### PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

#### COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to change the requirements for the Agricultural Technology Certificate in Agricultural Industries in The Institute of Agricultural Technology.
   
a. Under the heading Agricultural Industries make the following changes:

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

      (a) Delete the following course:

          CSS 302 Principles of Weed Management 3

      Add the following courses:

          CSS 101L Introduction to Crop Science Laboratory 1
          CSS 288 Principles of Weed Management 3

      (b) Change the total credits from ‘30 to 33’ to ‘30 to 34’.

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

      (a) Delete the following courses:

          AE 150 Metal Fabrication Technology 2
          AE 252 Gasoline and Diesel Engine Technology 3
          AE 261 Principles of Animal Environments 2
          ANS 205 Reproduction in Livestock 2
          CSS 251 Organic Farming Principles and Practices 3
          HRT 335 Berry Crop Production and Management 1

      Add the following courses:

          AE 151 Fabrication Technology 2
          AE 153 Engine and Equipment Technology 2
          HRT 251 Organic Farming Principles and Practices 3

   Effective Fall 2015.

2. Request to establish an Agricultural Technology Certificate in Agricultural Operations in the Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its November 13, 2014 meeting.
   
a. **Background Information:**

   Certificate programs in the areas of horticulture were developed and launched as off-campus programs in the mid-1990s. The Institute of Agricultural Technology has successfully operated these programs. There are currently no programs available for individuals interested in general agricultural operations. Changes in these industries now warrant a program in this area to be offered. There is a need to provide agricultural management educational training to students who cannot participate in face-to-face campus-based programs due to family and work obligations. With continued growth in this industry, there is a need for trained and skilled workers.
b. Academic Programs Catalog Text:

The Agricultural Operations program provides students with a solid background in plant and soil science, precision agriculture, water management, entomology, plant pathology and business management. It exposes students to exciting opportunities available in the industry.

Requirements for Agricultural Operations

Students must complete 55 credits from the following:

1. All of the following courses (30 credits):
   - ABM 130 Farm Management I 3
   - AE 131 Agricultural Water Resource Management 3
   - AE 143 Application of Precision Agriculture Technologies 3
   - AT 202 Agricultural Regulation, Compliance and Safety 3
   - AT 293 Professional Internship in Agricultural Technology 3
   - CSS 101 Introduction to Crop Science 3
   - CSS 105 Agricultural Industries Seminar 1
   - CSS 135 Crop Scouting and Investigation 2
   - CSS 210 Fundamentals of Soil Science 3
   - ENT 110 Applied Entomology of Economic Plants 3
   - PLP 200 Plant Diseases and Their Pathogens 3

2. Completion of a minimum of 4 additional elective credits in the college as approved by the program coordinator in the Institute of Agricultural Technology.

3. Completion of 21 credits of additional course work through Northwestern Michigan College. All course work must be approved by the program coordinator in the Institute of Agricultural Technology.

Effective Fall 2015

3. Request to change the requirements for the Agricultural Technology Certificate in Electrical Technology in the Institute of Agricultural Technology.

a. Under the heading Electrical Technology replace the entire entry with the following:

The Electrical Technology certificate is an electrical apprenticeship training program with an emphasis on residential, agricultural, commercial, and industrial wiring. Students study electrical codes, fundamentals, installations, motor controls, and solid state electronic applications. Throughout the program, students receive training in energy efficiency and alternate power systems. The certificate provides advanced technical training important for a successful career in the electrical field.

Integrated in the 15-month program are a wide range of disciplines through hands-on classroom and laboratory learning, and on-the-job training. The 4,000 square feet laboratory is equipped with electrical systems found in agricultural, commercial, and industrial facilities as well as systems that serve residential homes. The laboratory also has programmable logic controls, variable frequency drives, and standard AC and DC motors used in the field. The skills learned are used to become a licensed journey electrician through the State of Michigan, which is recognized by the State Electrical Administrative Board. Students who are interested may be eligible to transfer into a four-year degree program at MSU upon completion of the certificate.

Requirements for Electrical Technology

1. All of the following courses (37 to 40 credits):
   - AE 172 Electrical Wiring I 4
   - AE 173 Electrical Occupations 1
   - AE 182 Electrical Wiring II 2
   - AE 185 Electrical Applications 3
   - AE 192 Electrical Wiring III 4
   - AE 194 Electrical Systems Planning 4
   - AT 045 Agricultural Communications 2
   - AT 071 Technical Mathematics 2
   - AT 293 Professional Internship in Agricultural Technology 3
CSS 110  Computer Applications in Agronomy  2
TSM 121  Fundamentals of Electricity  4
TSM 130  Energy Efficiency and Conservation in Agricultural Systems  3
TSM 222  Fundamentals of Automation and Controls  3

Students who demonstrate proficiency through placement testing for AT 045 and AT 071 will take elective course work to substitute the credit in those courses.

2. The following course or equivalent certification:
KIN 125  First Aid and Personal Safety  3
Equivalent certification is current first aid and CPR certification.

3. Complete 5 to 15 credits of additional Agricultural Technology courses chosen in consultation with and approved by the program coordinator.

Effective Summer 2015.

4. Request to change the requirements for the Bachelor of Science degree in Entomology in the Department of Entomology.

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

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

The University's Tier II writing requirement for the Entomology major is met by completing Entomology 479. This course is referenced in item 3. below.

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

(a) Change the total credits from '46' to '47'.

(b) Delete the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE 101</td>
<td>3</td>
</tr>
<tr>
<td>MTH 126</td>
<td>3</td>
</tr>
<tr>
<td>STT 421</td>
<td>3</td>
</tr>
</tbody>
</table>

Add the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 479</td>
<td>3</td>
</tr>
<tr>
<td>GEO 221</td>
<td>3</td>
</tr>
<tr>
<td>GEO 221L</td>
<td>1</td>
</tr>
</tbody>
</table>

(3) Delete item 3. b. and replace with the following:

One of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 126</td>
<td>3</td>
</tr>
<tr>
<td>STT 421</td>
<td>3</td>
</tr>
</tbody>
</table>

Effective Fall 2015.
5. Request to change the requirements for the **Minor in Agronomy** in the Department of Plant, Soil and Microbial Sciences.

   a. Under the heading **Minor in Agronomy** make the following changes:

   1. Change the total credits from '15 to 18' to '16 to 19'.

   2. In item 1. change the total credits from '9' to '10' and add the following course:

      | Course Code | Course Title                          | Credits |
      |-------------|---------------------------------------|---------|
      | CSS 101L    | Introduction to Crop Science Laboratory | 1       |

   3. In item 3. delete the following course:

      | Course Code | Course Title                          | Credits |
      |-------------|---------------------------------------|---------|
      | CSS 302     | Principles of Weed Management         | 3       |

      Add the following course:

      | Course Code | Course Title                          | Credits |
      |-------------|---------------------------------------|---------|
      | CSS 288     | Principles of Weed Management         | 3       |

   Effective Fall 2015.

6. Request to change the requirements for the **Bachelor of Science** degree in **Crop and Soil Sciences** in the Department of Plant, Soil and Microbial Sciences.

   *The concentrations in the Bachelor of Science degree in Crop and Soil Sciences 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 Crop and Soil Sciences** make the following changes:

   1. In item 3. b. change the total credits from '57 to 67' to '58 to 69'.

   2. In item 3. b. **Agronomic Sciences** concentration make the following changes:

      a. Change the total credits from '57 or 58' to '58 or 59'.

      b. Add the following courses:

         | Course Code | Course Title                          | Credits |
         |-------------|---------------------------------------|---------|
         | CSS 101L    | Introduction to Crop Science Laboratory | 1       |
         | CSS 288     | Principles of Weed Management         | 3       |

         Delete the following course:

         | Course Code | Course Title                          | Credits |
         |-------------|---------------------------------------|---------|
         | CSS 302     | Principles of Weed Management         | 3       |

   3. In item 3. b. **Turfgrass Management** concentration make the following changes:

      a. Delete the following courses:

         | Course Code | Course Title                          | Credits |
         |-------------|---------------------------------------|---------|
         | CSS 302     | Principles of Weed Management         | 3       |
         | PLP 366     | Turfgrass Pathology                   | 3       |

      Add the following courses:

         | Course Code | Course Title                          | Credits |
         |-------------|---------------------------------------|---------|
         | CSS 288     | Principles of Weed Management         | 3       |
         | PLP 266     | Turf Pathology                        | 3       |

   4. In item 3. b. **Advanced Study** concentration make the following changes:

      a. Change the total credits from '68' to '69'

      b. In item (1) change the credits from ‘59’ to ‘60’ and add the following courses:
PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES – continued - 5
February 19, 2015

CSS 101L Introduction to Crop Science Laboratory 1
CSS 288 Principles of Weed Management 3

Delete the following course:
CSS 302 Principles of Weed Management 3

Effective Fall 2015.

7. Request to change the award type of the Specialization in International Agriculture to Minor in International Agriculture in the Department of Plant, Soil and Microbial Sciences.

Per the May 30, 2013 memo to Deans, Directors, and Chairpersons from Linda O. Stanford, Associate Provost for Academic Services, all units offering undergraduate specializations will need to convert the award to a minor.

Students currently enrolled in the Specialization will continue to follow the requirements for the specialization that were in effect the term they were admitted to the specialization.

Students who do not complete the requirements for the specialization prior to Fall 2015 will be administratively moved to the minor.

Students admitted to the Minor in International Agriculture Fall 2015 and forward will follow the requirements for the minor in accordance with the minor policy.

Effective Fall 2015.

8. Request to change the requirements for the Minor in International Agriculture in the Department of Plant, Soil and Microbial Sciences.

a. Under the heading Minor in International Agriculture make the following changes:

(1) In item 2., change ‘six weeks’ to ‘five weeks’.

(2) In item 4. add the following courses:

GEO 410 Geography of Food and Agriculture 3
HNF 406 Global Foods and Culture 3

Delete the following courses:

ANP 470 Food, Hunger and Society 3
FOR 450 Forestry in International Development 3

Effective Fall 2015.

9. Request to change the award type of the Specialization in Sustainable Agriculture and Food Systems to Minor in Sustainable Agriculture and Food Systems in the Department of Plant, Soil and Microbial Sciences.

Per the May 30, 2013 memo to Deans, Directors, and Chairpersons from Linda O. Stanford, Associate Provost for Academic Services, all units offering undergraduate specializations will need to convert the award to a minor.

Students currently enrolled in the Specialization will continue to follow the requirements for the specialization that were in effect the term they were admitted to the specialization.

Students who do not complete the requirements for the specialization prior to Fall 2015 will be administratively moved to the minor.

Students admitted to the Minor in Sustainable Agriculture and Food Systems Fall 2015 and forward will follow the requirements for the minor in accordance with the minor policy.

Effective Fall 2015.
10. Request to change the requirements for the **Minor in Sustainable Agriculture and Food Systems** in the Department of Plant, Soil and Microbial Sciences.

   a. Under the heading **Minor in Sustainable Agriculture and Food Systems** replace the entire entry with the following:

   The student must complete 15 credits from the following:

   1. All of the following courses (6 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 124</td>
<td>Introduction to Sustainable Agriculture and Food Systems</td>
<td>2</td>
</tr>
<tr>
<td>CSS 224</td>
<td>Sustainable Farm and Food Systems Field Studies</td>
<td>1</td>
</tr>
<tr>
<td>CSS 424</td>
<td>Sustainable Agriculture and Food Systems:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Integration and Synthesis</td>
<td></td>
</tr>
</tbody>
</table>

   2. One or two of the following courses (3 to 6 credits):

   **Agricultural Sciences**
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 101</td>
<td>Introduction to Crop Science</td>
<td>3</td>
</tr>
<tr>
<td>CSS 360</td>
<td>Soil Biology</td>
<td>3</td>
</tr>
<tr>
<td>CSS 431</td>
<td>International Agricultural Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSS 442</td>
<td>Agricultural Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ENT 479</td>
<td>Organic Pest Management (W)</td>
<td>3</td>
</tr>
<tr>
<td>HNF 150</td>
<td>Introduction to Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HRT 203</td>
<td>Principles of Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>HRT 251</td>
<td>Organic Farming Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>HRT 341</td>
<td>Vegetable Production and Management</td>
<td>3</td>
</tr>
<tr>
<td>HRT 486</td>
<td>Biotechnology in Agriculture: Applications and</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Ethical Issues</td>
<td></td>
</tr>
</tbody>
</table>

   3. One or two of the following courses (3 to 6 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABM 400</td>
<td>Public Policy Issues in the Agrifood System</td>
<td>3</td>
</tr>
<tr>
<td>CSUS 343</td>
<td>Community Food and Agricultural Systems</td>
<td>3</td>
</tr>
<tr>
<td>EEP 225</td>
<td>Ecological Economics</td>
<td>3</td>
</tr>
<tr>
<td>EEP 260</td>
<td>World Food, Population and Poverty</td>
<td>3</td>
</tr>
<tr>
<td>GEO 410</td>
<td>Geography of Food and Agriculture</td>
<td>3</td>
</tr>
<tr>
<td>HNF 406</td>
<td>Global Foods and Culture</td>
<td>3</td>
</tr>
<tr>
<td>RCAH 292B</td>
<td>Engagement and Reflection</td>
<td>3</td>
</tr>
</tbody>
</table>

Effective Fall 2015.
COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the Bachelor of Science degree in Actuarial Science in the Department of Mathematics.

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

      (1) In item 3. c. (2) change the credits of PHY 193H and PHY 294H from '3' to '4'.

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

            | Subject       | Credits |
            |---------------|---------|
            | LB 273        | 4       |
            | LB 274        | 4       |
            | LB 273 Physics I | 4       |
            | LB 274 Physics II | 4      |

      (3) In item 3. c. change the total credits from '6 to 8' to '8'.

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

            | Subject       | Credits |
            |---------------|---------|
            | MTH 361       | 3       |
            | Financial Mathematics for Actuaries I | 3 |

      Change the total credits from '21' to '24'.

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

            | Subject       | Credits |
            |---------------|---------|
            | FI 379        | 3       |
            | Financial Derivatives (D) | 3 |

      Change the total credits from '18' to '15'.

Effective Fall 2015.
PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

AE 131  Agricultural Water Resource Management
Spring of every year. 3(3-0) RB: (CSS 210) or similar basic soil science course R: Open to students in the Institute of Agricultural Technology.
NEW  A basic knowledge, skills and tools course on water resources use and protection in agricultural production. Online course. Field trip required.
Effective Spring 2015

AE 143  Application of Precision Agriculture Technologies
Spring of every year. 3(3-0) R: Open to students in the Institute of Agricultural Technology.
NEW  Practical application of the use of the tools of precision farming with a focus on widely adopted guidance, monitoring and global positioning systems. Online course. Field trip required.
Effective Spring 2015

AE 072  Electrical Wiring I
Fall of every year. 4(3-2) R: Open to students in the Institute of Agricultural Technology.
National Electrical Code requirements for residential, light commercial and agricultural branch circuits and services. Safe use of hand tools.
SA: AE 072
Effective Fall 2014 Effective Summer 2015

AE 073  Electrical Occupations
Spring of every year. 1(1-0) R: Open to students in the Institute of Agricultural Technology.
Electrical wiring trade, job openings, preparation of a resume, interviewing for a job, preparing reports. Offered first ten weeks of semester.
SA: AE 073
Effective Fall 2014 Effective Summer 2015

AE 082  Electrical Wiring II
Spring of every year. 2(1-3) RB: AE 072 RB: AE 172 R: Open to students in the Institute of Agricultural Technology.
Installation of electrical circuits for residential, light commercial and agricultural installations. Offered first ten weeks of semester.
SA: AE 082
Effective Fall 2014 Effective Summer 2015

AE 085  Electrical Applications
Spring of every year. 3(3-2) RB: TSM 121 R: Open to students in the Institute of Agricultural Technology.
SA: AE 085
Effective Fall 2014 Effective Summer 2015

AE 092  Electrical Wiring III
Fall of every year. 4(2-4) RB: AE 082 RB: (AE 182) or or AE 082 R: Open to students in the Institute of Agricultural Technology.
Commercial agricultural and industrial wiring, planning and installation, including transformers, poly-phase systems, conductor sizing and explosion-proof wiring.
SA: AE 092
Effective Fall 2014 Effective Summer 2015
AE 094  Electrical Systems Planning
Fall of every year. 4(4-0)  R: Open to students in the Institute of Agricultural Technology.
Basic electrical calculations and wiring layout. Circuit requirements, outlet location, branch circuits and services sizing, blueprint reading and cost estimation.
SA: AE 094
Effective Summer 2014 Effective Summer 2015

TSM 331  Water Management in Agriculture and Food Systems
Spring of every year. 3(3-0)  R: MTH 103 (or MTH 124 or MTH 132 or LB 118)
Principles of water management, use efficiency and conservation in agricultural production, natural resources and food processing facilities. Best agricultural water management practices, water rights, irrigation scheduling, irrigation systems selection, evaluation and management and drainage principles. Large scale water use, management and conservation in food processing.
SA: TSM 431
Effective Spring 2015 Effective Fall 2015

ENT 851  Molecular Entomology
Insect Physiology and Molecular Biology
Fall of odd years. 3(3-0)  RB: General entomology (ENT 404 or equivalent); general biology (organismal and cellular); genetics
Analysis of molecular processes unique to insects, and their potentials for genetic engineering. Structure and function of physiological systems in insects, and current understanding of how these systems work at the molecular level.
Effective Spring 2012 Effective Summer 2015

FOR 867  Hierarchical Modeling and Computing for Spatio-temporal Environmental Data
Spring of odd years. 3(3-0)  RB: (FW 849 or concurrently) and (GEO 866 or concurrently)
NEW  Specification and application of modeling frameworks for spatial and temporal data.
Emphasis on point-referenced data analysis using Bayesian statistics, uncertainty assessment, forecasting, and computing. Applied focus on the analysis of environmental data sets.
Effective Spring 2015

PKG 315  Packaging Decision Systems (W)
Fall of every year. Spring of every year. 3(2-2)  R: (MTH 132 or MTH 152H or LB 118)
Application of computers to communicate, analyze and solve problems in the management, specification, production, and testing of packaging systems.
SA: PKG 415
Effective Fall 2014 Effective Fall 2015

PKG 322  Packaging with Paper and Paperboard
Fall of every year. Spring of every year. 4(3-2)  R: (PKG 221 or concurrently) and (PKG 301) and (MTH 133 or MTH 153H or LB 119) and (CEM 143 or CEM 351 or CEM 351) and (STT 200 or STT 301 or STT 315 or STT 351)  R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging.
Physical and chemical properties, manufacture, conversion, and use of wood, paper, paperboard, and related components in packaging. Design, use, and evaluation of packages.
SA: PKG 325
Effective Fall 2014 Effective Fall 2015
PKG 323  Packaging with Plastics
Fall of every year. Spring of every year. 4(3-2) P: ((PKG 221 or concurrently) and PKG 101) and (MTH 133 or MTH 153H or LB 119) and (STT 200 or STT 201 or STT 315 or STT 351) and (CEM 143 or CEM 251 or CEM 351) P: ((PKG 221 or concurrently) and PKG 101) and (MTH 133 or MTH 153H or LB 119 or MTH 124) and (STT 200 or STT 201 or STT 315 or STT 351) and (CEM 143 or CEM 251 or CEM 351) R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging.
Physical and chemical properties of plastics and their relationship to selection, design, manufacture, performance, and evaluation of packages.
SA: PKG 320

Effective Fall 2014  Effective Fall 2015

CSS 124  Introduction to Sustainable Agriculture and Food Systems
Fall of every year. Spring of every year. 4(0-2) 2(2-0) Interdepartmental with Animal Science and Environmental Studies and Applications and Horticulture. Interdepartmental with Animal Science and Community Sustainability and Horticulture. R: Open to undergraduate students or agricultural technology students.
Impact of agricultural and social sciences on our food system. Contemporary research and movements involving agricultural and food system sustainability. Contemporary research and movements involving agricultural and food system sustainability. Socio-cultural factors influencing food and agriculture.

Effective Summer 2014  Effective Fall 2015

CSS 224  Sustainable Farm and Food Systems Field Studies
Fall of every year. 1(0-4) Interdepartmental with Animal Science and Community Sustainability and Horticulture. P: CSS 124 R: Not open to freshmen or agricultural technology students.
NEW
Field visits to farm and food system operations that utilize sustainable practices in Michigan. Offered first half of semester.
Effective Fall 2015

CSS 424  Sustainable Agriculture and Food Systems: Integration and Synthesis
Fall of every year. 3(3-0) Interdepartmental with Animal Science and Environmental Studies and Applications and Horticulture. Interdepartmental with Animal Science and Community Sustainability and Horticulture. P: CSS 124 and (CSS 224 or concurrently) P: (CSS 101 or CSS 360 or CSS 431 or ENT 479 or HRT 203 or HRT 341 or EEP 255 or EEP 260 or ESA 343) or (ESA 444 or GEO 410) RB: ((CSS 101 or CSS 360 or CSS 431 or ENT 479 or HRT 203 or HRT 251 or HRT 341 or EEP 255 or EEP 260 or CSUS 343) or (CSS 101 or CSS 360 or CSS 431 or ENT 479 or HRT 203 or HRT 341 or EEP 255 or EEP 260 or CSUS 343) or (GEO 410) or GEO 410 R: Open to juniors or seniors or graduate students.
Effective Summer 2014  Effective Fall 2015

COLLEGE OF NATURAL SCIENCE

NSC 204  Introduction to Computational Science
Spring of every year. 4(4-0) P: MTH 124 or MTH 132 or MTH 152H or LB 118
NEW
Basics of computational science using a wide variety of applications examples. Algorithmic thinking and model building, programming fundamentals, data visualization, numerical methods.
Effective Spring 2016

NSC 205  Computational Science Tools and Techniques
Fall of every year. 4(4-0) P: NSC 204
NEW
Continuation of introduction to computational science focusing on standard methods and tools used for modeling and data analysis. Topics may include statistical analysis, symbolic math, linear algebra, simulation techniques, data mining.
Effective Fall 2016
MTH 361  Financial Mathematics for Actuaries I
Fall of every year. Spring of every year. 3(3-0) P: MTH 360 C: STT 441 concurrently.

NEW  Introduction to the mathematics of financial derivatives. Options, forwards, futures, swaps, investment and hedging strategies.
Effective Fall 2015

MTH 458  Financial Mathematics for Actuaries II
Fall of every year. 3(3-0) Interdepartmental with Statistics and Probability. P: MTH 360 and STT 441 and FI 379 P: MTH 361 and STT 441 RB: MTH 340 or MTH 347H RB: MTH 235 or MTH 340 or MTH 347H
Effective Fall 2013 Effective Fall 2015

STT 874  Introduction to Bayesian Analysis
Fall of odd years, Fall of even years. 3(3-0) P: STT 868 and STT 872 R: Open to doctoral students in the Statistics major or approval of department.
Bayesian methods including empirical Bayes, hierarchical Bayes and nonparametric Bayes, computational methods for Bayesian inference including the Gibbs Sampler and Metropolis-Hastings method, and applications.
Effective Fall 2013 Effective Fall 2015

COLLEGE OF NURSING

NUR 835  Health Assessment of the Adult and Aged
Fall of every year. 3(1-6) RB: Successful completion of basic physical/health assessment course. R: Open to graduate students in the Master of Science in Nursing or in the Nurse Practitioner Graduate Certificate.
Advanced health assessment skills to provide comprehensive, culturally sensitive care to adults and aging individuals. Interviewing techniques, communication, interpersonal skills and psychomotor skills. Analysis of health status including the role of risk factors and health promotion strategies. Emphasis placed on functional implications. Interpretation of data for the purpose of differentiating typical from atypical presentations and recognizing actual and potential health problems. Advanced health assessment skills to provide comprehensive, culturally sensitive care. Interviewing techniques, communication, interpersonal skills and psychomotor skills. Analysis of health status including the role of risk factors and health promotion strategies. Emphasis placed on functional implications. Interpretation of data for the purpose of differentiating typical from atypical presentations and recognizing actual and potential health problems.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2012 Effective Fall 2015

NUR 860  Physical Assessment for Clinical Nurse Specialist
Spring of every year. 2(1-3) P: NUR 805 R: Open to masters students in the Master of Science in Nursing.
Development of advanced health history and physical assessment skills for adult populations for clinical nurse specialist. Development of advanced health history and physical assessment skills for clinical nurse specialist.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2012 Effective Spring 2016

NUR 945  Doctoral Seminar I
Fall of every year. 1(1-0) R: Open to graduate students in the Nursing major or approval of college.
Socialization and immersion into doctoral study and research environment while completing Master's level courses or for other special students.
Request the use of the Pass-No Grade (P-N) system.
DELETE COURSE
Effective Fall 2015
NUR 946  
Doctoral Seminar II  
Spring of every year. 1(1-0) R: Open to graduate students in the Nursing major or approval of college.  
Socialization and immersion into doctoral education and research environment while completing Master’s and beginning level courses, building on NUR 945 content.  
Request the use of the Pass-No Grade (P-N) system.  
DELETE COURSE  
Effective Spring 2016

COLLEGE OF VETERINARY MEDICINE

VM 337  
Introduction to Foodborne Pathogens  
Fall of every year. Summer of every year. 3(3-0) R: Open to graduate students in the Food Safety Major or approval of department.  
NEW  
Microbial classification, growth, genetics, epidemiology, transmission and ecology of major food and waterborne pathogens including bacteria, viruses, parasites, prions and protozoa.  
Effective Summer 2015

VM 835  
Food Safety for Produce - An Overview  
Summer of every year. 3(3-0) R: Open to graduate students in the Food Safety Major or approval of department.  
NEW  
Food safety requirements for the produce sector with a focus on Good Agriculture Practices (GAPS).  
Effective Summer 2015

PDI 553  
Systemic Pathology  
Fall of every year. Spring of every year. 4(3-2) RB: Completion of Year 1 in the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.  
Anatomic pathology of digestive, urinary, respiratory, integumentary, cardiovascular, nervous, reproductive, musculoskeletal, endocrine, and lymphatic systems.  
SA: PTH 553  
Effective Fall 2013 Effective Spring 2015