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 Biosystems Engineering in the Department of Biosystems and Agricultural Engineering.

The concentrations in the Bachelor of Science degree in Biosystems Engineering are be 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 Biosystems Engineering make the following changes:

(1) In item 3., make the following changes:

(a) In item a. change the total credits from ‘46’ to ‘47’ and add the following course:

CE 274 Graphics for Civil and Environmental Engineers 1

(b) In item c. delete the following courses:

ZOL 341 Fundamental Genetics 4
ZOL 355 Ecology 3

Add the following courses:

IBIO 341 Fundamental Genetics 4
IBIO 355 Ecology 3

(c) In item d. delete the following courses:

FOR 404 Forest Ecology 3
PLB 402 Biology of Fungi 3

Add the following courses:

CSS 451 Biotechnology Applications for Plant Breeding and Genetics 3
FOR 406 Applied Forest Ecology: Silviculture 3
PLB 402 Biology of Fungi 4

(d) In item e. delete the following courses:

BE 445 Biosensors for Medical Diagnostics 3
ECE 445 Biomedical Instrumentation 3

Add the following courses:

BE 444 Biosensors for Medical Diagnostics 3
BE 449 Human Health Risk Analysis for Engineering Controls 3

b. Under the heading Concentration in Biosystems Engineering make the following changes:

(1) In the Bioenergy Engineering concentration make the following changes:

(a) Change the name of the Bioenergy Engineering concentration to Bioenergy and Bioproduct Engineering.

(b) Delete item 2.
(c) Renumber item 3. to item 2. and make the following changes:

i. Change the requirement to ‘Two of the following’ and change the credits to ‘6 to 8’.

ii. Add the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 457</td>
<td>Bioenergy Feedstock Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CSS 451</td>
<td>Biotechnology Applications for Plant Breeding and Genetics</td>
<td>3</td>
</tr>
<tr>
<td>FOR 406</td>
<td>Applied Forest Ecology: Silviculture</td>
<td>3</td>
</tr>
</tbody>
</table>

iii. Change the credits of PLB 402 from ‘3’ to ‘4’.

iv. Delete the note.

(2) In the Biomedical Engineering concentration make the following changes:

(a) Replace item 1. with the following:

Both of the following courses (6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 444</td>
<td>Biosensors for Medical Diagnostics</td>
<td>3</td>
</tr>
<tr>
<td>BE 449</td>
<td>Human Health Risk Analysis for Engineering Controls</td>
<td>3</td>
</tr>
</tbody>
</table>

(b) Delete item 2.

(c) Renumber items 3. and 4. to 2. and 3. Respectively.

(d) Change the note to ‘Courses used to fulfill requirement 2. in this concentration may not be used to fulfill this requirement.

Effective Fall 2016.

2. Request to change the requirements for the Bachelor of Science degree in Dietetics in the Department of Food Science and Human Nutrition.

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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNF 461</td>
<td>Advanced Human Nutrition: Carbohydrates, Lipids, and Proteins</td>
<td>3</td>
</tr>
<tr>
<td>HNF 462</td>
<td>Advanced Human Nutrition: Vitamins and Minerals</td>
<td>3</td>
</tr>
</tbody>
</table>

Add the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNF 350</td>
<td>Advanced Human Nutrition and Metabolism</td>
<td>4</td>
</tr>
</tbody>
</table>

(2) In item 3. a. change the total credits from ‘44’ to ‘42’.

Effective Summer 2016.
3. Request to change the requirements for the **Bachelor of Science** degree in **Food Science** in the Department of Food Science and Human Nutrition.

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

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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNF 260</td>
<td>Principles of Human Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

   Add the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNF 150</td>
<td>Introduction to Human Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

Effective Summer 2016.

4. Request to change the requirements for the **Bachelor of Science** degree in **Nutritional Sciences** in the Department of Food Science and Human Nutrition.

a. Under the heading **Requirements for the Bachelor of Science Degree in Nutritional Sciences** replace the entire 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 Nutritional Sciences.

   The University's Tier II writing requirement for the Nutritional Sciences major is met by completing Human Nutrition and Foods 450. This course is referenced in item 3. below.

   Students who are enrolled in the Nutritional Sciences major leading to the Bachelor of Science degree in the Department of Food Science and Human Nutrition may complete an alternative track to Integrative Studies in Biological and Physical Sciences that consists of the following courses: Chemistry 141, 161; Biological Science 161 and 171. The completion of Chemistry 161 and Biological Science 171 satisfies the laboratory requirement.

   2. The requirements of the College of Agriculture and Natural Resources for the Bachelor of Science degree.

   The credits earned in certain courses referenced in item 3. below may be counted toward college requirements as appropriate.

   The completion of Mathematics 124 or 132 or Lyman Briggs 118 satisfies the college mathematics requirement.

   3. The following requirements for the major:

      CREDITS

      a. The following courses (40 to 42 credits):

         (1) All of the following courses (24 credits):

         | Course Code | Course Title                  | Credits |
         |-------------|-------------------------------|---------|
         | COM 100     | Human Communication           | 3       |
         | CSS 124     | Introduction to Sustainable Agricultural and Food Systems | 2       |
         | FSC 211     | Principles of Food Science    | 3       |
         | FSC 455     | Food and Nutrition Laboratory | 3       |
         | HNF 150     | Introduction to Human Nutrition| 3       |
         | HNF 250     | Contemporary Issues in Human Nutrition | 2       |
         | HNF 350     | Advanced Human Nutrition and Metabolism | 4       |
HNF 450 Nutrition in the Prevention and Treatment of Disease 4

(2) One of the following, either (a) or (b) (5 credits):
   (a) BS 161 Cell and Molecular Biology 3
   BS 171 Cell and Molecular Biology Laboratory 2
   (b) LB 145 Biology II: Cellular and Molecular Biology 5

(3) One course from each of the following groups (a) and (b)
   (5 or 6 credits):
   (a) CEM 141 General Chemistry 4
       CEM 151 General and Descriptive Chemistry 4
       CEM 181H Honors Chemistry I 4
       LB 171 Principles of Chemistry I 4
   (b) CEM 161 Chemistry Laboratory I 1
       CEM 185H Honors Chemistry Laboratory I 2
       LB 171L Introductory Chemistry Laboratory I 1

(4) One of the following courses (3 or 4 credits):
   MTH 124 Survey of Calculus I 3
   MTH 132 Calculus I 3
   LB 118 Calculus I 4

(5) Completion of a minimum of 3 credits in Experiential Learning. 
   Students must consult with their academic advisor for specific 
   details on this requirement. Completion of this requirement 
   may be fulfilled by enrollment in ANR 475, HNF 490, or HNF 
   490H or any approved study abroad, service, or research 
   experience.

b. One of the following concentrations:

   Biomedical and Molecular Nutrition (40 to 50 credits):
   (1) One of the following, either (a) or (b) (4 or 6 credits):
       (a) BMB 401 Comprehensive Biochemistry 4
           BMB 461 Advanced Biochemistry I 3
           BMB 462 Advanced Biochemistry II 3
       (b) LB 273 Physics I 4
           LB 274 Physics II 4
   (2) One of the following, either (a) or (b) (8 credits):
       (a) LB 273 Physics I 4
           LB 274 Physics II 4
       (b) PHY 231 Introductory Physics I 3
           PHY 232 Introductory Physics II 3
           PHY 251 Introductory Physics Laboratory I 1
           PHY 252 Introductory Physics Laboratory I 1
   (3) All of the following courses (11 credits):
       CEM 251 Organic Chemistry I 3
       CEM 252 Organic Chemistry II 3
       CEM 255 Organic Chemistry Laboratory 2
       HNF 310 Nutrition in Medicine for Pre-Health Professionals 3
   (4) One of the following courses (3 or 4 credits):
       STT 201 Statistical Methods 4
       STT 231 Statistics for Scientists 3
   (5) One course from each of the following groups (4 or 5 credits):
       (a) CEM 142 General and Inorganic Chemistry 3
           CEM 152 Principles of Chemistry 3
           CEM 182H Honors Chemistry II 4
           LB 172 Principles of Chemistry II 4
       (b) CEM 162 Chemistry Laboratory II 1
           LB 172L Principles of Chemistry II – Reactivity Laboratory 1
   (6) One of the following, either (a) or (b) (4 or 8 credits):
       (a) PSL 310 Physiology for Pre-Health Professionals 4
       (b) PSL 431 Human Physiology I 4
           PSL 432 Human Physiology II 4
   (7) Two of the following courses (6 to 8 credits):
       ANTR 350 Human Gross Anatomy for Pre-Health Professionals 3
CEM 262 Quantitative Analysis 3
IBIO 341 Fundamental Genetics 4
IBIO 408 Histology 4
MMG 301 Introductory Microbiology 3
MMG 409 Eukaryotic Cell Biology 3
PHM 350 Introductory Human Pharmacology 3
PSY 320 Health Psychology 3

**Global Nutrition and Health** (42 to 47 credits):

1. All of the following courses (20 credits):
   - CSUS 215 International Development and Sustainability 3
   - HNF 377 Applied Community Nutrition 4
   - HNF 406 Global Foods and Culture 3
   - HNF 453 Nutrition and Human Development 3
   - PSL 310 Physiology for Pre-Health Professionals 4
   - SOC 362 Developing Societies 3

2. One of the following, (a) or (b), (4 or 6 credits):
   - (a) CEM 143 Survey of Organic Chemistry 4
   - (b) CEM 251 Organic Chemistry I 3
       CEM 252 Organic Chemistry II 3

3. One of the following courses (2 to 4 credits):
   - AL 200 Cultural Difference and Study Abroad 3
   - ANP 200 Navigating Another Culture 2
   - ANP 370 Culture, Health, and Illness 3
   - COM 391 Topics in Verbal, Intercultural, or Gender Communication 4
   - GSAH 230 Values, Experience, and Difference in Global Contexts 3

4. One of the following courses (4 credits):
   - BMB 200 Introduction to Biochemistry 4
   - BMB 401 Comprehensive Biochemistry 4

5. One of the following courses (3 credits):
   - CSUS 429 Program Evaluation for Community Sustainability 3
   - CSUS 433 Grant Writing and Fund Development (W) 3

6. One of the following courses (3 or 4 credits):
   - STT 201 Statistical Methods 4
   - STT 224 Introduction to Probability and Statistics for Ecologists 3
   - STT 231 Statistics for Scientists 3
   - STT 464 Statistics for Biologists 3

7. Two of the following courses (6 credits):
   - ANP 270 Women and Health: Anthropological and International Perspectives 3
   - CSS 431 International Agricultural Systems 3
   - CSUS 463 Food Fight: Politics of Food 3
   - EEP 260 World Food Population and Poverty 3
   - FOR 466 Natural Resource Policy 3
   - GEO 435 Geography of Health and Disease 3
   - PHL 453 Ethical Issues in Global Public Health 3
   - SOC 161 International Development and Change 3

**Public Health Nutrition** (41 to 44 credits):

1. All of the following courses (24 credits):
   - HM 101 Introduction to Public Health 3
   - HNF 377 Applied Community Nutrition 4
   - HNF 385 Public Issues in Health and Nutrition 3
   - HNF 485 Advanced Research Methods in Nutrition and Health 4
   - PSL 310 Physiology for Pre-Health Professionals 4
   - STT 421 Statistics I 3
   - STT 422 Statistics II 3

2. One of the following, either (a) or (b), (4 or 6 credits):
   - (a) CEM 143 Survey of Organic Chemistry 4
   - (b) CEM 251 Organic Chemistry I 3
       CEM 252 Organic Chemistry II 3
(3) One of the following courses (4 credits):
BMB 200 Introduction to Biochemistry 4
BMB 401 Comprehensive Biochemistry 4

(4) One of the following courses (3 credits):
CSUS 429 Program Evaluation for Community Sustainability 3
CSUS 433 Grant Writing and Fund Development (W) 3

(5) Two of the following courses (6 or 7 credits):
ANP 270 Women and Health: Anthropological and International Perspectives 3
ANP 370 Culture, Health, and Illness 3
ANP 443 Human Adaptability 3
EPI 240 Epidemiological Investigations in Nutrition and Health 3
EPI 390 Disease in Society: Introduction to Epidemiology and Public Health 4
GEO 435 Geography of Health and Disease 3
HNF 453 Nutrition and Human Development 3
PHL 453 Ethical Issues in Global Public Health 3
PLS 313 American Public Policy 3
SOC 451 Dynamics of Population 3
SOC 461 Basic Demographic Techniques and Applications 3
SOC 475 Health and Society 3

Effective Fall 2016

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) will consider this request.

   a. Add the following Admission to the Major statement:

   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 of 3.0 in both MTH 132 and MTH 133 or equivalent for transfer students.
   3. an average of 3.0 in the grades in MTH 360 and STT 441.

   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 or in Statistics and Probability.

   Effective Fall 2016.
PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ANS 413  Non-Ruminant Nutrition
Fall of every year. Spring of every year. 3(3-0) P: ANS 313 P: (ANS 110 and ANS 313) and (STT 200 or STT 201 or STT 464) RB: BMB 200 or BMB 401 R: Not open to freshmen or sophomores.
Digestive processes and nutrient metabolism in non-ruminant animals. Metabolic basis for nutrient requirements.
Effective Summer 2015 Effective Summer 2016

HNF 150  Introduction to Human Nutrition
Fall of every year. Spring of every year. Summer of every year. 3(3-0)
Nutrition needs in life stages from a human ecological perspective. Domestic and international factors affecting the availability of a safe, nutritious food supply.
Relationships of food choices to health and disease. Nutrient function and metabolism.
Food and nutrients in health and disease. Socioeconomic and environmental influences on food and health. Incorporation of healthy food choices into daily living.
Effective Fall 2014 Effective Summer 2016

HNF 250  Contemporary Issues in Human Nutrition
Fall of every year. 2(1-2) P: (HNF 150) and completion of Tier I writing requirement R: Open to students in the Nutritional Sciences Major.
NEW
Effective Summer 2016

HNF 260  Principles of Human Nutrition
Fall of every year. Spring of every year. 3(3-0) P: BS 161 or BS 181H or LB 145 or BMB 200 or PSL 250
Identification, function and food sources of nutrients required by humans. Normal metabolism. Effects of deficiencies or excesses of specific nutrients and food components on metabolism and health.
SA: HNF 311
DELETE COURSE
Effective Fall 2016

HNF 300  Experimental Approaches to Foods
Fall of every year. Spring of every year. 4(2-4) P: Completion of Tier I Writing Requirement P: ((CEM 143 or concurrently) or (CEM 251 or concurrently)) and completion of Tier I writing requirement RB: CEM 143 R: Open to juniors or seniors in the Department of Food Science and Human Nutrition. R: Open to juniors or seniors in the Dietetics Major or in the Food Science Major.
Effects of preparation methods and ingredient substitutions on chemical and physical properties of food constituents. Effects of changes in chemical and physical properties on functional and sensory attributes of foods.
Effective Fall 2014 Effective Summer 2016

HNF 310  Nutrition in Medicine for Pre-Health Professionals
Spring of every year. Summer of every year. 3(3-0) P: (HNF 150) and ((PSL 250 or concurrently) or (PSL 310 or concurrently)) or (PSL 431 or concurrently)) R: Not open to freshmen.
NEW
Relationship of nutrition and dietary practices to human health and treatment of clinical conditions. Health care team approach to nutrition issues.
Effective Summer 2016
HNF 350  Advanced Human Nutrition and Metabolism  
Spring of every year. 4(5-0) P: (HNF 250 or HNF 320) and (PSL 250 or PSL 310 or PSL 431) and (BMB 200 or BMB 401 or BMB 461) R: Open to juniors or seniors in the Dietetics Major or in the Nutritional Sciences Major. Not open to students with credit in HNF 461 or HNF 462.

NEW  Nutrient function, metabolism, and interaction in humans at the molecular, cellular, tissue, organ and system level. Mechanistic relationships of nutritional status to health and disease.

Effective Summer 2016

HNF 377  Applied Community Nutrition  
Fall of every year. 4(3-2) P: HNF 320 P: HNF 250 or HNF 320 R: Open to juniors or seniors in the Dietetics major. R: Open to juniors or seniors in the Dietetics Major or in the Nutritional Sciences Major.


Effective Fall 2014 Effective Summer 2016

HNF 385  Public Issues in Nutrition and Health  
Spring of every year. Summer of every year. 3(3-0) P: (HNF 150) and ((STT 200 or concurrently) or (STT 201 or concurrently) or (STT 224 or concurrently) or (STT 231 or concurrently) or (STT 421 or concurrently) or (STT 464 or concurrently) or approval of department) R: Not open to freshmen.

NEW  Nutrition from a public health perspective. Overview of public health research, evidence-based recommendations and epidemiology. Diet and nutrition assessment. Ethical issues surrounding public health nutrition recommendations.

Effective Summer 2016

HNF 450  Nutrition in the Prevention and Treatment of Disease  
Spring of every year. 4(4-0) P: (HNF 250 and HNF 350) and completion of Tier I writing requirement

NEW  Nutrition and its relationship to health and disease using a basic research approach.

Effective Summer 2016

HNF 461  Advanced Human Nutrition: Carbohydrates, Lipids and Proteins  
Fall of every year. 3(3-0) P: (BMB 200 or BMB 401 or BMB 461) and (PSL 250 or PSL 310 or PSL 432) Energetics and metabolism of carbohydrates, lipids, and proteins as related to dietary requirements and disease processes in humans. Recommended dietary allowances. Food sources of nutrients.

SA: HNF 460  
DELETE COURSE  
Effective Spring 2017

HNF 462  Advanced Human Nutrition: Vitamins and Minerals  
Fall of every year. 3(3-0) P: HNF 461 or concurrently Metabolism of vitamins and minerals in relation to dietary requirements and disease processes in humans. Food sources of nutrients. Nutrient interrelationships. Factors affecting bioavailability and stability of nutrients.

SA: HNF 460  
DELETE COURSE  
Effective Spring 2017

HNF 463  Nutritional Sciences Laboratory  
Fall of every year. 3(1-4) P: (CEM 255 and (HNF 461 or concurrently) and (HNF 462 or concurrently)) and completion of Tier I writing requirement Principles and methods used in nutrient analyses and nutritional assessment.

DELETE COURSE  
Effective Fall 2015
HNF 464  Nutrition in the Prevention and Treatment of Disease
Spring of every year. 4(4-0) P: (HNF 461 and HNF 462) and (BMB 401 or BMB 461) and Completion of Tier I Writing Requirement
Nutrition and relationship to health and disease using a basic research approach.
DELETE COURSE
Effective Summer 2016

HNF 471  Medical Nutrition Therapy I
Fall of every year. 4(3-2) P: (((HNF 461 or concurrently) and (HNF 462 or concurrently)) and completion of Tier I writing requirement) and (PSL 250 or PSL 310 or PSL 431) and (PSL 432 or ANTR 350) P: (HNF 350) and ANTR 350 and (PSL 250 or PSL 310) and Completion of Tier I Writing Requirement R: Open to juniors or seniors. R: Open to juniors or seniors in the Dietetics Major.
SA: HNF 470
Effective Fall 2014 Effective Summer 2016

HNF 480  Human Nutrition Research Methods
Spring of every year. 3(1-6) P: (HNF 461 and HNF 462 and HNF 463) and completion of Tier I writing requirement
Issues and techniques involved in nutrition research with humans and animals. Independent research and public presentation of projects.
DELETE COURSE
Effective Fall 2015

HNF 485  Advanced Research Methods in Nutrition and Health
Fall of every year. 3(2-2) P: HNF 250 and HNF 385 and STT 422 R: Open to students in the Nutritional Sciences Major.
NEW Survey design, data collection and analysis of nutrition and health data. Use of statistical analysis software (SPSS/SAS). Interpretation and presentation of research results.
Effective Summer 2016
FOR 833  Human Dimensions of Forest Carbon Management  
Fall of every year. Spring of every year. 3(3-0)  
Social dimensions associated with the development and implementation of forest-based climate change mitigation projects, including: valuation of trees and forests by local communities vs. international community; community decision making; public participation; community engagement.  
Effective Fall 2012 Effective Spring 2015

FOR 835  Forest Carbon Policy, Economics and Finance  
Fall of every year. Spring of every year. 3(3-0)  
Policy, economic and financial dimensions of the development and implementation of forest-based climate change mitigation projects, including: the role of forests in international agreements and policy, finance and investment approaches to forest carbon sequestration; emissions trading; biofuels; and valuation of ecosystem services.  
Effective Fall 2012 Effective Fall 2014

COLLEGE OF ENGINEERING

BE 449  Human Health Risk Analysis for Engineering Controls  
Fall of every year. 3(2-2) P: (BE 385 and BE 360 and BE 332) or (CE 371 and CE 372 and ENE 487) R: Open to juniors or seniors in the College of Engineering.  
NEW Characterize human health risk from microbial stressors. Develop and evaluate engineering controls for risk management. Effective Fall 2016

MSE 801  Foundations of Materials Science and Engineering  
Summer of every year. A student may earn a maximum of 3 credits in all enrollments for this course. RB: Undergraduate degree in science or engineering related to Materials Science.  
NEW Structure-Property-Processing-Performance interrelationship of metals, ceramics and polymers. Phase diagrams, thermomechanical treatments, physical and mechanical properties, processing, diffusion, microstructure studies, environmental effects. Request the use of the Pass-No Grade (P-N) system. Effective Summer 2016

COLLEGE OF HUMAN MEDICINE

EPI 920  Advanced Methods in Epidemiology and Applied Statistics  
Spring of even years. Spring of every year. 3(3-0) Interdepartmental with Statistics and Probability. P: EPI 826 P: (EPI 826B or concurrently) or EPI 826 or approval of department R: Open to graduate students in the Department of Epidemiology and Biostatistics or approval of department.  
Pattern recognition and cluster analysis, longitudinal data analysis, path analysis, repeated measures and time-series analysis. Effective Summer 2012 Effective Fall 2015

ANTR 485  Directed Study in Human Prosection  
Fall of every year. Spring of every year. Summer of every year. 2 to 4 credits. P: ANTR 350 or ZOL 328 or KIN 217 or ZOL 320 R: Open to juniors or seniors. Approval of department.  
Prosection of selected regions and isolated structures of preserved human cadavers. Effective Spring 2015 Effective Spring 2016
**COLLEGE OF NATURAL SCIENCE**

**MTHE 926** Proseminar in Mathematics Education I  
Fall of odd years. 3(3-0) Interdepartmental with Counseling, Educational Psychology and Special Education and Mathematics and Teacher Education. Interdepartmental with Counseling, Educational Psychology and Special Education and Teacher Education  
Research on the learning and teaching of mathematics. Focus on curriculum, discourse, equity and teacher education.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.  
SA: SME 926  
Effective Summer 2013 Effective Fall 2016

**MTHE 927** Proseminar in Mathematics Education II  
Fall of even years. 3(3-0) Interdepartmental with Counseling, Educational Psychology and Special Education and Mathematics and Teacher Education. Interdepartmental with Counseling, Educational Psychology and Special Education and Teacher Education  
Research on the learning and teaching of mathematics. Focus on teaching, student learning, assessment and policy.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.  
SA: SME 927  
Effective Summer 2013 Effective Fall 2016

**MTHE 954** Design and Methods in Mathematics Education Research  
Fall of every year. 3(3-0) Interdepartmental with Counseling, Educational Psychology and Special Education and Mathematics and Teacher Education. Interdepartmental with Counseling, Educational Psychology and Special Education and Teacher Education RB: (MTHE 927) and at least one approved research methods course.  
History, current trends, and issues pertaining to research design and methods in mathematics education research. Mathematics education research in the areas of policy, teaching, teacher learning, and student learning with particular attention to how research design influence research findings.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.  
SA: SME 954  
Effective Summer 2013 Effective Fall 2016

**PSL 311L** Physiology Laboratory for Pre-Health Professionals  
Fall of every year. Spring of every year. 2(0-4) P: (CEM 142 or CEM 152 or CEM 182H or LB 172) and ((PSL 310 or concurrently) or (PSL 432 or concurrently)) R: Not open to freshmen.  
NEW  
Laboratory exercises in human and animal physiology, including neural, sensory, muscle, cardiovascular, and urinary function, with an emphasis on the integration of physiological systems. This course complements upper division physiology lecture courses (PSL 310, PSL 431/PSL 432) by offering physiology laboratory exercises relevant for pre-health students and the development of data analysis and problem solving skills.  
Effective Fall 2016

**COLLEGE OF NURSING**

**NUR 802** Theoretical Foundations and Role Development for the Advanced Practice Nurse  
Fall of every year. Spring of every year. 3(3-0) R: Open to graduate students in the College of Nursing. Not open to students with credit in NUR 801 or NUR 803.  
Integration of theories from nursing and related disciplines to provide a foundation for the graduate student to transition into the advanced practice role.  
Effective Fall 2011 Effective Fall 2015
NUR 806  Research for Advanced Practice Nurses  
**Fall of every year. Spring of every year. 3(3-0) R: Open to graduate students in the College of Nursing.**

Prepares advanced practice nurses to be proficient in the ethical and clinical application of research including problem identification and critically evaluate the evidence to provide high quality care and improve practice.

**Effective Fall 2015 Effective Spring 2016**

NUR 901  Knowledge Development in Nursing  
**Fall of every year. Spring of every year. 3(3-0) R: Open only to doctoral students in the College of Nursing or approval of college.**

Development and growth of substantive knowledge within nursing. Middle range theories. Strategies for concept development and theory testing in nursing research for understanding health status and health outcomes for individuals, families and community-based primary care.

**Effective Summer 2001 Effective Fall 2015**

NUR 961  Leadership I: Organizational Leadership  
**Fall of every year. Summer of every year. 3(3-0) R: Open to doctoral students in the College of Nursing.**

Analysis and evaluation of organization and leadership theories and their relationship to complex health care systems. Strategies for effective leadership include systems thinking, organizational culture, communication, resource utilization, ethics, and change models required to lead cost-effective quality and safety improvements within health care organizations and in an interdisciplinary environment.

**Effective Summer 2014 Effective Spring 2016**

NUR 962  Analytical Methods for Evidence-Based Practice  
**Fall of every year. Summer of every year. 3(3-0) P: NUR 960 or concurrently R: Open to doctoral students in the College of Nursing.**

Integrate and critically evaluate knowledge from diverse sources to develop the best evidence-based practice guidelines for improving health outcomes. Explore rigorous methodologies to design, implement, and evaluate evidence-based interventions.

**Effective Summer 2014 Effective Spring 2016**

NUR 965  DNP Practicum II  
**Spring of every year. Summer of every year. 3 credits. P: NUR 964 R: Open to doctoral students in the College of Nursing.**

Builds on NUR 964. Provides opportunities to engage in increasingly complex organizational projects. Participates in implementation of evidence-based initiatives to improve health outcomes and system effectiveness.

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

**Effective Spring 2014 Effective Fall 2015**