

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

Office of the Provost and Vice Chancellor  
for Academic Affairs

Swanlund Administration Building  
601 East John Street  
Champaign, IL 61820



September 6, 2001

Susan A. Lamb, Chair  
Senate Committee on Educational Policy  
Office of the Senate  
228 English Building, MC-461

Dear Professor Lamb:

Enclosed are copies of a proposal from College of Agricultural, Consumer and Environmental Sciences for a minor in Quantitative Methods in Natural Resources and Environmental Sciences.

This proposal has been approved by the College Courses and Curricula Committee, the College Faculty, and the College Administration; it now requires Senate review.

Sincerely,

A handwritten signature in black ink that reads "Keith A. Marshall".

Keith A. Marshall  
Assistant Provost

KAM/drm

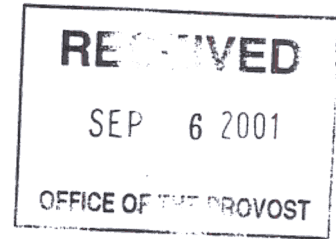
c: C. Livingstone  
R. McBride  
M. Harmon

EP.02.11

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

College of Agricultural, Consumer  
and Environmental Sciences

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



August 31, 2001

Keith Marshall, Assistant Provost  
Office of the Provost  
207 Swanlund Administration Building  
Campus MC-304

Dear Keith:

Enclosed are three proposals for minors to be offered by the College of ACES. Specifically, they are a Minor in Animal Sciences, a Minor in Fiber Science, and a Minor in Quantitative Methods in Natural Resources and Environmental Sciences. The proposed minors are supported by the College Courses and Curricula Committee, the College Faculty, and the College Administration.

Please forward these to the appropriate Senate committee for their consideration.

Sincerely,

Wayne Banwart  
Assistant Dean, College of ACES

WLB/rhc

c: R. McBride  
M. Harmon

**Proposed minor title:** Quantitative Methods in Natural Resources and Environmental Sciences

**Sponsoring Unit:** Department of Natural Resources and Environmental Sciences

**Date:** March 14, 2001

**Brief description of the program of study:**

Natural resource and environmental decision-making increasingly relies on mathematical modeling, spatial modeling and applied statistical analysis. The proposed minor will provide students with a broad foundation in the application of quantitative methods to natural resource and environmental decision-making to complement skills developed in their major area of study.

The proposed minor is one of a package proposed by the department of Natural Resource and Environmental Sciences. This is consistent with the diversity and breadth of the department which offers undergraduates nine options in three named degrees.

**Requirements:** Students must elect three hours or more of course(s) from each group:

- |   |  |           |
|---|--|-----------|
| 1. MATHEMATICS:                         | MATH 242, MATH 243, MATH 244, MATH 245                               | (3-5 hrs) |
| 2. GIS:                                 | NRES 354, GEOG 379   | (3 hrs)   |
| 3. MODELING:                            | NRES 327, NRES 346, NRES 390, GEOG 368                               | (3-4 hrs) |
| 4. APPLIED STATISTICS and OPTIMIZATION: | NRES 321, ACE 362, ACE 363, BIOL 371,<br>CPSC 340, ECON 371, SOC 385 | (3-4hrs)  |

Students must elect one or more course(s) from the following:

- |              |  |           |
|--------------|--|-----------|
| 5. ELECTIVE: | NRES 355, NRES 378, ECON 372,<br>ECON 375, GEOG 377, STAT 310,<br>ANSI 358 | (3-4 hrs) |
|--------------|--|-----------|

**Minimum Total Hours: 16**

**Prerequisites for the minor:** MATH 130, MATH 134 or MATH 135; STAT 100 or equivalent

**Expected enrollment in the minor:** Maximum of 5-10 students per year. It is expected that these students will be majors from other programs within the College of Agricultural, Consumer and Environmental Sciences; the College of Liberal Arts and Sciences particularly from programs in biology, geography, mathematics and statistics; and the College of Engineering particularly from programs in Civil and Environmental Engineering.

**Admission to the minor:** Admission to the minor will be monitored by the Department of Natural Resources and Environmental Sciences Teaching Coordinator.

**Minor advisors:** The NRES departmental advising coordinator will assign an advisor from the NRES Quantitative Analysis program.

**Certification of successful completion:** The college of ACES Office of Academic Programs will certify completion of the minor by ACES majors. Students from other colleges will be certified in their home college.

**Statement for the catalog:**

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 resource and environmental decision-making to complement their major area of study.

<b>Hours</b>	<b>Requirements</b>	
One mathematics course selected from:		
3-5	MATH 242 Calculus of Several Variables	(3 hrs)
	MATH 243 Multivariable Calculus and Vector Analysis	(4 hrs)
	MATH 244 Calculus for Social Scientists, II	(5 hrs)
	MATH 245 Calculus, II	(5 hrs)
One geographic information system course selected from:		
3	NRES 354 Geographical Information Systems for Natural Resource Management	(3 hrs)
	GEOG 379 Principles of Geographic Information Systems	(3 hrs)
One applied modeling course selected from:		
3-4	NRES 327 Ecological Modeling for Natural Resource Analysis	(4 hrs)
	NRES 346 Ecological Numeracy: Planning Analysis of Environmental Issues	(3 hrs)
	NRES 390 Chemistry of Surface Water Systems	(4 hrs)
	GEOG 368 Biological Modeling	(3 hrs)
Three or more hours in applied statistics and optimization selected from:		
3-4	NRES 321 Natural Resource Biometrics	(3 hrs)
	ACE 362 Applications of Regression Methods	(2 hrs)
	ACE 363 Optimization Methods	(2 hrs)
	BIOL 371 Quantitative Biology, I	(4 hrs)
	CPSC 340 Applied Statistical Methods	(4 hrs)
	ECON 371 Introduction to Applied Econometrics	(3 hrs)
	SOC 385 Social Statistics, I	(3 hrs)

One or more courses selected from:

- |   |              |
|---|--------------|
| 2-4 NRES 355 Advanced Geographic Information Systems<br>for Natural Resource Planning | (2 hrs)      |
| NRES 378 Statistical Ecology  | (4 hrs)      |
| STAT 310 Introduction to Mathematical Statistics and Probability, I                   | (4 hrs)      |
| ANSI 358 Mathematical Modeling in Life Sciences                                       | (3 or 4 hrs) |
| ECON 372 Econometrics   | (3 hrs)      |
| ECON 375 Mathematical Economics   | (3 hrs)      |
| GEOG 377 Introduction to Remote Sensing   | (3 hrs)      |

Clearances:

\_\_\_\_\_  
Head, Department of Natural Resources  
and Environmental Sciences

4-17-01  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Chair, Courses and Curriculum Committee,  
College of Agricultural, Consumer  
and Environmental Sciences

April 17, 2001  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Dean, College of Agricultural, Consumer  
and Environmental Sciences

0131/01  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Chair, Senate Educational Policy Committee

\_\_\_\_\_  
Date