The effective date for new programs subject to Statewide Academic Program review is implemented in accordance with the Statewide Academic Program Review calendar.
TO: Faculty Senate

This report is prepared and distributed for the following purposes:

1. To report new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses.
2. To notify the initiating colleges, schools, and departments of approval by the University Committee on Curriculum of their requests for new academic programs, changes in academic programs, discontinuations of academic programs, new courses, permanent changes in courses, and deletions of courses. Any items not approved by the Faculty Senate will be reported to the appropriate college and department or school.
3. To provide information to members of the faculty in each department about academic programs and courses in all colleges, departments, and schools of the University.

Reports of the University Committee on Curriculum to the Faculty Senate are organized as follows:

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES:
Organized by colleges in alphabetical order. For a given college, academic units are organized in alphabetical order. For a given academic unit, degrees, majors, and specializations are organized in alphabetical order.

PART II - NEW COURSES:¹
Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

PART III - COURSE CHANGES:¹
Organized by academic units in alphabetical order; All-University courses appear last. For a given academic unit, courses are organized according to the names associated with course subject codes, in alphabetical order. Courses with the same subject code are in numerical order.

Not all of the above categories, and not all of the colleges and academic units, will necessarily appear in any given Senate Report.

¹One or more of the abbreviations that follow may be included in a course entry:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>P:</td>
<td>Prerequisite monitored in SIS</td>
</tr>
<tr>
<td>C:</td>
<td>Corequisite</td>
</tr>
<tr>
<td>R:</td>
<td>Restriction</td>
</tr>
<tr>
<td>RB:</td>
<td>Recommended background</td>
</tr>
<tr>
<td>SA:</td>
<td>Semester Alias</td>
</tr>
</tbody>
</table>
TO: Faculty Senate
FROM: University Committee on Curriculum
SUBJECT: New Academic Programs and Program Changes:
New Courses and Course Changes

PART I - NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. 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 three with the following:

       Students who are enrolled in the Entomology major may complete an alternative track to Integrative Studies in Biological and Physical Sciences by completing Entomology’s mathematics and chemistry requirements and Biological Science 162. These courses meet the laboratory requirement.

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

       ZOL 355 Ecology 3
       ZOL 355L Ecology Laboratory (W) 1

       Add the following courses:

       IBIO 355 Ecology 3
       IBIO 355L Ecology Laboratory (W) 1

   Effective Fall 2017.

2. Change the requirements in the Graduate Certificate in Forest Carbon Science, Policy and Management in the Department of Forestry. The University Committee on Graduate Studies (UCGS) approved this request at its March 13, 2017 meeting.

   a. Under the heading Requirements for the Graduate Certificate in Forest Carbon Science, Policy and Management make the following change:

   (1) Change the total credits from ‘12’ to ‘9’ and delete the following course:

       FOR 831 Forest Biogeochemistry and Global Climate Change 3

   Effective Fall 2017.
3. Change the requirements for the Bachelor of Arts degree in Interior Design in the School of Planning, Design and Construction to the following. The University Committee on Undergraduate Education (UCUE) approved this request at its February 9, 2017 meeting.

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

   (1) Replace item 2. with the following:

   A grade-point average of 3.00 or better in the following courses: Interior Design 140, 142, 150, 152, 240, 250, 252, and Apparel and Textile Design 231. Those courses are referenced in item 3. a. below in the Requirements for the Bachelor of Arts Degree in Interior Design.

   (2) In the second paragraph, replace the second sentence with the following:

   The final selection of students to be admitted to the major is based on the cumulative grade-point average of all courses taken and a grade-point average calculated for selected courses, and portfolio review by faculty members.

b. Under the heading Requirements for the Bachelor of Arts Degree in Interior Design make the following changes:

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

   HED 231 Textile Materials 4

   Add the following course:

   ATD 231 Textile Materials 4

   (2) In item 3. b., add the following statement to the note:

   An approved computer skills course may be substituted for CSE 101.

   (3) Change item 3. c. to the following:

   The following course (5 credits):

   MTH 116 College Algebra and Trigonometry 5

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

   Any one of the following History of Art options (6 to 9 credits):

   (1) Any two History of Art courses (6 to 9 credits)

   (2) Any one History of Art course (3 or 4 credits), and Study Abroad (through enrollment in IDES 490 Independent Study (3 to 5 credits)

   (3) Any one History of Art course (3 or 4 credits) and IDES 456 Historic Presentation and Sustainability (3 credits)

Effective Fall 2017.
ELI BROAD COLLEGE OF BUSINESS

1. Change the requirements for the Entrepreneurship and Innovation Experiences Option in The Eli Broad College of Business.

   a. In the Academic Programs Catalog Text delete the words ‘independent and’ as noted:

   An Entrepreneurship and Innovation Experiences Option is a project consisting of independent and original work that builds on the content of a course in which a student is enrolled but extends the experience of that course beyond the typical scope and content. E and I Experiences Options allow undergraduates the opportunity to add entrepreneurial content to courses already in the student’s program, thus providing a flexible alternative for those interested in exploring entrepreneurial ideas beyond the normal course requirements. An E and I Experiences Option can be in any course in any discipline. Students propose the E and I Experiences Option to the faculty instructor of record for the course. E and I Experiences Option requests must be accompanied by the Application for Entrepreneurship and Innovation Experiences Option form. E and I Experiences Options that are approved and completed will be designated on the student’s transcript. For more information, students should contact the undergraduate advising office of their college.

   Effective Fall 2017.

2. Change the requirements for the Minor in Entrepreneurship and Innovation in the Eli Broad College of Business.

   a. In the introductory text, last paragraph, note the following:

      The reduction of unique credits in the minor, from ‘12’ to ‘6’.

   b. Under the heading Requirements for the Minor in Entrepreneurship and Innovation make the following changes:

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

      | Course   | Credits |
      |----------|---------|
      | AL 271   |         |
      | AL 465   |         |

      Add the following courses:

      | Course   | Credits |
      |----------|---------|
      | ACM 271  |         |
      | ACM 465  |         |
      | AL 300   |         |
      | LB 268   |         |
      | MKT 420  |         |
      | REL 185  |         |
      | REL 291  |         |
      | THR 208  |         |

   Effective Fall 2017.
3. Change the Admission to the College requirements in The Eli Broad College of Business. The University Committee on Undergraduate Education (UCUE) approved this request at its March 16, 2017 meeting.
   a. Under the heading Admission to the College replace item 2. c. with the following:

   Writing, Rhetoric, and American Cultures 101 or 195H.

   Effective Fall 2017.

4. Change the Graduation Requirements for the Bachelor of Arts degree in the Eli Broad College of Business.
   a. Under the heading Graduation Requirements for the Bachelor of Arts Degree make the following change:

   (1) In item 2. a. delete the following changes:

   ITM 309 Business Information Systems and Technology 3

   Add the following course:

   ITM 209 Business Analytics and Information Systems 3

   Effective Fall 2017.

5. Change the requirements for the Master of Business Administration degree in the Eli Broad College of Business. The University Committee on Graduate Studies (UCGS) approved this request at their March 13, 2017 meeting.
   a. Under the heading Requirements for the Master of Business Administration Degree make the following changes:

   (1) In item 1., change the total credits required from ‘60’ to ‘61’.

   (2) In item 1. b., change the credits required for the concentration from ‘15’ to ‘12’.

   (3) In item 1., add the following items d. and e.:

   d. At least two approved areas of interest (6 credits per area of interest); or a second concentration (12 credits) plus an approved area of interest (6 credits).

   e. Courses taken in an area of interest must be independent of the courses used for the concentration; and not more than 3 credits can be taken from any single department to satisfy an area of interest.

   (4) In item 3., change ‘60’ credits to ‘61’ credits.

   Effective Fall 2017.
6. Change the requirements for the Master of Science degree in Business Analytics in the Eli Broad College of Business. The University Committee on Graduate Studies (UCGS) approved this request at its March 13, 2017 meeting.

   a. Under the heading **Requirements for the Master of Science Degree in Business Analytics** replace item 1. with the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE 881</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CSE 891</td>
<td>Selected Topics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 818</td>
<td>Data Management and Visualization in Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 881</td>
<td>Network Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 882</td>
<td>Analytics Practicum</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITM 893</td>
<td>Business Analytics Internship</td>
<td>3</td>
</tr>
<tr>
<td>ITM 883</td>
<td>Business Analytics Problem Solving</td>
<td>2</td>
</tr>
<tr>
<td>ITM 885</td>
<td>Machine Learning and Optimization in Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ITM 886</td>
<td>Communication Strategies for Analytics</td>
<td>1</td>
</tr>
<tr>
<td>ITM 888</td>
<td>Capstone: Business Analytics</td>
<td>3</td>
</tr>
<tr>
<td>STT 805</td>
<td>Statistical Modeling for Business Analytics</td>
<td>3</td>
</tr>
</tbody>
</table>

   Other courses may be used to fulfill this requirement with approval of the program director. Information Technology Management 818, 882, 888, and 893 are experiential analytics project courses which engage students in analytics project work in partnership with corporate and/or non-profit organizations.

   Effective Summer 2018.

7. Change the requirements for the Bachelor of Arts degree in Accounting in the Department of Accounting and Information Systems.

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

   (1) Delete the following course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 341</td>
<td>Cost and Managerial Accounting</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>ACC 341</td>
<td>Accounting for Management Decision Making</td>
<td>3</td>
</tr>
</tbody>
</table>

   Effective Summer 2018.

8. Change the requirements for the Bachelor of Arts degree in Marketing in the Department of Marketing.

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

   (1) In item 3. a. (2) add the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 412</td>
<td>Marketing Technology and Analytics</td>
<td>3</td>
</tr>
<tr>
<td>MKT 430</td>
<td>Key Account and Customer Relationship Management</td>
<td>3</td>
</tr>
</tbody>
</table>

   Effective Fall 2017.
9. Change the requirements for the Master of Science degree in Marketing Research in the Department of Marketing. The University Committee on Graduate Studies (UCGS) approved this request at their March 13, 2017 meeting.

   a. Under the heading Admission make the following changes:

      (1) In paragraph one under item 5., delete the statement ‘Admission is for spring term only’.

      (2) In paragraph three, delete item 1. a.

   b. Under the heading Requirements for the Master of Science Degree in Marketing Research make the following changes:

      (1) In the introductory text, change sentence two to the following:

       Students must complete an internship or company project in the summer session.

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

       MKT 865 Emerging Topics in Business  6
       MKT 890 Independent Study  4

       Add the following courses:

       MKT 843 International Marketing Research  2
       MKT 864 Data Mining in Marketing  3
       MKT 867 Sampling and Research Design  3
       MKT 871 New Product and Service Research  3
       MKT 891 Special Topics in Marketing  3

  Effective Fall 2017.
COLLEGE OF COMMUNICATION ARTS AND SCIENCES

1. Establish in the College of Communication Arts and Sciences, in collaboration with the MSU College of Law, a 3 + 3 Option for selected College of Communication Arts and Sciences students to earn a baccalaureate degree. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its January 12, 2017 meeting. The University Committee on Graduate Studies recommended approval of this request at its January 9, 2017 meeting.

a. Background Information:

The College of Communication Arts and Sciences, in collaboration with the MSU College of Law, offers an opportunity for selected College of Communication Arts and Sciences students to earn a baccalaureate degree after satisfactory completion of a minimum of 91 credits at Michigan State University in a major of Advertising, Communication, Journalism, or Media and Information, and a minimum of 29 credits through subsequent enrollment at the Michigan State University College of Law. Students interested in this option should consult with their college academic advisor during their first year in the college.

Admission to the MSU College of Law component of this program is limited to a small number of students who complete the specified university and college requirements and who earn a grade-point average and LSAT score that is acceptable for admission to the Michigan State University College of Law.

b. Academic Programs Catalog Text:

The College of Communication Arts and Sciences, in collaboration with the MSU College of Law, offers an opportunity for selected College of Communication Arts and Sciences students to earn a baccalaureate degree after satisfactory completion of a minimum of 91 credits at Michigan State University in a major of Advertising, Communication, Journalism, or Media and Information, and a minimum of 29 credits through subsequent enrollment at the Michigan State University College of Law. Students interested in this option should consult with their college academic advisor during their first year in the college.

Admission to the MSU College of Law component of this program is limited to a small number of students who complete the specified university and college requirements and who earn a grade-point average and LSAT score that is acceptable for admission to the Michigan State University College of Law.

All students in this program will complete a minimum of 91 credits at Michigan State University in a major of Advertising, Communication, Journalism, or Media and Information. The requirements for the program are as follows:

1. Completion of all the university-level graduation requirements, including integrative studies, writing, and mathematics.
2. Completion of the College of Communication Arts and Sciences college-level graduation requirements including Tier II writing, 31 credits outside of the college, and at least 11 credits at the 300-400 level.
3. Completion of the department-level requirements for a bachelor’s degree in Advertising, Communication, Journalism or Media and Information.
4. Completion of a minimum of 29 credits at the Michigan State University College of Law

Upon satisfactory completion of the specified 120 credits, students in this program will be eligible for the baccalaureate degree and may apply for conferral of their degree.

Effective Fall 2017.
COLLEGE OF ENGINEERING

1. Change the **Graduation Requirements for All Majors** in the College of Engineering. The University Committee on Undergraduate Education approved this request at its March 16, 2017 meeting.

   a. Under the heading **Graduation Requirements for All Majors** make the following changes:

      (1) In item 1. a., delete Zoology 141.
      (2) In item 2. a., delete ‘and Applied Engineering Sciences’.

   Effective Fall 2017.

2. Change the requirements for the **Bachelor of Science** degree in **Applied Engineering Sciences** in the College of Engineering.

   The concentrations in the Bachelor of Science degree in Applied Engineering 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 Applied Engineering Sciences** make the following changes:

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

         (a) Change the total credits from ‘46’ to ‘43’.
         (b) Delete the following courses:

             - COM 225 Introduction to Interpersonal Communication 3
             - MGT 325 Management Skills and Processes 3

         Add the following course:

             - ENE 280 Principles of Environmental Engineering and Science 3

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

             - BE 230 Engineering Analysis of Biological Systems 3
             - ENE 280 Principles of Environmental Engineering and Science 3

         Add the following courses:

             - COM 225 Introduction to Interpersonal Communication 3
             - MGT 325 Management Skills and Processes 3

      (3) In item 3. c. make the following changes:

         (a) In the **Computer Science** concentration in item 3. add the following courses:

             - CSE 476 Mobile Application Development 3
             - CSE 477 Web Application Architecture and Development 3
             - CSE 480 Database Systems 3
             - CSE 482 Big Data Analysis 3

         (b) In the **Packaging** concentration make the following changes:

             (i) Change the total credits from ‘18’ to ‘17’.
             (ii) Change the credits of ‘PKG 221’ from ‘3’ to ‘2’.
(c) In the Media and Information concentration delete the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI 300</td>
<td>Media Policy and Economics</td>
<td>3</td>
</tr>
<tr>
<td>MI 301</td>
<td>Bringing Media to Market</td>
<td>3</td>
</tr>
<tr>
<td>MI 458</td>
<td>Project Management (W)</td>
<td>3</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>MI 302</td>
<td>Networks, Markets and Society</td>
<td>3</td>
</tr>
<tr>
<td>MI 305</td>
<td>Media and Information Policy</td>
<td>3</td>
</tr>
<tr>
<td>MI 488</td>
<td>Information and Communication Technology Development Project (W)</td>
<td>3</td>
</tr>
</tbody>
</table>

Effective Fall 2017.

3. Change the requirements in the Bachelor of Science degree in Computer Science in the Department of Computer Science and Engineering.

a. Under the heading Requirements for the Bachelor of Science Degree in Computer Science 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>ZOL 141</td>
<td>Introductory Human Genetics</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>MMG 141</td>
<td>Introductory Human Genetics</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE 473</td>
<td>Fundamentals of 3D Game Development</td>
<td>3</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>CSE 402</td>
<td>Biometrics and Pattern Recognition</td>
<td>3</td>
</tr>
<tr>
<td>CSE 415</td>
<td>Introduction to Parallel Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSE 431</td>
<td>Algorithm Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CSE 482</td>
<td>Big Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

(3) In item 3. d. (1) delete ‘EC 210’ and replace with ‘EC 201’.

Effective Fall 2017.
Establish a **Doctor of Philosophy degree in Biostatistics** in the Department of Epidemiology and Biostatistics. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 9, 2017 meeting.

### Background Information:

Biostatistics is an innovative field that focuses on the application of statistics to the design, analysis, and interpretation of data for studies in public health, epidemiology, medicine, and more broadly the life sciences. The advent of modern computation technology has enabled the exploration of vast information collected by the government, business and researchers alike routinely. The future of public health and medicine belongs to the people who can turn data into useful information. Big data is but one example that highlights the promise and challenge the next generation of scientists must face. Special techniques are needed to extract "information" from these massive databases, often assembled without a strict statistical sampling design. Health Informatics, Medical Informatics and Bioinformatics have emerged as interdisciplinary fields that use statistics in their core. The American Medical Informatics Association (AMIA) describes Biomedical Informatics as 'an interdisciplinary, scientific field that studies and pursues the effective uses of biomedical data, information, and knowledge for scientific inquiry, problem solving and decision making, motivated by efforts to improve human health.' Therefore, the proposal to offer a Ph.D. program in Biostatistics is appropriate and timely. Biostatistics programs are typically offered only at the post-undergraduate level.

MSU offers a Ph.D. program in Statistics in the College of Natural Science, which, according to the Academic Programs catalog, "is designed for students who plan to pursue careers in university teaching and research or in industrial and government consulting and research." Even though the focus in the proposed Ph.D. program in Biostatistics is substantially different from that in Statistics, students will be required to take two courses in the Department of Statistics and Probability to build a solid foundation for their study.

MSU has three colleges of medicine – College of Human Medicine, College of Osteopathic Medicine, and College of Veterinary Medicine – however, there is no Ph.D. program in Biostatistics in any college. The recent crisis in Flint prompted demands for and interests in local scientists who are passionate in addressing public health issues. The pervasive and perhaps omnipresent nature of statistical methods, nuanced by the specific applications in the health sciences, makes it an ideal time to offer a Ph.D. program at MSU to begin making investments in training the next generation of Biostatisticians.

MSU does not have a School of Public Health, which is where most educational programs in Biostatistics around the country are housed. In the United States, several universities have dedicated biostatistics departments, but many other top-tier universities integrate biostatistics into other departments, such as epidemiology. The Department of Epidemiology and Biostatistics in the College of Human Medicine is the ideal place for the program.

### Academic Programs Catalog Text:

The Doctor of Philosophy degree in Biostatistics provides students with the quantitative skills needed for the development, evaluation and application of novel methods for the analysis of modern biomedical data.

**Doctor of Philosophy**

In addition to meeting the requirements of the university, and of the College of Human Medicine, students must meet the requirements specified below.
Admission

For admission to the doctoral degree in biostatistics on regular status, the student must:

1. have a master’s degree in biostatistics, statistics, or related field;
2. submit Graduate Record Examination (GRE) scores, or MCAT scores;
3. provide TOEFL scores if their native language is other than English;
4. provide three letters of recommendation;
5. provide a statement of purpose;
6. provide official transcripts.

Applicants with strong academic records who are in the process of completing a master of science may be admitted on a provisional basis. The first 30 credits applied towards the completion of a master of science may not be counted toward the Ph.D. in Biostatistics.

Applicants who are admitted without a master’s degree will be required to complete collateral course work to make up deficiencies. Collateral course work will not count towards the fulfillment of degree requirements. It is strongly recommended that applicants have taken course work in multivariate calculus, advanced undergraduate linear algebra and probability, and numerical computing.

Requirements for the Doctor of Philosophy Degree in Biostatistics

The doctoral degree program in biostatistics is selected in consultation with a faculty advisor and guidance committee. The doctoral degree program will offer three emphasis areas: design and analysis of medical studies; big data and statistical genetics; and biometry, a flexible option for students with diverse interests.

Students must:

1. Complete 25 credits in the required courses for the chosen emphasis area, and electives.
2. Pass the comprehensive examination which contains two modules: the first (3/4 of the exam) will be based on the content covered in the required courses common to all emphasis areas; and the second (1/4 of the exam) will be based on the required courses in the chosen emphasis area. A student who fails the comprehensive examination may retake the examination within six months after the first take, usually in January of the following year.

Effective Fall 2017.
HST 205A The Ancient Mediterranean from 3000 BCE to 400 CE 4
HST 205B Europe in the Middle Ages from 300 To 1500 4
HST 337 European Power, Culture, and Thought: Renaissance to the Enlightenment 4
HST 338 European Power, Culture, and Thought: The Modern Era 4

Add the following courses:

HST 205 The Ancient Mediterranean and the Medieval World 4
HST 337 European Power, Culture, and Thought: Renaissance to the Enlightenment 3
HST 338 European Power, Culture, and Thought: The Modern Era 3

(d) In item 1. e. (2) delete the following course:

MC 340 Economic Growth 4

Effective Fall 2017.

COLLEGE OF LAW

1. Change the requirements for the Master of Jurisprudence (M.J.) degree in Legal Doctrine Analysis in the College of Law. The University Committee on Graduate Studies (UCGS) approved this request at its March 13, 2017 meeting.

a. Under the heading M.J. in Legal Doctrine Analysis change the text to read as:

This program is designed to give current J.D. students who do not plan to complete the J.D. program the opportunity to receive the M.J. degree after successfully completing the first-year J.D. curriculum.

b. Under the heading Academic Requirements, replace the entire entry with the following:

All students must complete the following:

LAW 500F Criminal Law 3
LAW 500G Property 4
LAW 500R Torts I 4
LAW 530A Civil Procedure 4
LAW 530B Contracts 4
LAW 530F Contract Negotiation 1
LAW 530J Advocacy 2
LAW 530K Foundations of Law 0 to 1
LAW 530S Constitutional Law and the Regulatory State 4

One of the following courses:

LAW 530D Research, Writing and Analysis 2
LAW 530E Research, Writing and Analysis: Intellectual Property Perspective 2
LAW 530N Research, Writing and Analysis: Criminal Law Perspective 2
LAW 530Q Research, Writing and Analysis: Social Justice Perspectives 2

Effective Fall 2017.
COLLEGE OF NATURAL SCIENCE

1. Establish a **Graduate Certificate in Neuroscience and the Law** in the Program in Neuroscience. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its January 9, 2017 meeting.

   a. **Background Information:**

   Neuroscience is playing a greater role in society broadly and also in the legal system in the United States. Neuroscience and the Law is becoming increasingly important as more information becomes available about brain development, sociopathy/psychopathy, predisposition to criminal behavior, and mental illness. Advanced techniques in neuroimaging allow for more precise detection of brain injuries or disorders that could lead to cognitive impairment and influence behavior along with improving the detection of witness veracity. As neuroscience research continues to advance knowledge about the brain and behavior, legal and social work professionals need to understand the promise and limitations of neuroscientific evidence and how best to interpret findings to make informed decisions in and out of the courtroom. From criminal cases to personal injury, trusts and estates, contract law, guardianship and more, moral and ethical considerations need to be made regarding neuroscientific findings. The Graduate Certificate in Neuroscience and the Law will provide individuals working or studying in law or social science fields with the scientific knowledge necessary to effectively, accurately, and ethically use neuroscientific evidence in a professional setting.

   The growth of this field can be seen as other universities and organizations have begun focusing research and education initiative in Neurolaw. Brain injuries, cognitive impairment and criminal liabilities are key legal issues that have been highlighted in a series Nature Neuroscience reviews ([http://www.nature.com/nrn/series/neurosciencelaw/index.html#close](http://www.nature.com/nrn/series/neurosciencelaw/index.html#close)). The MacArthur Foundation also highlights the growth of neuroscience in the legal profession ([http://www.lawneuro.org/links.php](http://www.lawneuro.org/links.php)).

   Neuroscience and the Law is not represented in the MSU College of Law curriculum. Vanderbilt University offers a one-semester Law and Neuroscience course for currently enrolled students, and they also offer a dual degree JD/PhD program for Law and Neuroscience. Other universities have programs in Neuroscience and Society, which include topics on law-related content, and a number of neuroscience and law programs are hosting seminars and conferences on Neuroscience and Law. This program stands apart, however, as it will focus on providing courses to current legal professionals, not only to currently enrolled undergraduate or graduate/professional students. A review of curriculum at CIC institutions and universities within Michigan found no graduate certificate programs with similar goals and objectives. Three institutions offer a Neuroscience and the Law (or similar) course, two offer law specialties in the psychiatry field, and two offer graduate programs (MS, PhD, PhD/MPA, JD/PhD). However, none offer a fully-online program targeted at practicing legal professionals. Neuroscience and the Law is a fast-growing field, and MSU, with both a highly successful Neuroscience Program and School of Law, is an ideal home for this program.

   The faculty in the Neuroscience Program are nationally recognized experts in the field of neuroscience and have been successfully instructing graduate-level degree programs since 1998. As part of the graduate certificate program, two courses will cover law-based content, and the Neuroscience Program has reached out to the MSU College of Law for assistance in creating and delivering course content. However, since the majority of the courses proposed in the graduate certificate will be neuroscience-based, the Neuroscience Program is the best unit to house the certificate program.

   b. **Academic Programs Catalog Text:**

   The Graduate Certificate in Neuroscience and the Law is designed to provide individuals working in law or social sciences fields with the scientific knowledge necessary to effectively, accurately, and ethically use neuroscientific evidence in a professional setting. The certificate will meet the needs of both working professionals and full-time students. The certificate is available online only.
Admission

To be considered for admission to the Graduate Certificate in Neuroscience and the Law, students must:

1. have a bachelor’s degree.
2. have a minimum cumulative undergraduate grade-point average of 2.25.
3. write a reflective essay describing how the certificate will enhance their professional and personal development.

Requirements for the Graduate Certificate in Neuroscience and the Law

Students must complete a minimum of 12 credits from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEU 840</td>
<td>Social, Cognitive, and Affective Neuroscience</td>
</tr>
<tr>
<td>NEU 892</td>
<td>Special Topics in Neuroscience and the Law</td>
</tr>
<tr>
<td>NEU 848</td>
<td>Foundations of Law and Legal Research</td>
</tr>
<tr>
<td>NEU 842</td>
<td>Neuroethics</td>
</tr>
<tr>
<td>NEU 843</td>
<td>Methods for Assessing the Nervous System</td>
</tr>
<tr>
<td>NEU 844</td>
<td>The Science and Ethics of Brain Interventions</td>
</tr>
<tr>
<td>NEU 845</td>
<td>Neuroscience of Drug Use and Human Disorders</td>
</tr>
</tbody>
</table>

Effective Fall 2018.

2. Change the requirements for the Master of Science degree in Biomedical Laboratory Operations in the Biomedical Laboratory Diagnostics Program. The University Committee on Graduate Studies (UCGS) approved this request at its March 13, 2017 meeting.

   a. Under the heading Requirements for the Master of Science Degree in Biomedical Laboratory Operations make the following changes:

      (1) In item 1. change the total credits from ‘8’ to ‘9’ and add the following course:
          BLD 811 Fundamentals of Scientific | 1 |

      (2) Change the credits in item 2. from ‘14’ to ‘13’.

Effective Fall 2017.
3. Establish a **Minor in Computational Mathematics, Science, and Engineering** in the Department of Computational Mathematics, Science, and Engineering. The University Committee on Undergraduate Education (UCUE) recommended approval of this request at its January 12, 2017 meeting.

   a. **Background Information:**

   Computational science is the use of computational methods to solve scientific problems. It is a rapidly growing and evolving field. Modern research problems are often complex and require extensive computation, either to manipulate and explore vast quantities of data or to create sophisticated theoretical models or both. At present, training in the methods of computational science is ad hoc and varies widely at Michigan State University, and many faculty members, particularly in disciplines where computational techniques are not traditionally used, do not have the expertise to educate their students in necessary topics. Faculty discussion of this critical need at both the undergraduate and graduate levels – and the lack of a curriculum to address this need – precipitated extensive faculty discussion and the creation of this proposed undergraduate minor.

   MSU is in the midst of a Provost-led initiative focusing on computational and data science, which involves the creation of a new Department of Computational Mathematics, Science, and Engineering, hiring faculty to staff this department and lead interdisciplinary initiatives in computation-enabled science, and the creation of both undergraduate and graduate curricula that support the need to educate MSU students across the university in computational techniques and give them a skillset that can be immediately applied to their course work and/or research, and which will make them more desirable to employers and graduate schools.

   The minor will complement undergraduate students’ choice of majors with a set of courses that achieve several outcomes. Students that have achieved the goals of this minor will be able to:
   - demonstrate a basic understanding of functional and object-oriented computer programming as applied to a range of problems in computational and data science;
   - analyze problems in terms of the algorithms and pre-existing computational tools required to solve a range of problems in computational and data science, and write a program to efficiently solve the problem;
   - construct and implement models and simulations of physical, biological, engineering, and social situations, and use these models/simulations to understand experimental or observational data; and
   - apply some subset of discipline-focused or methodology-focused topics in computational and data science to solve problems in the student’s major discipline.

   b. **Academic Programs Catalog Text:**

   The Minor in Computational Mathematics, Science, and Engineering complements a students’ major by providing a strong background in computational modeling of a variety of systems using a broad range of computational techniques, functional and object-oriented computer programming, practice in computational thinking, as well as in-depth exposure to some subset of discipline-focused or methodology-focused topics in computational and or data science.

   The minor 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, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor’s degree.

   Students who plan to complete the requirements of the minor should consult the undergraduate adviser in the Department of Computational Mathematics, Science, and Engineering.

   **Requirements for the Minor in Computational Mathematics, Science, and Engineering**

   Complete 17 credits from the following:

<table>
<thead>
<tr>
<th>C R E D I T S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Both of the following courses (8 credits):</td>
<td></td>
</tr>
</tbody>
</table>
   | CMSE 201  | Introduction to Computational Modeling          | 4
   | CMSE 202  | Computational Modeling Tools and Techniques     | 4
   | CEM 481   | Seminar in Computational Chemistry             | 3
   | CMSE 401  | Methods for Parallel Computing                 | 4
   | CMSE 402  | Visualization of Scientific Datasets           | 3
   | CSE 232   | Introduction to Programming II                 | 4
   | MTH 451   | Numerical Analysis I                           | 3
   | 2. Complete a minimum of 9 credits from the following courses: |                |
   | CMSE 201  | Introduction to Computational Modeling          | 4
   | CMSE 202  | Computational Modeling Tools and Techniques     | 4
   | CEM 481   | Seminar in Computational Chemistry             | 3
   | CMSE 401  | Methods for Parallel Computing                 | 4
   | CMSE 402  | Visualization of Scientific Datasets           | 3
   | CSE 232   | Introduction to Programming II                 | 4
   | MTH 451   | Numerical Analysis I                           | 3
MTH 452 Numerical Analysis II 3
PHY 480 Computational Physics 3
PLB 400 Introduction to Bioinformatics 3
STT 301 Computational Methods for Data Science 3
STT 461 Computations in Probability and Statistics 3
STT 465 Bayesian Statistical Methods 3

Additional courses may be used with approval the program advisor. Any CMSE 300-400 level courses including special topics and independent study courses will receive automatic approval. Courses outside of CMSE with a strong focus on the applications of computational methods or on discipline-related computational techniques will be considered.

Effective Fall 2017.

COLLEGE OF SOCIAL SCIENCE

1. Delete the curriculum and degree requirements for the Master of Arts degree in History-Secondary School Teaching in the Department of History. The University Committee on Graduate Studies (UCGS) provided consultative commentary to the Provost after considering this request. The Provost made the determination after considering the consultative commentary from the University Committee on Graduate Studies.

No new students are to be admitted to the program effective Spring 2010. No students are to be readmitted to the program effective Spring 2010. Effective Summer 2017, coding for the program will be discontinued and the program will no longer be available in the Department of History. Students who have not met the requirements for the Master of Arts Degree in History-Secondary School Teaching through the Department of History prior to Summer 2017 will have to change their major.
PART II - NEW COURSES

DEPARTMENT OF ACCOUNTING AND INFORMATION SYSTEMS

ITM 883 Business Analytics Problem Solving
Spring of every year. 1 to 3 credits. R: Open to graduate students in the Business Analytics Major or approval of department.
- Statistical techniques, use of statistical software platform, exposure to statistical programming languages.
- Effective Fall 2017

ITM 885 Machine Learning and Optimization in Analytics
Fall of every year. 1 to 3 credits. R: Open to graduate students in the Business Analytics Major or approval of department.
- Applying different machine learning and optimization techniques to solve organizational problems.
- Effective Fall 2017

ITM 886 Communication Strategies for Analytics
Spring of every year. 1 to 3 credits. R: Open to graduate students in the Business Analytics Major or approval of department.
- Professional communication skills, from basic business writing techniques to cutting-edge digital and social-media strategies.
- Effective Fall 2017

DEPARTMENT OF COMPUTATIONAL MATHEMATICS, SCIENCE, AND ENGINEERING

CMSE 401 Methods for Parallel Computing
Spring of odd years. 4(4-0) P: (CMSE 202 and CSE 232) and (MTH 235 or MTH 340 or MTH 347H)
- Effective Fall 2017

CMSE 402 Visualization of Scientific Datasets
Spring of even years. 3(3-0) P: (CMSE 202) and (MTH 234 or MTH 254H or LB 220)
- Effective Fall 2017

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CSE 402 Biometrics and Pattern Recognition
Fall of every year. 3(3-0) P: CSE 331 and STT 351 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.
- Automated techniques used for feature extraction and pattern matching focusing on face, fingerprint and iris recognition.
- Effective Fall 2017

CSE 415 Introduction to Parallel Computing
Spring of every year. 3(3-0) P: CSE 320 and CSE 331 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.
- Effective Fall 2017
CSE 431  Algorithm Engineering  
Fall of every year. Spring of every year. 3(3-0) P: CSE 331 R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Algorithm analysis, design, implementation, and optimization for a broad range of problem categories including techniques to recognize and cope with intractable problems.  
Effective Fall 2017

SCHOOL OF CRIMINAL JUSTICE

CJ 817  Law and Forensic Science  
Spring of every year. 2(2-0) R: Open only to students in the Forensic Science major.  
REINSTATEMENT  
Legal aspects of forensic science. Adjudicative process, admissibility of scientific evidence, laboratory reports, hearsay, relevant case materials, and expert testimony.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.  
Effective Fall 2016

CJ 895  Methods for Policy Development and Implementation  
Fall of every year. 3(3-0) RB: CJ 801 and CJ 810 and CJ 811 and CJ 812 and CJ 887 R: Open to master's students in the School of Criminal Justice.  
REINSTATEMENT  
Public policy process and organizational change with regard to crime and justice.  
Methods and techniques for diagnosing problems, designing policies, and implementing change in organizations and governmental jurisdictions.  
Effective Spring 2017

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

GLG 873  Introduction to Numerical Tools for Earth and Environmental Scientists  
Fall of odd years. 3(3-0) RB: B.S. in the Earth Sciences or related field  
Introduction to Linux and C including numerical methods, integration, curve-fitting, and differential equations with an emphasis on applications to the geological sciences.  
Effective Fall 2017

DEPARTMENT OF ECONOMICS

EC 951  Research Seminars in Advanced Topics in Economics II  
Spring of every year. 1(1-0) R: Open to doctoral students in the Department of Economics.  
Current research topics in Applied Economics II.  
Effective Spring 2017

DEPARTMENT OF FORESTRY

FOR 898  Master's Professional Project  
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Approval of department.  
Master's project, non-thesis research, practicum or other professional development capstone experiences.  
Request the use of the Pass-No Grade (P-N) system.  
Effective Fall 2017
JAMES MADISON COLLEGE

MC 318  Chinese Foreign Policy
Fall of odd years. 4(3-0) P: (MC 220) and completion of Tier I writing requirement R: Open to students in the James Madison College.
Effective Fall 2017

MC 446  International Energy Policy  (W)
Spring of every year. 3(3-0) P: Completion of Tier I Writing Requirement R: Open to students in the James Madison College or in the Science, Technology, Environment and Public Policy Minor.
Analysis of theories and dilemmas within international energy policy, which could include energy security and geopolitics, energy governance institutions, energy poverty, sustainable energy and battery storage, global oil markets, ‘fracking’, and international dam building.
Effective Spring 2017

DEPARTMENT OF MARKETING

MKT 839  Experiential Learning in Digital Marketing
Spring of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. P: MBA 820 or approval of department R: Open to MBA students or approval of department.
Classroom and field experience in digital marketing with a focus on the development, assessment, and optimization of paid search campaigns. Problem recognition, strategy development, deployment, assessment, revision, client report.
Effective Spring 2018

MKT 843  International Marketing Research
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to master's students in the Marketing Research major or approval of department.
International research from various elements of the marketing research process. Globalization, the research planning process (business problem and research objectives identification), research design. International qualitative/quantitative approaches, analysis, reporting/storytelling, and assessment of various global regions.
Effective Fall 2017

MKT 867  Sampling and Research Design
Fall of every year. Spring of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to master's students in the Marketing Research major or approval of department.
Experimental design, survey/questionnaire design, sampling, and data collection in marketing.
Effective Fall 2017

MKT 871  New Product and Service Research
Fall of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to master's students in the Marketing Research major or approval of department.
Innovation and new product development. Explicit focus on techniques for researching new product concepts and driving innovation.
Effective Fall 2017
DEPARTMENT OF MEDIA AND INFORMATION

MI 227  Concept Design for Games, Film, and TV  
Fall of every year. Spring of every year. 3(2-2)  P: CAS 116  R: Open to students in the Department of Media and Information or in the Game Design and Development Minor or in the Fiction Filmmaking Minor.  
Introduction to theories and techniques for generating concept art and design for games, films, TV, and animations.  
Effective Fall 2017

MI 333  Advanced Game Development  
Spring of every year. 3(2-2)  P: MI 231 or CSE 231  R: Open to students in the Department of Media and Information or in the Department of Computer Science and Engineering or in the Game Design and Development Minor.  
Advanced concepts in planning, implementing, and troubleshooting applications and interfaces for games and interactive media.  
Effective Fall 2017

PROGRAM IN NEUROSCIENCE

NEU 840  Social, Cognitive, and Affective Neuroscience  
Fall of every year. 3(3-0)  Not open to students with credit in NEU 839 or NEU 841.  
Introduction to nervous system structure and function aimed at students and professionals with limited biological science background.  
Effective Fall 2016

NEU 845  Neuroscience of Drug Use and Human Disorders  
Spring of every year. 3(3-0)  RB: NEU 840 or concurrently  
Introduction to the neurochemical basis of human disorders and how drugs are used to treat these disorders.  
Effective Spring 2017

NEU 848  Foundations of Law and Legal Research  
Fall of every year. Spring of every year. Summer of every year. 2(2-0)  R: Open to graduate students in the Program in Neuroscience.  Approval of department.  Not open to students with credit in LAW 807A.  
Introduction to the American legal system with focus on legal research and communication needs of non-lawyers  
Effective Fall 2016

NEU 892  Special Topics in Neuroscience and the Law  
Fall of every year. 1 to 3 credits. A student may earn a maximum of 4 credits in all enrollments for this course.  RB: NEU 840 or concurrently  
Topics in which the field of neuroscience and the legal system intersect  
Effective Fall 2016

DEPARTMENT OF PHYSIOLOGY

PSL 499  Physiology Senior Research Thesis  
Fall of every year. Spring of every year. Summer of every year. 2 to 8 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  R: Open to seniors in the Physiology Major or in the Lyman Briggs Physiology Coordinate Major.  Approval of department; application required.  
Independent research with faculty supervision culminating in a thesis.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.  
Effective Spring 2017
PART III – COURSE CHANGES

DEPARTMENT OF ACCOUNTING AND INFORMATION SYSTEMS

ACC 201  Principles of Financial Accounting
Fall of every year. Spring of every year. Summer of every year. 3(3-0) R: Open to sophomores or
juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of
Management and open to undergraduate students in the School of Hospitality Business. R: Open
to undergraduate students in the Business - Admitted major and open to undergraduate students in
the School of Hospitality Business.
Purpose and content of corporate financial statements with emphasis on interpretation
and understanding the effects of various transactions on these statements. Basic
principles, conventions and concepts related to financial statements. Measurement of
assets, liabilities, revenues and expenses. International accounting concepts.
Effective Fall 2015 Effective Fall 2017

ACC 202  Principles of Management Accounting
Fall of every year. Spring of every year. Summer of every year. 3(3-0) R: Open to sophomores or
juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of
Management. R: Open to undergraduate students in the Business - Admitted major.
Management uses of accounting information. Costing products and services, planning
and budgeting, performance measurement, control of organizational activities, and
decision making.
Effective Fall 2015 Effective Fall 2017

ACC 341  Cost and Managerial Accounting
Accounting for Management Decision Making
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: ACC 300 and STT 315
and MKT 317
Cost accumulation and allocation systems, cost behavior and estimations, and cost
analysis for planning and control decisions. Identification of relevant accounting
information for management decision making, planning and control. Evaluation of cost
accounting system design choices for decision usefulness and effectiveness of
performance measurement.
Effective Spring 2013 Effective Fall 2017

ITM 209  Business Analytics and Information Systems
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: CSE 101 R: Open to
sophomores in the Eli Broad College of Business and The Eli Broad Graduate School of
Management and open to undergraduate students in the Information Technology Minor. R: Open
to undergraduate students in the Business - Admitted major and open to undergraduate students in
the Information Technology Minor.
Use of business processes, information technologies, and analytics in creating value and
enabling improvements in global business performance.
SA: BUS 309, ITM 309
Effective Fall 2016 Effective Fall 2017

ITM 818  Introduction to Business Analytics
Data Management and Visualization in Analytics
Fall of every year. 3(3-0) R: Open to graduate students. Approval of department. R: Open to
graduate students in the Business Analytics Major or approval of department.
Importance of digitized business processes and data analytics are essential to the
performance and competitive advantage of a modern corporation. Different approaches
for strategic data management and business analytics. Real world cases of successes
and failures with analytics-based business strategies. Role of analytics in shaping
competitive strategy and improving the design and implementation of business processes.
Emphasis on enterprise data management and visualization skill development. Analysis of
enterprise data identifying findings and making recommendations. Real-world cases of
successes and failures with analytics-based business strategies.
Effective Fall 2012 Effective Fall 2017
THE ELI BROAD COLLEGE OF BUSINESS

BUS 250  Business Communications: Oral and Written Skills
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement R: Open to undergraduate students in the Eli Broad College of Business and The Eli Broad Graduate School of Management. R: Open to undergraduate students in the Business - Admitted major.
Communication skills including use of digital media, delivery mechanics, persuasive speaking, and preparation of executive briefs, memos, email messages.
Effective Fall 2016 Effective Fall 2017

DEPARTMENT OF CHEMISTRY

CEM 151  General and Descriptive Chemistry
Fall of every year. 4(4-0) P: ((MTH 116 or concurrently) or (MTH 124 or concurrently) or (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 118 or concurrently)) or designated score on Mathematics Placement test Not open to students with credit in CEM 181H or LB 171.
Stoichiometry; solutions; reactions and thermochemistry; quantum mechanics and atomic structure; periodic properties; chemical bonding; molecular structure; coordination chemistry; organic molecules and functional groups.
Effective Fall 2013 Effective Fall 2017

CEM 152  Principles of Chemistry
Spring of every year. 3(4-0) P: CEM 151 or CEM 181H or LB 171 Not open to students with credit in CEM 182H or LB 172.
Gases, liquids, and solids; thermodynamics; changes of state; solutions and colligative properties; chemical equilibria; acids, bases, and aqueous equilibria; kinetics; redox reactions and electrochemistry; nuclear chemistry.
Effective Fall 2013 Effective Fall 2017

DEPARTMENT OF COMMUNITY SUSTAINABILITY

CSUS 300  Theoretical Foundations of Sustainability
Fall of every year. Spring of every year. 3(3-0) P: (CSUS 200) and completion of Tier I writing requirement RB: (CSUS 200) and completion of Tier I writing requirement and (EC 201 or EC 202)
R: Open to juniors or seniors or approval of department.
Effective Fall 2014 Effective Summer 2017

CSUS 310  History of Environmental Thought and Sustainability
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement RB: (CSUS 200) and One ISS course or one PSY course or one SOC course. R: Open to sophomores or juniors or seniors.
History of attitudes and values associated with the environment, wilderness, environmentalism, conservation, preservation, and sustainability. Perceptions and assessment of modern environmental problems and issues.
SA: PRR 302
Effective Fall 2014 Effective Summer 2017

CSUS 320  Environmental Planning and Management
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: Completion of Tier I Writing Requirement RB: (CSUS 200) and one ISB course and one environmental science course Concepts, principles and objectives of planning and management. Demand, supply and impacts of natural resources use. Suitability assessment for sustainable development and land use planning.
SA: ESA 320, RD 320
Effective Fall 2014 Effective Summer 2017
CSUS 330  Organizational Management for Community Sustainability  (W)  
Fall of every year. Spring of every year. 3(3-0) P: (CSUS 200 or CSUS 273 or CSUS 276) and Completion of Tier I Writing Requirement  
R: Open to juniors or seniors.  
Sustainable management and operation of public and nonprofit organizations. Legal foundations, policy, management responsibilities, ethical decision-making and management functions.  
SA: PRR 370  
**Effective Summer 2015 Effective Summer 2017**

CSUS 343  Community Food and Agricultural Systems 
**Fall of even years. Fall of every year. Spring of every year. Summer of every year. 3(3-0) P:** Completion of Tier I Writing Requirement  
RB: (CSUS 200) and an introductory social science course  
Food and agricultural systems. Inputs, production, processing, distribution, consumption and disposal. Industrialization, globalization and centralization of power. Community goals including ecological sustainability, social justice, economic viability and democracy.  
SA: ESA 343  
**Effective Fall 2014 Effective Summer 2017**

CSUS 354  Water Resources Management 
**Fall of every year. Spring of every year. 3(3-0) P:** Completion of Tier I Writing Requirement RB: (BS 161 or BS 162 or CEM 141 or CSS 210) and CSUS 200  
Biophysical, community, and institutional components of comprehensive water resources management. Biophysical and social processes that control the quality and quantity of aquatic resources at the watershed level.  
SA: ESA 324  
**Effective Fall 2014 Effective Summer 2017**

CSUS 425  Environmental Impact Assessment 
**Fall of every year. 3(3-0) P:** ZOL 355 and (GEO 325 or EW 419 or approval of department) P: ((CSUS 200 or CSS 210 or GEO 206 or GLG 201) or approval of department) and completion of Tier I writing requirement RB: An introductory course or experience in GIS (Geographic Information Systems)  
SA: ESA 415  
**Effective Fall 2014 Effective Summer 2017**

CSUS 429  Program Evaluation for Community Sustainability 
**Fall of every year. 3(3-0) P:** {(MTH 116) or (MTH 103 and MTH 114) or MTH 124} and Completion of Tier I Writing Requirement P: {{(MTH 103) and (STT 200 or STT 201)} or (MTH 103 and MTH 114) or MTH 116 or MTH 124} and ((CSUS 200 or EEP 255) and completion of Tier I writing requirement)  
Concepts, theories, and procedures in program evaluation. Practical methods and skills to plan and implement evaluations of community, agriculture, and natural resources programs.  
SA: ACR 415  
**Effective Spring 2016 Effective Fall 2017**

CSUS 463  Food Fight: Politics of Food 
**Fall of even years. Spring of odd years. 3(3-0) Interdepartmental with Sociology. P:** CSUS 200 or SOC 100 RB: (CSUS 343) and Familiarity with social science theories and methods  
R: Not open to freshmen or sophomores.  
Social power and its influence in US agrifood system. Structural and cultural issues related to politics of food consumption, production, labor, processing, retail, technoscience, policy, resistance movements.  
**Effective Fall 2014 Effective Summer 2017**
CSUS 474  Advanced Topics in Tourism Management  
Fall of every year. Spring of every year. 3(3-0) P: CSUS 273 or HB 100 or GEO 259 R: Open to juniors or seniors or graduate students.  
Tourism as a form of economic and community development. Tourism planning, marketing and management. Tourism and sustainability. Tourism research.  
SA: PRR 474  
Effective Fall 2014 Effective Summer 2017

CSUS 824  Sustainable Development: Measuring Socioeconomic Well-Being  
Sustainable Development  
Spring of every year. Spring of odd years. 3(3-0) RB: Prior coursework in microeconomics and sociology  
Measurement of social and economic welfare at national and local scales. Consumption and economic growth as welfare indicators. Theories of development, utility, and economic growth. Indicators of sustainable development. Environmental and social dimensions of human well-being.  
SA: ACR 824  
Effective Fall 2014 Effective Fall 2016

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CSE 232  Introduction to Programming II  
Fall of every year. Spring of every year. 4(3-2) P: CSE 231 and (LB 118 or MTH 124 or MTH 132 or MTH 152H) P: (CSE 231 or CMSE 202) and (LB 118 or MTH 124 or MTH 132 or MTH 152H)  
Continuation of object-centered design and implementation in C++. Building programs from modules. Data abstraction and classes to implement abstract data types. Static and dynamic memory allocation. Data structure implementation and algorithm efficiency. Lists, tables, stacks, and queues. Templates and generic programming.  
SA: CSE 330  
Effective Spring 2014 Effective Fall 2017

CSE 410  Operating Systems  
Fall of every year. Spring of every year. 3(3-0) P: (CSE 232 and CSE 260) and (CSE 320 or ECE 331) R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinator Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinator Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
SA: CPS 410  
Effective Fall 2015 Effective Fall 2017

CSE 420  Computer Architecture  
Fall of every year. Spring of every year. 3(3-0) P: (CSE 232 and CSE 260) and (CSE 320 or ECE 331) R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinator Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinator Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
SA: CPS 420  
Effective Fall 2015 Effective Fall 2017
CSE 422  Computer Networks  
Fall of every year. Spring of every year. 3(3-0) P: (STT 351 or ECE 280) and (CSE 410 or concurrently) 
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major. 
SA: CPS 422 
Effective Fall 2015 Effective Fall 2017

CSE 425  Introduction to Computer Security  
Spring of every year. 3(3-0) P: CSE 422 or concurrently R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major. 
Effective Fall 2015 Effective Fall 2017

CSE 429  Interdisciplinary Topics in CyberSecurity  
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with Criminal Justice. P: CSE 101 or CSE 131 or CSE 231 R: Open to juniors or seniors or graduate students. 
Technical, legal, criminal, medical business, and communication aspects of CyberSecurity. 
Effective Spring 2014 Effective Fall 2017

CSE 435  Software Engineering  
Fall of every year. 3(3-0) P: (CSE 331 and CSE 335) and completion of Tier I writing requirement R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major. 
Software lifecycle including specification, design, coding, testing, and verification of a software product. Stepwise refinement and traceability. Software maintenance and documentation. 
SA: CSE 470 
Effective Fall 2015 Effective Fall 2017

CSE 440  Introduction to Artificial Intelligence  
Fall of every year. 3(3-0) P: CSE 331 R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. R: Open to juniors or seniors in the College of Engineering or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major. 
SA: CPS 440 
Effective Fall 2015 Effective Fall 2017
CSE 450  Translation of Programming Languages  
Fall of every year. Spring of every year. 3(3-0) P: CSE 331 and (CSE 320 or ECE 331)  
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
SA: CPS 450  
Effective Fall 2015  Effective Fall 2017

CSE 460  Computability and Formal Language Theory  
Fall of every year. Spring of every year. 3(3-0) P: CSE 331  
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
Formal models of computation such as finite state automata, pushdown automata and Turing machines. Formal definitions of languages, problems, and language classes including recursive, recursively enumerable, regular, and context free languages. The relationships among various models of computation, language classes, and problems. Church’s thesis and the limits of computability. Proofs of program properties including correctness.  
SA: CSE 360  
Effective Fall 2015  Effective Fall 2017

CSE 471  Media Processing and Multimedia Computing  
Fall of every year. Spring of every year. 3(3-0) P: CSE 320 or CSE 331 or CSE 335  
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Effective Fall 2015  Effective Fall 2017

CSE 472  Computer Graphics  
Spring of every year. 3(3-0) P: CSE 331 or CSE 335  
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
SA: CPS 472  
Effective Fall 2015  Effective Fall 2017

CSE 476  Mobile Application Development  
Spring of every year. 3(3-0) P: CSE 320 or CSE 331 or CSE 335  
R: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Software development techniques for mobile devices such as smart phones and tablet computers.  
Effective Fall 2015  Effective Fall 2017
CSE 477  Web Application Architecture and Development  
Spring of every year. 3(3-0) P: CSE 331 P: CSE 320 or CSE 331 or CSE 335  
P: Open to students in the Computer Engineering Major or in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Fundamentals of World Wide Web (WWW) programming, including protocols, client-server interaction, markup languages, client- and server-side programming, databases, and remote procedure calls. Development of a WWW server and WWW sites with browser-based interfaces to remote databases. Students will incorporate scaling, throughput, and latency considerations in the development of widely-distributed systems.  
Effective Fall 2015  Effective Fall 2017

CSE 480  Database Systems  
Spring of every year. 3(3-0) P: CSE 331 P: CSE 331 or CSE 335  
P: Open to students in the Computer Engineering Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Major or in the Computer Science Disciplinary Teaching Minor.  
R: Open to juniors or seniors in the College of Engineering or in the Computer Science Minor or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major.  
Storage of and access to physical databases including indexing, hashing, and range accesses. Relational data models, database design principles, query languages, query optimization, transaction processing and recovery techniques. Object-oriented and distributed databases.  
SA: CPS 480  
Effective Fall 2015  Effective Fall 2017

DEPARTMENT OF ECONOMICS

EC 950  Research Seminars in Advanced Topics in Economics  
Research Seminars in Advanced Topics in Economics I  
Fall of every year. Spring of every year. 1(1-0)  
A student may earn a maximum of 2 credits in all enrollments for this course.  
R: Open to doctoral students in the Department of Economics.  
Current research topics in applied economics. Current research topics in Applied Economics I.  
Effective Spring 2007  Effective Summer 2018

DEPARTMENT OF ENGLISH

ENG 314  Readings In North American Literatures  
Spring of every year. 3(3-0)  
A student may earn a maximum of 6 credits in all enrollments for this course.  
P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) }  
or  
ENG 210  
P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) }  
or  
ENG 211H  
R: 6 credits of literature.  
R: Not open to freshmen.  
Extensive readings of texts by North American writers across genres, historical periods, and/or regions.  
Effective Spring 2014  Effective Spring 2017
ENG 315  Readings in British Literatures
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 210 P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) or (ENG 210 or ENG 211H) or ENG 215}
RB: 6 credits of literature R: Not open to freshmen.
Extensive readings of texts from the British Isles and Empire, selected across genres, historical periods, and/or regions.
Effective Spring 2014 Effective Spring 2017

ENG 317  Readings in African and Caribbean Literatures
Fall of even years. 3(3-0) P: {(ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 210 P: {(ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H)}
RB: Six credits of literature R: Open to undergraduate students in the College of Arts and Letters or in the Department of English or in the Arts and Letters - General Major or in the Postcolonial and Diaspora Literature and Culture Specialization or in the English Secondary Teaching Major. R: Open to undergraduate students in the College of Arts and Letters or in the Arts and Letters - General Major or in the English Secondary Teaching Major.
Extensive readings of texts by African and Caribbean writers across genres, historical periods, and regions.
SA: ENG 363, ENG 463
Effective Spring 2014 Effective Spring 2017

ENG 318  Readings in Shakespeare
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 210 P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H)}
RB: 6 Credits of literature R: Not open to freshmen.
Extensive readings in Shakespeare's works across genres, considered in relation to historical, cultural, and performance contexts.
SA: ENG 421
Effective Spring 2014 Effective Spring 2017

ENG 319  Readings in Michigan Literature
Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 210 P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 126 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) or (ENG 210 or ENG 211H)}
RB: Six credits of literature R: Not open to freshmen.
Extensive readings of texts by Michigan writers across genres, historical periods, media, and/or different regions of the state.
Effective Spring 2015 Effective Spring 2017
ENG 323  Readings in Non-Fiction  
Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)) or ENG 310 P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218)) or (ENG 210 or ENG 211H) R: Not open to freshmen.

Extensive reading in major forms of literary nonfiction, with texts drawn from British, American, and Global English writers. Effective Spring 2014 Effective Spring 2017

ENG 324  Readings in Epic  
Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)) or ENG 310 P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218)) or (ENG 210 or ENG 211H)

Extensive reading of works in the ancient, medieval and/or early modern epic traditions. Effective Spring 2014 Effective Spring 2017

ENG 325  Readings in Graphic Narrative  
Spring of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)) or ENG 310 P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218)) or (ENG 210 or ENG 211H) RB: Six credits of literature R: Not open to freshmen.

Extensive Readings of graphic narratives across genres, historical periods, and/or print cultures and national traditions Effective Spring 2014 Effective Spring 2017

ENG 326  Readings in Drama and Performance Studies  
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)) or ENG 310 P: ((ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218)) or (ENG 210 or ENG 211H) R: Not open to freshmen.

Extensive readings in plays from the sixteenth century to the present. Focus on a range of dramatic forms and cultural expression through performance, and specific social or historical circumstances. Effective Spring 2014 Effective Spring 2017
ENG 328  Readings in Novel and Narrative
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 310 P: (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 218 or ENG 265) or (ENG 210 or ENG 211H) R: Not open to freshmen.

Extensive readings in the novel from a range of centuries and traditions. Forms of the novel within specific social and historical circumstances. Narrative aesthetics and form of the novel. Effective Spring 2014 Effective Spring 2017

ENG 329  Readings in Poetry and Poetics
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or ENG 310 P: (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 218 or ENG 265) or (ENG 210 or ENG 211H) R: Not open to freshmen.

Extensive reading in poetry in English from a range of centuries and traditions. Forms of poetry within specific social and historical circumstances. Aesthetics of language and fundamentals of poetics. Effective Spring 2014 Effective Spring 2017

ENG 340  Theory and Methods of Popular Culture Studies
Spring of every year. 3(3-0) P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or (ENG 210 or ENG 280 or (ENG 320A or concurrently) or (ENG 320B or concurrently) or (ENG 320C or concurrently)) P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 218) or (ENG 320A or concurrently) or (ENG 320B or concurrently) or (ENG 320C or concurrently)) RB: Six credits of literature R: Not open to freshmen.

Examination of the theories and methods of studies in popular culture. Effective Spring 2015 Effective Spring 2017

ENG 342  Readings in Popular Literary Genres
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: {{(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218 or ENG 265)} or (ENG 210 or ENG 280 or (ENG 320A or concurrently) or (ENG 320B or concurrently) or (ENG 320C or concurrently)) P: {(ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 206 or ENG 218) and (ENG 126 or ENG 129 or ENG 140 or ENG 142 or ENG 153 or ENG 204 or ENG 205 or ENG 218) or (ENG 210 or ENG 211H) or (ENG 320A or concurrently) or (ENG 320B or concurrently) or (ENG 320C or concurrently)) RB: 6 credits of literature for non-majors. R: Not open to freshmen.

Extensive reading within a particular genre of popular literature such as science fiction, crime fiction or Gothic, with attention to media other than print. Effective Spring 2014 Effective Spring 2017
DEPARTMENT OF FINANCE

GBL 490 Independent Study
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: GBL 395 or GBL 395H P: GBL 385 R: Open to graduate students. Approval of department. Program of observation and work in selected business firms and government. Supervised independent research on selected legal topics. Effective Spring 2013 Effective Fall 2018

GBL 491 Topics in Business Law
Fall of even years. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. P: GBL 395 or GBL 395H P: GBL 385 Current and emerging issues in business law to supplement and enrich existing courses. Effective Spring 2013 Effective Fall 2018

DEPARTMENT OF GEOGRAPHY, ENVIRONMENT, AND SPATIAL SCIENCES

GEO 259 Geography of Recreation and Tourism
Fall of every year. Fall of even years. 3(3-0) Cultural, physical, and biotic factors affecting the distribution of recreation and tourism resources and participation. U.S. and international examples and case studies. Effective Fall 2017

GEO 459 Tourism in Regional Development
Fall of odd years. Spring of odd years. 3(3-0) RB: GEO 259 The role of tourism in regional development. Examples from Michigan, the United States and other nations. Environmental considerations. Effective Fall 2017

DEPARTMENT OF HISTORY

HST 369 Japan to 1800
Fall of every year. Spring of every year. 3(3-0) Political, social, and cultural developments. Growth and transformation of courtier, samurai, and commoner society. Effective Fall 2014 Effective Spring 2018

HST 370 Japan since 1800
Fall of every year. Spring of every year. 3(3-0) Transformation of Japan's political structure, society, and economy from the period of centralized feudalism to Japan's emergence as a post-industrial society since World War II. Effective Fall 2014 Effective Fall 2017

HST 495 History Harvest
Fall of every year. 3(3-0) Interdepartmental with Museum Studies. A student may earn a maximum of 6 credits in all enrollments for this course. RB: HST 251 or AL 285 RB: HST 251 or DH 285 R: Not open to freshmen. Identification, collection, and digitization of oral histories and historical artifacts in the local community. Family heirlooms, lived experiences of everyday people, stories passed down through generations. Emphasis on digital history techniques. Effective Spring 2017 Effective Fall 2017

HST 820 Seminar in Ancient History
Fall of every year. Spring of every year. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course. Political, social, and economic history of the ancient world. Major interpretations and research methods. Topics vary. Effective Fall 2017
HST 821  Seminar in Medieval History  
Fall of every year. Spring of every year. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course.  
Political, social, and economic history of medieval Europe. Major interpretations and research methods. Topics vary.  
DELETE COURSE  
Effective Fall 2017  

HST 848  Seminar in British History  
Fall of every year. Spring of every year. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course.  
Political, social, and economic history of Britain. Major interpretations and research methods. Topics vary.  
DELETE COURSE  
Effective Fall 2017  

**DEPARTMENT OF MANAGEMENT**  

MGT 325  Management Skills and Processes  
Fall of every year. Spring of every year. Summer of every year. 3(3-0) R: Open to juniors or seniors and not open to students in the Accounting major or in the Finance Major or in the Human Resource Management Major or in the Management Major or in the Marketing Major or in the Supply Chain Management Major or in the Business - Admitted major or in the Business - Preference major or in the Hospitality Business Major. R: Open to juniors or seniors and not open to students in the Accounting major or in the Finance Major or in the Marketing Major or in the Supply Chain Management Major or in the Business - Admitted major or in the Business - Preference major or in the Human Resource Management Major or in the Management Major.  
Managerial skills and processes in goal-directed institutions.  
SA: MGT 302  
Effective Spring 2017 Effective Spring 2018  

MGT 352  Entrepreneurship: New Venture Process  
Spring of every year. 3(3-0) R: ACC 202 or ACC 230 R: Open to juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Retail Management Minor and not open to students in the School of Hospitality Business.  
Becoming an entrepreneur. Developing successful business ideas. Moving from an idea to an entrepreneurial firm. Managing and growing an entrepreneurial firm.  
Effective Spring 2017 Effective Spring 2018  

**DEPARTMENT OF MARKETING**  

MKT 890  Independent Study  
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: MBA 820 or MKT 805 R: Open to master's students in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Marketing Research major or approval of department.  
Faculty supervised independent study  
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: MSC 890  
Effective Fall 2013 Effective Fall 2017  

**DEPARTMENT OF MECHANICAL ENGINEERING**  

ME 812  Conductive Heat Transfer  
Fall of every year. 3(3-0) R: ME 391 and ME 411 R: ME 391 and ME 410  
Effective Fall 1995 Effective Fall 2017
ME 891  Selected Topics in Mechanical Engineering
Fall of every year. Spring of every year. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.
Special topics in mechanical engineering of current importance.
Effective Fall 2001 Effective Fall 2017

PROGRAM IN NEUROSCIENCE

IBIO 402  Neurobiology
Fall of every year. Spring of every year. 3(3-0) Interdepartmental with Integrative Biology. P: (BS 162 or LB 144 or BS 182H) and (BS 161 or LB 145 or BS 181H) R: Not open to freshmen or sophomores and not open to students in the Program in Neuroscience and not open to students in the Lyman Briggs Neuroscience Major.
Structure and function of nerve cells and nervous systems.
SA: ZOL 402
Effective Fall 2016 Effective Summer 2017

NEU 300  Introduction to Neuroscience I
Fall of every year. 3(3-0) RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience. R: Open to undergraduate students in the Lyman Briggs College or in the College of Natural Science or in the Program in Neuroscience.
Survey of the field of neuroscience, including molecular, cellular, and autonomic, sensory and motor systems.
Effective Fall 2016 Effective Spring 2017

COLLEGE OF NURSING

NUR 451  Honors Research Internship
Fall of every year. Spring of every year. Summer of every year. On Demand. 2 to 3 credits. P: NUR 220 RB: Students must provide a copy of Human Subjects and HIPAA approval to supervising faculty member. R: Open to students in the Nursing Major or in the Prenursing Major.
Immersion in the research process in the College of Nursing working directly with a nurse researcher in the context of a funded/non-funded research team.
Request the use of the Pass-No Grade (P-N) system.
SA: NUR 451
Effective Spring 2013 Effective Summer 2017

NUR 450  Independent Study in Nursing
Fall of every year. Spring of every year. Summer of every year. On Demand. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of college.
Individualized area of study in nursing.
Effective Summer 2014 Effective Summer 2017

NUR 930  Methods In Clinical Research
Fall of every year. Summer of every year. 3(3-0) R: Open to doctoral students in the College of Nursing or approval of college.
Advanced research designs, measurement and data collection strategies. Draws on a broad range of behavioral and health disciplines relevant to nursing. Logic of statistical models used in the evaluation of research designs and measures.
Effective Summer 2014 Effective Fall 2017
NUR 989  Doctor of Nursing Practice Synthesis Project
Fall of every year. Spring of every year. Summer of every year. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course. R: Open to doctoral students in the College of Nursing.
Demonstrate synthesis of didactic coursework and application to practice by learning a practice change innovation to address a health care problem and improve health outcomes.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2016 Effective Summer 2017

DEPARTMENT OF PLANT BIOLOGY

PLB 400  Introduction to Bioinformatics
Fall of even years. Spring of odd years. 3(2-2) Interdepartmental with Biochemistry and Molecular Biology and Microbiology and Molecular Genetics. P: (STT 200 or STT 201 or STT 231 or STT 421) and (PLB 203 or MMG 201 or BMB 200) P: (STT 200 or STT 201 or STT 231 or STT 421) and (PLB 203 or MMG 201 or BMB 200 or BS 161) RB: An introductory biology course covering basic genetics, macromolecules, evolution, energy metabolism, genetic materials, and signal transduction is recommended for non-biology majors. A statistics course covering random variable, distributions, and basic probability theory is recommended for biology majors. RB: An introductory biology course covering basic genetics, macromolecules, evolution, energy metabolism, genetic materials, and signal transduction is recommended for non-biology majors. A statistics course covering random variable, distributions, and basic probability theory is recommended for biology majors.
Bioinformatic theory and practice. How to manage and analyze sequences, structures, gene expression, and other types of biological data. Managing and analyzing biological data with bioinformatic tools, basic programming, and statistics.
Effective Fall 2014 Effective Fall 2016

PLB 810  Theories and Practices in Bioinformatics
Fall of even years. Spring of odd years. 3(2-2) Interdepartmental with Biochemistry and Molecular Biology and Microbiology and Molecular Genetics. RB: Basic genetics, macromolecules, evolution, energy metabolism, genetic materials, and signal transduction is recommended for non-biology majors. A statistics course covering random variable, distributions, and basic probability theory is recommended for biology majors. RB: Basic genetics, macromolecules, evolution, energy metabolism, genetic materials, and signal transduction is recommended for non-biology majors. A statistics course covering random variable, distributions, and basic probability theory is recommended for biology majors.
Theories and algorithms behind bioinformatics tools. Basic tool development by writing scripts in the Python programming language for data analysis.
Effective Spring 2013 Effective Fall 2016

DEPARTMENT OF POLITICAL SCIENCE

PLS 871  Classical Political Philosophy
Fall of every year. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.
Study of one or more major figures or thinkers in ancient or medieval political philosophy.
Effective Spring 1999 Effective Summer 2018
DEPARTMENT OF SUPPLY CHAIN MANAGEMENT

SCM 371  Procurement and Supply Management
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: SCM 303 R: Open to juniors or seniors in the Eli Broad College of Business and the Eli Broad Graduate School of Management or in the Applied Engineering Sciences major or in the Sales Communication Specialization. R: Open to juniors or seniors in the Supply Chain Management Major or in the Applied Engineering Sciences Major or in the Sales Leadership Minor or approval of department.
Strategic issues in procurement and supply management. Purchasing process, procurement cycle, purchasing research, relationships with suppliers, negotiation, and commodity planning. Cost, price, and value analysis.
SA: MGT 401, MSC 401, MSC 371
Effective Spring 2013 Effective Spring 2018

SCM 372  Manufacturing Planning and Control
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: (SCM 303 and MKT 317) or (SCM 303 and STT 351) P: SCM 303 and MKT 317 R: Open to juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Applied Engineering Sciences major. R: Open to juniors or seniors in the Supply Chain Management Major or in the Applied Engineering Sciences Major or approval of department.
Production planning, demand management, master scheduling, materials requirements, and capacity planning. Shop floor control, computer-integrated manufacturing, and just-in-time systems.
SA: MGT 402, MSC 402, MSC 372
Effective Spring 2013 Effective Spring 2018

SCM 373  Logistics and Transportation Management
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: SCM 303 and (MKT 317 or concurrently) R: Open to juniors or seniors in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the Applied Engineering Sciences major. R: Open to juniors or seniors in the Supply Chain Management Major or in the Applied Engineering Sciences Major.
Microanalysis of logistics and transportation services. Customer service, distribution operations, purchasing, order processing, facility design and operations, carrier selection, transportation costing, and negotiation.
SA: MSC 442, MSC 373
Effective Spring 2013 Effective Spring 2018

DEPARTMENT OF TEACHER EDUCATION

TE 865  Teaching and Learning K-12 Social Studies
Fall of every year. Summer of every year. 3(3-0) Purposes for teaching and learning social studies. Developing citizenship, social science reasoning, and content knowledge with diverse learners.
Effective Summer 2009 Effective Summer 2017