

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

EP.10.38

Office of the Provost and Vice Chancellor  
for Academic Affairs

Swanlund Administration Building  
601 East John Street  
Champaign, IL 61820



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FEB 22 2010

OFFICE OF THE SENATE

February 22, 2010

Abbas Aminmansour, Chair  
Senate Committee on Educational Policy  
Office of the Senate  
228 English Building, MC-461

Dear Professor Aminmansour:

Enclosed is a copy of a proposal from the College of Liberal Arts and Sciences to rename the BSLAS in Earth Systems, Environment and Society as the Earth, Society and Environment. The proposal also includes a request for revisions.

This proposal has been approved by the College of Liberal Arts and Sciences Committee on Courses and Curricula on behalf of the Dean's Cabinet, Executive Committee and faculty of the college. It now requires Senate review.

Sincerely,

Kristi A. Kuntz  
Assistant Provost

KAK/dkk

Enclosures

c: A. Elli  
C. Livingstone  
S. Marshak  
A. Mester  
J. Tomkin

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

Office of the Dean  
College of Liberal Arts and Sciences  
294 Lincoln Hall  
702 South Wright Street  
Urbana, IL 61801-3631



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FEB 3 2010

CHIEF OF THE PROVOST

February 2, 2010

Kristi Kuntz  
Assistant Provost  
Swanlund Administration Building  
MC-304

Dear Kristi:

The Committee on Courses and Curricula on behalf of the Dean's Cabinet, Executive Committee and the Faculty of the College of Liberal Arts and Sciences, have administratively approved the following proposals:

**Revision and title change of the BSLAS in Earth Systems, Environment and Society,  
School of Earth, Society and the Environment, College of Liberal Arts and Sciences**

**Revision of the Environmental Fellows Program Minor**

Please address all correspondence concerning this proposal to me. We ask that these proposals are reviewed administratively by your office for proposed implementation Fall 2010.

Sincerely,

Ann M. Mester  
Associate Dean

enclosures

C: Professor Stephen Marshak  
Dr. Jonathan Tomkin

## **Proposal to the Senate Educational Policy Committee**

### **PROPOSAL TITLE:**

Revision and title change of the BSLAS in Earth Systems, Environment and Society, School of Earth, Society and the Environment, College of Liberal Arts and Sciences

### **SPONSOR:**

School of Earth, Society, and Environment

**SCHOOL CONTACT:** Jonathan Tomkin, Associate Director of Academic Affairs (244-2928, [tomkin@illinois.edu](mailto:tomkin@illinois.edu))

### **COLLEGE CONTACT:**

Ann M. Mester, Associate Dean, College of Liberal Arts and Sciences, 3-1350, [mester@illinois.edu](mailto:mester@illinois.edu)

### **BRIEF DESCRIPTION:**

We propose to make a number of changes to the BALAS in Earth Systems, Environment, and Society

### **JUSTIFICATION:**

**1. Changing the name of the Major from "Earth System, Environment, and Society" (ESES) to "Earth, Society, and Environment" (ESE).**

The contrast between the name of the School and the name of the major has led to confusion. It is desirable for the major to have the same name as the School. The contrast exists because the major was developed when the School did not exist, and the major was possibly going to be anchored at the LAS College level. When the School formed, the major was anchored at the School level.

**2. Changing the subject name for the courses within the School from "ESES" to "ESE".**

This change will align the courses offered by the School with the revised name of the major. We will refer to the proposed new subject name throughout the proposal. Course numbers will not be revised. A separate letter requesting this change is attached.

### **3. Changing the nature of ESE 200, from a 2-hour seminar to a 3-hour survey.**

ESE 200 (ESES Colloquium) is the entry level course in the major, and is designed to be an opportunity for students to view the breadth of earth system studies. In its original form, the course was a 2-hour seminar course which was to be taken twice. The influx of large numbers of students into the major makes this structure unsustainable. To accommodate the enrollment (i.e., make the course sustainable and scalable), the course will be restructured as a 3-hour survey, and to make its purpose clearer, it's name will be changed from " ESES Colloquium" to "Earth Systems" This survey class will help ensure students coming from diverse backgrounds will be exposed to a common core content. This change will reduce the minimum number of required hours in the Major by one, from 49 to 48.

### **4. Changing the categories of courses in the ESE major.**

The ESE major utilizes courses from the three departments in the School, as well as from numerous other departments across campus. The original structure of the major grouped courses into 3 "introductory categories" and 11 "advanced categories" broken up into two groups. The titles of the advanced categories did not correspond to those of the introductory categories. The School's Curriculum Committee has approved a new set of course groups that maintains the basic themes of the original configuration, but are clearer. In the reconfiguration, we retain the distinction between introductory and advanced lists, but there are fewer categories (5 total), and the same categories will apply for both introductory and advanced lists. The proposed new categories are:

- Environment and the Human Response
- Sustainability, Policy, and Global Change
- Visualizing the Earth System
- Earth's Physical Systems, Resources, and Hazards
- Earth's Biosphere and Ecology

The categories are designed to encompass the broad areas of Earth System studies (social sciences, policy, informatics, physical sciences, and biological sciences). As before, the categories are not formally linked to the two concentrations. The only curricula impact of the proposed categories is that students will need to take classes from a minimum of 4 of the 5 categories, and this change is minor in that they currently they take 4 classes from 3 introductory categories.

The proposed categories have no impact on the advanced-level course options available to students, but will act as a course selection guide.

The lists of courses included in these five categories have been designed to ensure students receive sufficient coverage of key concepts across the breadth of environmental studies. All students must take at least one introductory class from four of the five different ESE introductory lists. Students retain flexibility in choosing their upper-level coursework from the five advanced lists. Most of the courses on the current list of "courses approved for the ESES major" will be included in the new categories. The Curriculum Committee has deleted some courses because they are not taught regularly. In addition, several new ESE advanced courses (designed for the specific needs of students in the major) are being added to the list.

The current and proposed course lists are attached.

### **5. Require that at least 3 of the 5 advanced courses taken are offered by the School.**

Several new advanced courses within the ESE subject are being submitted and will begin next year. With the availability of these advanced courses we are able to offer sufficient ESE-anchored class work to ensure that students in the major cover a greater range of Earth System areas at the advanced level. This arrangement will allow the School to have control over educational content and scheduling of coursework in ESE major. It will also provide more opportunities for students in the program to interact with each other more frequently, so that they can develop a sense of community.

As is currently the case, it is expected that students will continue to take a mixture of School and campus-wide advanced courses to fulfill the advanced coursework requirement in the major.

**6. Remove the ESE 401 (capstone) requirement, instead requiring an additional ESE advanced course.**

It is not sustainable to run research project capstones for a large enrollment major. Current students satisfy the ESE 401 requirement by taking designated classes that do not include capstone educational experiences. Removing the requirement will enable students to take a more suitable (ESE) course.

**7. For SAE Concentration: Highly recommend CHEM 101 or 102; require ECON 102.**

Due to chemistry's importance in understanding pollution and other environmental issues, it will be recommended for students in the Society and the Environment (SAE) concentration instead of Computer Science courses. ECON 102 will be required instead of a choice of ECON 101 or 102.

**8. Highly recommend ECON 102 for SES concentration students, instead of CS 101 or 110.**

Due to the usefulness of economics as a pre-requisite for advanced courses, ECON 102 will be recommended for students in the SES concentration instead of computer science.

**BUDGETARY AND STAFF IMPLICATIONS:**

a. Additional staff and dollars needed

The proposed changes do not change the administrative or teaching load, so there is no additional staff or dollars needed. We will do slightly more teaching with the same resources by slightly increasing the mean size of advanced courses within the unit (see section b). This does not require additional resources but does require an internal reallocation of teaching resources, as is described below.

b. Internal reallocations (e.g., change in class size, teaching loads, student-faculty ratio, etc.)

The requirement that students are to take at least 3 advanced ESE classes means that additional classes will be needed. This will change the focus of some of the instructor's teaching loads, in that if more classes are directed towards the ESE major, advanced classes in the other majors in the School (Atmospheric Science, Geography, and

Geology) will be taught with slightly less frequency. There is projected to be no impact on teaching load, although the increase in number of undergraduate students will increase the student/faculty ratio.

- c. Effect on course enrollment in other units and explanations of discussions with representatives of those departments

The proposed changes does not increase enrollment in other departments as we are not requiring new courses be taken outside of the School. The impacts due to the change in the recommended courses will be insignificant, as the courses concerned are large gen-ed courses, with thousands of students, and any impact from these changes will be in the single digits (of students). Since no additional sections will be needed (or not needed) as a consequence of this change, we believe that there are no budgetary implications. The heads of the relevant departments have been notified. Chemistry and Computer Science have acknowledged the lack of impact.

- d. Impact on the University Library

The proposed changes to the structure of the curriculum will not require more library use or otherwise impact the library.

- e. Impact on computer use, laboratory use, equipment, etc.

The proposed changes do not require more laboratory, equipment, or computer classes. The additional ESE classes implied by the new structure will be lecture/discussion.

**DESIRED EFFECTIVE DATE:**

Fall 2010



Programs of Study Entry:

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## Earth, Society, and Environment

The major in Earth, Society, and Environment (ESE) offers a unique, multidisciplinary liberal arts education in the scientific and human dimensions of the Earth System. The curriculum balances a broad exposure to diverse disciplines at an introductory level with a more focused substantive course of study at the upper level. To do this, the major offers two concentrations within which majors can specialize: Science of the Earth System and Society and the Environment.

Both concentrations will prepare students for a variety of career paths in either the private or the public sector, as well as for graduate study. The interdisciplinary background in both scientific and human aspects of environmental problems will prepare students for a variety of positions with state and federal regulatory agencies, research institutions, consulting firms and nongovernmental education and advocacy organizations. The major also provides a platform for entry into professional schools (e.g. law and public policy programs) as well as graduate study in a variety of physical and social scientific disciplines and interdisciplinary programs related to the environment.

## Major in Sciences and Letters Curriculum

E-mail: [program-info@eses.uiuc.edu](mailto:program-info@eses.uiuc.edu)

Degree title: Bachelor of Science in Liberal Arts and Sciences

Minimum required major and supporting courses equate to 48-58 hours.

General education: The [LAS General Education](#) requirements are set up so students automatically complete the [Campus General Education](#) requirements.

Minimum hours required for graduation: 120 hours

Departmental distinction: Students who maintain grade point averages of at least 3.3 in all courses within the major and who undertake a faculty-guided individual research project for credit in the major are recommended for graduation with distinction.

Hours	Requirements
	Students must complete the ESE Core Requirements listed below and select one concentration in consultation with an academic advisor.
12-14	ESE Introductory Core: Students take one approved introductory course from at least four of the following five areas. Approved courses within these areas are available from the ESE advisor OR in the ESE

	School office OR at <a href="http://www.earth.uiuc.edu/students/guides/">http://www.earth.uiuc.edu/students/guides/</a>
	Environment and the Human Response
	Sustainability, Policy, and Global Change
	Earth's Physical Systems, Resources, and Hazards
	Visualizing the Earth System
	Earth's Biosphere and Ecology
6	ESE coursework
	GEOG 379- Introduction to GIS
	ESE 200- Earth Systems
15-20	Advanced Courses  A minimum of five 300- and 400-level courses, from the approved list and in an academically coherent program approved by an advisor, are required. At least three of these five advanced courses must be listed or cross-listed as an ESE course. These courses should be used to help meet the LAS requirement of 21 hours of 300- or 400-level courses overall, and 12 hours of 300- or 400-level courses in the major. It is strongly recommended that students complete the LAS requirement with 21 hours of 300- or 400-level courses related to the ESE curriculum.

### **Society and the Environment (SAE) Concentration**

<b>Hours</b>	<b>Requirements</b>
16-18	Cognate Course Work
	10-12 hours-Introductory Social Science (Select three courses from approved list)
	3 hours-Statistics (Select one course from approved list)
	3 hours-Economics ECON 102
	Highly recommended: CHEM 101 or 102

### **Science of the Earth System (SES) Concentration**

<b>Hours</b>	<b>Requirements</b>
15-18	Cognate Course Work
	3 hours-CHEM 102-General Chemistry I or CHEM 202 Accelerated Chemistry I
	1 hour-CHEM 103-General Chemistry Lab I or CHEM 203- Accelerated Chemistry Lab I
	4-5 hours-MATH 220-Calculus I or MATH 221- Calculus I
	3 hours-STAT 100-Statistics
	4-5 hours-PHYS 101- College Physics: Mech & Heat or PHYS 211- University



	Physics: Mechanics
	Highly recommended: ECON 102

Students planning to attend graduate school in Earth Systems science, Geoscience or Atmospheric Science should take at minimum MATH 225 (Introductory Matrix Theory), MATH 231 (Calculus II), MATH 241 (Calculus III) and MATH 285 (Intro to Differential Equations); CHEM 104 and 105 (General Chemistry II and Lab); and either PHYS 101, 102 or PHYS 211, 212 and 213 (the latter sequence is preferred.) All students wishing to attend graduate school in any field should discuss necessary supplementary course work with their advisor as early as possible.

Twelve hours of 300- or 400-level courses must be taken on this campus.

Second majors or campus-wide minors may be used to fulfill this requirement upon approval of an advisor.

Substitutions may be made with advisor approval.

All foreign language requirements must be satisfied.

A Major Plan of Study form must be completed and submitted to the LAS Student Affairs Office before the end of the fifth semester (60-75 hours). Study abroad courses may be substituted for major and minor requirements with approval of advisor.

## Appendix A

### ESE Introductory Course Lists

#### • *Environment and the Human Response*

GEOG 106	Geographies Globalization
GEOG 210	Contemp Social & Env Problems
NRES 287	Environment and Society
ACE 210	Environmental Economics
ACE 251	The World Food Economy
HIST 282	Nature and American Culture
SOC 160	Global Ineq and Social Change

#### • *Sustainability, Policy, and Global Change*

ANTH 278	Climate Change & Civilization
ATMS 140	Climate and Global Change
ATMS 202	Soc Impacts Weather & Climate
GEOG 208	Earth System History
GEOG 214	Conserv Natural Resources
NPRES 101	Energy Sources
NPRES 201	Energy Systems
PS 225	Environmental Politics
LA 250	Environmental Site Analysis
SOC 270	Population Issues

#### • *Earth's Physical Systems, Resources, and Hazards*

ATMS 100	Introduction to Meteorology
ATMS 120	Severe and Unusual Weather
ATMS 201	General Meteorology
GEOG 103	Earth's Physical System
GEOG 222	Big Rivers of the World
GEOG 100	Planet Earth
GEOG 101	Introductory Physical Geology
GEOG 103	Planet Earth QR II
GEOG 104	Geology of the National Parks
GEOG 107	Physical Geology
GEOG 117	The Oceans
GEOG 118	Natural Disasters

#### • *Visualizing the Earth System*

GEOG 105	The Digital Earth
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#### • *Earth's Biosphere and Ecology*

GEOG 143	History of Life
IB 126	Extinction: Dinosaurs to Dodos
IB 100	Biological Sciences
IB 101	Biological Sciences
IB 102	Plants, People & Environment
IB 103	Introduction to Plant Biology
IB 105	Environmental Biology
IB 107	Global Warming, Biofuels, Food
IB 150	Organismal & Evolutionary Biol
MCB 150	Molec & Cellular Basis of Life

## ESE Advanced Core Course Lists

### • *Environment and the Human Response*

GEOG 381	Environmental Perspectives
GEOG 384	Population Geography
GEOG 455	Geog of Sub-Saharan Africa
GEOG 465	Trans Systems and Spatial Dev
GEOG 483	Urban Geography
ACE 310	Natural Resource Economics
ACE 406	Environmental Law and Policy
AGCM 330	Environmental Communications
AGCM 430	Comm in Env Social Movements
CHLH 469	Environmental Health
LA 450	Ecology of Land Restoration
NRES 472	Environmental Psychology
SOC 447	Environmental Sociology
UP 405	Watershed Ecology and Planning
UP 442	Environmental Policy and Law

### • *Sustainability, Policy, and Global Change*

ESES 482	Challenges of Sustainability
GEOG 466	Environmental Policy
GEOG 446	Sustainable Planning Seminar
ATMS 447	Climate Change Assessment
ATMS 449	Biogeochemical Cycles
CPSC 431	Plants and Global Change
CPSC 336	Tomorrow's Environment
NPRES 480	Energy and Security
NRES 325	Natural Resource Policy Mgmt
NRES 439	Env and Sustainable Dev
TSM 311	Humanity in the Food Web

### • *Earth's Physical Systems, Resources, and Hazards*

-- *CHEM 104/105 and one from GEOL 100, 101, 107, or 208, are recommended; other courses on the list may have specific prerequisites.*

ESES 320	Water Planet, Water Crisis
ATMS 420	Atmospheric Chemistry
GEOG 401	Watershed Hydrology
GEOG 406	Fluvial Geomorphology
GEOG 408	Watershed Analysis
GEOG 467	Dynm Simul of Nat Res Problems
GEOL 333	Earth Materials and the Env
GEOL 380	Environmental Geology
GEOL 401	Geomorphology
GEOL 460	Geochemistry
GEOL 470	Introduction to Hydrogeology
CEE 330	Environmental Engineering
CHEM 360	Chemistry of the Environment
CHEM 460	Green Chemistry
NRES 351	Environmental Chemistry

### • *Visualizing the Earth System*

ATMS 305	Computing and Data Analysis
ATMS 411	Satellite Remote Sensing
ATMS 421	Earth System Modeling

GEOG 371	Spatial Analysis
GEOG 468	Biological Modeling
GEOG 469	Spatial Ecosystem Modeling
GEOG 476	Applied GIS to Environ Studies
GEOG 477	Introduction to Remote Sensing
GEOG 460	Anal & Interp Aerial Photos
GEOL 451	Methods in Applied Geophysics
GEOG 479	Advanced Geog Info Systems
NRES 454	GIS in Natural Resource Mgmt

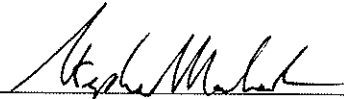
• ***Earth's Biosphere and Ecology***

-- Note: IB 150, MCB 150, and IB 203 are required as pre-requisites.

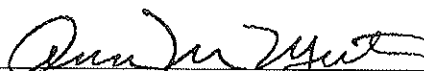
IB 363	Plants and Their Uses
IB 405	Ecological Genetics
IB 439	Biogeography
IB 444	Insect Ecology
IB 445	Chemical Ecology
IB 446	Tropical Ecology
IB 447	Field Ecology
IB 451	Conservation Biology
IB 452	Ecosystem Ecology
IB 453	Community Ecology
IB 470	Field Botany
IB 493	Statistical Ecology
IB 449	Limnology
NRES 348	Fish and Wildlife Ecology
NRES 419	Env and Plant Ecosystems
NRES 420	Restoration Ecology
CPSC 431	Plants and Global Change

**CLEARANCES:**

Signatures:

  
\_\_\_\_\_  
School of Earth, Society and the Environment

9/8/09  
\_\_\_\_\_  
Date:

  
\_\_\_\_\_  
College of Liberal Arts and Sciences

2/2/10  
\_\_\_\_\_  
Date:

\_\_\_\_\_  
Provost Representative:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Educational Policy Committee Representative:

\_\_\_\_\_  
Date:

Dear Dr. Tomkin,

Andy Gewirth forwarded your note to me regarding the ESES recommended addition of Chem 101 or Chem 102 as an undergraduate degree requirement. I am the Department Head so this fall under my purview. Given your projection of <10 students per year taking these courses, I see approve of this change.

Let me know if you need anything more formal than this email note.

Best wishes,

Steve

---

Steven C. Zimmerman  
Head and Roger Adams Professor  
Department of Chemistry

Rob,  
thanks for your fast reply! To answer your questions:

1. Not officially (but see below).
2. We do require one class that is "in-house" that is related: GEOG 379 Introduction to Geographic Information Systems.
3. Although we're trying to make the recommended courses more focused on Earth Systems content, this will probably result in more information technology-type classes being taken rather than less, and this would include CS classes in general. Under the proposed change, we'll be creating a new category for "Visualizing the Earth System" courses which can be thought of as a place where earth systems and information technology overlap. Currently, there are very few introductory classes that occupy this space and we are very open to classes outside of the School satisfying this requirement. In particular, I'll look at the INFO classes in more detail. If Lenny or Steve would like to give me further direction I'd be very happy to have it.

I should also let you know that we consider the new Informatics Minor as highly appropriate for many of our students. It is already our (equal) most popular minor, and I anticipate that ESES involvement with the minor will grow significantly.

Cheers,  
Jonathan

- > Jonathan  
>  
> First, yes, I acknowledge the change, its OK. As you said, its not very many students.  
>  
> But in return, I'd like to ask a couple questions. I'm ccing the folks in CS who own and manage the undergraduate curriculum, Lenny Pitt and Steve Herzog.  
>  
> 1. Will you continue to have a recommended computing course?  
>

> 2. If so, so, to you plan to be dealing with computing in-house, ie, all taught inside your existing (new?) courses?

>

> 3. Have you looked at some of our other computing courses that might  
> be more appropriate for your majors: CS/INFO 102, CS/INFO 103? Since we teach a joint  
Math/CS and Statistics/CS undergrad degree in LAS, we do have some very different, more  
broad-spectrum intro courses, which might be more suitable than the ones we teach to our own  
CS majors.

>

> Thanks -rob

>

> Rob A. Rutenbar  
> Bliss Professor and Head  
> Department of Computer Science  
> University of Illinois at Urbana-Champaign  
> 2232 Siebel Center, MC-258  
> 201 N. Godwin Ave, Urbana IL 61801  
> Tel 217-333-3373 rutenbar@illinois.edu  
> Assistant: Karen Stahl (kstahl@illinois.edu)