

SUBCOMMITTEE A – AGENDA

437 Administration Building

October 11, 2018

1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish a **Master of Science** degree in **Nutrition and Dietetics** in the Department of Food Science and Human Nutrition. The University Committee on Graduate Studies (UCGS) approved this request at its March 12, 2018 meeting.

- a. **Background Information:**

The dietetics programs at MSU have a long, rich history. The first related curriculum at MSU, called "Women's Course", was established in 1896 and incorporated the study of dietetics. The American Dietetic Association was established in 1917 and quickly established standards for dietetics education. In 1926, the College of Home Economics (later renamed the College of Human Ecology) met American Dietetic Association (ADA) qualifications by providing a bachelor's degree in home economics to students majoring in foods and nutrition, as well as an internship to work in a hospital or cafeteria.

The program continued to grow rapidly, particularly after World War II, to meet the increased demand for dietitians. Enrollment leveled off in the 1950s and 1960s, but grew again in the 1970s, reaching a high of 284 students in 1978, after dietetics was registered as an accredited profession. Another dramatic rise in dietetics student numbers at MSU occurred in the 2000s building to nearly 500 students, leading to a cap on student numbers beginning in 2007.

By the 1970s, the bachelor degree and dietetic internships were separate programs. Dietetic Internships were required to provide at least 900 hours of supervised practice and to achieve specified competencies. A shortage of internship slots, compared to the number of dietetics graduates, was and is a continuing concern. MSU's first development of an internship occurred as part of a Coordinated Undergraduate Program (CUP) from 1976 until the early 1980s. But the MSU CUP program fell victim to budget cuts in the 1980's when programs with small faculty-to-student ratios were eliminated.

The current MSU Dietetic Internship Program (MSU-DI) was instituted in Fall 1998. MSU's faculty, dietetics professionals at 17 facilities, and the American Dietetic Association collaborated on this project, resulting in accreditation in April 2000 by the Commission on Accreditation for Dietetics Education (CADE). The accrediting agency has since changed its name to the Accreditation Council for Education in Nutrition and Dietetics (ACEND). The American Dietetic Association also had a name change, now the Academy of Nutrition and Dietetics.

Full-time interns are based in either the Lansing/Jackson, Grand Rapids/Muskegon, or Macomb County areas of Michigan, with additional locations, such as the Traverse City area, used occasionally. Part-time WIC employee interns are based in WIC (Women, Infants, Children) agencies around Michigan, primarily in the southwest and western portions of the state and complete most of their rotations within a one-hour drive from their WIC office. Rotation sites for interns include large metropolitan hospitals, community hospitals, public health departments, WIC agencies, public school districts, MSU Extension offices, and many other sites throughout Michigan.

Interns typically live in the city where their major clinical and foodservice rotation is located, which is why this degree is being developed as a hybrid program rather than a traditional on-campus degree. The internship currently utilizes over 60 different facilities as supervised practice sites, and at these sites there are over 150 preceptors involved with the MSU DI. The minimum number of supervised practice hours required is now 1200.

In July 2017, both the MSU dietetics undergraduate program and the MSU Dietetic Internship were granted continued full accreditation by ACEND.

The Commission on Dietetic Registration (CDR) has mandated that, starting on January 1, 2024, every individual sitting for the Registration Examination for Dietitian Nutritionists must have a minimum of a master's degree. The MSU Dietetic Internship (DI) plans to combine a Master of Science degree along with the internship beginning in Spring 2019 in order to meet the CDR

requirement. Because of the geographic distribution of the interns participating in the MSU DI, a hybrid, practice-based, graduate program is an ideal fit.

b. Academic Programs Catalog Text:

The Master of Science Degree in Nutrition and Dietetics is a practice-based program designed for students who are concurrently completing the Dietetic Internship program at Michigan State University. The program includes a supervised practice component of the Dietetic Internship at arranged sites in Michigan and online course work in research methods, advanced clinical nutrition, statistics, and seminars. The program is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). In addition to supervised practice planned to result in competencies enumerated by the accrediting council, the program provides students with opportunities to engage in applied research and further acquisition of professional skills. Upon completion of the program and conferral of the master's degree, students may sit for the Registration Examination for Dietitian Nutritionists.

In addition to meeting the requirements of the University as described in the *Graduate Education* section of this catalog, students must meet the requirements specified below.

Admission

The MSU Dietetic Internship participates in an online Dietetic Internship Centralized Application System (DICAS). An admissions committee of MSU faculty and preceptors reviews applications and prepares a ranked list of approved applicants. An independent matching process is used to fill slots in internships nationwide based on the priority rankings of both applicants and internships. The applicants matched to the MSU internship then apply to the MSU graduate program.

To be considered for admission to the Master of Science degree in Nutrition and Dietetics, an applicant must:

1. have a Verification Statement from an ACEND-accredited Didactic Program in Dietetics (DPD);
2. complete a dietetic internship application through the Dietetic Internship Central Application Service (DICAS), which includes a personal statement, resume, three letters of reference, and transcripts from all colleges and universities attended;
3. have a prior DPD and overall grade point average of 3.0 or higher;
4. complete the MSU application for graduate studies.

Requirements for the Master of Science Degree in Nutrition and Dietetics

The program is available under Plan B (without thesis). The student must complete a total of 30 credits distributed as follows:

			CREDITS
1.	All of the following courses (21 credits):		
	HNF 823	Research Methods in Human Nutrition	3
	HNF 832	Advanced Clinical Nutrition	3
	HNF 892	Nutrition Seminar	2
	HNF 894	Human Nutrition Practicum	6
	HNF 898	Master's Project	4
	NUR 804	Statistics for the Healthcare Professional	3
2.	A minimum of 9 credits in one or more focus areas selected in consultation with the student's faculty advisor.		
3.	Completion of a final project/case study and evaluation, including a formal presentation by the student on a topic approved by the internship director and faculty advisor.		

Effective Spring 2019.

COLLEGE OF ENGINEERING

1. Request to delete the curriculum and degree requirements for the **Disciplinary Teaching Minor in Computer Science**, available for elementary and secondary certification, in the Department of Computer Science and Engineering. The University Committee on Undergraduate Studies (UCUS) 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 Studies and the Teacher Education Council.

No new students are to be admitted to the program effective Summer 2017. No students are to be readmitted to the program effective Summer 2017. Effective Spring 2019, coding for the program will be discontinued and the program will no longer be available in the College of Engineering. Students who have not met the requirements for the Disciplinary Teaching Minor in Computer Science through the College of Engineering prior to Spring 2019 will have to change their minor.

COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the **Bachelor of Science** degree in **Actuarial Science** in the Department of Mathematics. The University Committee on Undergraduate Education (UCUE) approved this request at its April 12, 2018 meeting.

- a. Replace the **Admission to the Major** statement with the following:

To be considered for admission to the major, the student must have:

1. a cumulative grade-point average of at least 3.0 in all courses taken at MSU.
2. a minimum grade-point average of 3.0 in MTH 132, MTH 133, and MTH 234 or equivalent courses.
3. an average of 3.0 in the grades in MTH 360 and STT 441.

Additional criteria for admission includes the following:

1. Passing a Society of Actuaries exam in one of the following ways:
 - a. Passing the Society of Actuaries Exam P (Probability), or the Casualty Actuary Society Exam 1 (Probability) before the start of the fall semester after the student first completes 56 credits.
 - b. Passing the Society of Actuaries Exam FM (Financial Mathematics), or the Casualty Actuary Society Exam 2 (Financial Mathematics) before the start of the fall semester after the student first completes 56 credits.
2. Satisfactory completion of an oral examination relating to Exam P or Exam FM.

Students wishing to major in actuarial science need to make a request to the Actuarial Science program director or delegate when they are eligible and ready to be considered for the major. The Actuarial Science program director approves acceptance into the major. The Director of the Actuarial Science program, or their delegate, could admit students into the program who do not satisfy both of these criteria under exceptional circumstances. A student denied access to the actuarial science major could become an actuary by successfully taking Actuarial Science Exams.

Students who declare the major in actuarial science are automatically reviewed at the end of every semester and are either admitted or informed of their progress. Students must be admitted to a degree-granting college at the time they have completed 56 credits. Those who do not meet the criteria may consider a major in either Mathematics, Quantitative Risk Analytics, or in Statistics and Probability.

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

a. Delete the following course from item 3. l.:

CSE	131	Technical Computing and Problem Solving	3
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b. Collapse the following course into item 3. k. and change the credits from '15' to '19':

CSE	231	Introduction to Programming I	4
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Effective Fall 2019.

2. Request to establish a **Bachelor of Science** degree in **Quantitative Risk Analytics** in the Department of Statistics and Probability. The University Committee on Undergraduate Education (UCUE) approve this request at its April 12, 2018 meeting.

a. **Background Information:**

The proposed Bachelor of Science degree in Quantitative Risk Analytics (QRA) is designed for students whose goal is to find jobs in the insurance industry or related industries which handle risk, such as investment finance. The insurance industry is very well represented in the Lansing area, through diverse companies like Auto-Owners, Jackson National Life Insurance Company, Accident Fund (a subsidiary of Blue Cross Blue Shield of Michigan), and others. Each company is looking to hire students with bachelor's degrees with significant training in statistics and mathematics, for a variety of quantitative-based positions. The current degrees offered in Mathematics and Statistics, including the Actuarial Science degree, lack some of the training in new data analytics, and do not allow students to learn about the operations of insurance companies. Emphasis is placed on life contingencies and on casualty insurance, which is specific to narrow job types and is too demanding of students.

The QRA degree gives students a number of the quantitative skills needed for various insurance industry and risk industry jobs, without insisting that they also be proficient in some of the more specialized skills needed to become an actuary. There are many more quantitative jobs in the insurance industry than just those in actuarial science. This is true for all the companies hiring in the Lansing area. The QRA degree therefore increases the probability of success and of industrial job placement for each student working towards this new degree, compared to the actuarial science degree, and should decrease time to completion.

There is an overabundance of students seeking jobs in the actuarial profession. Because of the large supply, employers are setting a very high bar for hiring. Usually this includes an overall GPA of at least 3.2, 1 to 2 student internships of which there are a limited number available, and passing 1 to 2 actuarial exams. There is evidence that the Insurance Industry will need to hire vast numbers of quantitatively educated employees, in the next 5 to 10 years, to fill vacancies and newly created positions in many types of roles beyond actuarial work. This includes jobs in predictive analytics, which is a branch of data science emerging in many areas of business, and jobs using other data science skills covered in our STT courses. This also includes insurance industry jobs where employees need to understand the broad picture of how an insurance company operates, such as the specifics of an insurance company's books, and how reserving works.

The new curriculum will enhance the education of students interested in the insurance industry and other industries where risk managers are needed, without forcing them to learn topics, which are only needed for the small actuarial portion of those quantitative industry jobs. MSU will be in a particularly good position to train students in these new roles sought by the insurance industry. These roles are less demanding mathematically than actuarial science roles, but require simultaneously strong quantitative and data analysis skills, and knowledge of the insurance industry. The requirements, coupled with the new courses will ensure those skill sets. In particular, the new course on Predictive Analytics will cover those highly sought skills in the industry, and the new course on Insurance Operations will give all QRA majors a solid knowledge of the various elements in an insurance company. By deemphasizing actuarial exams, the QRA degree will focus on the skills which are sought in the vast majority of quantitative jobs available in the insurance industry.

b. **Academic Programs Catalog Text:**

The Bachelor of Science degree in Quantitative Risk Analytics provides students the quantitative skills necessary for employment in the insurance and risk industry, including a mathematical treatment of probability and statistics, interest-rate theory and financial mathematics, predictive analytics and other data science tools, and insurance operations.

Admission

To be considered for admission to the major, the student must have:

1. a cumulative grade-point average of at least 3.0 in all courses taken at MSU.
2. a minimum grade-point average of 3.0 in MTH 132, MTH 133, and MTH 234 or equivalent courses.
3. a minimum average of 3.0 in the grades in MTH 360 and STT 441.

Students who declare the major in quantitative risk analytics are automatically reviewed at the end of every semester and are either admitted or informed of their progress. Students must be admitted to a degree-granting college at the time they have completed 56 credits. Those who do not meet the criteria may consider a major in either Mathematics or in Statistics and Probability.

Requirements for the Bachelor of Science Degree in Quantitative Risk Analytics

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 Quantitative Risk Analytics.

The University's Tier II writing requirement for the Quantitative Risk Analytics major is met by completing Statistics and Probability 467. That course is referenced in item 3. 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:

a. One course of at least 3 credits in biological science, entomology, microbiology, physiology, plant biology, or integrative biology as approved by the student's academic advisor.

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

(1)	CEM	141	General Chemistry	4
	CEM	142	General and Inorganic Chemistry	3
	CEM	161	Chemistry Laboratory I	1
(2)	CEM	151	General and Descriptive Chemistry	4
	CEM	152	Principles of Chemistry	3
	CEM	161	Chemistry Laboratory I	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	171L	Introductory Chemistry Laboratory I	1
	LB	172	Principles of Chemistry II	3

c. One of the following groups of courses (8 credits):

(1)	PHY	183	Physics for Scientists and Engineers I	4
	PHY	184	Physics for Scientists and Engineers II	4
(2)	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

d.	One of the following groups of courses (11 or 12 credits):				
(1)	MTH	132	Calculus I	3	
		MTH	133	Calculus II	4
		MTH	234	Multivariable Calculus	4
(2)	LB	118	Calculus I	4	
		LB	119	Calculus II	4
		LB	220	Calculus III	4
(3)	MTH	152H	Honors Calculus I	3	
		MTH	153H	Honors Calculus II	4
		MTH	254H	Honors Multivariable Calculus	4
e.	One of the following courses (3 credits):				
	MTH	235	Differential Equations	3	
	MTH	340	Ordinary Differential Equations I	3	
	MTH	347H	Honors Ordinary Differential Equations	3	
f.	One of the following groups of courses (4 to 7 credits):				
(1)	MTH	299	Transitions	4	
		MTH	309	Linear Algebra I	3
(2)	MTH	317H	Honors Linear Algebra	4	
g.	All of the following courses (15 credits):				
	MTH	360	Theory of Mathematical Interest	3	
	MTH	361	Financial Mathematics for Actuaries I	3	
	MTH	457	Introduction to Financial Mathematics	3	
	STT	441	Probability and Statistics I: Probability	3	
	STT	442	Probability and Statistics II: Statistics	3	
h.	Both of the following courses (6 credits):				
	MTH	468	Predictive Analytics	3	
	STT	467	Insurance Operations	3	
i.	All of the following courses (19 credits):				
	ACC	230	Survey of Accounting Concepts	3	
	CSE	231	Introduction to Programming I	4	
	EC	201	Introduction to Microeconomics	3	
	EC	202	Introduction to Macroeconomics	3	
	FI	311	Financial Management	3	
	FI	321	Theory of Investments	3	

Effective Fall 2019.

COLLEGE OF NURSING

1. Request to change the requirements for the **Doctor of Philosophy** degree in **Nursing**. The University Committee on Graduate Studies (UCGS) will consider this request at its September 10, 2018 meeting.
 - a. Under the heading **Requirements for the Doctor of Philosophy Degree in Nursing** make the following changes in the course requirements:
 - (1) In item 1. change the total credits from '51 to 53' to '52 to 54'.
 - (2) In item 1. delete the following courses:

NUR	921	Wellness and Risk Reduction Behaviors	3
NUR	923	Self and Symptom Management in Chronic Illness	3

 Add the following course:

NUR	930	Improving Health Outcomes: Scientific Foundations	4
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Effective Spring 2019.

COLLEGE OF VETERINARY MEDICINE

1. Request to change the requirements for the **Bachelor of Science** degree in **Veterinary Technology** in the College of Veterinary Medicine. The University Committee on Undergraduate Education (UCUE) will consider this request.

a. Under the heading **Admission** make the following changes:

(1) Replace paragraph one with the following:

The number of students who can be admitted to the Bachelor of Science degree program in veterinary technology is limited. All persons who are interested in applying for admission to the bachelor's degree program in veterinary technology must complete an application which can be found, along with the application process instructions, by visiting www.cvm.msu.edu/lvt.

(2) Replace paragraph two with the following:

Applications for admission to the bachelor's degree program in veterinary technology are accepted through early February of the year that admission is sought.

(3) Replace sentence one of paragraph four with the following:

To be considered for admission, an applicant must have a minimum cumulative grade-point average of 2.75 and a minimum of a 2.5 grade-point average of the last 12 credits completed.

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

One of the following:
(MTH 101 and MTH 103) or (MTH 103 and MTH 114) or MTH 116 or MTH 124 or MTH 132 or MTH 152H.

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

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

The University's Tier II writing requirement for the Veterinary Technology major is met by completing the following courses: Veterinary Medicine 412 and 413. Those courses are referenced in items 2. a. below.

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

One of the following options (5 to 7 credits):

(1)	MTH	116	College Algebra and Trigonometry	5
(2)	MTH	103	College Algebra	3

and

One of the following:

MTH	101	Quantitative Literacy I	3
MTH	102	Quantitative Literacy II	3
MTH	114	Trigonometry	3
MTH	124	Survey of Calculus I	3
MTH	132	Calculus I	3
MTH	152H	Honors Calculus I	3
MTH	201	Elementary Mathematics for Teachers I	3
STT	200	Statistical Methods	3
STT	201	Statistical Methods	4

(3) Successfully complete the proctored mathematics placement exam with a score of 19 or higher.

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

ANS	404	Advanced Animal Genetics	2
ANS	417	Topics in Toxicology	1

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VM	310	Advanced Clinical Pathology Techniques	1
ZOL	313	Animal Behavior	3
ZOL	341	Fundamentals of Genetics	4
ZOL	369	Introduction to Zoo and Aquarium Science	3
ZOL	402	Neurobiology	3
ZOL	408	Histology	4
ZOL	413	Laboratory in Behavioral Neuroscience (W)	4
ZOL	415	Ecological Aspects of Animal Behavior (W)	3
ZOL	430	Neuroendocrine Aspects of Behavior	3

Add the following courses:

IBIO	300	Neurobiology	3
IBIO	313	Animal Behavior	3
IBIO	341	Fundamentals of Genetics	4
IBIO	369	Introduction to Zoo and Aquarium Science	3
IBIO	408	Histology	4
IBIO	413	Laboratory in Behavioral Neuroscience (W)	4
IBIO	415	Ecological Aspects of Animal Behavior (W)	3

Effective Spring 2019.

PART II - NEW COURSES AND CHANGES

COLLEGE OF ENGINEERING

MSE 974B High Temperature Deformation and Processing
Spring of even years. 3(3-0) RB: MSE 851 and MSE 862
REINSTATEMENT Theoretical and design principles applied to the control of creep, superplasticity, cavitation, recrystallization, and texture changes. Metallic, alloy, intermetallic, ceramic, and composite systems.
SA: MSM 980B, MSM 974B
Effective Fall 2018

COLLEGE OF HUMAN MEDICINE

MED 626 Physical Medicine and Rehabilitation Clerkship
Fall of every year. Spring of every year. Summer of every year. ~~6(6-0)~~ 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. RB: MED 608 or HM 556 R: Open to graduate-professional students in the College of Human Medicine.
Rehabilitation medicine using a comprehensive, multidisciplinary approach. Regimens for physical medicine procedures, occupational therapy, rehabilitation skills. Evaluation of disabled patients. Indications for electrodiagnostic procedures.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Summer 2018~~ Effective Summer 2019

MED 628 ~~Advanced Internal Medicine~~
Advanced Internal Medicine: Senior Medicine Sub-Internship
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. RB: MED 608 or HM 556 R: Open to graduate-professional students in the College of Human Medicine.
Advanced clinical experiences to refine diagnostic and management skills in complicated general internal medicine patients.
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 2018~~ Effective Summer 2019

MED 634 Advanced Internal Medicine: Intensive Care Medicine/Critical Care
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. RB: HM 556 or MED 608 R: Open to graduate-professional students in the College of Human Medicine.

NEW Experience in managing critically ill patients in an intensive care setting, with illnesses including but not limited to respiratory failure, shock, multi-system failure, and terminal acute illness.
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 2018

- MED 635 Advanced Internal Medicine: Women's Health
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. RB: HM 556 or MED 608 R: Open to graduate-professional students in the College of Human Medicine.
- NEW Clinical experience in women's health, including normal aging, menopause, common primary care problems.
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 2018
- MED 636 Advanced Internal Medicine: Medicine/Pediatrics
Fall of every year. Spring of every year. Summer of every year. 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P: MED 641 or MED 608 R: Open to graduate-professional students in the College of Human Medicine.
- NEW Clinical care of children and adults with a wide range of non-surgical medical problems. Implement preventive strategies for patients seeking primary care. The experience is primarily ambulatory, but may include some inpatient.
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 2018
- OGR 609 Advanced Gynecology Clerkship
Fall of every year. Spring of every year. Summer of every year. ~~6(6-0)~~ 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P: OGR 608 or OGR 641 ~~RB: OGR 608~~ R: Open to graduate-professional students in the College of Human Medicine.
Additional exposure to gynecology in the preceptor mode. Participation in outpatient gynecology and inpatient care, including surgery.
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 2016~~ Effective Fall 2018
- OGR 614 Advanced Obstetrics Clerkship
Fall of every year. Spring of every year. Summer of every year. ~~6(6-0)~~ 3 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P: OGR 608 or OGR 641 ~~RB: OGR 608~~ R: Open to graduate-professional students in the College of Human Medicine.
Additional exposure to obstetrics in the preceptor mode. Participation in ambulatory and inpatient obstetrical care, including surgery. May include maternal-fetal medicine.
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 2016~~ Effective Fall 2018

RAD 612 Interventional Radiology
Fall of every year. Spring of every year. Summer of every year. 3 to 12 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P: RAD 609 R: Open to graduate-professional students in the College of Human Medicine or in the College of Osteopathic Medicine.

NEW Signs and symptoms of disorders amenable to diagnosis and/or treatment by interventional radiology techniques. Indications and contraindications to basic vascular and interventional procedures. Observation of clinical and technical aspects of implementation. Introduction to clinical evaluation and follow up, imaging methods, and percutaneous image guided procedures. Fundamentals of radiation physics, radiation biology. Radiation worker and patient protection.
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 2018

COLLEGE OF NATURAL SCIENCE

MTH 314 ~~Matrix Algebra with Applications~~
Matrix Algebra with Computational Applications
Fall of every year. Spring of every year. Summer of every year. 3(3-0) Interdepartmental with Computational Mathematics, Science, and Engineering. P: MTH 133 or MTH 153H or LB 119 P: (MTH 133 or MTH 153H or LB 119) and (CMSE 201 or CSE 231) R: Not open to students in the Actuarial Science Major or in the Bachelor of Arts in Computational Mathematics or in the Bachelor of Science in Computational Mathematics or in the Mathematics Minor or in the Bachelor of Science in Mathematics or in the Bachelor of Arts in Mathematics or in the Bachelor of Science in Mathematics, Advanced or in the Bachelor of Arts in Mathematics, Advanced or in the Mathematics-Elementary Disciplinary Teaching Minor or in Mathematics-Secondary Disciplinary Teaching Minor. R: Not open to students in the Actuarial Science Major or in the Bachelor of Arts in Computational Mathematics or in the Bachelor of Science in Computational Mathematics or in the Bachelor of Science in Mathematics, Advanced or in the Bachelor of Arts in Mathematics, Advanced or in the Mathematics Minor or in the Mathematics-Elementary Disciplinary Teaching Minor or in Mathematics-Secondary Disciplinary Teaching Minor.
Problem solving and applications in matrix algebra for scientists and engineers. Vectors, matrices, linear transformations, inner products, dimension, eigenvalues and eigenvectors. Applications to systems of equations and to geometry. Applications of numerical linear algebra. Vectors, matrices, linear transformations, inner products, eigenvalues and eigenvectors. Numerical methods for the solution of systems of equations and eigenvalue problems. Applications to systems of equations and geometry.
~~Effective Fall 2013~~ Effective Fall 2018

MTH 468 Predictive Analytics
Spring of every year. 3(3-0) Interdepartmental with Statistics and Probability. P: CSE 131 or CSE 231 or MTH 235 or MTH 340 or MTH 309 or MTH 360 or STT 442

NEW Predictive analytics for insurance business and risk management with an emphasis on the use of machine learning tools.
Effective Fall 2018

STT 467 Insurance operations
Spring of every year. 3(3-0) Interdepartmental with Mathematics. P: (ACC 230 and FI 321 and MTH 360) and completion of Tier I writing requirement RB: STT 441

NEW Introduction to insurance topics: Regulation, marketing and distribution, underwriting, risk control, premium auditing, the claim function, actuarial operations, and reinsurance.
Effective Spring 2019

COLLEGE OF NURSING

- NUR 920 Translation of Research and Scientific Knowledge to a Practice Setting
Spring of every year. 3(3-0) ~~P: NUR 924 and NUR 939 or approval of college~~ ~~R: Open to doctoral students in the College of Nursing or in the Nursing Major or in the Nursing Practice Major or approval of college.~~ R: Open to doctoral students in the College of Nursing or in the Nursing Major or approval of college.
~~Systematic approach to translating evidenced based knowledge to inform nursing practice, policy and delivery system change. Translation strategies to enhance health outcomes for those with chronic diseases and common health conditions.~~ Systematic approach to translating evidenced based knowledge to inform nursing practice, policy and delivery system change. Translation strategies to enhance health outcomes in the areas of wellness, risk reduction and chronic illness
~~Effective Summer 2018~~ Effective Fall 2018
- NUR 921 Scientific Foundations of Nursing Knowledge Development
~~Fall of every year.~~ ~~Spring of every year.~~ 3(3-0) R: Open to graduate students in the College of Nursing.
~~Philosophical, epistemological, ontological, and ethical foundations of nursing. Critically examines historical factors in the evolution of nursing theory.~~ Analyzes the Philosophical, epistemological, ontological, and ethical foundations of nursing. Examines the development and growth of substantive knowledge within nursing. Critically examines historical factors and new perspectives in the evolution of nursing theory.
~~Effective Summer 2017~~ Effective Fall 2018
- NUR 924 Designing Interventions for Improving Health Outcomes
Summer of every year. 3(3-0) ~~P: NUR 930~~ P: NUR 921 and NUR 939 or approval of college R: Open to doctoral students in the College of Nursing or in the Nursing Major.
~~Foundation for designing, implementing, and evaluating health related interventions to improve health outcomes for individuals, groups, and populations.~~ Interventions to improve health outcomes for wellness, risk reduction, and chronic illness management across the lifespan. This course provides the foundation for designing, implementing and evaluating nursing interventions.
~~Effective Fall 2016~~ Effective Fall 2018
- NUR 930 Methods In Clinical Research
Fall of every year. 3(3-0) P: NUR 924 and NUR 939 or approval of college R: Open to doctoral students in the College of Nursing or approval of college.
~~Advanced research designs, measurement and data collection strategies. Draws on a broad range of behavioral and health disciplines relevant to nursing. Logic of statistical models used in the evaluation of research designs and measures.~~ Advanced research designs, measurement and data collection strategies. Draws on a broad range of behavioral and health disciplines relevant to wellness, risk reduction, and chronic illness.
~~Effective Fall 2017~~ Effective Fall 2018
- NUR 939 Improving Health Outcomes: Scientific Foundations
Spring of every year. 4(4-0) P: NUR 921 or approval of college R: Open to doctoral students in the College of Nursing or in the Nursing Major.
- NEW Application of the state of the science through appropriate theoretical lenses from a nursing perspective related to wellness, risk reduction and chronic illness outcomes for populations across the lifespan.
Effective Fall 2018

- NUR 950 Nursing Research Seminar I
Fall of every year. 1(1-0) R: Open to doctoral students in the College of Nursing or in the Nursing Major or approval of college.
~~Socialization of doctoral study and research environment. Roles and responsibilities of clinical nurse researcher. Pragmatic facets of research process and environment.~~
Socialization of student to doctoral study and research environment. Develop roles and responsibilities of clinical nurse researcher including responsible conduct of research.
Request the use of the Pass-No Grade (P-N) system.
~~Request the use of ET-Extension to postpone grading.~~
~~The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.~~
Effective Spring 2012 Effective Fall 2018
- NUR 951 Nursing Research Seminar II
Spring of every year. 1(1-0) ~~P: NUR 950~~ P: NUR 950 or approval of college R: Open to doctoral students in the College of Nursing or in the Nursing Major or approval of college.
~~Continuation of NUR 950. Socialization to doctoral study and research environment. Responsibilities of clinical nurse researcher including responsible conduct of research. Synthesis of course work and relevant research methodologies into own research. Dissemination of research.~~
This course is a continuation of NUR 950 to advance development as a clinical scholar, discuss program of study and plan toward unique area of inquiry.
Request the use of the Pass-No Grade (P-N) system.
~~Request the use of ET-Extension to postpone grading.~~
~~The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.~~
Effective Spring 2012 Effective Fall 2018

COLLEGE OF VETERINARY MEDICINE

- PHM 483 ~~Antimicrobial Chemotherapy~~
Chemotherapy of Infectious Diseases
Fall of every year. Spring of every year. 3(3-0) P: (PHM 350 or concurrently) and (PHM 461 or concurrently) RB: Biology, microbiology, or biochemistry. R: Approval of department.
Major human bacterial, viral, and fungal infections including disease characteristic, epidemiologic and clinical features, pathology, laboratory diagnosis, case reviews, and pharmacologic treatment including drug kinetics, dynamics, drug interactions and patient considerations.
Effective Fall 2018
- VM 818 Overview and Practical Application of Food Regulations
Spring of every year. Summer of every year. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to graduate students in the College of Veterinary Medicine or in the Department of Large Animal Clinical Sciences or in the Food Safety Major or approval of college.
- NEW Regulation of food in the United States, including application of the Food Safety Modernization Act (FSMA) and New Nutrition Facts Panel requirements. Regulation of food in other countries, including industry benchmarking under the Global Food Safety Initiative (GFSI). Other public-private partnerships. This course covers key topics that those with roles in food safety, food sciences, quality assurance, quality control, regulatory compliance and others will need to understand the regulation of food in the United States.
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 2019

VM 844 Food Fraud Prevention
Fall of every year. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to graduate students in the College of Veterinary Medicine or in the Department of Large Animal Clinical Sciences or in the Food Safety Major or approval of college.

NEW Theory and applied techniques for food fraud prevention strategies including adulterant-substances, tampering, theft, diversion/gray market, smuggling, overruns, and intellectual property rights counterfeiting.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
Effective Fall 2019