PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish a Minor in Forestry in the Department of Forestry. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 11, 2016 meeting.

   a. Background Information:

   Students in other Departments like Animal Science, Community Sustainability, Plant Biology, Entomology, Horticulture, Fisheries and Wildlife, Agronomy, Integrative Biology, and Plant, Soil, and Microbial Sciences have expressed interest in minoring in Forestry. Industry hires many professionals with backgrounds in the above fields contingent upon a specified amount of Forestry knowledge. The Department of Forestry has never had a minor and the development of a broad Forestry minor would better serve students in other majors who desire concentrated course work in forestry.

   Michigan State University has the only Department of Forestry in the lower peninsula. Currently there is no sector of MSU’s Agricultural Technology program that offers this training, thus development of this minor would be unique to the University.

   b. Academic Programs Catalog Text:

   The Minor in Forestry is designed to serve students in other fields who desire additional training related to understanding of the nature of trees and forests and social-biological aspects of managing forest ecosystems. The minor is available to students who are enrolled in bachelor's degree programs at Michigan State University other than the Bachelor of Science Degree in Forestry.

   With the approval of the department and college that administer the student's degree program, courses that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the bachelor's degree.

   Students who are interested in enrolling should contact an undergraduate advisor in the Department of Forestry.

   Requirements for the Minor in Forestry

   Students must complete the following requirements (16 to 19 credits):

   1. All of the following courses (8 credits):
      
      FOR 204 Forest Vegetation 3
      FOR 222 Forestry Field Methods 2
      FOR 330 Human Dimensions of Forests 3
   
   2. One of the following courses (3 credits):
      
      FOR 101 Michigan’s Forests 3
      FOR 202 Introduction to Forestry 3
   
   3. One of the following courses covering social aspects of Forestry (3 or 4 credits):
      
      FOR 405 Forest Ecosystem Services 3
      FOR 414 Renewable Wood Products 3
      FOR 462 Forest Resource Economics and Management 4
      FOR 466 Natural Resource Policy 3
4. One of the following courses covering biological aspects of Forestry (2 to 4 credits):
   - FOR 404 Forest Ecology 3
   - And
   - FOR 404L Forest Ecology Laboratory 1
   - FOR 406 Applied Forest Ecology: Silviculture 3
   - And
   - FOR 406L Applied Forest Ecology: Silviculture Laboratory 1
   - FOR 412 Wildland Fire 2
   - PLP 407 Diseases and Insects of Forest and Shade Trees 4

Effective Fall 2016.

2. Request to establish a Minor in Forestry Field Applications in the Department of Forestry. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 11, 2016 meeting.

a. Background Information:

   The proposed Minor in Forestry Field Applications will expose students from majors outside of Forestry to more hands-on course work in the area of forestry field methods. Laboratories and extended field trip courses will be required to expose students to a thorough background of forest ecology, measurements, silviculture, mapping, and inventory. Students in other majors, especially those within the college, can build upon their major course work with increased outdoor laboratory experiences in forested ecosystems. Students will enhance their job opportunities within their own natural resources fields, such as working as a wildlife biologist for the United States Forest Service. Michigan State University has the only Department of Forestry in the lower peninsula. Currently there is no sector of MSU’s Agriculture Technology program that offers this training, thus development of this minor would be unique to the University.

b. Academic Programs Catalog Text:

   The Minor in Forestry Field Applications is designed to serve students who desire additional training in field biology as it relates to the management of forested ecosystems. The minor is available to students who are enrolled in bachelor's degree programs at Michigan State University, other than the Bachelor of Science Degree in Forestry.

   With the approval of the department and college that administer the student's degree program, courses that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the bachelor's degree.

   Students who are interested in enrolling should contact an undergraduate advisor in the Department of Forestry.

   **Requirements for the Minor in Forestry Field Applications**

   Complete all of the following courses (16 credits):

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR 204 Forest Vegetation</td>
<td>3</td>
</tr>
<tr>
<td>FOR 222 Forestry Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>FOR 404 Forest Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FOR 404L Forest Ecology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>FOR 406 Applied Forest Ecology: Silviculture</td>
<td>3</td>
</tr>
<tr>
<td>FOR 406L Applied Forest Ecology: Silviculture Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>FOR 420 Forestry Field Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Effective Fall 2016.
3. Request to establish a **Minor in Urban and Community Forestry** in the Department of Forestry. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its February 11, 2016 meeting.

   a. **Background Information:**

   Students in forestry, horticulture, and other related fields often discover the sector of urban and community forestry during their undergraduate studies. Industry has expressed desire to target this student interest in the form of an undergraduate minor. To meet the educational requirements for professionals pursuing this career, a core set of course work to develop the key areas of urban and community forestry, along with a specific course named for the minor, is required. The Department of Forestry has never offered a minor and the current horticulture minor lacks the necessary forestry-related material. A Minor in Urban and Community Forestry would be useful to supplement the existing Forestry and Horticulture majors. Other students in the college from agronomy, turf grass, entomology, fisheries/wildlife, community sustainability, as well as College of Natural Science students in integrative biology, and environmental science will benefit from the knowledge obtained in the proposed minor. Michigan State University has the only Department of Forestry in the lower peninsula. Currently, no sector of MSU's Agriculture Technology program offers this training, thus development of this minor would be unique to the University.

   b. **Academic Programs Catalog Text:**

   The Minor in Urban and Community Forestry is designed to provide students with an understanding of the social, biological, and administrative aspects of managing urban and community forests. The minor serves students interested in careers with public agencies, the private sector, and non-profit organizations. The minor is administered by the Department of Forestry and is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University.

   With the approval of the department and college that administer the student's degree program, courses that are used to satisfy the requirements for the minor may also be used to satisfy the requirements for the bachelor's degree.

   Students who are interested in enrolling should contact an undergraduate advisor in the Department of Forestry.

**Requirements for the Minor in Urban and Community Forestry**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students must complete the following (20 to 22 credits):</td>
<td></td>
</tr>
<tr>
<td>1. All of the following courses (8 credits):</td>
<td></td>
</tr>
<tr>
<td>FOR 222 Forestry Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>FOR 461 Urban and Community Forestry</td>
<td>3</td>
</tr>
<tr>
<td>HRT 213 Landscape Maintenance</td>
<td>2</td>
</tr>
<tr>
<td>HRT 213L Landscape Maintenance Field Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>2. One of the following courses covering social aspects of urban and community forestry (3 credits):</td>
<td></td>
</tr>
<tr>
<td>CSUS 301 Community Engagement for Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>FOR 330 Human Dimensions of Forests</td>
<td>3</td>
</tr>
<tr>
<td>FOR 405 Forest Ecosystem Services</td>
<td>3</td>
</tr>
<tr>
<td>SOC 361 Contemporary Communities</td>
<td>3</td>
</tr>
<tr>
<td>SOC 375 Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>3. One of the following courses covering biological aspects of urban and community forestry (3 credits):</td>
<td></td>
</tr>
<tr>
<td>FOR 204 Forest Vegetation</td>
<td>3</td>
</tr>
<tr>
<td>HRT 211 Landscape Plants I</td>
<td>3</td>
</tr>
<tr>
<td>HRT 212 Landscape Plants II</td>
<td>3</td>
</tr>
<tr>
<td>4. One of the following courses (3 or 4 credits):</td>
<td></td>
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<tr>
<td>FOR 404 Forest Ecology</td>
<td>3</td>
</tr>
<tr>
<td>HRT 361 Applied Plant Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PLP 407 Diseases and Insects of Forest and Shade Trees</td>
<td>4</td>
</tr>
</tbody>
</table>
5. One of the following courses covering administrative aspects of urban and community forestry (3 or 4 credits):

- CSUS 433 Grant Writing and Fund Development (W) 3
- PLS 310 Public Administration and Policy Making 3
- UP 201 Introduction to Urban and Regional Planning 4
- WRA 453 Grant and Proposal Writing 3

Effective Fall 2016.

4. Request to change the requirements for the Minor in Horticulture in the Department of Horticulture.

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

1. In item 2., delete the following courses:
   - HRT 222 Ornamental Grasses 1
   - HRT 244 Culinary and Medicinal Herbs 1
   - HRT 335 Berry Crop Production and Management 1
   - HRT 415 Natural Landscape, Native Plants, and Landscape Restoration 2
   - HRT 417 Sustainable Sites and Environmental Landscape Practices 3

2. Add the following courses:
   - HRT 220 Annual and Aquatic Landscape Plants 3
   - HRT 336 Viticulture and Berry Production 2
   - HRT 460 Green Roofs and Walls 2
   - HRT 475 International Studies in Horticulture 3

Effective Fall 2016.

5. Request to change the requirements of the Bachelor of Science degree in Packaging in the School of Packaging. The University Committee on Undergraduate Education (UCUE) will consider this request at its March 31, 2016 meeting.

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

a. Under the heading Admission as a Junior make the following change:

1. In item 2. b. delete Mathematics 124.

2. In paragraph two, delete the second sentence.

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

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

   The University’s Tier II writing requirement for the Packaging major is met by completing Packaging 486. That course is referenced in item 3. below.

2. In item 1., paragraph three, delete both references of Biological Science 161 in the alternative track.
(3) In item 3. a. delete the following courses:

   ACC 230 Survey of Accounting Concepts  3
   PKG 221 Packaging with Glass and Metal  3
   PKG 485 Packaging Development (W)  4

Add the following courses:

   PKG 102 Introductory Packaging Seminar  2
   PKG 221 Packaging with Glass and Metal  2
   PKG 485 Packaging Development  3
   PKG 486 Packaging Senior Capstone (W)  3

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

   BS 161 Cell and Molecular Biology  3

Add the following note:

A course used to fulfill this requirement may not be used to fulfill a requirement in the Packaging Science concentration.

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

   STT 351 Probability and Statistics for Engineering  3

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

   One of the following courses (3 credits):
   MKT 327 Introduction to Marketing  3
   SCM 303 Introduction to Supply Chain Management  3

A course used to fulfill this requirement may not be used to fulfill a requirement in the Packaging Value Chain Management concentration.

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

   One of the following concentrations (18 credits):
   **Packaging Science**
   1. One of the following courses (3 or 4 credits):
      PKG 452 Medical Packaging  4
      PKG 455 Food Packaging  3
   2. Completion of 6 credits through enrollment in a packaging internship completed under PKG 493 (up to 3 credits) and enrollment in a packaging overseas study program completed under PKG 491 (up to 3 credits).
   3. Completion of 9 credits of electives from the following with at least one course at the 300-level or above:
      BMB 200 Introduction to Biochemistry  4
      CE 221 Statics  3
      FSC 211 Principles of Food Science  3
      FSC 325 Food Processing: Unit Operations  3
      FSC 342 Food Safety and Hazard Analysis Critical Control Point Program  3
      FSC 401 Food Chemistry  3
      FSC 421 Food Laws and Regulations  3
      FSC 440 Food Microbiology  3
      MMG 201 Fundamental of Microbiology  3
      MMG 301 Introductory Microbiology  3
      MMG 302 Introductory for General and Allied Health Microbiology  1
      STT 464 Statistics for Biologists  3
      STT 465 Bayesian Statistical Methods  3

Other courses with department approval.
Courses used to fulfill a concentration requirement may not be used to fulfill requirement 3. b. above.

**Packaging Value Chain Management**
1. The following course (3 credits):
   - PKG 465 Packaging Value Chain 3
2. Completion of 6 credits through enrollment in a packaging internship completed under PKG 493 (up to 3 credits) and enrollment in a packaging overseas study program completed under PKG 491 (up to 3 credits).
3. Completion of 9 credits of electives from the following:
   - EC 301 Intermediate Microeconomics 3
   - EC 302 Intermediate Macroeconomics 3
   - EC 360 Private Enterprise and Public Policy 3
   - FI 320 Introduction to Finance 3
   - GBL 323 Introduction to Business Law 3
   - MGT 325 Management Skills and Processes 3
   - MKT 327 Introduction to Marketing 3
   - SCM 303 Introduction to Supply Chain Management 3
   - Other courses with department approval.
   - Courses used to fulfill a concentration requirement may not be used to fulfill requirement 3. d. above.

Effective Fall 2016.

**LYMAN BRIGGS COLLEGE**

1. Request to change the requirement for the **Biology** major leading to the **Bachelor of Science Degree in Lyman Briggs College**.
   
a. Under the heading **Requirements for Bachelor of Science Degree in Lyman Briggs College** make the following changes:

   (1) Under the heading **Majors**, replace the **Biology** major with the following:

   a. A minimum of 41 credits from the courses listed below including:

      (1) **Organic Chemistry** (6 credits):
          Both of the following courses:
          - CEM 251 Organic Chemistry I 3
          - CEM 252 Organic Chemistry II 3
      (2) **Biochemistry** (4 to 6 credits):
          One of the following, either (a) or (b):
          - BMB 401 Comprehensive Biochemistry 4
          - BMB 461 Advanced Biochemistry I 3
          - BMB 462 Advanced Biochemistry II 3
      (3) **Advanced Experiential Biology** (6 credits):
          The following course:
          - LB 348 Research Experiences in Biology 3
          At least 3 credits from the following:
          - LB 490B Advanced Directed Study – Biology 1 to 4
          - LB 493 Field Experience 1 to 4
          - LB 494 Undergraduate Research 1 to 4
          - Other courses as approved by advisor.
      (4) **Integrative Biology** (16 credits):
          All of the following courses:
          - IBIO 341 Fundamental Genetics 4
          - IBIO 355 Ecology 3
          - IBIO 445 Evolution (W) 3
          - MMG 301 Introductory Microbiology 3
          - MMG 409 Eukaryotic Cell Biology 3
      (5) **Organismal Diversity** (3 or 4 credits):
          One of the following courses:
          - ENT 404 Fundamentals of Entomology 3
### New Academic Programs and Program Changes – continued

#### Part I

**April 19, 2016**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 422</td>
<td>Aquatic Entomology</td>
<td>3</td>
</tr>
<tr>
<td>ENT 470</td>
<td>General Nematology</td>
<td>3</td>
</tr>
<tr>
<td>FW 471</td>
<td>Ichthyology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 306</td>
<td>Invertebrate Biology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 328</td>
<td>Comparative Anatomy and Biology of Vertebrates (W)</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 360</td>
<td>Biology of Birds</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 365</td>
<td>Biology of Mammals</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 384</td>
<td>Biology of Amphibians and Reptiles (W)</td>
<td>4</td>
</tr>
<tr>
<td>PLB 402</td>
<td>Biology of Fungi</td>
<td>4</td>
</tr>
<tr>
<td>PLB 418</td>
<td>Plant Systematics</td>
<td>3</td>
</tr>
<tr>
<td>PLB 424</td>
<td>Algal Biology</td>
<td>4</td>
</tr>
<tr>
<td>Other courses as approved by advisor.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ecology, Evolution, and Behavioral Biology (3 or 4 credits):**

One of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 442</td>
<td>Agricultural Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FW 417</td>
<td>Wetland Ecology and Management</td>
<td>3</td>
</tr>
<tr>
<td>FW 420</td>
<td>Stream Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FW 431</td>
<td>Ecophysiology and Toxicology of Fishes</td>
<td>3</td>
</tr>
<tr>
<td>FW 439</td>
<td>Conservation Ethics</td>
<td>3</td>
</tr>
<tr>
<td>FW 444</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>FW 463</td>
<td>Wildlife Disease Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FW 472</td>
<td>Limnology</td>
<td>3</td>
</tr>
<tr>
<td>GLG 434</td>
<td>Evolutionary Paleobiology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 303</td>
<td>Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 313</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>IBIO 415</td>
<td>Ecological Aspects of Animal Behavior (W)</td>
<td>3</td>
</tr>
<tr>
<td>IBIO 440</td>
<td>Field Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>MMG 425</td>
<td>Microbial Ecology</td>
<td>3</td>
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<tr>
<td>PLB 441</td>
<td>Plant Ecology</td>
<td>3</td>
</tr>
<tr>
<td>PLB 443</td>
<td>Restoration Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Cellular and Molecular Biology (3 or 4 credits):**

One of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSC 440</td>
<td>Food Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>IBIO 320</td>
<td>Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 408</td>
<td>Histology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 425</td>
<td>Cells and Development (W)</td>
<td>4</td>
</tr>
<tr>
<td>MMG 404</td>
<td>Human Genetics</td>
<td>3</td>
</tr>
<tr>
<td>MMG 413</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>MMG 421</td>
<td>Prokaryotic Cell Physiology</td>
<td>3</td>
</tr>
<tr>
<td>MMG 425</td>
<td>Microbial Ecology</td>
<td>3</td>
</tr>
<tr>
<td>MMG 431</td>
<td>Microbial Genetics</td>
<td>3</td>
</tr>
<tr>
<td>MMG 433</td>
<td>Microbial Genomics</td>
<td>3</td>
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<tr>
<td>MMG 445</td>
<td>Microbial Biotechnology (W)</td>
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</tr>
<tr>
<td>MMG 451</td>
<td>Immunology</td>
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<tr>
<td>MMG 461</td>
<td>Molecular Pathogenesis</td>
<td>3</td>
</tr>
<tr>
<td>MMG 463</td>
<td>Medical Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PSL 310</td>
<td>Physiology for Pre-Health Professionals</td>
<td>4</td>
</tr>
<tr>
<td>PSL 432</td>
<td>Human Physiology II</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses as approved by advisor.

Effective Fall 2016.
COLLEGE OF NATURAL SCIENCE

1. Request to change the requirements for the Bachelor of Science degree in Human Biology in the College of Natural Science.

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

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

One of the following groups of courses (9 or 10 credits):

(1) BS 161 Cell and Molecular Biology 3
    BS 162 Organismal and Population Biology 3
    BS 171 Cell and Molecular Biology Laboratory 2
    BS 172 Organismal and Population Biology Laboratory 2
(2) BS 181H Honors Cell and Molecular Biology 3
    BS 182H Honors Organismal and Population Biology 3
    BS 191H Honors Cell and Molecular Biology Laboratory 2
    BS 192H Honors Organismal and Population Biology Laboratory 2
(3) LB 144 Biology I: Organismal Biology 4
    LB 145 Biology II: Cellular and Molecular Biology 5
(4) LB 181H Honors Cell and Molecular Biology 3
    LB 182H Honors Organismal and Population Biology 3
    LB 191H Honors Cell and Molecular Biology Laboratory 2
    LB 192H Honors Organismal and Population Biology Laboratory 2

(2) Add the following new item 3. b.:

All of the following courses (14 credits):

CEM 251 Organic Chemistry I 3
CEM 252 Organic Chemistry II 3
CEM 255 Organic Chemistry Laboratory 2
IBIO 341 Fundamental Genetics 4
NSC 495 Capstone in Human Biology (W) 2

(3) Reletter item 3. b. to 3. c. and change the credits of ‘PSL 431 and 432’ from ‘3’ to ‘4’.

(4) Reletter items 3. c. to 3. d.

(5) Reletter item 3. d. to 3. e. and add the following group:

(4) LB 171 Principles of Chemistry I 4
    LB 172 Principles of Chemistry II 3
    LB 171L Introductory Chemistry Laboratory I 1
    LB 172L Principles of Chemistry II – Reactivity Laboratory 1

(6) In item 3. e. (3) delete the following course:

CEM 186H Honors Chemistry Laboratory II 2

(7) Reletter item 3. e. to 3. f. and replace with the following:

One of the following groups of courses (6 or 7 credits):

(1) MTH 132 Calculus I 3
    MTH 133 Calculus II 4
(2) MTH 132 Calculus I     3  
STT 201 Statistical Methods    4  
Or  
STT 231 Statistics for Scientists    3  
Or  
STT 351 Probability and Statistics for Engineering    3  
Or  
STT 421 Statistics I    3  
(3) MTH 124 Survey of Calculus I    3  
MTH 126 Survey of Calculus II    3  
(4) MTH 124 Survey of Calculus I    3  
STT 201 Statistical Methods    4  
Or  
STT 231 Statistics for Scientists    3  
Or  
STT 351 Probability and Statistics for Engineering    3  
Or  
STT 421 Statistics I    3  
(5) MTH 152H Honors Calculus I     3  
STT 201 Statistical Methods    4  
Or  
STT 231 Statistics for Scientists    3  
Or  
STT 351 Probability and Statistics for Engineering    3  
Or  
STT 421 Statistics I    3  
(6) MTH 152H Honors Calculus I     3  
MTH 153H Honors Calculus II    3  
(7) LB 118 Calculus I    4  
LB 119 Calculus II    4  

(7) Reletter item 3. f. to 3. g. and replace with the following:

One of the following pairs of courses (6 or 8 credits):

(1) PHY 183 Physics for Scientists and Engineers I     4  
PHY 184 Physics for Scientists and Engineers II     4  
PHY 191 Physics Laboratory for Scientists, I     1  
PHY 192 Physics Laboratory for Scientists, II     1  
(2) PHY 193H Honors Physics I-Mechanics     4  
PHY 294H Honors Physics II-Electromagnetism     4  
PHY 191 Physics Laboratory for Scientists, I     1  
PHY 192 Physics Laboratory for Scientists, II     1  
(3) PHY 231 Introductory Physics I     3  
PHY 232 Introductory Physics II     3  
PHY 251 Introductory Physics Laboratory I     1  
PHY 252 Introductory Physics Laboratory II     1  
(4) LB 273 Physics I     4  
LB 274 Physics II     4  

(8) Delete item 3. g.  

(9) In item 3. i. delete the following courses:

ZOL 402 Neurobiology     3  
ZOL 408 Histology     4  
ZOL 425 Cells and Development (W)     4  
ZOL 450 Cancer Biology (W)     3  
ZOL 483 Environmental Physiology (W)     4
Add the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBIO 402</td>
<td>Neurobiology</td>
<td>3</td>
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<tr>
<td>IBIO 408</td>
<td>Histology</td>
<td>4</td>
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<tr>
<td>IBIO 425</td>
<td>Cells and Development (W)</td>
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<td>IBIO 450</td>
<td>Cancer Biology (W)</td>
<td>3</td>
</tr>
<tr>
<td>IBIO 483</td>
<td>Environmental Physiology (W)</td>
<td>4</td>
</tr>
</tbody>
</table>

(10) In item 3. j. delete the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOL 320</td>
<td>Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>ZOL 328</td>
<td>Comparative Anatomy and Biology of Vertebrates (W)</td>
<td>4</td>
</tr>
</tbody>
</table>

Add the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBIO 320</td>
<td>Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>IBIO 328</td>
<td>Comparative Anatomy and Biology of Vertebrates (W)</td>
<td>4</td>
</tr>
</tbody>
</table>

Effective Fall 2016.

2. Request to change the requirements for the Bachelor of Science degree in Biochemistry and Molecular Biology-Biotechnology in the College of Natural Science.

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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 201</td>
<td>Material and Energy Balances</td>
<td>3</td>
</tr>
</tbody>
</table>

(2) In item 3. a. (11) delete the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOL 341</td>
<td>Fundamental Genetics</td>
<td>4</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>IBIO 341</td>
<td>Fundamental Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

(3) In item 3. a. (12) change the credits from “Eleven’ to “Nine’.

Effective Fall 2016.
3. 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 March 17, 2016 meeting.

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.

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 April 4, 2016 meeting.

a. Under the heading Requirements for the Doctor of Philosophy Degree in Nursing replace item 1. with the following:

All of the following (48 to 50 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI 808</td>
<td>Biostatistics I</td>
<td>3</td>
</tr>
<tr>
<td>EPI 809</td>
<td>Biostatistics II</td>
<td>3</td>
</tr>
<tr>
<td>NUR 920</td>
<td>Translation of Research and Scientific Knowledge to a</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Community Setting</td>
<td></td>
</tr>
<tr>
<td>NUR 921</td>
<td>Scientific Foundations of Nursing Knowledge Development</td>
<td>3</td>
</tr>
<tr>
<td>NUR 924</td>
<td>Designing Interventions for Improving Health Outcomes</td>
<td>3</td>
</tr>
<tr>
<td>NUR 930</td>
<td>Methods in Clinical Research</td>
<td>3</td>
</tr>
<tr>
<td>NUR 940</td>
<td>Research Practicum</td>
<td>4 to 6</td>
</tr>
<tr>
<td>NUR 950</td>
<td>Nursing Research Seminar I</td>
<td>1</td>
</tr>
<tr>
<td>NUR 951</td>
<td>Nursing Research Seminar II</td>
<td>1</td>
</tr>
<tr>
<td>NUR 999</td>
<td>Doctoral Dissertation Research</td>
<td>24</td>
</tr>
</tbody>
</table>

Effective Fall 2016.
PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ANS 828  Scientific Communication for Reproductive and Developmental Biology
Fall of every year. 1(1-0) RB: Students specializing in reproductive biology. R: Approval of department.
NEW  Best practices for preparing and delivering effective scientific seminars in reproductive and developmental biology.
Effective Fall 2015

FOR 461  Urban and Community Forestry
Spring of every year. 3(3-0) P: HRT 213 and HRT 213L R: Not open to freshmen or sophomores.
NEW  Introduction to the biological, physical, administrative, managerial, legal and social concepts unique to managing urban and community forests.
Effective Spring 2017

PKG 102  Introductory Packaging Seminar
Fall of every year. Spring of every year. 2(2-0) P: PKG 101 or concurrently R: Open to undergraduate students in the Packaging Major.
NEW  Packaging career choices in science, management and engineering. Choosing a packaging curriculum concentration. Creativity in packaging designs and career decisions.
Effective Fall 2016

PKG 221  Packaging with Glass and Metal
Fall of every year. Spring of every year. 3(3-0) 2(2-0) P: (CEM 141 or CEM 151 or LB 171) and (PHY 231 or PHY 231C or PHY 183 or PHY 183B or LB 273) and (PKG 101 or concurrently) P: (CEM 141 or CEM 151 or LB 171) and (PHY 231 or PHY 231C or PHY 183 or PHY 183B or LB 273) and (PKG 102 or concurrently) R: Open to sophomores or juniors or seniors in the Packaging Major.
Physical and chemical properties of glass and metals and their applications to packaging.
SA: PKG 320, PKG 325
Effective Spring 2015 Effective Fall 2016

PKG 231  Packaging with Glass and Metal for Engineers
Spring of every year. 2(2-0) P: (CEM 141 or CEM 151 or LB 171) and PHY 183 and (CE 221 or concurrently) and (MTH 234 or concurrently) and (PKG 101 or concurrently) Not open to students with credit in PKG 221.
NEW  Application of engineering principles to understand and model physical and chemical properties of packaging systems made from glass and metals
Effective Fall 2014

PKG 315  Packaging Decision Systems (W)
Packaging Decision Systems
Fall of every year. Spring of every year. 3(2-2) P: (MTH 132 or MTH 152H or LB 118 or MTH 124) and completion of Tier I writing requirement) and (PKG 221 or concurrently) P: (MTH 132 or MTH 152H or LB 118) and (PKG 221 or concurrently) R: Open to sophomores or juniors or seniors in the School of Packaging.
Application of computers to communicate, analyze and solve problems in the management, specification, production, and testing of packaging systems.
Communication, analysis, and problem solving in the management, specification, production, sustainability, economics and testing of packaging.
SA: PKG 415
Effective Fall 2015 Effective Fall 2016
PKG 332  Packaging with Paper and Paperboard for Engineers
Fall of every year. 4(4-2) P: PKG 101 and (CEM 143 or CEM 251 or CEM 351) and (STT 315 or STT 351) and (MSE 250 or concurrently) and (PKG 231 or concurrently) R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging or approval of department. Not open to students with credit in PKG 322.
NEW  Physical and chemical properties, manufacture, conversion, and use of wood, paper, paperboard, and related components in packaging. Application of engineering principles to design, use, and evaluation of wood and paper-based packages.
Effective Fall 2014

PKG 333  Packaging with Plastics for Engineers
Fall of every year. 4(4-2) P: PKG 101 and (CEM 143 or CEM 251 or CEM 351) and (STT 315 or STT 351) and (PKG 231 or concurrently) and (MSE 250 or concurrently) R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging or approval of department. Not open to students with credit in PKG 323.
NEW  Physical and chemical properties of plastics. Application of engineering principles to selection, design, manufacture, performance, and evaluation of plastic packages.
Effective Fall 2014

PKG 420  Distribution Packaging Dynamics for Engineers
Spring of every year. 4(4-2) P: PKG 332 and PKG 333 and PHY 184 and (MTH 235 or concurrently) R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging or approval of department. Not open to students with credit in PKG 410.
NEW  Identification, measurement and analysis of hazards in physical distribution. Methods of protection against climate, shock, vibration, and compression. Mathematical modeling of packaged products in distribution.
Effective Fall 2014

PKG 442  Packaging Processes for Engineers
Spring of every year. 4(4-2) P: (PKG 332 and PKG 333 and PHY 184) and (MTH 235 or concurrently) R: Open to sophomores or juniors or seniors or graduate students in the School of Packaging or approval of department. Not open to students with credit in PKG 432.
Effective Fall 2014

PKG 465  Packaging Value Chain
Fall of every year. Summer of every year. 3(3-0) P: PKG 322 and PKG 323 and PKG 432 R: Open to students in the School of Packaging.
NEW  Integrated identification and measurement of packaging supply chain components, from material extraction through processing, shipping, warehousing, sales and disposal. Integration of information technologies. Application and interrelationship of costs and financial aspects to the decision making processes.
Effective Fall 2016

PKG 370  Packaging and the Environment
PKG 470  Packaging and the Environment
Packaging Sustainability
Spring of every year. 3(3-0) R: Completion of Tier I Writing Requirement P: PKG 315 and PKG 322 and PKG 323 RB: CEM 141 or CEM 151 or LB 171 R: Not open to freshmen or sophomores. R: Open to juniors or seniors or graduate students in the School of Packaging.
SA: PKG 370
Effective Fall 2014 Effective Spring 2017
PKG 485  Packaging Development (W)
Packaging Development
Fall of every year. Spring of every year. 4(4-0) P: (PKG 410) and completion of Tier I writing requirement and (PKG 315 or EGR 102) and PKG 432 P: (PKG 410 and PKG 432) and (PKG 315 or EGR 102) and (PKG 411 or concurrently) R: Open to seniors or graduate students in the School of Packaging.
Package development including selection, design and implementation of package systems for protection, distribution, merchandising, use and disposal.
Effective Fall 2014  Effective Fall 2016

PKG 486  Packaging Senior Capstone
Fall of every year. Spring of every year. 3(3-0) P: (PKG 485) and completion of Tier I writing requirement R: Open to undergraduate students in the Packaging Major.
NEW
Development of a team-based packaging design project serving specific product and market needs. In depth team report of feasibility, specifications, sourcing, marketing, value-chain economics, and sustainability.
Effective Fall 2016

PLP 881  Molecular and Biochemical Plant Pathology
Spring of odd years. Spring of even years. 3(2-2) RB: BMB 462 and ZOL 341 and PLB 415
Biochemical and molecular bases of host-pathogen interactions. Mechanisms of pathogenicity and the nature of disease resistance.
SA: BOT 881
Effective Fall 2013  Effective Spring 2016

COLLEGE OF ENGINEERING

MSE 880  Computational Materials Science
Spring of every year. 3(2-2) A student may earn a maximum of 3 credits in all enrollments for this course. RB: MSE 860 or MSE 862 or MSE 964A or ME 820 or ME 872 R: Open to graduate students in the College of Engineering. A student may earn a maximum of 3 credits
NEW
Modeling methods and computational techniques for predicting materials properties. Multi scale simulation in different material classes. Techniques include the density functional theory, molecular statics and dynamics, discrete dislocation dynamics, continuum crystal plasticity.
Effective Spring 2016

COLLEGE OF HUMAN MEDICINE

SUR 608  Junior Surgery Clerkship
Fall of every year. Spring of every year. Summer of every year. 6 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. A student may earn a maximum of 36 credits in all enrollments for this course. RB: FMP 602 R: Open only to graduate-professional students in the College of Human Medicine R: Open to graduate-professional students in the College of Human Medicine.
The surgical patient, surgical diagnosis, pre-operative evaluation and post operative care. Basic clinical and surgical skills applied to commonly presenting problems. Preoperative, operative and post-operative care of patients with elective, emergent and trauma related illness. Psychosocial issues relevant to surgical patients. Operating room 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 Fall 2003  Effective Spring 2016
LB 348  Research Experiences in Biology
Fall of every year. Spring of every year. 3(1-4) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(LB 144 and LB 145) or (BS 161 and BS 162 and BS 171 and BS 172) or (BS 181H and BS 182H and BS 191H and BS 192H)} and ((LB 119 or STT 231) and completion of Tier I writing requirement) R: Open to undergraduate students in the Lyman Briggs College.
NEW Research in basic or applied molecular, cellular, or organismal biology. Laboratory, data science, or field research. Field trips required.
Effective Fall 2016

COLLEGE OF NATURAL SCIENCE

BLD 214L  Biomedical Laboratory Research Techniques
Summer of every year. 2(1-3) P: MTH 103 or approval of department
Basic techniques, skills and safety in biomedical research. Ethical conduct of research and regulatory principles such as Good Laboratory Practice. Maintaining a research notebook for legal and intellectual property purposes. Offered second half of semester.
Effective Summer 2015 Effective Fall 2016

CMSE 201  Introduction to Computational Modeling
Spring of every year. 4(4-0) P: MTH 124 or MTH 132 or MTH 152H or LB 118
NEW Computational modeling using a wide variety of applications examples. Algorithmic thinking, dataset manipulation, model building, data visualization, and numerical methods all implemented as programs.
SA: NSC 204
Effective Fall 2016

CMSE 202  Computational Modeling Tools and Techniques
Fall of every year. 4(4-0) P: CMSE 201 or CSE 231
NEW Continuation of introduction to computational modeling 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.
SA: NSC 205
Effective Fall 2016

NSC 204  Introduction to Computational Modeling
Spring of every year. 4(4-0) P: MTH 124 or MTH 132 or MTH 152H or LB 118
Computational modeling using a wide variety of applications examples. Algorithmic thinking, dataset manipulation, model building, data visualization, and numerical methods all implemented as programs.
DELETE COURSE
Effective Summer 2016

NSC 205  Computational Modeling Tools and Techniques
Fall of every year. 4(4-0) P: (NSC 204) or (CSE 231 and EGR 102)
Continuation of introduction to computational modeling 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.
DELETE COURSE
Effective Summer 2016

IBIO 897  Ecosystem Ecology and Global Change
Fall of odd years. Spring of odd years. 4(4-0) Interdepartmental with Fisheries and Wildlife and Plant Biology.
Structure and function of natural ecosystems and their responses to global environmental change. Biogeochemical cycles, food webs, energy flow, nutrient cycling, and ecosystem management and restoration.
SA: ZOL 897
Effective Fall 2016 Effective Spring 2017
PHY 440  Electronics  
Fall of every year. Spring of every year. 4(3-3) P: \(((\text{PHY 192 or LB 274}) \text{ and } (\text{PHY 184 or PHY 184B or PHY 294H})) \text{ or } (\text{PHY 232 and PHY 234B}) \text{ or } (\text{PHY 232C and PHY 234B})) \text{ and } (\text{MTH 235 or concurrently}) \text{ or } (\text{MTH 265H or concurrently}) \text{ or } (\text{LB 220 or concurrently}) \text{ or } (\text{MTH 340 or concurrently})) \text{ and completion of Tier I writing requirement)}

- Concepts of electronics used in investigating physical phenomena. Circuits, amplifiers, diodes, LEDs, transistors.
- Effective Fall 2013 Effective Spring 2017

COLLEGE OF NURSING

NUR 921  Scientific Foundations of Nursing Knowledge Development  
Fall of every year. 3(3-0) R: Open to doctoral students in the College of Nursing or in the Nursing Major.

- Critically examines historical factors in the evolution of nursing. Analyzes the philosophical, epistemological, ontological, and ethical foundations of nursing.
- Distinguishes different components of knowledge development.
- Effective Fall 2016

NUR 924  Designing Interventions for Improving Health Outcomes  
Summer of every year. 3(3-0) P: NUR 930 R: Open to doctoral students in the College of Nursing or in the Nursing Major.

- Interventions inform the care that is delivered to improve health outcomes for individuals, groups, and populations. This course provides the foundation for designing, implementing, and evaluating health-related interventions.
- Effective Fall 2016

COLLEGE OF VETERINARY MEDICINE

VM 826  Creating a Food Safety Culture  
Summer of odd years. 3(3-0) RB: Professional or graduate status with knowledge of food safety. R: Open to graduate students in the Food Safety Major. Approval of college. R: Open to graduate students in the Food Safety Major or approval of college.

- Explores proven, evidence-based ways to change or strengthen the food safety culture of an organization and influence employee behavior.
- 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 2015 Effective Summer 2016