for this course. P: ANES 621 R: Open to graduate-professional students in the College of Human Medicine. Approval of department.

NEW Advanced clinical experience in clinical anesthesiology and its subspecialties for students already having completed ANES I.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Fall Semester 2024

FM 622 Health Care among Immigrant and Refugee Populations
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: FM 641 or MED 641 or PHD 641 R: Open to graduate-professional students in the College of Human Medicine.

NEW Patient-centered and community-based experience with health care focused on refugee populations.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer Semester 2025

FM 660 Family Medicine Clerkship for Global Learners
Fall of every year. Spring of every year. Summer of every year. 3 to 12 credits. R: Approval of college.

NEW Clinical clerkship in which students engage in care of patients in a primary care setting under the supervision of attending physicians, and learn about common and important clinical problems in the outpatient primary care setting.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Spring Semester 2025

COLLEGE OF NATURAL SCIENCE

BMB 469 Special Topics in Biochemistry
~~Fall of every year. Spring of every year.~~ On Demand. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. ~~P: BMB 461 and BMB 462~~ P: BMB 461 ~~R: Open to juniors or seniors in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major or in the Lyman Briggs Biochemistry and Molecular Biology Coordinate Major or in the Lyman Briggs Biochemistry/Biotechnology Coordinate Major or approval of department.~~ R: Open to juniors or seniors in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major or in the Lyman Briggs Biochemistry and Molecular Biology Coordinate Major or in the Lyman Briggs-Biochemistry/Biotechnology Coordinate Major or approval of department.

Special topics in biochemistry and molecular biology including biological computing, bioinformatics, biotechnology, genomics or other current topics.
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 2025

BMB 479 Special Topics in Biochemistry II

~~Fall of every year. Spring of every year. Summer of every year.~~ On Demand. 1 to 4 credits. ~~A student may earn a maximum of 6 credits in all enrollments for this course.~~ A student may earn a maximum of 8 credits in all enrollments for this course. P: BMB 461 R: Open to undergraduate students in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major or in the Lyman Briggs Biochemistry and Molecular Biology Coordinate Major or in the Lyman Briggs-Biochemistry/Biotechnology Coordinate Major or approval of department.

~~Special topics in biochemistry and molecular biology~~ Special topics in biochemistry and molecular biology focusing on methods and technical aspects/ innovations in the field

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 2025

BMB 495 Undergraduate Seminar (W)

~~Spring of every year.~~ Fall of every year. Spring of every year. 2(2-0) P: (BMB 462 or concurrently) and Completion of Tier I Writing Requirement ~~R: Open to students in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major.~~ R: Open to undergraduate students in the Biochemistry and Molecular Biology/Biotechnology Major or in the Biochemistry and Molecular Biology major.

Extension and synthesis of concepts of biochemistry. Relationships to societal issues.

SA: BCH 495

Effective Fall Semester 2025

CEM 311 Inorganic Chemistry

~~Spring of every year.~~ Fall of every year. Spring of every year. ~~3(3-0)~~ 4(4-0) P: CEM 142 or CEM 152 or CEM 182H or LB 172 RB: CEM 384

Basic symmetry, molecular orbital theory, and valence bond theory applications to inorganic systems. Physical properties and reactivity of transition metal systems.

Effective Fall Semester 2025

GLG 446 ~~Ecosystems Modeling, Water and Food Security~~ Sustainable Food Systems

Fall of every year. 3(3-0) R: Open to juniors or seniors or approval of department.

Impacts of climate variability and change on water availability, food security and global environmental change. Integrated models to identify adaption and mitigation strategies to such changes and to enhance the efficiency of natural resources use.

Effective Fall Semester 2025

GLG 481 Reservoirs and Aquifers

Fall of every year. 3(2-2) P: GLG 431 or concurrently

Principles of the origin and evolution of porous media. Porosity and permeability of sediments and sedimentary rocks. Computing techniques for evaluating reservoirs and aquifers. Field trip required.

DELETE COURSE

Effective Fall Semester 2025

IBIO 150 Integrating Biology: From DNA to Populations

Fall of every year. Spring of every year. 3(3-0) ~~P: ((MTH 103 or concurrently) or (MTH 110 or concurrently) or (MTH 112 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (LB 118 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test~~ P: ((MTH 103 or concurrently) or (MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (LB 118 or concurrently) or (MTH 201 or concurrently) or (STT 200 or concurrently) or (STT 201 or concurrently)) or designated score on Mathematics Placement test R: Not open to undergraduate students in the Department of Integrative Biology.

Examine biological systems across multiple levels of organization - spatial, temporal, taxonomic - using evolutionary biology as the common thread.

Effective Spring Semester 2025

MTH 913 Group Theory II
Spring of odd years. 3(3-0) RB: MTH 912
REINSTATEMENT Groups of Lie type, linear groups, locally finite groups, free groups and free products, the subgroup theorems.
Effective Spring Semester 2025

QB 830 Special Topics in Quantitative Biology
Fall of every year. Spring of every year. 1 to 3 credits. RB: Calculus II R: Open to undergraduate students or approval of college.
Selected topics in quantitative biology are covered at an advanced level, to include student presentations of the primary literature
Request the use of the Pass-No Grade (P-N) system.
DELETE COURSE
Effective Fall Semester 2026

PHY 252 Introductory Physics Laboratory II
Fall of every year. Spring of every year. Summer of every year. 1(0-2) ~~P: (PHY 251 or PHY 191 or LB 273) and ((PHY 184 or concurrently) or (PHY 184B or concurrently) or (PHY 232 or concurrently) or (PHY 232C or concurrently) or (PHY 242 or concurrently) or (PHY 294H or concurrently))~~ P: (PHY 251 or PHY 191) and ((PHY 184 or concurrently) or (PHY 232 or concurrently) or (PHY 294H or concurrently)) ~~Not open to students with credit in LB 274 or PHY 192.~~ Not open to students with credit in PHY 192.
Laboratory exercises involving simple electromagnetic and optical systems.
Effective Fall Semester 2025

PHY 862 Accelerator Systems
~~Spring of every year.~~ Fall of every year. 3(3-0) RB: PHY 422 and PHY 482 R: Open to graduate students in the College of Engineering or in the College of Natural Science.
Introduction to large accelerator systems, including the physics and engineering of accelerators and key components of accelerators.
Effective Fall Semester 2025

PHY 863 Special Topics in Accelerator Physics
~~On Demand.~~ Spring of odd years. ~~2(2-0)~~ 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the Department of Physics and Astronomy or approval of department.
Advanced topics in accelerator science.
Effective Fall Semester 2025

PHY 864 Accelerator Technology
~~Spring of every year.~~ Spring of even years. 3(3-0) RB: PHY 422 and PHY 482 R: Open to graduate students in the College of Engineering or in the College of Natural Science.
Key technologies for modern accelerators such as magnets, the normal conducting and super conducting radio frequency cavities, charged particle sources, diagnostic instruments.
Effective Fall Semester 2025

Neuroscience is changing the administrative responsibility from the College of Natural Science to the Department of Physiology

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 2025

NEU 300 Neurobiology
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with Integrative Biology P: (BS 162 or LB 144 or BS 182H) and (BS 161 or LB 145 or BS 181H) R: Not open to freshmen or sophomores and not open to students in the Program in Neuroscience and not open to students in the Lyman Briggs Neuroscience Major.
Structure and function of nerve cells and nervous systems.
SA: ZOL 402
Effective Fall Semester 2025

NEU 301 Introduction to Neuroscience I
Fall of every year. 3(3-0) P: (BS 161 or BS 181H or LB 145) and (BS 162 or BS 182H or LB 144) RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience or in the Lyman Briggs Neuroscience Coordinate Major.
Survey of the field of neuroscience, including molecular, cellular, and autonomic, sensory and motor systems.
Effective Fall Semester 2025

NEU 302 Introduction to Neuroscience II
Spring of every year. 3(3-0) P: NEU 301 RB: PSY 101 R: Open to undergraduate students in the Lyman Briggs College or in the College of Natural Science or in the Program in Neuroscience.
Survey of brain-based behavioral and cognitive systems and related human diseases.
Effective Fall Semester 2025

NEU 304 Neuroanatomy
Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement R: Not open to freshmen. Approval of department; application required.
Structure and basic function of human nervous system, including the influence of art and cultural values on neuroanatomical knowledge throughout history.
Effective Fall Semester 2025

NEU 306 History of Neuroscience
Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement R: Not open to freshmen. Approval of department; application required.
Specific topics in the history of neuroscience with an emphasis on the influence of cultural values on theories and discoveries.
Effective Fall Semester 2025

NEU 307 Topics in History of Neuroscience (W)
Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement R: Not open to freshmen. Approval of department; application required.
Independent library research and group tutorial work aimed at critical analysis of the role that cultural values and historical events played in the specific topic investigated.
Effective Fall Semester 2025

NEU 310 Psychology and Biology of Human Sexuality
Spring of even years. 3(3-0) Interdepartmental with Integrative Biology, Psychology P: (PSY 101 or concurrently) and ((BS 161 or concurrently) or (BS 162 or concurrently) or (LB 144 or concurrently) or (LB 145 or concurrently) or (BS 181H or concurrently) or (BS 182H or concurrently)) Not open to students with credit in HDFS 445.
Sexual behavior from biological, psychological and neuroscience perspectives. Sexual differentiation of the body. Role of hormones in development and reproduction in humans and other animals. Human sexual orientation. Fertility and contraception. Sexual disorders. Sexually transmitted diseases.
Effective Fall Semester 2025

NEU 311L Neuroscience Laboratory (W)
Fall of every year. Spring of every year. 2(1-3) P: ((NEU 301 or concurrently) and completion of Tier I writing requirement) and (STT 201 or STT 231 or STT 421) and (BS 171 or BS 191H or LB 145) RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience or in the Lyman Briggs Neuroscience Coordinate Major.
Overview of neuroscience research methodology, including experimental design, data analysis, and presentation of results.
Effective Fall Semester 2025

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 2025

NEU 402 Behavioral and Cognitive 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 neuronal mechanisms that regulate behavior, learning, cognition, and human disease
Effective Fall Semester 2025

NEU 403 Communication in Neuroscience (W)
Fall of every year. Spring of every year. 3(3-0) P: (NEU 301 and NEU 302) and completion of Tier I writing requirement R: Open to undergraduate students in the Neuroscience Major or in the Lyman Briggs Neuroscience Coordinate Major.
In-depth exploration of contemporary areas of neuroscience, emphasizing scientific literacy and effective written and oral communication.
Effective Fall Semester 2025

NEU 415 Neuroinformatics and Quantitative Reasoning
Fall of every year. 3(3-0) P: ((NEU 301 and (NEU 302 or concurrently)) and completion of Tier I writing requirement) and (MTH 124 or MTH 132 or MTH 152H or LB 118) and (STT 201 or STT 231 or STT 421 or PSY 295) R: Open to undergraduate students in the Neuroscience Major or in the Lyman Briggs Neuroscience Coordinate Major.
Quantitative reasoning and statistical methods for querying internet databases and understanding basic neuroscience models
Effective Fall Semester 2025

NEU 416 Development of the Nervous System Through the Lifespan
Fall of every year. 3(3-0) Interdepartmental with Integrative Biology P: NEU 302 or IBIO 300 or PSY 209 RB: IBIO 341 R: Open to undergraduate students in the Program in Neuroscience or in the Department of Integrative Biology or in the Department of Psychology or in the Lyman Briggs Neuroscience Major or in the Lyman Briggs Zoology Coordinate Major.
Development of neurons and their connections, roles of both genetics and behavioral experience in shaping the mammalian nervous system.
Effective Fall Semester 2025

NEU 417 Instrumental Methods of Analysis in Neuroscience
Spring of every year. 3(3-0) Interdepartmental with Chemistry P: {{(CEM 251 and CEM 252) or (CEM 351 and CEM 352)} and (PHY 231 and PHY 232)} or (PHY 183 and PHY 184) or (PHY 193H and PHY 294H) or (LB 273 and LB 274) RB: NEU 301 or CEM 262
Design, operational principles and practical application of modern instrumental methods used for the separation, identification and quantification of neurochemical species in neuroscience. Application of methods of chemical analysis to study neurosignaling, chemical composition in single secretory cells, chemical structure of cells and tissues.
Effective Fall Semester 2025

NEU 420 Neurobiology of Disease
Spring of every year. 3(3-0) P: NEU 301 and NEU 302 R: Open to undergraduate students in the Program in Neuroscience or in the Lyman Briggs Neuroscience Coordinate Major.
Genetic, molecular, cellular, systems, and behavioral abnormalities that contribute to the manifestation of neurologic and psychiatric diseases and disorders that affect the nervous system.
Effective Fall Semester 2025

NEU 430 Genomics of Brain Development, Learning, and Behavior
Summer of every year. 3(3-0) P: (IBIO 341) and (NEU 302 or concurrently) RB: PSY 209
Role of genes in brain development and function. Issues in behavioral and psychiatric genetics.
Effective Fall Semester 2025

NEU 440 Synaptic Transmission
Spring of even years. 3(3-0) P: NEU 301 R: Open to undergraduate students in the Neuroscience Major or in the Lyman Briggs Neuroscience Major.
Chemical and electrical aspects of nerve impulse transmission at synaptic and neuroeffector junctions. Influence of drugs.
Effective Fall Semester 2025

NEU 450 The Autonomic Nervous System
Fall of every year. 3(3-0) P: (NEU 301) and ((PSL 310 or concurrently) or (PSL 431 or concurrently)) R: Open to undergraduate students in the Neuroscience Major.
Examination of the functional anatomy and physiology of the three autonomic nervous systems (enteric; parasympathetic; sympathetic)
Effective Fall Semester 2025

NEU 460 Current Approaches in Molecular and Cellular Neuroscience
Spring of every year. 3(3-0) P: (NEU 301 and NEU 302) and ((PSL 310 or concurrently) or (PSL 431 or concurrently)) R: Open to students in the Lyman Briggs Neuroscience Coordinate Major or in the Neuroscience Major.
Investigation of the molecular and cellular pathways that allow neurons to connect and communicate, including the latest tools and technologies used to understand how complex molecular machinery within neuronal membranes interact with electrical potentials.
Effective Fall Semester 2025

NEU 490 Special Problems in Neuroscience
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. P: (PSY 101 and NEU 301) and (STT 201 or STT 231 or STT 421) RB: NEU 302 and NEU 311L R: Open to juniors or seniors. Approval of department. A student may earn a maximum of 15 credits A student may earn a maximum of 15 credits in NEU 490 and NEU 492.
Students work under the direction of a faculty member on a selected research problem.
Effective Fall Semester 2025

NEU 492 Special Topics in Neuroscience
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: PSY 101 R: Open to sophomores or juniors or seniors in the Neuroscience Major or in the Lyman Briggs Neuroscience Coordinate Major. Approval of department. A student may earn a maximum of 15 credits in NEU 490 and NEU 492.
Current topics proposed by faculty that supplement regular course offerings.
Effective Fall Semester 2025

NEU 499 Neuroscience Senior Research Thesis
On Demand. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. P: (NEU 490) and completion of Tier I writing requirement R: Open to seniors in the Neuroscience Major. Approval of department.
Independent research mentored by a neuroscience faculty member and conducted in their laboratory.
Effective Fall Semester 2025

COLLEGE OF VETERINARY MEDICINE

PHM 321 Common Drugs
~~Spring of every year.~~ Fall of every year. Spring of every year. 3(3-0) P: (PSL 250) or (PSL 431 and PSL 432) or PSL 310 R: Open to juniors or seniors or approval of department.
Introduction to commonly used drugs. Emphasis on over-the-counter medications and frequently prescribed prescription drugs. Selected natural products also will be covered. How commonly used drugs affect the body to treat or cure various conditions and how the body handles drugs. Principles of appropriate drug use and consequences of misuse.
Effective Fall Semester 2025

VM 140 Pharmacology for Veterinary Nurses
Fall of every year. ~~2(2-0)~~ 3(3-0) ~~P: {(MTH 101 and MTH 103) or MTH 103} and (MTH 114 or MTH 116 or MTH 124 or MTH 132 or MTH 152H)~~ P: {(MTH 103B or MTH 103 or MTH 116 or MTH 124 or LB 118) or MTH 103} and (MTH 114 or MTH 116 or MTH 124 or MTH 132 or MTH 152H) R: Approval of college.
Fundamentals of characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations.
Effective Fall Semester 2025