

The University of Kansas  
College of Liberal Arts & Sciences  
**COMMITTEE ON UNDERGRADUATE STUDIES & ADVISING**

**AGENDA**

February 14, 2012, 11:00AM  
STRONG HALL – ROOM 210

- I. Approval of CUSA Minutes from January 24, 2012
- II. Chair's Report
- III. Dean's Office Report
- IV. CLA&S Student Academic Services Report
- V. Subcommittee Chair Reports

A. Advising & Awards

- 1. College Scholarships

B. Curricular Changes/Degree Requirements

1. Curricular Changes for Approval:

NEW COURSES: EALC 121, EALC 564, KOR 562, KOR 564, LING 451

CHANGES: BIOL 661, CHIN 106, ITAL 107, ITAL 108, ITAL 110, ITAL 120,  
ITAL 155, ITAL 156, ITAL 230, ITAL 240, ITAL 300, ITAL 315,  
VAE 497, VAE 500

DELETIONS: BIOL 660,

Curricular Changes Motion to File: NONE

Chemistry Course Changes for Approval:

NEW COURSES: CHEM, 170, CHEM 175

CHANGES: ATOM 525, BIOL 150, BIOL 151, BIOL 408, BIOL 416, BIOL 426, BIOL 594, BIOL  
636, BIOL 656, BIOL 662, CHEM 184-CHEM 130, CHEM 185-CHEM190, CHEM  
188-CHEM 135, CHEM 189-CHEM 195, CHEM 516-CHEM 620, CHEM 517-CHEM  
621, CHEM 622-CHEM 210, CHEM 624-CHEM 230, CHEM 625-CHEM 231, CHEM  
626-CHEM 235, CHEM 627-CHEM 236, CHEM 628-CHEM 280, CHEM 630-CHEM  
285, CHEM 635, CHEM 636, CHEM 640-CHEM 510, CHEM 641-511, CHEM 646-  
CHEM 530, CHEM647-CHEM 531, CHEM 648-CHEM 535, CHEM 649-CHEM 536,  
CHEM 667-CHEM 660, CHEM 668-CHEM 661, EVRN 335, EVRN 535, EVRN 538,  
EVRN 611, EVRN 656, GEOG 335, GEOG 535, GEOG 538, GEOL 311, GEOL 312

DELETIONS:

2. Degree Requirements for Approval:

- a. Change to Existing BA in Geology-Environmental Geology option (related to BIOL 660/661 change)

**Old Business**

- a. Discussion of degree specific general education requirements in the College, especially as they relate to the first three goals (FYI University goal is 36 hours or fewer required at University level)

C. Academic Standards Report

VI. New Business

Discussion topics from December 13, 2011 Special Meeting (standing agenda item)  
College Degree Specific Requirements (this will be a standing agenda item)

**COMMITTEE ON UNDERGRADUATE STUDIES AND ADVISING**  
Minutes of the Meeting for January 24, 2012

The committee met on Tuesday, January 24, 2012, at 11:00 a.m. in Room 210 Strong Hall. The following were present: Bradley, Burright, Childers, Conrad, Corbeill, Crosby, DeBoer, Fischer, Goldstein, Gray, Hurst, Jackson, Ledom, Neidert, Purnaprijna, Pye, Vanchena  
Bayer (guest) Hulse (guest)

**MINUTES** A motion was made to approve the December 13, 2011 minutes.

**CHAIR'S REPORT** Professor Fischer introduced Marge Bayer, Associate Chair of Mathematics, for discussion of the general education requirements for math. Professor Bayer gave a brief background of the math requirements stating that the requirements as they stand now for the BA and BGS in the College have been in place since the mid-80's. Students have to have college level algebra and the second level math requirement which does not have to be a course within the mathematics department. She states that a significant number of students who come to KU are not ready for college algebra; about 1,200-1,300 students a year are in Math 002 (intermediate algebra). Karen Ledom interjected that several years ago Admissions started sending out a friendly reminder letter based on the student's ACT score and encouraging students who may not be prepared for Math 101 to take Math 002 elsewhere before the semester begins.

Professor Bayer mentioned that the math part of the Regents Transfer and Articulation policy specifies that the three hours of college level math could be college algebra and/or elementary statistics. The math department has an elementary statistics course numbered 365 although they are working on lowering that number to be more realistic, but it does have a college algebra prerequisite. One issue that needs consideration is that some schools offer an elementary statistics course without a college algebra prerequisite which is not realistic. Students need the competency in abstract thinking and symbolic manipulation that they gain in a college algebra course in order to be successful in an elementary statics course. She believes a statistics course should not be a replacement for college algebra, but states a college algebra requirement should be kept for graduation.

**DEAN'S OFFICE REPORT** Associate Dean Goldstein had nothing to report at this time.

**CLA&S STUDENT ACADEMIC SERVICES REPORT** Ms. Ledom reported on additional vacancies in the Student Academic Services office.

**SUBCOMMITTEE CHAIR REPORTS**

A. **ADVISING & AWARDS**

Mr. Crosby reported that Sandra Gray is the new Advising & Awards Sub-Committee Chair. He also discussed No Major Declared at 90 Hours Hold and ways to encourage students to declare a major. The 2011-2012 Award for Excellence in Undergraduate Advising was awarded to the Atmospheric Science Program.

B. **CURRICULAR CHANGES/DEGREE REQUIREMENTS**

Professor Conrad presented the following:

1. **Curricular Changes for Approval**

NEW COURSES APPROVED:	HA 311, HA 390, HA 391, HA 393, HA 394, HA 395, HA 396, HA 397, HA 590, HA 591, HA 593, HA 594, HA 595, HA 596, HA 597, LING 442
NEW COURSES TABLED:	HA 392, HA 592
CHANGES APPROVED:	CHIN 204, PHSX 213
CHANGED TABLED:	ANTH 293, HA 592, REL 130
DELETIONS APPROVED:	HA 535, HA 604, HA 615, HA 675, EXM 539, PRNT 579, SCUL 559

2. **Degree Requirements for Approval**

APPROVED:

Change to Existing History of Art Minor  
Change in Existing Major for Latin American Studies  
Creation of Departmental Honors in Latin American Studies  
Change in Existing Bachelor of Art Education Major,  
Change to Existing Major in Anthropology

C. ACADEMIC STANDARDS

No report at this time.

**NEW BUSINESS** Standing discussion of general education requirements. Professor Fischer will generate and distribute a survey to the Foreign Language department asking for their feedback on course requirements, what is required for core level competency, how to define proficiency in the department and how they evaluate outcomes.

The meeting was adjourned at 12:34 p.m.

A. Advising & Awards

1. Report on meeting with Kristi Henderson from the Dean's Office regarding College Scholarships

B. Curricular Changes/Degree Requirements

1. Curricular Changes for Approval/Motion to File

BIOLOGY

CHANGE: DELETE COURSE

BIOL 660 LAKE ECOLOGY 3 N

An introduction to the biological, chemical, and physics processes that characterize ponds, lakes, and reservoirs. Discussion of current research papers. Prerequisite: General ecology (BIOL 414 or equivalent) or permission of instructor. LEC

An introduction to the biological, chemical, and physics processes that characterize ponds, lakes, and reservoirs. Discussion of current research papers. Prerequisite: General ecology (BIOL 414 or equivalent) or permission of instructor. LEC

CHANGE: COURSE DESCRIPTION TITLE PREREQUISITE

BIOL 661 STREAM ECOLOGY 3 N

(OLD) Population, community, and ecosystem ecology of flowing water habitats from ephemeral creeks to great rivers. The course emphasizes biological phenomena, but physical and chemical processes are discussed. Prerequisite: BIOL 414 or equivalent, or consent of instructor. Concurrent enrollment in Stream Ecology Laboratory. BIOL 668 is recommended. LEC

BIOL 661 ECOLOGY OF RIVERS AND LAKES 3 N

(NEW) Study of the ecology and structure of creeks, rivers, ponds, lakes, and wetlands as well as some of the major human impacts. Prerequisite: One year of biology or permission of the instructor. BIOL 414 recommended.

EAST ASIAN LANGUAGES & CULTURES

CHANGE: COURSE DESCRIPTION CREDIT TITLE

CHIN 106 BEGINNING CHINESE II 5 H

(OLD) Continuation of CHIN 102. Takes students through the end of CHIN 104 and the first half of CHIN 108. LEC

CHIN 106 ELEMENTARY CHINESE FOR ADVANCED BEGINNERS 3 H

(NEW) This course is designed for students who have already acquired some elementary Chinese language abilities (in high school or from family), but cannot be placed in CHIN 108, Elementary Chinese II. The course focuses on perfecting listening, speaking, reading and writing skills, and prepares students for CHIN 108. For admission to the class, students must take the EALC Chinese placement exam, be interviewed by designated instructors, and approved.

CHANGE: NEW COURSE

EALC 121 INTRODUCTION TO CONTEMPORARY CHINA 3 H

An overview of contemporary Chinese culture and society since the economic reforms and opening up launched in 1978, through the study of changes in politics, the economy, society, culture and everyday life in China. The course is taught in English. No prior knowledge of Chinese language is required.

CHANGE: NEW COURSE

EALC 564 MODERN KOREAN CULTURE AND SOCIETY 3 H

This course examines the history, society, values, and political economy of Korea in its East Asian and global context. The course uses a multi-disciplinary approach, including history, ethnography, fiction and film. Prerequisite: an introductory course in East Asian studies, or permission of instructor.

CHANGE: NEW COURSE

KOR 562 MODERN KOREAN TEXTS I 1-5 H  
Reading and analysis of modern or contemporary texts from various fields. Includes oral discussion and written essays. Prerequisite: KOR 508 or equivalent.

CHANGE: NEW COURSE

KOR 564 MODERN KOREAN TEXTS II 1-5 H  
Continuation of KOR 562. Reading and analysis of modern or contemporary texts from various fields. Includes oral discussion and written essays. Prerequisite: KOR 562

FRENCH & ITALIAN

CHANGE: COURSE DESCRIPTION

ITAL 107 ELEMENTARY ITALIAN CONVERSATION I 3 U  
(OLD) Offers knowledge of essential grammar and basic oral communication skills through practice in grammar, listening comprehension, and conversation. Active participation required. Strongly recommended for students with no previous study of a foreign language and minimal linguistic background as well as for students in professional schools who plan to participate in study abroad programs in Italy. Completion of both ITAL 107 and ITAL 108 is equivalent to ITAL 110 and allows students to enroll in ITAL 120. LEC

ITAL 107 ELEMENTARY ITALIAN CONVERSATION I 3 U  
(NEW) First part of a two-course sequence (with 108) for students with no previous study of a foreign language and minimal linguistic background as well as for students in professional schools who plan to participate in study abroad programs in Italy. Offers knowledge of essential grammar and basic oral communication skills through practice in grammar, listening comprehension, and conversation. Active participation required. Completion of both ITAL 107 and ITAL 108 is equivalent to ITAL 110 and allows students to enroll in ITAL 120. LEC

CHANGE: COURSE DESCRIPTION

ITAL 108 ELEMENTARY ITALIAN CONVERSATION II 3 U  
(OLD) A continuation of ITAL 107. Completion of both ITAL 107 and ITAL 108 is equivalent to ITAL 110 and allows students to enroll in ITAL 120. Prerequisite: ITAL 107 or Italian Coordinator's approval. LEC

ITAL 108 ELEMENTARY ITALIAN CONVERSATION II 3 U  
(NEW) A continuation of ITAL 107, second part of a two-course sequence for students with no previous study of a foreign language and minimal linguistic background as well as for students in professional schools who plan to participate in study abroad programs in Italy. Offers knowledge of essential grammar and basic oral communication skills through practice in grammar, listening comprehension, and conversation. Active participation required. Completion of both ITAL 107 and ITAL 108 is equivalent to ITAL 110 and allows students to enroll in ITAL 120. Prerequisite: ITAL 107 or Italian Coordinator's approval. LEC

CHANGE: COURSE DESCRIPTION

ITAL 110 ELEMENTARY ITALIAN I 5 U  
(OLD) Five hours of class. Essentials of grammar and composition, easy reading, practice in pronunciation and speaking. LEC Prerequisite:

ITAL 110 ELEMENTARY ITALIAN I 5 U  
(NEW) Introduction to Italian language and culture. Essentials of grammar and practice in speaking, understanding, reading, and writing. Active participation required. Five hours of class per week. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE

ITAL 120 ELEMENTARY ITALIAN II 5 U  
(OLD) Five hours of class. Reading of simple texts; diction; speaking; elementary composition. Prerequisite: ITAL 110. LEC

ITAL 120 ELEMENTARY ITALIAN II 5 U

(NEW) A continuation of ITAL 110. Introduction to Italian language and culture. Essentials of grammar and practice in speaking, understanding, reading, and writing. Active participation required. Five hours of class per week. Prerequisite: ITAL 110, ITAL 155, or ITAL 108. LEC

CHANGE: COURSE DESCRIPTION TITLE

ITAL 155 INTENSIVE BASIC ITALIAN 3 U

(OLD) Part of accelerated two-course sequence (with 156) for students with previous language study or strong linguistic background. Offers a basic reading and/or speaking knowledge of Italian through practice in pronunciation, grammar, translating, and writing. Double-track course is offered both to students who want a basic, passive reading/translating knowledge and an active knowledge of Italian. Prerequisite: Previous study of another language or permission of instructor. LEC Part of accelerated two-course sequence (with 156) for students with previous language study or strong linguistic background. Offers a basic reading and/or speaking knowledge of Italian through practice in pronunciation, grammar, translating, and writing. Double-track course is offered both to students who want a basic, passive reading/translating knowledge and an active knowledge of Italian. Prerequisite: Previous study of another language or permission of instructor. LEC

ITAL 155 INTENSIVE BASIC ITALIAN I 3 U

(NEW) First part of a two-course sequence (with 156) for students with previous language study or strong linguistic background. Same content as ITAL 110 but accomplished in three hours of class per week. Active participation required. Prerequisite: Previous study of another language or permission of instructor. LEC

CHANGE: COURSE DESCRIPTION

ITAL 156 INTENSIVE BASIC ITALIAN II 3 U

(OLD) A continuation of ITAL 155. Study of grammar and emphasis on reading skills. Prerequisite: ITAL 155 or permission of instructor. LEC

ITAL 156 INTENSIVE BASIC ITALIAN II 3 U

(NEW) A continuation of ITAL 155, second part of a two-course sequence for students with previous language study or strong linguistic background. Same content as ITAL 120 but accomplished in three hours of class per week. Active participation required. Prerequisite: ITAL 155 or permission of instructor. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE

ITAL 230 INTERMEDIATE ITALIAN I 3 U

(OLD) Intensive and extensive reading of modern texts; vocabulary, idioms, and discussion in Italian of texts. Review of grammar. Prerequisite: ITAL 120. LEC

ITAL 230 INTERMEDIATE ITALIAN I 3 U

(NEW) Review and expansion of grammatical structures introduced in Elementary Italian I and II, with continued practice in speaking, understanding, reading, and writing, coordinated with the study of cultural texts. Active participation required. Prerequisite: ITAL 120 or ITAL 156. LEC

CHANGE: COURSE DESCRIPTION

ITAL 240 INTERMEDIATE ITALIAN II 3 U

(OLD) Continuation of ITAL 230. (ITAL 240 completes foreign language requirement.) Prerequisite: ITAL 230. LEC

ITAL 240 INTERMEDIATE ITALIAN II 3 U

(NEW) Continuation of ITAL 230. (ITAL 240 completes foreign language requirement.) Review and expansion of grammatical structures introduced in Elementary Italian I and II, with continued practice in speaking, understanding, reading, and writing, coordinated with the study of cultural texts. Active participation required. Prerequisite: ITAL 230. LEC

CHANGE: COURSE DESCRIPTION

ITAL 300 COMPOSITION AND CONVERSATION 3 H

(OLD) A complete review of Italian grammar and usage for the advanced student. Compositions, conversation, and supportive readings in Italian. Prerequisite: ITAL 240 or permission of instructor. LEC

ITAL 300 COMPOSITION AND CONVERSATION 3 H

(NEW) Study of advanced grammatical structures with extensive practice in writing and conversation. Guided discussions on a variety of contemporary Italian literary, journalistic, and cinematic works. Active participation required. Prerequisite: ITAL 240 or permission of instructor. LEC

CHANGE: COURSE DESCRIPTION

ITAL 315 ADVANCED COMPOSITION AND CONVERSATION 3 H  
(OLD) Intensive review of grammar and usage for advanced students. Compositions, conversation, and advanced readings in Italian. Prerequisite: ITAL 300 or permission of department. LEC

ITAL 315 ADVANCED COMPOSITION AND CONVERSATION 3 H  
(NEW) Continuation of ITAL 300. Study of advanced grammatical structures with extensive practice in writing and conversation. Guided discussions on a variety of contemporary Italian literary, journalistic, and cinematic works. Active participation required. Prerequisite: ITAL 300 or permission of instructor. LEC

LINGUISTICS

CHANGE: NEW COURSE

LING 451 TOPICS IN RESEARCH IN ACQUISITION AND PROCESSING: \_\_\_\_\_ 3 H  
This course is primarily intended for students actively engaged in linguistic research on language acquisition, language processing, and neurolinguistics. Students in this course present and discuss study design, methods, data analysis and interpretation of results for their research projects. Professional development topics such as CV development, applications for fellowships, grants and jobs, and the dissemination of research findings are also discussed. May be repeated. Prerequisite: Permission of instructor. SEM

VISUAL ART

CHANGE: CREDIT

VAE 497 INDEPENDENT STUDY 1-2 H  
(OLD) Only one enrollment permitted each semester; a maximum of four hours will apply toward the bachelor's degree. Prerequisite: Recommendation of adviser and consent of instructor. IND

VAE 497 INDEPENDENT STUDY 1-3 H  
(NEW) Only one enrollment permitted each semester; a maximum of four hours will apply toward the bachelor's degree. Prerequisite: Recommendation of adviser and consent of instructor. IND

CHANGE: CREDIT

VAE 500 STUDENT TEACHING 1-6 H  
(OLD) A supervised teaching experience in an approved school setting, with level and subject area to be selected according to the teaching field. Prerequisite: Admission to the student teaching program. FLD  
Prerequisite:

VAE 500 STUDENT TEACHING 6 H  
(NEW) A supervised teaching experience in an approved school setting, with level and subject area to be selected according to the teaching field. Prerequisite: Admission to the student teaching program. FLD

Chemistry Course Changes for Approval:

ATMOSPHERIC SCIENCE

CHANGE: PREREQUISITE

ATMO 525 AIR POLLUTION METEOROLOGY 3 S  
(OLD) A study of background levels and concentrated sources of atmospheric pollution together with considerations of pollution buildup in urban areas as related to particular weather conditions. Inadvertent weather modifications and effects of atmospheric pollution on particular weather events and general climate will be discussed. Prerequisite: ATMO 105, MATH 121, EECS 138 and CHEM 184.

ATMO 525 AIR POLLUTION METEOROLOGY 3 S

(NEW) A study of background levels and concentrated sources of atmospheric pollution together with considerations of pollution buildup in urban areas as related to particular weather conditions. Inadvertent weather modifications and effects of atmospheric pollution on particular weather events and general climate will be discussed. Prerequisite: ATMO 105, MATH 121, EECS 138 and CHEM 130 or equivalent.

## BIOLOGY

### CHANGE: PREREQUISITE

BIOL 150 PRINCIPLES OF MOLECULAR AND CELLULAR BIOLOGY 4 N

(OLD) An integrated lecture and laboratory course for biology majors and students planning to take additional courses in biology. This course cover basic biochemistry, cell structure and function, molecular biology, genetics, physiology, and development of plants and animals. Three hours of lecture and two hours of laboratory per week. An honors section (BIOL 151) is offered for students with superior academic records. Prerequisite: Concurrent or prior enrollment in CHEM 184, or consent of instructor.

BIOL 150 PRINCIPLES OF MOLECULAR AND CELLULAR BIOLOGY 4 N

(NEW) An integrated lecture and laboratory course for biology majors and students planning to take additional courses in biology. This course cover basic biochemistry, cell structure and function, molecular biology, genetics, physiology, and development of plants and animals. Three hours of lecture and two hours of laboratory per week. An honors section (BIOL 151) is offered for students with superior academic records. Prerequisite: Concurrent or prior enrollment in CHEM 130, or consent of instructor.

### CHANGE: PREREQUISITE

BIOL 151 PRINCIPLES OF MOLECULAR AND CELLULAR BIOLOGY, HONORS 4 N

(OLD) An integrated lecture and laboratory course for students with superior academic records who are biology majors or who plan to take additional courses in biology. This course covers basic biochemistry, cell structure and function, molecular biology, genetics, physiology, and development of plants and animals. Three hours of lecture and two hours of laboratory per week. Concurrent or prior enrollment in CHEM 184 is recommended. Prerequisite: Membership in the University Honors Program or permission of instructor.

BIOL 151 PRINCIPLES OF MOLECULAR AND CELLULAR BIOLOGY, HONORS 4 N

(NEW) An integrated lecture and laboratory course for students with superior academic records who are biology majors or who plan to take additional courses in biology. This course covers basic biochemistry, cell structure and function, molecular biology, genetics, physiology, and development of plants and animals. Three hours of lecture and two hours of laboratory per week. Prerequisite: concurrent or prior enrollment in CHEM 130 and membership in the University Honors Program, or consent of instructor.

### CHANGE: PREREQUISITE

BIOL 408 PHYSIOLOGY OF ORGANISMS 3 N

(OLD) A comprehensive and integrative approach to the study of organisms with an emphasis on physiological, ecological, structural, and behavioral adaptations to differing environments. Prerequisite: BIOL 152, or BIOL 153, and CHEM 184, or consent of the instructor.

BIOL 408 PHYSIOLOGY OF ORGANISMS 3 N

(NEW) A comprehensive and integrative approach to the study of organisms with an emphasis on physiological, ecological, structural, and behavioral adaptations to differing environments. Prerequisite: BIOL 152, or BIOL 153, and CHEM 130, or consent of the instructor.

### CHANGE: PREREQUISITE

BIOL 416 CELL STRUCTURE AND FUNCTION 3 N

(OLD) Lecture survey of molecular cell biology with emphasis on experimental approaches to understanding cell function; topics include biological membranes and transmembrane transport, vesicular trafficking (secretion and endocytosis), cell signaling, cell motility and the cytoskeleton, and the regulation of the cell division cycle. Prerequisite: BIOL 150, BIOL 350, CHEM 184 and CHEM 188, or consent of the instructor.

BIOL 416 CELL STRUCTURE AND FUNCTION 3 N

(NEW) Lecture survey of molecular cell biology with emphasis on experimental approaches to understanding cell function; topics include biological membranes and transmembrane transport, vesicular trafficking (secretion and endocytosis), cell signaling, cell motility and the cytoskeleton, and the regulation of the cell division cycle. Prerequisite: BIOL 150, BIOL 350, CHEM 130 and CHEM 135, or consent of the instructor.

CHANGE: PREREQUISITE

BIOL 426 LABORATORY IN CELL BIOLOGY 3 N

(OLD) Laboratory exercises will examine the function, organization, and composition of eukaryotic cells. Prerequisite: BIOL 150 and CHEM 184, concurrent or prior enrollment in BIOL 416, or consent of the instructor. BIOL 350 is highly recommended. Prerequisite:

BIOL 426 LABORATORY IN CELL BIOLOGY 3 N

(NEW) Laboratory exercises will examine the function, organization, and composition of eukaryotic cells. Prerequisite: BIOL 150 and CHEM 130, concurrent or prior enrollment in BIOL 416, or consent of the instructor. BIOL 350 is highly recommended.

CHANGE: PREREQUISITE

BIOL 594 FOREST ECOSYSTEMS 3 N

(OLD) Students learn basic concepts of forest productivity, forest water relations, forest hydrology, nutrient cycling, through soils and vegetation, nutrient uptake, carbon cycling, decomposition, linkages to aquatic ecosystems, and agents of disturbance to these cycles. The class spends a significant part of the semester exploring forest soil profiles and the challenges they present to different forest ecosystems. We discuss the function of forested ecosystems in a global context and identify and understand smaller-scale processes that drive forest function. Prerequisite: CHEM 188 and BIOL 414.

BIOL 594 FOREST ECOSYSTEMS 3 N

(NEW) Students learn basic concepts of forest productivity, forest water relations, forest hydrology, nutrient cycling, through soils and vegetation, nutrient uptake, carbon cycling, decomposition, linkages to aquatic ecosystems, and agents of disturbance to these cycles. The class spends a significant part of the semester exploring forest soil profiles and the challenges they present to different forest ecosystems. We discuss the function of forested ecosystems in a global context and identify and understand smaller-scale processes that drive forest function. Prerequisite: CHEM 135 and BIOL 414.

CHANGE: PREREQUISITE

BIOL 636 BIOCHEMISTRY I 3 N

(OLD) First semester of a two-semester lecture course in introductory biochemistry. Emphasis upon the physical structure of macromolecules and membranes, enzyme structure/function, and enzyme kinetics. Prerequisite: CHEM 626 or consent of instructor.

BIOL 636 BIOCHEMISTRY I 3 N

(NEW) First semester of a two-semester lecture course in introductory biochemistry. Emphasis upon the physical structure of macromolecules and membranes, enzyme structure/function, and enzyme kinetics. Prerequisite: CHEM 235 or consent of instructor.

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

BIOL 656 ECOSYSTEM ECOLOGY 3 N

(OLD) An introduction to the patterns and processes that affect terrestrial ecosystems. Emphasis is placed on understanding nutrient cycles (e.g., carbon nitrogen phosphorous), hydrologic cycles, and patterns of net primary productivity. The role of both natural and anthropogenic disturbances in structuring terrestrial ecosystems is examined in the context of global land-use patterns. Discussion of current research literature will be expected. (Same as EVRN 656.) Prerequisite: BIOL 414 and CHEM 184.

BIOL 656 ECOSYSTEM ECOLOGY 3 N

(NEW) An introduction to the patterns and processes that affect terrestrial ecosystems. Emphasis is placed on understanding nutrient cycles (e.g., carbon nitrogen phosphorous), hydrologic cycles, and patterns of net primary productivity. The role of both natural and anthropogenic disturbances in structuring terrestrial ecosystems is examined in the context of global land-use patterns. Discussion of current research literature will be expected. (Same as EVRN 656.) Prerequisite: BIOL 414 and CHEM 130.

CHANGE: PREREQUISITE

BIOL 662 AQUATIC ECOLOGY LABORATORY 2 N  
(OLD) A field and laboratory course introducing biological, physical, and chemical characteristics of lentic (ponds and lakes) and lotic (creeks and rivers) habitats. Students learn sampling and monitoring techniques and how to classify aquatic biota at higher taxonomic levels. Co- or prerequisite: CHEM 184 and either BIOL 660 or 661.

BIOL 662 AQUATIC ECOLOGY LABORATORY 2 N  
(NEW) A field and laboratory course introducing biological, physical, and chemical characteristics of lentic (ponds and lakes) and lotic (creeks and rivers) habitats. Students learn sampling and monitoring techniques and how to classify aquatic biota at higher taxonomic levels. Co- or prerequisite: CHEM 130 and either BIOL 660 or 661.

CHEMISTRY

CHANGE: NEW COURSE

CHEM 170 CHEMISTRY FOR THE CHEMICAL SCIENCES I 5 N  
The first course in a two-course sequence focused on the principles and applications of modern chemistry. This integrated lecture and laboratory course is designed for students pursuing or considering a major in one of the chemical sciences (chemistry, biochemistry, chemical engineering or petroleum engineering). The CHEM 170/175 course sequence covers the same general topics as CHEM 130/135, but with an increased emphasis on modern applications of chemistry. Students with credit in CHEM 125 will have two hours added on to their total number of hours required for graduation. Prerequisite: eligibility for MATH 115. LEC

CHANGE: NEW COURSE

CHEM 175 CHEMISTRY FOR THE CHEMICAL SCIENCES II 5 N  
An integrated lecture and laboratory course which is a continuation of CHEM 170. Prerequisite: CHEM 130, 170 or 190. LEC

CHANGE: COURSE DESCRIPTION NUMBER TITLE

CHEM 184 FOUNDATIONS OF CHEMISTRY I 5 N  
(OLD) This course seeks to develop a working knowledge of the conceptual foundation and the quantitative chemical relationships on which subsequent chemistry courses are built. Atomic structure, chemical bonding, properties of gases, liquids, and solids, acid-base chemistry, and chemical equilibria are emphasized. The class meets each week for three one-hour lectures, a one-hour tutorial period, and a three-hour laboratory. Students with credit in CHEM 125 will have two hours added on to their total number of hours required for graduation. Prerequisite: Must be eligible for MATH 115. LEC

CHEM 130 GENERAL CHEMISTRY I 5 N  
(NEW) This course seeks to develop a working knowledge of the conceptual foundation and the quantitative chemical relationships on which subsequent chemistry courses are built. Atomic structure, chemical bonding, reaction stoichiometry, thermochemistry, and periodic trends are emphasized in this integrated lecture and laboratory course. Students pursuing or considering a major in one of the chemical sciences should strongly consider taking CHEM 170 or 190. Students with credit in CHEM 125 will have two hours added on to their total number of hours required for graduation. Prerequisite: Must be eligible for MATH 115. LEC

CHANGE: COURSE DESCRIPTION NUMBER

CHEM 185 FOUNDATIONS OF CHEMISTRY I, HONORS 5 N  
(OLD) This course, which is designed for qualified and motivated students having a strong interest in chemistry, provides a more thorough treatment of the concepts and topics covered in CHEM 184 and CHEM 186. It is anticipated that students in CHEM 185 plan to take more than one year of chemistry at the college level. Class meets each week for three one-hour lectures, a one-hour tutorial period, and a three-hour lab. Students with credit in CHEM 125 will have two hours added on to their total number of hours required for graduation. Prerequisite: high-school chemistry and calculus; at least one of the following: (a) acceptance into the KU Honors Program, (b) an AP exam score in chemistry of 3 or higher, (c) a mathematics ACT score of 28 or higher; or permission of instructor. LEC

CHEM 190 FOUNDATIONS OF CHEMISTRY I, HONORS 5 N

(NEW) This integrated lecture and laboratory course, which is designed for qualified and motivated students having a strong interest in chemistry, provides a more thorough treatment of the concepts and topics covered in CHEM 130 and CHEM 170. It is anticipated that students in CHEM 190 plan to take more than one year of chemistry at the college level. Students with credit in CHEM 125 will have two hours added on to their total number of hours required for graduation. Prerequisite: high-school chemistry and calculus; at least one of the following: (a) acceptance into the KU Honors Program, (b) an AP exam score in chemistry of 3 or higher, (c) a mathematics ACT score of 28 or higher; or permission of instructor. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER TITLE

CHEM 188 FOUNDATIONS OF CHEMISTRY II 5 N

(OLD) This course is a continuation of CHEM 184 and provides an introduction to inorganic chemistry and qualitative and quantitative analysis. Electrochemistry, thermodynamics, chemical kinetics, and coordination chemistry are stressed. The class meets each week for three one-hour lectures, an optional tutorial period, and a five-hour laboratory. Prerequisite: CHEM 184. LEC

CHEM 135 GENERAL CHEMISTRY II 5 N

(NEW) This course, which is a continuation of CHEM 130, focuses on chemical kinetics, chemical equilibrium, acid-base chemistry, and thermodynamics. Additional topics, such as environmental chemistry, electrochemistry, coordination chemistry, nuclear chemistry, organic chemistry, and/or polymers, may also be introduced in this integrated lecture and laboratory course. Students pursuing or considering a major in one of the chemical sciences should strongly consider taking CHEM 175 or 195. Prerequisite: CHEM 130, 170 or 190. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 189 FOUNDATIONS OF CHEMISTRY II, HONORS 5 N

(OLD) A course designed for qualified and motivated students with strong interest in chemistry to provide a more thorough treatment of the concepts and topics of advanced general chemistry. It is anticipated that the students in CHEM 189 have completed CHEM 185 or excelled in CHEM 184. Prerequisite: Membership in the University Honors Program, CHEM 184, CHEM 185, or consent of the department. LEC

CHEM 195 FOUNDATIONS OF CHEMISTRY II, HONORS 5 N

(NEW) CHEM 195: Foundations of Chemistry II, Honors (5) N

A course designed for qualified and motivated students with strong interest in chemistry to provide a more thorough treatment of the concepts and topics of advanced general chemistry. It is anticipated that the students in CHEM 195 have completed CHEM 190 or excelled in CHEM 130 or 170. Prerequisite: Membership in the University Honors Program, CHEM 130, CHEM 170 or CHEM 190, or consent of the department. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 516 ANALYTICAL CHEMISTRY 3 N

(OLD) Principles of analytical chemistry with emphasis on the fundamental reactions used for chemical analysis. Topics include chemical equilibria in acid/base, complexation, separations, and redox systems, data analysis, and potentiometry. Three class periods per week. Prerequisite: CHEM 188, CHEM 622 or CHEM 624, CHEM 625, and concurrent enrollment in CHEM 517. LEC

CHEM 620 ANALYTICAL CHEMISTRY 3 N

(NEW) Principles of analytical chemistry with emphasis on the fundamental reactions used for chemical analysis. Topics include chemical equilibria in acid/base, complexation, separations, and redox systems, data analysis, potentiometry and spectrophotometry. Prerequisites: one semester of organic chemistry and organic chemistry laboratory, CHEM 535 or CHEM 510 (or concurrent enrollment in CHEM 510), or permission of instructor. Corequisite: CHEM 621. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 517 ANALYTICAL CHEMISTRY LABORATORY 2 U

(OLD) Experiments illustrate fundamental principles of chemical analysis methods. The course serves as an introduction to advanced instrumental methods of analysis. One five-hour laboratory and one fifty minute

lecture each week. Prerequisite: CHEM 188, CHEM 622 or CHEM 624, CHEM 625, and concurrent enrollment in CHEM 516. LAB Prerequisite:

CHEM 621  
(NEW) ANALYTICAL CHEMISTRY LABORATORY 2 U  
Experiments illustrate fundamental principles of chemical analysis methods. The course serves as an introduction to advanced instrumental methods of analysis. Prerequisites: one semester of organic chemistry and organic chemistry laboratory, CHEM 535 or CHEM 510 (or concurrent enrollment in CHEM 510), or permission of instructor. Corequisite: CHEM 620. LAB

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 622  
(OLD) FUNDAMENTALS OF ORGANIC CHEMISTRY 3 N  
A study of the structures and reactions of important classes of organic compounds. Along with the organic laboratory, CHEM 625, this course will fulfill the needs of students requiring a single semester of organic chemistry. Students requiring more than one semester of organic chemistry should enroll in CHEM 624. Prerequisite: CHEM 188. LEC

CHEM 210  
(NEW) FUNDAMENTALS OF ORGANIC CHEMISTRY 3 N  
A study of the structures and reactions of important classes of organic compounds. Along with the organic laboratory, CHEM 231, this course will fulfill the needs of students requiring a single semester of organic chemistry. Students requiring more than one semester of organic chemistry should enroll in CHEM 230. Prerequisite: CHEM 135, 175 or 195. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 624  
(OLD) ORGANIC CHEMISTRY I 3 N  
Three class periods each week. A study of the structure and reactivity of selected classes of organic compounds. CHEM 624 is the first course of a two-semester sequence. Students who require only one semester of organic chemistry should enroll in CHEM 622. Students with credit in CHEM 622 will have two hours added on to their total number of hours required for graduation. Prerequisite: CHEM 188. LEC  
Three class periods each week. A study of the structure and reactivity of selected classes of organic compounds. CHEM 624 is the first course of a two-semester sequence. Students who require only one semester of organic chemistry should enroll in CHEM 622. Students with credit in CHEM 622 will have two hours added on to their total number of hours required for graduation. Prerequisite: CHEM 188. LEC

CHEM 230  
(NEW) ORGANIC CHEMISTRY I 3 N  
A study of the structure and reactivity of selected classes of organic compounds. CHEM 230 is the first course of a two-semester sequence. Students who require only one semester of organic chemistry should enroll in CHEM 210. Students with credit in CHEM 210 will have two hours added on to their total number of hours required for graduation. Prerequisite: CHEM 135, 175 or 195. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 625  
(OLD) ORGANIC CHEMISTRY I LABORATORY 2 U  
One five-hour laboratory and one one-hour lecture each week. Emphasis on basic techniques for the preparation, separation, and purification of organic compounds. Required for a major in chemistry and by those departments and programs specifying a complete undergraduate organic chemistry course. Prerequisite: CHEM 622 or CHEM 624, or concurrently. LAB

CHEM 231  
(NEW) ORGANIC CHEMISTRY I LABORATORY 2 U  
Emphasis on basic techniques for the preparation, separation, and purification of organic compounds. Required for a major in chemistry and by those departments and programs specifying a complete undergraduate organic chemistry course. Prerequisite or corequisite: CHEM 210 or CHEM 230 or CHEM 280. LAB

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 626  
(OLD) ORGANIC CHEMISTRY II 3 N  
Three class periods each week. A continuation of CHEM 624, intended for students who want further training in organic chemistry. Prerequisite: CHEM 624. LEC

CHEM 235  
(NEW) ORGANIC CHEMISTRY II 3 N  
A continuation of CHEM 230, intended for students who want further training in organic chemistry. Prerequisite: CHEM 230 or CHEM 280. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 627      ORGANIC CHEMISTRY II LABORATORY 2 U  
(OLD)          One five-hour laboratory period and one one-hour lecture each week. More advanced organic laboratory techniques with emphasis on modern spectroscopic methods for determining the structure and purity of organic compounds. Required by all programs which specify a full year of organic chemistry.

Prerequisite: CHEM 625 and CHEM 626 or CHEM 626 concurrently. LAB

CHEM 236      ORGANIC CHEMISTRY II LABORATORY 2 U

(NEW)          More advanced organic laboratory techniques with emphasis on modern spectroscopic methods for determining the structure and purity of organic compounds. Prerequisite: CHEM 231. Prerequisite or corequisite: CHEM 235 or CHEM 285. LAB

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 628      ORGANIC CHEMISTRY I, HONORS 3 H

(OLD)          Three class periods and one tutorial period each week. This is the first half of a two-semester sequence in organic chemistry for students with strong records in previous chemistry courses and who are planning or considering a major in a chemistry-related field. The content is similar to that of CHEM 624 but with coverage in greater depth and more emphasis on developing problem-solving skills. Students requiring only one semester of organic chemistry should not enroll in this course but take CHEM 622. Students with credit in CHEM 622 who take and complete CHEM 628 will have two hours added to their total number of credit hours required for graduation. Prerequisite: CHEM 188 or CHEM 189 and membership in the University Honors Program or consent of instructor. LEC

CHEM 280      ORGANIC CHEMISTRY I, HONORS 3 H

(NEW)          This is the first half of a two-semester sequence in organic chemistry for students with strong records in previous chemistry courses and who are planning or considering a major in a chemistry-related field. The content is similar to that of CHEM 230 but with coverage in greater depth and more emphasis on developing problem-solving skills. Students requiring only one semester of organic chemistry should not enroll in this course but take CHEM 210. Students with credit in CHEM 210 who take and complete CHEM 280 will have two hours added to their total number of credit hours required for graduation. Prerequisite: CHEM 135, 175 or 195 and membership in the University Honors Program or consent of instructor. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 630      ORGANIC CHEMISTRY II, HONORS 3 N

(OLD)          Three class periods and one tutorial period each week. This is the second course in a two-semester sequence in organic chemistry for students with strong records in previous chemistry courses and who are planning or considering a major in chemistry or in a chemistry-related field. The content is similar to that of CHEM 626 but with coverage in greater depth and more emphasis on developing problem-solving skills. Prerequisite: CHEM 624 or CHEM 628 and membership in the University Honors Program, or consent of instructor. LEC

CHEM 285      ORGANIC CHEMISTRY II, HONORS 3 N

(NEW)          This is the second course in a two-semester sequence in organic chemistry for students with strong records in previous chemistry courses and who are planning or considering a major in chemistry or in a chemistry-related field. The content is similar to that of CHEM 235 but with coverage in greater depth and more emphasis on developing problem-solving skills. Prerequisite: CHEM 230 or CHEM 280 and membership in the University Honors Program, or consent of instructor. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE

CHEM 635      INSTRUMENTAL METHODS OF ANALYSIS 2 U

(OLD)          Theory and application of instrumental methods to modern analytical problems. Topics covered include atomic and molecular spectroscopy, electrochemistry, mass spectrometry, and separations. Two class periods per week. Students must be enrolled concurrently in CHEM 636. Prerequisite: CHEM 516 and CHEM 517. CHEM 640 or CHEM 646 strongly recommended. Corequisite: CHEM 636. LEC

CHEM 635      INSTRUMENTAL METHODS OF ANALYSIS 2 U

(NEW)          Theory and application of instrumental methods to modern analytical problems. Topics covered include atomic and molecular spectroscopy, electrochemistry, mass spectrometry, and separations. Prerequisites: CHEM 620 and CHEM 621 and one semester of physical chemistry laboratory, or permission of instructor. Corequisite: CHEM 636. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE

CHEM 636 INSTRUMENTAL METHODS OF ANALYSIS LABORATORY 2 U  
(OLD) Theory and application of instrumental methods to modern analysis problems. Experiments covered include atomic and molecular spectroscopy, electrochemistry, and separation methods. One five-hour laboratory each week. Students must be enrolled concurrently in CHEM 635. Prerequisite: CHEM 516 and CHEM 517. A course in physical chemistry is strongly recommended. Corequisite: CHEM 635. LAB

CHEM 636 INSTRUMENTAL METHODS OF ANALYSIS LABORATORY 2 U  
(NEW) Theory and application of instrumental methods to modern analysis problems. Experiments covered include atomic and molecular spectroscopy, electrochemistry, and separation methods. Prerequisites: CHEM 620 and CHEM 621 and one semester of physical chemistry laboratory, or permission of instructor. Corequisite: CHEM 635. LAB

CHANGE: NUMBER

CHEM 640 BIOLOGICAL PHYSICAL CHEMISTRY 3 N  
(OLD) A one semester course, designed particularly for biology, biochemistry, and premedical students, which surveys the fundamentals of physical chemistry. The basic principles of thermodynamics, chemical kinetics, quantum chemistry, and spectroscopy will be introduced, and their application to aqueous solutions and biochemical systems will be emphasized. Prerequisite: One semester of organic chemistry, two semesters of calculus, and two semesters of physics. LEC

CHEM 510 BIOLOGICAL PHYSICAL CHEMISTRY 3 N  
(NEW) A one semester course, designed particularly for biology, biochemistry, and premedical students, which surveys the fundamentals of physical chemistry. The basic principles of thermodynamics, chemical kinetics, quantum chemistry, and spectroscopy will be introduced, and their application to aqueous solutions and biochemical systems will be emphasized. Prerequisite: One semester of organic chemistry, two semesters of calculus, and two semesters of physics. LEC

CHANGE: PREREQUISITE NUMBER

CHEM 641 BIOLOGICAL PHYSICAL CHEMISTRY LABORATORY 2 U  
(OLD) A course particularly for biology, biochemistry, and premedical students. Experiments in physical chemistry illustrating the fundamental principles of quantum mechanics, spectroscopy, thermodynamics, and kinetics as applied to chemical systems. Prerequisite: CHEM 640. LAB

CHEM 511 BIOLOGICAL PHYSICAL CHEMISTRY LABORATORY 2 U  
(NEW) A course particularly for biology, biochemistry, and premedical students. Experiments in physical chemistry illustrating the fundamental principles of quantum mechanics, spectroscopy, thermodynamics, and kinetics as applied to chemical systems. Prerequisite: CHEM 510. LAB

CHANGE: PREREQUISITE NUMBER

CHEM 646 PHYSICAL CHEMISTRY I 3 N  
(OLD) An introduction to the basic principles of quantum mechanics, atomic and molecular structure, molecular rotations and vibrations, group theory, spectroscopy, and statistical mechanics. Prerequisite: CHEM 188; PHSX 211 and PHSX 212; MATH 121, MATH 122 and MATH 220 or MATH 320; and completion of, or concurrent enrollment in MATH 290 or consent of instructor. LEC

CHEM 530 PHYSICAL CHEMISTRY I 3 N  
(NEW) An introduction to the basic principles of quantum mechanics, atomic and molecular structure, molecular rotations and vibrations, group theory, spectroscopy, and statistical mechanics. Prerequisite: CHEM 135, 175 or 195; PHSX 211 and PHSX 212; MATH 121, MATH 122 and MATH 220 or MATH 320; and completion of, or concurrent enrollment in MATH 290 or consent of instructor. LEC

CHANGE: PREREQUISITE NUMBER

CHEM 647 PHYSICAL CHEMISTRY I LABORATORY 2 U  
(OLD) Experiments in physical chemistry, with emphasis on the fundamental principles of quantum mechanics and spectroscopy as applied to chemical systems. Prerequisite: CHEM 646. LAB

CHEM 531 PHYSICAL CHEMISTRY I LABORATORY 2 U  
(NEW) Experiments in physical chemistry, with emphasis on the fundamental principles of quantum mechanics and spectroscopy as applied to chemical systems. Prerequisite: CHEM 530. LAB

CHANGE: PREREQUISITE NUMBER

CHEM 648 PHYSICAL CHEMISTRY II 4 N  
(OLD) Emphasizes the thermodynamics of molecular systems with application to the structure and properties of gases, liquids, solids, materials, statistical thermodynamics, chemical kinetics, and reaction dynamics. Prerequisite: CHEM 646 and MATH 290 or consent of instructor. LEC

CHEM 535 PHYSICAL CHEMISTRY II 4 N  
(NEW) Emphasizes the thermodynamics of molecular systems with application to the structure and properties of gases, liquids, solids, materials, statistical thermodynamics, chemical kinetics, and reaction dynamics. Prerequisite: CHEM 530 and MATH 290 or consent of instructor. LEC

CHANGE: COURSE DESCRIPTION PREREQUISITE NUMBER

CHEM 649 PHYSICAL CHEMISTRY II LABORATORY 2 U  
(OLD) One four-hour laboratory and one one-hour lecture per week. Experiments in physical chemistry, with emphasis on the fundamental principles of chemical thermodynamics and kinetics. Prerequisite: CHEM 648 or consent of instructor. LEC Prerequisite:

CHEM 536 PHYSICAL CHEMISTRY II LABORATORY 2 U  
(NEW) Experiments in physical chemistry, with emphasis on the fundamental principles of chemical thermodynamics and kinetics. Prerequisite: CHEM 535 or consent of instructor. LEC

CHANGE: PREREQUISITE NUMBER

CHEM 667 SYSTEMATIC INORGANIC CHEMISTRY 3 N  
(OLD) A systematic study of the elements and their compounds, emphasizing the relationship between properties of substances and their atomic and molecular structures and the positions of the elements in the periodic systems. Prerequisite: CHEM 640 or CHEM 646 or CHEM 648, or CHEM 648 concurrently. LEC

CHEM 660 SYSTEMATIC INORGANIC CHEMISTRY 3 N  
(NEW) A systematic study of the elements and their compounds, emphasizing the relationship between properties of substances and their atomic and molecular structures and the positions of the elements in the periodic systems. Prerequisite: CHEM 510 or CHEM 530. LEC

CHANGE: PREREQUISITE NUMBER

CHEM 668 ADVANCED INORGANIC LABORATORY 2 U  
(OLD) Experiments concerning the synthesis and characterization of inorganic compounds. Prerequisite: CHEM 667 or concurrent enrollment in CHEM 667. LAB Experiments concerning the synthesis and characterization of inorganic compounds. Prerequisite: CHEM 667 or concurrent enrollment in CHEM 667. LAB

CHEM 661 ADVANCED INORGANIC LABORATORY 2 U  
(NEW) Experiments concerning the synthesis and characterization of inorganic compounds. Prerequisite: CHEM 660 or concurrent enrollment in CHEM 660. LAB

## ENVIRONMENTAL STUDIES

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

EVRN 335 INTRODUCTION TO SOIL GEOGRAPHY 4 N  
(OLD) The course focuses on the properties and processes of soils as they occur in their environment. The student is introduced to the nature of soil as it functions as a body; genesis of soils; properties of soil solids, especially colloids; soil chemical composition, properties, and reactions; interaction between solid, liquid, and gaseous components in soils; plant-soil-water relationships; biological interactions with soil; classification of soils; and the distribution of soils on the landscape. Not open to students who have taken GEOG 535/EVRN 535. Prerequisite GEOG 104 or GEOL 101 or consent of instructor; BIOL 100 and CHEM 184 or CHEM 185 recommended.

EVRN 335 INTRODUCTION TO SOIL GEOGRAPHY 4 N  
(NEW) The course focuses on the properties and processes of soils as they occur in their environment. The student is introduced to the nature of soil as it functions as a body; genesis of soils; properties of soil

solids, especially colloids; soil chemical composition, properties, and reactions; interaction between solid, liquid, and gaseous components in soils; plant-soil-water relationships; biological interactions with soil; classification of soils; and the distribution of soils on the landscape. Not open to students who have taken GEOG 535/EVRN 535. Prerequisite GEOG 104 or GEOL 101 or consent of instructor; BIOL 100 and CHEM 130 or CHEM 190 recommended.

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

EVRN 535 SOIL GEOGRAPHY 5 N

(OLD)

A broad study of the principles and properties of soils and their distribution on the landscape. Topics covered include: pedology, clay mineralogy, soil physics, soil chemistry, management of soils, soil biology, taxonomy, and soil geomorphology. Laboratory section and a field project are required. Not open to students who have taken GEOG/EVRN 335. Prerequisite: GEOG 104 or GEOL 101 or consent of the instructor; BIOL 100 and CHEM 184 or 185 recommended

EVRN 535 SOIL GEOGRAPHY 5 N

(NEW)

A broad study of the principles and properties of soils and their distribution on the landscape. Topics covered include: pedology, clay mineralogy, soil physics, soil chemistry, management of soils, soil biology, taxonomy, and soil geomorphology. Laboratory section and a field project are required. Not open to students who have taken GEOG/EVRN 335. Prerequisite: GEOG 104 or GEOL 101 or consent of the instructor; BIOL 100 and CHEM 130 or 190 recommended

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

EVRN 538 ENVIRONMENTAL SOIL PHYSICS AND CHEMISTRY 4 N

(OLD)

This course examines the physical and chemical properties of soils and methods of evaluation. Physical topics include the movement of water, heat, gases, and solutes through soil. Chemistry topics include solid and solution speciation, mineral solubility, ion exchange, and oxidation-reduction reactions in soils. Prerequisite: GEOG/EVRN 335, or GEOG/EVRN 535; CHEM 188/189, MATH 121, and PHSX 114, or consent of instructor.

EVRN 538 ENVIRONMENTAL SOIL PHYSICS AND CHEMISTRY 4 N

(NEW)

This course examines the physical and chemical properties of soils and methods of evaluation. Physical topics include the movement of water, heat, gases, and solutes through soil. Chemistry topics include solid and solution speciation, mineral solubility, ion exchange, and oxidation-reduction reactions in soils. Prerequisite: GEOG/EVRN 335, or GEOG/EVRN 535; CHEM 135/195, MATH 121, and PHSX 114, or consent of instructor.

CHANGE: PREREQUISITE

EVRN 611 WATER QUALITY, LAND USE, AND WATERSHED ECOSYSTEMS 3 N

(OLD)

Water quality issues are integrated with land use planning and the development of watershed management strategies. Interrelationships among the hydrologic cycle, atmospheric deposition, nutrient transformations and pesticide use are examined in regards to stream, lake, and groundwater quality. Prerequisite: CHEM 125 or CHEM 184 and BIOL 414, or consent of instructor. LEC

EVRN 611 WATER QUALITY, LAND USE, AND WATERSHED ECOSYSTEMS 3 N

(NEW)

Water quality issues are integrated with land use planning and the development of watershed management strategies. Interrelationships among the hydrologic cycle, atmospheric deposition, nutrient transformations and pesticide use are examined in regards to stream, lake, and groundwater quality. Prerequisite: CHEM 125 or CHEM 130 and BIOL 414, or consent of instructor. LEC

CHANGE: PREREQUISITE

EVRN 656 ECOSYSTEM ECOLOGY 3 N

(OLD)

An introduction to the patterns and processes that affect terrestrial ecosystems. Emphasis is placed on understanding nutrient cycles (e.g., carbon nitrogen phosphorous), hydrologic cycles, and patterns of net primary productivity. The role of both natural and anthropogenic disturbances in structuring terrestrial ecosystems is examined in the context of global land-use patterns. Discussion of current research literature will be expected. (Same as BIOL 656.) Prerequisite: BIOL 414 and CHEM 184. LEC

EVRN 656 ECOSYSTEM ECOLOGY 3 N

(NEW)

An introduction to the patterns and processes that affect terrestrial ecosystems. Emphasis is placed on \ understanding nutrient cycles (e.g., carbon nitrogen phosphorous), hydrologic cycles, and patterns of net primary productivity. The role of both natural and anthropogenic disturbances in structuring terrestrial ecosystems is examined in the context of global land-use patterns. Discussion of current research

literature will be expected. (Same as BIOL 656.) Prerequisite: BIOL 414 and CHEM 130. LEC

## GEOGRAPHY

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

GEOG 335 INTRODUCTION TO SOIL GEOGRAPHY 4 N  
(OLD) This course focuses on the properties and processes of soils as they occur in their environment. The student is introduced to the nature of soil as it functions as a body; genesis of soils; properties of soil solids, especially colloids; soil chemical composition, properties, and reactions; interaction between solid, liquid, and gaseous components in soils; plant-soil-water relationships; biological interactions with soil; classification of soils; and the distribution of soils on the landscape. Not open to students who have taken GEOG 535. Prerequisite: GEOG 104 or GEOL 101 or consent of instructor; BIOL 100 and CHEM 184 or CHEM 185 recommended.

GEOG 335 INTRODUCTION TO SOIL GEOGRAPHY 4 N  
(NEW) This course focuses on the properties and processes of soils as they occur in their environment. The student is introduced to the nature of soil as it functions as a body; genesis of soils; properties of soil solids, especially colloids; soil chemical composition, properties, and reactions; interaction between solid, liquid, and gaseous components in soils; plant-soil-water relationships; biological interactions with soil; classification of soils; and the distribution of soils on the landscape. Not open to students who have taken GEOG 535. Prerequisite: GEOG 104 or GEOL 101 or consent of instructor; BIOL 100 and CHEM 130 or CHEM 190 recommended.

CHANGE: CREDIT COURSE IS CURRENTLY CROSSLISTED

GEOG 535 SOIL GEOGRAPHY 5 N  
(OLD) A broad study of the principles and properties of soils and their distribution on the landscape. Topics covered include: pedology, clay mineralogy, soil physics, soil chemistry, management of soils, soil biology, taxonomy, and soil geomorphology. Laboratory section and a field project are required. Not open to students who have taken GEOG 335. Prerequisite: GEOG 104 or GEOL 101 or consent of the instructor; BIOL 104 and CHEM 130 or 190 recommended.

GEOG 535 SOIL GEOGRAPHY 4 N  
(NEW) A broad study of the principles and properties of soils and their distribution on the landscape. Topics covered include: pedology, clay mineralogy, soil physics, soil chemistry, management of soils, soil biology, taxonomy, and soil geomorphology. Laboratory section and a field project are required. Not open to students who have taken GEOG 335. Prerequisite: GEOG 104 or GEOL 101 or consent of the instructor; BIOL 104 and CHEM 130 or 190 recommended.

CHANGE: PREREQUISITE COURSE IS CURRENTLY CROSSLISTED

GEOG 538 ENVIRONMENTAL SOIL PHYSICS AND CHEMISTRY 4 N  
(OLD) This course examines the physical and chemical properties of soils and methods of evaluation. Physical topics include the movement of water, heat, gases, and solutes through soil. Chemistry topics include solid and solution speciation, mineral solubility, ion exchange, and oxidation-reduction reactions in soils. Prerequisite: GEOG 335 or GEOG 535; CHEM 188/189, MATH 121, and PHSX 114, or consent of instructor.

GEOG 538 ENVIRONMENTAL SOIL PHYSICS AND CHEMISTRY 4 N  
(NEW) This course examines the physical and chemical properties of soils and methods of evaluation. Physical topics include the movement of water, heat, gases, and solutes through soil. Chemistry topics include solid and solution speciation, mineral solubility, ion exchange, and oxidation-reduction reactions in soils. Prerequisite: GEOG 335 or GEOG 535; CHEM 135/195, MATH 121, and PHSX 114, or consent of instructor.

## GEOLOGY

CHANGE: PREREQUISITE

GEOL 311 MINERALOGY AND STRUCTURE OF THE EARTH 3 H

(OLD) Basic identification and properties of rocks and minerals in the context of whole-earth structure and evolution. Includes basic chemical equilibria for rock and mineral systems and their bearing on processes involved with formation and evolution of Earth's crust, mantle, and core. Two lectures and one lab per week. Prerequisite: GEOL 101, CHEM 125 or CHEM 184, and eligibility for MATH 121 or MATH 115. LEC

GEOL 311 MINERALOGY AND STRUCTURE OF THE EARTH 3 H  
(NEW) Basic identification and properties of rocks and minerals in the context of whole-earth structure and evolution. Includes basic chemical equilibria for rock and mineral systems and their bearing on processes involved with formation and evolution of Earth's crust, mantle, and core. Two lectures and one lab per week. Prerequisite: GEOL 101, CHEM 125 or CHEM 130, and eligibility for MATH 121 or MATH 115. LEC

CHANGE: PREREQUISITE

GEOL 312 MINERAL STRUCTURES AND EQUILIBRIA LABORATORY 1 H  
(OLD) A laboratory to accompany GEOL 311. Presents more rigorous analysis of the structures, compositions, and chemical equilibria governing the formation and stability of common rock-forming mineral systems. Prerequisite: GEOL 311 (may be taken concurrently), CHEM 125 or CHEM 184, and eligibility for MATH 121 or MATH 115. LAB

GEOL 312 MINERAL STRUCTURES AND EQUILIBRIA LABORATORY 1 H  
(NEW) A laboratory to accompany GEOL 311. Presents more rigorous analysis of the structures, compositions, and chemical equilibria governing the formation and stability of common rock-forming mineral systems. Prerequisite: GEOL 311 (may be taken concurrently), CHEM 125 or CHEM 130, and eligibility for MATH 121 or MATH 115. LAB

2. Degree Requirements for Approval

a. Change to Existing Geology Minor

**Current Requirements:** BIOL 660 Lake Ecology

Option B: Environmental Geology

College Requirements and Geology Core Courses

Geology Electives

A minimum of 15 hours in geology or related courses. Several possible tracks of upper-level course work are given below. Students may choose from these or select other courses in consultation with an adviser.

Track 1: Water, Geology, and the Environment

- GEOL 302 Oceanography (3)
- GEOL 351 Environmental Geology (3)
- GEOL 391 Special Studies in Geology: Water Resources (3)
- GEOL 541 Geomorphology (4)
- GEOL 552 Introduction to Hydrogeology (3)
- ATMO 515 Energy and Water Balance (3)
- CE 477 Introduction to Environmental Engineering and Science (3)
- ~~BIOL 660 Lake Ecology~~ **BIOL 661 Ecology of Rivers and Lakes (3)**

**Proposed**

BA Geology degree, Option B: Environmental Geology, Track 1: Water, Geology and the Environment  
Change the requirement from BIOL 660 (course deleted) to BIOL 661 (course added)

**Justification**

The changes are in response to a curricular change proposal by EEB. Offering of BIOL 660 will be discontinued. BIOL 661 course title and content will be revised to include material from BIOL 660.