UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

EP.11.03

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820

August 31, 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 Agricultural, Consumer and Environmental Sciences to rename the undergraduate minor in Quantitative Methods in Natural Resource and Environmental Science as the Spatial and Quantitative Methods in Natural Resources and Environmental Sciences. The proposal includes revisions as well.

This proposal has been approved by the ACES Courses and Curriculum Committee. It now requires Senate review.

Sincerely,

Kristi A. Kuntz
Assistant Provost

KAK/njh

Enclosures

c: K. M. Claus
P. A. Hodson
F. W. Simmons

telephone (217) 333-6677 • *fax* (217) 244-5639
url www.provost.illinois.edu

11.03

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

College of Agricultural, Consumer
and Environmental Sciences

Academic Programs
128 Mumford Hall, MC-710
1301 West Gregory Drive
Urbana, IL 61801

August 23, 2010

Kristi Kuntz, Assistant Provost
Office of the Provost, Second Floor
Swanlund Administration Building
Campus MC-304

Dear Kristi:

I am writing to request campus-level approval for revision of the ***Minor in Quantitative Methods in NRES***. The requested changes have been reviewed and approved by the ACES C&C Committee and include a change in the minor's name to ***Spatial and Quantitative Methods in NRES*** as well as the following modifications to its requirements:

(1) Simplifying the course prerequisite structure of the program.
(2) Enhancing and explicitly promoting the spatial analysis and modeling components of the minor.
(3) Removing courses that have been eliminated by the offering departments.

Thank you for your consideration of this request. I look forward to your reply.

Sincerely,

F. William Simmons
Assistant Dean, College of ACES

FWS/rhc

cc: K. M. Claus
P. A. Hodson
NRES C&C File

telephone 217-333-3380 • *fax* 217-244-6537

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Proposal to the Senate Committee on Educational Policy to Establish or Modify an Undergraduate Minor

TITLE OF THE PROPOSED MINOR OR REVISION: Spatial and Quantitative Methods in Natural Resources and Environmental Sciences. This revises a current minor entitled: Quantitative Methods in Natural Resources and Environmental Sciences.

SPONSORING UNIT: Department of Natural Resources and Environmental Sciences, College of Agricultural, Consumer and Environmental Sciences. Anton G. Endress, Professor and Teaching Coordinator, 244-1679, aendress@illinois.edu

COLLEGE CONTACT: F. William Simmons, Assistant Dean of Academic Programs, College of Agricultural, Consumer and Environmental Sciences, 333-3380, fsimmons@uiuc.edu

BRIEF DESCRIPTION: This revision streamlines the minor by (1) simplifying the course prerequisite structure of the program, (2) enhancing and explicitly promoting the spatial analysis and modeling components of the minor, and (3) removing courses that have been eliminated by the offering departments.

JUSTIFICATION: Companies and organizations in Illinois, the U.S., and around the world are seeking employees with knowledge and skills in spatial analysis, statistics, and modeling techniques, and these skills are especially needed in fields involved in natural resource management and environmental health. The current minor (Quantitative Methods in Natural Resources and Environmental Sciences) has the potential to serve a significant number of students interested in these types of positions; however, enrollment in the minor to date has been very low. This revision is an effort to more broadly promote the minor, increase accessibility to students in different campus units, and introduce greater flexibility for students to emphasize or balance courses in the three core areas of the minor. Specifically, the revision pursued three major objectives:

1. Highlight the different types of quantitative methods in use in NRES-related fields and organize the course lists so students can better communicate to employers how the minor relates to professional opportunities;
2. Remove courses that have been eliminated from the course catalogue and remove 500-level courses that are not appropriate for most undergraduates (although outstanding undergraduates can persuade a department to allow them to take 500-level courses, and this is encouraged for students who seek special approval to apply a course toward the minor); and
3. Refine the course lists to eliminate hidden prerequisites, to reflect anticipated future course offerings, and to enable students to complete the minor in the face of changes (e.g. retirements and budget cuts) that may interfere with the consistency of course offerings by introducing more course flexibility.

Following implementation of the revision, the Department of Natural Resources and Environmental Sciences will actively promote the minor – an activity not done in the past. The

development of materials about the appropriateness of this minor to potential employers and graduate/professional degree programs is under way.

BUDGETARY AND STAFF IMPLICATIONS:

a. Additional staff and dollars needed — There are no additions to staff or budget required by this revision.

b. Internal reallocations (e.g., change in class size, teaching loads, student-faculty ratio, etc.) — This revision reflects reallocations of time and teaching effort that were already planned or implemented within NRES. While increasing the number of students pursuing the minor (an important goal of the revision), a dramatic increase of student demand for any particular course is not anticipated, and most are not fully subscribed at present.

c. Effect on course enrollment in other units and explanations of discussions with representatives of those departments — Discussions with other departments have focused on the future course offerings and anticipated enrollments. The revision has been specifically designed to allow students to complete the minor even as courses on the list lie fallow or are fully enrolled. Consequently there is no expectation that the revision will have any appreciable impact on the enrollment in individual courses or obligate departments to offer courses they are planning to remove from the teaching rotation.

d. Impact on the University Library — None, this is an existing program.

e. Impact on computer use, laboratory use, equipment, etc. — Use of computer labs may increase slightly, as the number of students enrolled in the minor increases, but it will be extremely small in the overall pattern of usage.

DESIRED EFFECTIVE DATE: Fall 2010

STATEMENT FOR PROGRAMS OF STUDY CATALOG:

Natural Resources and Environmental Sciences

Natural Resources and Environmental Sciences
Head of Department: Jeffrey Brawn
Department Address: W-503 Turner Hall, 1102 South Goodwin Avenue, Urbana, (217) 333-2770

www.nres.illinois.edu

Major in Natural Resources and Environmental Sciences
Minor in Quantitative Methods in Natural Resources and Environmental Sciences

Major in Natural Resources and Environmental Sciences
Minor in Spatial and Quantitative Methods in Natural Resources and Environmental Sciences

The Spatial and Quantitative Methods in Natural Resources and Environmental Sciences minor is ideal for students in NRES and allied fields seeking preparation for careers requiring skills in geographic information systems, statistics, research design, and/or mathematical modeling. This minor is open to students in all majors and is especially relevant for those pursuing a major related to natural resource and environmental issues who want to distinguish themselves with more advanced analytical skills.

In order to be eligible to declare the Minor in Spatial and Quantitative Methods in Natural Resources and Environmental Sciences, a student must have successfully completed the Quantitative Reasoning I and Quantitative Reasoning II requirements in the College of ACES.

The minor requires the completion of an additional 18 hours of coursework selected from the following list. Students must earn credit for at least 3 hours in each of the three categories. Courses taken to fulfill the minor may not be counted toward the NRES major, but may count toward majors in other fields.

	Required Courses for the Minor in Spatial and Quantitative Methods in Natural Resources and Environmental Sciences
Hours	Statistics & Research Design. Minimum of 3 credit hours selected from:
3	NRES 340: Environ Social Sci Res Meth
3	NRES 421: Quantitative Methods in NRES
4	CPSC 440: Applied Statistical Methods I
4	NRES 445: Statistical Methods
4	NRES 493: Statistical Ecology
4	SOC 485: Intermediate Social Statistics
3	STAT 200: Statistical Analysis
	Mathematical Modeling. Minimum of 3 credit hours selected from:
4	NRES 422: Earth Systems Modeling
4	NRES 427: Modeling Natural Resources

3	NRES 469: Spatial Ecosystem Modeling
3	ANSCI 448: Math Modeling in Life Sciences
3-4	GEOG 467: Dynm Simul of Nat Res Problems
3	GEOG 468: Biological Modeling
Hours	Spatial Analysis. Minimum of 3 credit hours selected from:
3	NRES 454: GIS in Natural Resource Mgmt
2	NRES 455: Adv GIS for Nat Res Planning
3	NRES 465: Landscape Ecology
3	GEOG 476: Applied GIS to Environ Studies
3	GEOG 479: Advanced Geog Info Systems

CLEARANCES: *(Clearances should include signatures and dates of approval) - - These signatures must appear on a separate sheet. If multiple departments or colleges, add lines.)*

Signatures:

Unit Representative: _____ Date: 10-5-10

College Representative: _____ Date: 10-5-10

Graduate College Representative: _____ Date: _____

Provost Representative: _____ Date: _____

Educational Policy Committee Representative: _____ Date: _____

Current Minor:

Minor in Quantitative Methods in Natural Resources and Environmental Sciences

The Quantitative Methods in Natural Resources and Environmental Sciences minor is designed for students who wish to develop competence in applying quantitative methods to natural resources and environmental decision-making to complement skills developed in their major areas of study.

Hours	Required Courses for a Minor in Quantitative Methods in Natural Resources and Environmental Sciences
3-5	One mathematics course selected from:
	MATH 231—Calculus II MATH 244—Calculus for Business II
3	One geographic information system course selected from:
	NRES 454—GIS in Natural Resource Mgt GEOG 479—Advanced Geog Info Systems
3-4	One applied modeling course selected from:
	NRES 422—Earth Systems Modeling NRES 427—Modeling Natural Resources NRES 490—Surface Water System Chemistry ANSCI 448—Math Modeling in Life Sciences GEOG 467—Dynm Simul of Nat Res Problems GEOG 468—Biological Modeling GEOG 469—Spatial Ecosystem Modeling
3-4	Three or more hours in applied statistics selected from:
	NRES 421—Quantitative Methods in NRES ACE 562—Applied Regression Models I CPSC 440—Applied Statistical Methods I ECON 471—Intro to Applied Econometrics SOC 485—Intermediate Social Statistics STAT 420—Methods of Applied Statistics
2-4	One or more courses selected from:
	NRES 455—Adv GIS for Nat Res Planning NRES 493—Statistical Ecology NRES 510—Adv Natural Resource Economics ACE 516—Environmental Economics ACE 563—Optimization Methods ACE 564—Applied Regression Models II ACE 566—Mathematics for Applied Econ ANSC 446—Population Genetics CEE 434—Environmental Systems, I CS 455—Numerical Methods for PDEs ECON 465—Mathematical Economics GEOG 477—Introduction to Remote Sensing MATH 225—Introductory Matrix Theory MATH 415—Linear Algebra SOC 581—Survey Research Methods I STAT 400—Statistics and Probability I
16	Minimum hours required for the minor