Report of
THE UNIVERSITY COMMITTEE ON CURRICULUM
to the Faculty Senate
November 14, 2017

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:
P: = Prerequisite monitored in SIS
C: = Corequisite
R: = Restriction
RB: = Recommended background
SA: = Semester Alias
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 Minor in Sustainable Natural Resource Recreation Management in the Department of Community Sustainability.

   a. Under the heading Minor in Sustainable Natural Resource Recreation Management make the following changes:

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

       ZOL 355 Ecology       3

      Add the following courses:

       CSUS 278 Introduction to Conservation, Recreation and Environmental Enforcement   1
       IBIO 355 Ecology       3

   Effective Spring 2018.

ELI BROAD COLLEGE OF BUSINESS

1. Change the requirements for the Master of Science degree in Supply Chain Management in the Department of Supply Chain Management. The University Committee on Graduate Studies (UCGS) approved this request at its October 9, 2017 meeting.

   a. Under the heading Requirements for the Master of Science Degree in Supply Chain Management make the following changes:

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

       SCM 866 Railway Business Management       3
       SCM 867 Railway Operations Management       3
       SCM 887 Introduction to Packaging for Supply Chain Management       1.5
       SCM 888 Food Safety in Supply Chain Management       1.5

      Add the following courses:

       SCM 887 Packaging Design/Engineering Optimization in Supply Chain       2
       SCM 888 Product Protection and Safety for Supply Chain Managers       2

Effective Spring 2018.
COLLEGE OF EDUCATION

1. Change the requirements for the Graduate Specialization in Economics of Education in the Department of Educational Administration. The University Committee on Graduate Studies (UCGS) approved this request at its October 9, 2017 meeting.

   a. Under the heading Requirements for the Graduate Specialization in Economics of Education replace the entire entry with the following:

      Students must complete the following with a 3.5 grade-point average in courses across the specialization (18 credits):

      1. Both of the following courses with a grade of 3.0 or higher in each course (6 credits):
         EC 820A Econometrics IA 3
         EC 820B Econometrics IB 3

      2. One additional 3-credit graduate-level advanced statistics or econometrics course as determined by the student's guidance committee.

      3. One of the following courses (3 credits):
         AFRE 805 Microeconomic Analysis 3
         EC 812A Microeconomics I 3

      4. Both of the following courses (6 credits):
         EAD 948 Advanced Economics of Education 3
         EAD 949 Advanced Seminar in Education Policy 3

      5. Complete a substantial research paper on a topic in the economics of education as approved by the student's guidance committee.

   Effective Spring 2018.

COLLEGE OF MUSIC

1. Change the requirements for the Bachelor of Arts degree in Music in the College of Music.

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

      (1) In item 3. e. (2) (a) make the following change:

      (a) Delete Music 150C, 350C and add Music 152E, 352E.

   Effective Summer 2018.

2. Change the requirements for the Bachelor of Music degree in Music Education in the College of Music. The Teacher Education Council (TEC) approved this request at its October 2, 2017 meeting.

   a. Under the heading Requirements for the Bachelor of Music Degree in Music Education make the following changes:

      (1) In item 3. c. (2) (a) make the following change:

      Delete Music 150C, 350C and add Music 152E, 352E.

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

      MUS 252J Voice: Jazz

   Effective Summer 2018.
PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

3. Change the requirements for the Bachelor of Music degree in Music Performance in the College of Music.
   a. Under the heading Requirements for the Bachelor of Music Degree in Music Performance make the following changes:
      (1) In item 3. d. (2) (a) make the following change:
          Delete Music 150C, 350C and add Music 152E, 352E.

      Effective Summer 2018.

4. Change the requirements for the Doctor of Musical Arts degree in Music Conducting in the College of Music. The University Committee on Graduate Studies (UCGS) approved this request at its October 9, 2017 meeting.
   a. Under the heading Requirements for the Doctoral of Musical Arts Degree in Music Conducting make the following changes:
      (1) Replace item 2. with the following:
          Complete a minimum of 3 credits in Music 830 Research Methods and Materials in Music, three courses in music theory at the 800- or 900-level, and at least 6 additional credits of 800- or 900-level courses in music history as specified by the student’s guidance committee.
      (2) Replace item 4. with the following:
          Pass the written comprehensive examinations in musicology and music theory and two examinations related to the student’s area of conducting. One of these will be a take-home examination. The other will be taken on the MSU campus. Students become eligible to take the comprehensive examination in each of these areas during the semester in which they are completing the required course work in that area.

      Effective Spring 2018.

COLLEGE OF VETERINARY MEDICINE

1. Change the requirements for the Preprofessional Program for Veterinary Medicine in the College of Veterinary Medicine.
   a. Under the heading Requirements for the Preveterinary Program make the following changes:
      (1) In item 1. make the following changes:
          (a) Change the total credits from ‘50’ to ‘38’.
          (b) Delete the following courses:
              - ANS 313 Principles of Animal Feeding and Nutrition 4
              - BS 110 Organisms and Populations 4
              - BS 111 Cells and Molecules 3
              - BS 111L Cell and Molecular Biology Laboratory 2
              - MMG 301 Introductory Microbiology 3
              - MMG 302 Introductory Microbiology Laboratory 1
              - MMG 409 Eukaryotic Cell Biology 3
PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

Add the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS 161</td>
<td>Cell and Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BS 162</td>
<td>Organismal and Population Biology</td>
<td>3</td>
</tr>
<tr>
<td>BS 171L</td>
<td>Cell and Molecular Biology Laboratory</td>
<td>2</td>
</tr>
</tbody>
</table>

(2) Replace item 2. with the following:

Upper-level Biology Elective (3-credit minimum): a course selected from cell biology, genetics, histology, immunology, neurobiology, or physiology.

Effective Spring 2018.

2. Change the requirements for the Doctor of Veterinary Medicine degree in Veterinary Medicine in the College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) approved this request at its October 9, 2017 meeting.

a. Under the heading Admission to the Professional Program in Veterinary Medicine make the following changes:

(1) Replace paragraph one with the following:

A new class of students begins the four–year professional program each fall semester. Applications for admission and related materials must be received by the deadline as specified by the Veterinary College Application Service (VMCAS).

(2) Replace paragraph two with the following:

Factors considered by the Admissions Committee in determining an applicant’s relative competitive position are: (1) Academic performance, with a minimum last-3-semester grade point average (GPA) in combination with a minimum prerequisite GPA of 3.0 is required for an application to receive review; (2) file review of non-academic experiences and attributes fitting to the values of the college; and (3) multiple mini interviews, by invitation.

(3) Under the list of Science Prerequisite Courses delete the following:

Genetics
Eukaryotic Cell Biology
Microbiology with laboratory
Animal Nutrition (General or Human Nutrition)

Add the following:

Upper-level Biology (3 credit minimum) such as Cell Biology, Physiology, Neurobiology, Immunology, Genetics, Microbiology, or Histology

(4) In both the Production Medicine Scholars Admission Pathway and Veterinary Scholars Admission Pathway delete the reference to ‘GRE scores’.

b. Under the heading Requirements for the Doctor of Veterinary Medicine Degree in Veterinary Medicine make the following changes:

(1) Under the heading REQUIRED CLERKSHIPS delete the following courses and change the total credits from ‘33’ to ‘30’:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Clerkship Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCS 621</td>
<td>Equine Practice Clerkship</td>
<td>3</td>
</tr>
<tr>
<td>LCS 631</td>
<td>Food Animal Practice Clerkship</td>
<td>3</td>
</tr>
</tbody>
</table>
(2) Under the heading **ELECTIVE CLERKSHIPS** delete the following courses:

- LCS 679 Food Animal Production Medicine I 6
- SCS 655 Clinical Surgical Oncology Clerkship 3

Add the following courses:

- LCS 621 Practice Based Ambulatory Clerkship 3
- LCS 679 Food Animal Production Medicine I 3

Effective Spring 2018.
PART II - NEW COURSES

DEPARTMENT OF ANTHROPOLOGY

ANP 465  Field Methods in Digital Heritage
Summer of even years. 6(6-0) RB: Undergraduate Anthropology Majors; Advanced Undergraduate students in the College of Social Science.
Applied experience in the tools and techniques required to creatively apply digital technology to heritage materials and questions.
Effective Spring 2017

COLLEGE OF ARTS AND LETTERS

AL 883  Practicum in Blended and Online Learning
Fall of every year. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to graduate students. Approval of college.
Build and assess an online course of their choice. Study learning theory and educational technology research, and engage in conversation about online and hybrid courses methods.
Effective Fall 2018

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

BMB 516  Metabolic Biochemistry: Nutrients and Products
Summer of every year. 1 credit. R: Open to students in the College of Osteopathic Medicine. Not open to students with credit in BMB 515 or BMB 527.
Basic biochemical principles and terminology. Overview of metabolism of biomolecules of importance to medical biology and human pathophysiology.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2018

BMB 528  Molecular Biology and Medical Genetics
Fall of every year. 2 credits. R: Open to students in the College of Osteopathic Medicine. Not open to students with credit in BMB 515 or BMB 527. C: PSL 539 concurrently and MMG 531 concurrently and PHM 564 concurrently.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2018

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

HDFS 322L  Interaction and Curriculum for Infants and Toddlers--Laboratory
Fall of every year. Spring of every year. 1(0-2) R: Open to students in the Department of Human Development and Family Studies. C: HDFS 322 concurrently.
Applying principles of interaction to individuals and small groups of infants and toddlers in early childhood settings. Planning developmentally supportive learning opportunities. Supervised practice implementing and evaluating individualized learning opportunities in group care and education settings.
Effective Spring 2018
PART II – NEW COURSES

DEPARTMENT OF INTEGRATIVE BIOLOGY

IBIO 368  Zoo Animal Biology and Conservation
Summer of every year. 3(3-0) Interdepartmental with Animal Science and Fisheries and Wildlife and Landscape Architecture. P: BS 162 or approval of department RB: Previous work in biology Captive animal biology including illustrated examples of care, behavioral welfare and conservation work.
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 Summer 2018

MSU COLLEGE OF LAW

LAW 506J  The Distressed Firm
Spring of every year. 0 to 6 credits. P: LAW 500M R: Open to Law students or law advanced students.
Legal, ethical, and management issues facing a firm in financial or other distress.
Effective Fall 2017

LAW 631R  Animal Welfare Clinic I
Fall of every year. Spring of every year. 0 to 6 credits. P: (LAW 530D or LAW 530E or LAW 530N or LAW 530Q) and LAW 530J R: Open to Law students.
Animal human legal conflicts through direct client representation and systemic advocacy. Engage in litigation, regulatory comments, policy and legislative drafting, and creation of education materials.
Effective Fall 2017

LAW 631S  Animal Welfare Clinic II
Fall of every year. Spring of every year. 0 to 6 credits. P: LAW 631R R: Open to Law students.
Animal human legal conflicts through direct client representation and systemic advocacy. Litigation, regulatory comments, policy and legislative drafting, and creation of education materials.
Effective Fall 2017

LAW 635F  Gaming Law
Fall of odd years. 0 to 6 credits. R: Open to Law students or law advanced students or law lifelong students or law non-degree students.
Tribal, federal, and state regulation of Indian gaming activities. Implementation and evolution of various provisions of the Indian Gaming Regulatory Act (IGRA).
Effective Fall 2017

LAW 810Y  Wine, Beer, and Spirits Laws and Regulations
Spring of even years. 0 to 6 credits. R: Open to Law students or law advanced students or law lifelong students or law non-degree students.
Laws, regulations, and policies that govern alcoholic beverages in the United States.
Effective Fall 2017

DEPARTMENT OF MATHEMATICS

MTH 882  Combinatorics II
Spring of every year. 3(3-0) P: MTH 880
Algebraic combinatorics including symmetric functions, group actions, and cluster algebra, geometric combinatorics including shellability, discrete Morse functions, and polytopes.
Extremal combinatorics including Ramsey Theory and Sperner Theory.
Effective Spring 2019
COLLEGE OF OSTEOPATHIC MEDICINE

OST 556  Pediatrics I
Spring of every year. 1(1-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
Normal growth and development of children from birth to 18 years. Conditions of the nervous, musculoskeletal, endocrine and genitourinary systems that affect children.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring 2018

OST 557  Pediatrics II
Summer of every year. 1(1-0) R: Open to graduate-professional students in the College of Osteopathic Medicine.
Normal structure, function and pathologies of the integumentary, reproductive, and gastrointestinal systems as they relate to children.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2018

OST 558  Pediatrics III
Fall of every year. 1(1-0) R: Open to graduate students in the College of Osteopathic Medicine.
Normal structure, function and pathologies of the behavioral, cardiovascular, hematopoietic and respiratory systems as they relate to the pediatric population. Ethical considerations in pediatrics.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2018

OST 583  Geriatrics
Spring of every year. 1(1-0) R: Open to graduate students in the College of Osteopathic Medicine.
Normal aging, structure, function and pathologies of older persons greater than 65.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring 2019

COLLEGE OF SOCIAL SCIENCE

SSC 399  Service Learning and Civic Engagement: Theory and Practice
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Civic engagement practices and theories. Impact of non-profit organizations, practices of engaged citizenship. Volunteer placements at civic organizations.
Effective Spring 2018
PART III – COURSE CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ANR 410  Integrated Learning Transitions
Fall of every year. Spring of every year. 3(3-0) P: ANR 310 R: Open to juniors or seniors.
Synthesis and analysis of structured experiences in community systems. Personal and interpersonal development, personal and professional integrity, communication competence, and critical and reflective thinking.
Effective Fall 2015 Effective Fall 2017

DEPARTMENT OF ANTHROPOLOGY

ANP 441  Osteology and Forensic Anthropology
Spring of even years. Spring of every year. Abroad. Abroad. Abroad Summer of even years.
Abroad. Abroad. Abroad 4(3-2) P: ANP 206 or CJ 210
Methods of forensic anthropology. Analysis of skeletal remains, forensic pathology, and forensic archaeology.
Effective Fall 2014 Effective Fall 2017

COLLEGE OF ARTS AND LETTERS

DH 285  Introduction to Digital Humanities
Fall of every year. 3(3-0)
Effective Spring 2018 Effective Fall 2017

BIOLOGICAL SCIENCE PROGRAM

BS 181H Honors Cell and Molecular Biology
Spring of every year. 3(3-0) Interdepartmental with Biochemistry and Molecular Biology and Lyman Briggs and Microbiology and Molecular Genetics. P: (CEM 141 or concurrently) or (CEM 151 or concurrently) or (CEM 181H or concurrently) or (LB 171 or concurrently) Not open to students with credit in BS 161 or LB 145. Not open to students with credit in LB 145.
Physicochemical and molecular organization of cells as the unifying framework for genetics, evolution, and the social relevance of biology.
SA: BS 149H, BS 111
Effective Fall 2013 Effective Summer 2018

DEPARTMENT OF FAMILY AND COMMUNITY MEDICINE

FCM 620 Core Family Medicine Clerkship
Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine.
Clinical exposure in the area of family medicine.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment. The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2014 Effective Summer 2018
FCM 621  Family Medicine Specialty Rotation
Fall of every year. Spring of every year. Summer of every year. 1 to 24 credits. A student may earn a maximum of 51 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine.
Clinical exposure in osteopathic family medicine subspecialty rotations. Proficiency in motor skills and aptitudes; comprehension of concepts and principles; patient evaluation; diagnosis; management; therapy.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment. The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2014 Effective Summer 2018

FCM 622  Core Family Medicine Sub-Internship
Fall of every year. Spring of every year. Summer of every year. 1 to 20 credits. A student may earn a maximum of 30 credits in all enrollments for this course. P: FCM 620 R: Open to graduate-professional students in the College of Osteopathic Medicine.
Clinical exposure in osteopathic family medicine. Proficiency in advanced motor skills and aptitudes; comprehension of concepts and principles; patient evaluation; diagnosis; management; therapy.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment. The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2014 Effective Summer 2018

FCM 640  Principles of Family Medicine
Principles of Family Medicine I
Fall of every year. Spring of every year. Summer of every year. 1(0-4) 1 credit. P: OST 553 or concurrently RB: Successful completion of Semesters 1, 2, 3 and 4 of the graduate-professional program in the College of Osteopathic Medicine R: Open to graduate-professional students in the College of Osteopathic Medicine.
Preceptorship experience in family medicine taught by faculty and clinical preceptors at multiple sites through discussion and hands-on experience.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer 2018

FCM 650  Principles of Family Medicine - Intensive
Principles of Family Medicine II
Fall of every year. Spring of every year. Summer of every year. 1(0-40) 1(2-40) A student may earn a maximum of 2 credits in all enrollments for this course. P: OST 553 or concurrently R: Open to graduate-professional students in the College of Osteopathic Medicine.
One-week intensive preceptorship in family medicine. Preceptorship experience in family medicine taught by faculty and clinical preceptors at multiple sites through lecture and hands-on experience. Continuation of FCM 640.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Fall 2015 Effective Summer 2018
DEPARTMENT OF LARGE ANIMAL CLINICAL SCIENCES

LCS 621  Practice Based Ambulatory Clerkship
Fall of every year. Spring of every year. Summer of every year. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.
Supervised, off-campus experience in an assigned veterinary practice. Regular equine and food animal farm calls. After-hours emergencies. Veterinary practice management. Request the use of the Pass-No Grade (P-N) system. Request the use of ET-Extension to postpone grading. The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment. Effective Fall 2016 Effective Summer 2018

MSU COLLEGE OF LAW

LAW 507  Business, Securities, and Tax Planning
Fall of every year. 2 to 4 credits. 0 to 6 credits. P: (LAW 501A or LAW 501B) and LAW 500M P: (LAW 501A or LAW 501B or LAW 501K) and LAW 500M R: Open to students in the MSU College of Law. R: Open to Law students or law advanced students or law lifelong students or law non-degree students in the MSU College of Law.
This course focuses on problems of corporations, partnership organization, allocation control, issuance of securities, use of debt & equity finance, & dividends. Problems of corporations, partnership organization, allocation control, issuance of securities, use of debt, equity finance, and dividends. SA: DCL 440 Effective Spring 2006 Effective Fall 2017

LAW 572D  Tax Policy Seminar
Fall of every year. Spring of every year. 1 to 4 credits. P: (LAW 501A or concurrently) or (LAW 501B or concurrently) R: Open to Law students or master's of law students or law lifelong students or law non-degree students in the MSU College of Law. R: Open to Law students or law advanced students or law lifelong students or law non-degree students in the MSU College of Law.
Tax policy issues arising from federal taxation. SA: DCL 517 Effective Fall 2013 Effective Fall 2017

DEPARTMENT OF MATHEMATICS

MTH 840  Chaos and Dynamical Systems
Spring of every year. 3(3-0) RB: (MTH 441 and MTH 320 and MTH 414) and some experience with mathematical software such as Mathematica or Matlab. Chaotic or random motions in differential and difference equations. DELETE COURSE Effective Summer 2018

MTH 864  Geometric Topology
Spring of every year. 3(3-0) RB: MTH 421 Topology of surfaces and higher dimensional manifolds, studied from combinatorial, algebraic or differential viewpoints. SA: MTH 464 DELETE COURSE Effective Summer 2018
MTH 880  **Combinatorics**  
Combinatorics I  
Fall of every year. 3(3-0) RB: MTH 411 or MTH 482  
Enumerative combinatorics, recurrence relations, generating functions, asymptotics, applications to graphs, partially ordered sets, generalized Moebius inversions, combinatorial algorithms.  
**Effective Fall 1995 Effective Fall 2018**

MTH 881  **Graph Theory**  
Graph Theory  
Spring of every year. Spring of even years. 3(3-0) RB: MTH 880  
Graph theory, connectivity, algebraic and topological methods. Networks, graph algorithms, Hamiltonian and Eulerian graphs, extremal graph theory, random graphs.  
Basic concepts in graph theory, connectivity, algebraic and topological methods. Networks, graph algorithms, Hamiltonian and Eulerian graphs, extremal graph theory, random graphs.  
**Effective Fall 1995 Effective Fall 2018**

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**DEPARTMENT OF MILITARY SCIENCE**

MS 210  Values and Ethics of Army Leaders  
Values and Ethics of Army Leaders  
Fall of every year. 1 to 2 credits. 2 to 3 credits. RB: MS 120 and MS 110  
Application of military case studies. Critical dilemmas in combat situations and the ethical decisions Army leaders make to ensure mission success. Understanding how to improve Army organizations and soldier performance. Introduction to the Army’s leadership development program, battle drills, land navigation, and combat decision making.  
SA: MS 201, MS 201A  
**Effective Fall 2015 Effective Summer 2018**

MS 220  Challenges in Army Leadership  
Challenges in Army Leadership  
Army Doctrine and Team Development  
Spring of every year. 1 to 2 credits. 2 to 3 credits. RB: MS 110 or MS 120 or MS 210  
Application of military case studies. Recognizing challenging situations for military leaders and units. Applying sound ethical leadership practices to implement decisions. Understanding basic military small unit tactics. Application of Army doctrine to field-based leadership decisions. Army values, teamwork, and warrior ethos in relationship to the law of land warfare and philosophy of military service. Investigation of leading and following using case studies and exercises in small units up to squad-level.  
SA: MS 202A, MS 202B  
**Effective Fall 2015 Effective Summer 2018**

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**COLLEGE OF MUSIC**

MUS 177  Principles of Music Education I  
Principles of Music Education I  
Fall of every year. Spring of every year. 2(2-1)  
Historical foundations, current trends, and teaching responsibilities in music education at all curricular levels.  
SA: MUS 260  
**Effective Summer 2017 Effective Summer 2018**

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**COLLEGE OF NATURAL SCIENCE**

NSC 102  Preprofessional Freshman Seminar  
Preprofessional Freshman Seminar  
Fall of every year. Spring of every year. 1(1-0) R: Open to freshmen or approval of department. R: Open to freshmen in the Predental Major or in the Premedical Major or in the Preoptometry Major or approval of department.  
Overview of human health care professions with emphasis on academic and nonacademic undergraduate preparation, campus resources, communication and computer skills, and collaborative learning.  
**Effective Fall 2014 Effective Fall 2018**
PROGRAM IN NEUROSCIENCE

NEU 302  Introduction to Neuroscience II
Spring of every year. 3(3-0) P: NEU 301 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 brain-based behavioral and cognitive systems and related human diseases.
Effective Fall 2014 Effective Spring 2018

NEU 420  Neurobiology of Disease
Spring of every year. 3(3-0) P: NEU 301 and NEU 302 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.
Genetic, molecular, cellular, systems, and behavioral abnormalities that contribute to the manifestation of neurologic and psychiatric diseases and disorders that affect the nervous system.
Effective Fall 2014 Effective Spring 2018

DEPARTMENT OF PEDIATRICS

PED 600  Core Pediatrics Clerkship
Fall of every year. Spring of every year. Summer of every year. 1 to 18 credits. A student may earn a maximum of 24 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine.
Practical clinical exposure in the area of pediatrics.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment.
Effective Summer 2014 Effective Summer 2018

PED 601  Pediatrics Specialty Clerkship
Fall of every year. Spring of every year. Summer of every year. 3 to 24 credits. A student may earn a maximum of 24 credits in all enrollments for this course. R: Open to graduate-professional students in the College of Osteopathic Medicine.
Clinical exposure in specialties of Pediatrics. Proficiency in motor skills and aptitudes; comprehension of concepts and principles; patient evaluation; diagnosis; management; therapy.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment.
Effective Spring 2014 Effective Summer 2018

SCHOOL OF PLANNING, DESIGN AND CONSTRUCTION

UP 424  Geographic Information Systems and Design Tools for Planning
Fall of every year. Spring of every year. 3(0-3) R: Open to students in the Master in Urban and Regional Planning or in the Urban and Regional Planning major or in the Bachelor of Landscape Architecture and open to students in the Environmental Design major.
Introduction to geographic information systems and its applicability to planning. Methods and techniques for analyzing land use planning issues.
Effective Fall 2013 Effective Spring 2018
PART III – COURSE CHANGES

UP 478  Urban Transportation Planning  
Fall of every year, Spring of every year. 3(3-0) Interdepartmental with Geography. R: Open to juniors or seniors in the Geography Major or in the Urban and Regional Planning Major or approval of school. 
Principles of decision-making in urban transportation planning. Demand and supply analysis, social and environmental impacts, implementation programs. Use of computer models.  
Effective Fall 2013 Effective Spring 2018

UP 488  The Sustainable and Climate Resilient City  
Fall of every year. Fall of every year. 3(3-0) R: Open to students or seniors in the Urban and Regional Planning Major or approval of school. Not open to students with credit in UP 888. 
Multidisciplinary research in sustainability and climate resilience of urban places. Characteristics of sustainable and resilient cities, comparative analysis, and international perspective.  
Effective Fall 2014 Effective Spring 2018

UP 801  Concepts and Issues in Planning and Development  
Fall of every year. Summer of every year. 4(4-0) 
Urban and regional planning and development. History of the planning profession. Current urban issues and planning approaches.  
Effective Summer 2016 Effective Spring 2018

UP 824  Geographic Information Systems and Design Tools for Planning  
Fall of every year. Spring of every year. 3(0-3) R: Open to graduate students in the Master in Urban and Regional Planning or approval of school. 
Introduction to geographic information systems and its applicability to planning. Methods and techniques for analyzing land use and planning issues.  
Effective Fall 2015 Effective Spring 2018

UP 844  Planning Theory and Ethics  
Fall of every year. Spring of every year. 3(3-0) RB: UP 801 
The planning and development process. Decision making in a political context. Professional ethics and practice. Gender, class, race and ethnicity in relationship to planning and development.  
Effective Summer 2012 Effective Spring 2018

UP 854  Economics of Planning and Development  
Fall of every year. Spring of every year. 4(4-0) RB: UP 801 
Physical urban environment and local economic development.  
Effective Fall 2016 Effective Spring 2018

UP 855  Urban Sustainability and Climate Change  
Fall of even years. Spring of odd years. 3(3-0) R: Open to master's students in the Master in Urban and Regional Planning or approval of school. Not open to students with credit in UP 455. 
Urban sustainability in the context of the global climate change, tools for sustainability planning, adaptation to climate change, risk and vulnerability in different climate zones  
Effective Spring 2014 Effective Spring 2018

UP 865  Planning and Development Law  
Fall of every year. Spring of every year. 3(3-0) RB: UP 801 
 Constitutional and statutory bases for planning and development. Effects of case law on design, administration, and implementation of regulations.  
Effective Summer 2005 Effective Spring 2018

UP 894  Planning Practicum  
Fall of every year. Spring of every year. 4(0-8) RB: (UP 801 and UP 823 and UP 865) and Second-year masters student in Urban and Regional Planning. R: Open only to master's students in the Urban and Regional Planning Major. R: Open to master's students in the Urban and Regional Planning Major. 
Professional practice in the collection, analysis and synthesis of information by students or student groups under faculty supervision. Developing solutions to specific urban problems. SA: UP 894A, UP 894B  
Effective Summer 2005 Effective Spring 2018
DEPARTMENT OF PLANT BIOLOGY

PLB 441  Plant Ecology
Fall of every year. 3(3-0) P: (BS 162 or LB 144 or ZOL 355 or BS 182H) and completion of Tier I writing requirement P: (BS 162 or LB 144 or IBIO 355 or BS 182H) and completion of Tier I writing requirement
SA: BOT 441
Effective Fall 2014 Effective Fall 2017

DEPARTMENT OF THEATRE

THR 492  Senior Seminar  (W)
Fall of every year. 3(2-2) P: Completion of Tier I Writing Requirement R: Open to seniors in the Bachelor of Arts Theatre major. R: Open to seniors in the Department of Theatre.
Preparation for a career as theatre professional, encompassing topics in contemporary theatre, dance, performance theory and practice.
Effective Fall 2015 Effective Fall 2017

COLLEGE OF VETERINARY MEDICINE

VM 611  Veterinary Externship
Fall of every year. Spring of every year. Summer of every year. 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. A student may earn a maximum of 18 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.
Clinical or research experience in an off-campus setting.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Summer 2013 Effective Summer 2018