

Program Name: Environmental Science, Resource Management, Policy and Practice Degree: MNUN Sequence Number: 1	Program Request ID: 2225
Effective Dates: Fall 2013 - Open Status: Interim Initial Action: New	
Requested Date: 6/6/2012 9:35:05 AM	
<p>1. Department/School/College: 38366 Department of Geography</p> <p>2. Name of Program: Environmental Science, Resource Management, Policy and Practice</p> <p>3. Name of Degree: MNUN</p> <p>4. Type of Program: Minor</p> <p>5. Effective Start Semester: Fall 2014³</p> <p>6. Target student audience for the program: Majors in SSC with an interest in social scientific perspectives on environmental theory, science, management, policy and practice</p> <p>7. Enrollment: What is the expected enrollment per year: 60</p> <p>What is the minimum enrollment acceptable: 5</p> <p>8. Source of budget for the program: To align academic planning and curricular change, ALL requests for NEW funds must be included in the College's annual planning letter. Provost approval of new funds and the effective date for the new program must align. If funding is not approved, then the program request will not be forwarded to Faculty Senate.</p> <p>Internal reallocation</p> <p>If new funds, was this request included in the College's annual planning letter? Indicate yes or no. If no, then this is a department or college fund reallocation (If the program is implemented, no additional resources are required.).</p> <p>9. Projected Costs as compared to other programs in unit: Same</p> <p>10. Staff requirement: How many additional staff will be required: 0</p> <p>Who will provide the primary instruction. Describe any external linkages(industry, government, etc.):</p> <p>11. Will additional equipment be required: Approximate cost: 0</p> <p>Source of funding:</p>	

12. Will additional library materials be required:

Approximate cost: 0

Source of funding: no funding needed

13. Will additional space be required:

Type:

Approximate amount:

14. If the program requirements contain a named concentration, do you wish for the concentration to be noted on the student's transcript?:

No

15. Detailed Description:

A. Background information: Geography has undergone a thorough review of its majors, in light of the fact that our major and minor counts are low. It is our goal to make our curriculum more rigorous and more appealing to students, and as a result, enabling them to be better prepared to enter the workforce, or graduate school. We believe that this new minor will have great appeal across campus, and will provide students in a variety of majors exposure to theory and practical solutions, informed by social science, to problems in the realm of environmental ~~policy~~ and decision making.

B. Rational for offering the Program: MSU has had a Geography Department and a Geography major for decades. This new minor is intended be an interdisciplinary program in environmental science, management, and practice~~policy~~, with an emphasis on geographic principles at the introductory and senior level, including opportunities for practical field work.- Our Department is nationally recognized and a College-wide leader in research, grants and teaching. To have a rigorous and applicable minor such as this, housed in our Department, is logical.

C. Rationale for the program to be housed in the primary administration unit: Although this minor is highly interdisciplinary, we believe that it is best housed in the Geography Department, as we have theoretical/curricular strengths in environmental science, management, and practice~~policy~~, as well as the tool/skill courses necessary for students to implement this ~~policy~~ environmental theory and resource management into practice.

D. Educational objectives of the new program and their relationship to those of the College and the University: Our goals are to provide a broad exposure to theory and practice in environmental decision making, informed by social science~~policy~~.

E. Faculty who were instrumental in developing the program and who will be responsible for implementing it: Dr Randall Schaetzl chaired the committee who developed the new program, and along with our undergraduate advisor, Ellen White, will help implement it. Other committee members were David Campbell (GEO), Adrienne Goldsberry (GEO), and Brad Miller (GEO student rep). Dr Igor Vojnovic was particularly instrumental in crafting the curriculum for this minor, having been a part of a similar (and successful) process at Texas

A&M.

G. ~~Program description: Please note that the requirements of this new program are based on the assumption that the pending curricular changes at the College level are implemented as currently planned.~~

Minor in Environmental Science, Resource Management, Policy and Practice - suggested catalog language

The Minor in Environmental Science, Resource Management, Policy and Practice, which is administered by the Department of Geography, emphasizes study in environmental theory, philosophy, management, and practice, ~~policy, and applications~~ from a social science perspective.

The minor is available as an elective to students who are enrolled in Bachelor's degree programs at Michigan State University. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the Bachelor's degree. ~~At least 12 unique credits counted towards the requirements for a student's minor must not be used to fulfill the requirements for that student's major.~~

Students who plan to complete the requirements for the minor should consult an undergraduate advisor in the Department of Geography.

Complete a minimum of 18 to 22 credits, with a minimum 2.00 grade point average, from the following:

Introductory course

~~ISS 310 People and Environment (4 credits)~~

GEO211 Environmental Policy and Practice (new course) (3 cr)*

A course in Environmental Geography (at least one course for a minimum of 3 credits)

~~GEO 203 Introduction to Meteorology (3 cr)~~

GEO 206 Physical Geography (3 cr)

GEO 333 Geography of Michigan and the Great Lakes Region (3 cr)

GEO 409 Global Climate Change and Variability (3 cr)

FW444 Conservation Biology (3 cr)

GLG201 The Dynamic Earth (4 cr)

Courses in Environmental Policy-Science, Resource Management, and/or Practice (at least three courses for a minimum of 9 credits)

ANP 325 Anthropology of the Environment and Development (3 cr)

ANP 431 Gender, Environment and Development (3 cr)

EC 201 Introduction to Microeconomics (3 cr)

~~EC 202 Introduction to Macroeconomics (3 cr)~~

EC 251H Microeconomics and Public Policy (4 cr)

EC 335 Taxes, Government Spending and Public Policy (3 cr)

EC 425 Law and Economics ([W](#)) (3 cr)
EC 435 Public Expenditures ([W](#)) (3 cr)
EEP 255 Ecological Economics (3 cr)
EEP 320 Environmental Economics (3 cr)
ESA 46440 Environmental and Natural Resources Policy in Michigan (3 cr)
~~EEPSA~~ 460 Natural Resource Economics (3 cr)
FOR 466 Natural Resource Policy (3 cr)
FW 211 Introduction to Gender and Environmental Issues (3 cr)
~~GEO 113 Economic Geography (3 cr)~~
[FWGEO 419 GIS Applications of Geographic Information Systems](#) to Natural Resource Management (4 cr)
GEO 453 Metropolitan Environments: [Urban Forms and Land Uses](#) (3 cr)
GEO 454 Geography of Environment and Development (3 cr)
HST 391 Environmental History of North America (3 cr)
PLS 310 Public Bureaucracy in the Policy Process (3 cr)
PLS 313 Public Policy Analysis (3 cr)
~~CSUS 310PRR-302- History of Environmental Thought and Sustainability Attitudes and Concepts~~ (3 cr)
SOC 452 Environment and Society (3 cr)
UP 353 Land Use Planning (~~Joint with SSC~~) (4 cr)
UP 433 Introduction to Environmental Planning (43 cr)
UP 488 The Sustainable and Climate Resilient City (3 cr)
ZOL 446 Environmental Issues and Public Policy (3 cr)
[MC/FW 445 Biodiversity Conservation Policy and Practice \(3 cr\)](#)
[MC/FW 481 Global Issues in Fisheries and Wildlife \(3 cr\)](#)
[MC/FW 459 Science, Technology, Environment and Public Policy Capstone \(3 cr\)](#)

Capstone course

GEO 432 Environmental Ethics ([W](#)) (3 cr)

*** NOTE: course name change will be submitted for GEO 211 (introductory course) to conform to new name of minor, “Environmental Science, Resource Management, and Practice”**

GEO Assessment plan

This assessment plan is designed to address the new Environmental [Science, Resource Management, Policy](#) and Practice minor.

Curricular goals

Our goal for this minor is to provide an interdisciplinary program in environmental [science](#).

[resource management, and practice, ~~policy~~](#), with an emphasis on geographic principles at the introductory and senior levels. The structure is formed around an introductory course [in basic principles of environmental science and resource management](#)~~in basic People-Environment relationships (ISS 310)~~, one course in the Natural Environment, three courses in Environmental [Science, ~~Policy~~ Resource Management](#) and/or Practice, and a capstone course that focuses on ethics in environmental studies (GEO 432). [Unlike related majors and minors on campus, this minor focuses on environmental issues from a social science perspective.](#)

Assessment structure

Curricular assessment is provided by a capstone course in Environmental Ethics (GEO 432), in which the students will be expected to put their previous academic experiences and content into an ethical framework.

Outcomes

We believe that graduates of this minor will be well-trained to understand the workings and foundations of a variety of environmental issues, as well as environmental management [and ~~policy~~](#) practices, at the local, regional, state, national, and transnational scales. Unlike related majors and minors on campus, this minor focuses on environmental issues from a social science perspective.

Michigan State University

Assessing Student Outcomes

College: Social Science
Department: Geography
Program or Major: Environmental [Science, Resource Management, and Practice](#)~~Policy~~
Program Level: MNUN
Contact Person: Randall Schaetzl or Alan Arbogast

Inventory of Written Statements and Plans

1. Do you have a written mission statement or statement of purpose? **yes** **no**
If yes, please attach a copy or reference where this can be found:

- 7. A Exit interviews with students graduating or leaving the program
- 8. A Student satisfaction surveys
- 9. A Student course evaluations
- 10.C Focus group discussions
- 11.A Alumni surveys
- 12.B Alumni honors, awards, achievements
- 13.C Analysis of grade distributions
- 14.C Peer review of courses
- 15.C Peer review of program
- 16.C Curriculum/syllabus analysis
- 17.C Community service/volunteerism participation
- 18. Other:

Does your program have an experiential learning component? yes **X** no
 If yes, how do you assess the student learning outcomes from that experience?

- 1. Participate in a class designed to complement the experience
- 2. Student journals
- 3. Formal evaluation procedures from field-based supervisor
- 4. Formal meetings between supervisor, student, and faculty
- 5. Formal test of practical skills
- 6. Other:

Implementation Plans

1. How has your department used any of the indicators above to improve services and programs for students?

We are continually adjusting our course and curricular strategies, upgrading syllabi and polling alumni to improve the educational system for our students.

2. When you think about developing and implementing an assessment plan, what concerns do you have?

Our minor counts are fairly low, so we always struggle with getting ample numbers of respondents to our alumni surveys.

**Return this form to: Kelly Funk
 221 Administration Building**

Assessing Student Outcomes modified and used with permission, Dr. Sharron L. Ronco, Florida Atlantic University

16. Are there admissions requirements for this program?:

Grade or grade-point average requirements and if so in which course(s), portfolio requirement, audition, essay, etc. If there are not admission requirements other than those required by the University policy indicate "none".

none

DEPARTMENT LEVEL APPROVAL STATUS

Approved: Department of Geography
8/8/2013 10:32:28 AM by Michael Connelly for Alan F. Arbogast, Chairperson

Comments: College updated approval list

SIGNOFFS STATUS

No Response by: College of Agriculture and Natural Resources

No Response by: College of Natural Science

Signed Off: Department of Agricultural, Food, and Resource Economics
8/8/2013 11:56:41 AM by James Hilker for Steven Hanson, Chairperson

Signed Off: Department of Anthropology
8/8/2013 5:02:06 PM by Laurie Medina for Jodie A. O'Gorman, Acting Chairperson

No Response by: Department of Community, Agriculture, Recreation and Resource Studies

Signed Off: Department of Economics
8/8/2013 10:39:47 AM by Margaret Lynch for Carl Davidson, Chairperson

No Response by: Department of Fisheries and Wildlife

No Response by: Department of Forestry

Signed Off: Department of Geological Sciences
8/8/2013 11:29:49 AM by Dave Hyndman for David W. Hyndman, Chairperson

No Response by: Department of History

No Response by: School of Planning, Design and Construction

No Response by: School of Planning, Design and Construction

No Response by: Department of Political Science

Signed Off: Department of Sociology
8/13/2013 2:32:37 PM by Ray Jussaume for Ray Jussaume, Chairperson

No Response by: Department of Zoology

COLLEGE LEVEL APPROVAL STATUS

Approved: College of Social Science
12/9/2013 4:32:27 PM by Michael Connelly for Ethan Segal, Associate Dean

COLLEGE OF SOCIAL SCIENCE

1. Request to establish a **Minor in Environmental Science, Resource Management, and Practice** in the Department of Geography in the College of Arts and Letters. The University Committee on Undergraduate Education (UCUE) will consider this request.

a. **Background Information:**

Geography has undergone a thorough review of its majors with the goal to make the curriculum more rigorous and more appealing to students, enabling them to be better prepared to enter the workforce, or graduate school. The minor will have great appeal across campus and will provide students in a variety of majors exposure to theory and practical solutions to problems in the realm of environmental policy and decision making.

The Minor in Environmental Science, Resource Management, and Practice is an interdisciplinary program in environmental policy, with an emphasis on geographic principles at the introductory and senior level. The Department of Geography is a nationally recognized and college-wide leader in research, grants, and teaching.

b. **Academic Programs Catalog Text:**

The Minor in Environmental Science, Resource Management, and Practice, which is administered by the Department of Geography, emphasizes study in environmental theory, management and practice, from a social science perspective.

The minor is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor's degree.

Students who plan to complete the requirements for the minor should consult an undergraduate advisor in the Department of Geography.

Requirements for the Minor in Environmental Science, Resource Management, and Practice

CREDITS

Students must complete 18 credits, with a minimum 2.0 grade-point average from the following:

- | | | | |
|----|--|--|---|
| 1. | The following course (3 credits): | | |
| | GEO 211 | Environmental Policy and Practice | 3 |
| 2. | One of the following courses (3 or 4 credits): | | |
| | FW 444 | Conservation Biology | 3 |
| | GEO 206 | Physical Geography | 3 |
| | GEO 333 | Geography of Michigan and the Great Lake Region | 3 |
| | GEO 409 | Global Climate Change and Variability | 3 |
| | GLG 201 | The Dynamic Earth | 4 |
| 3. | Three of the following courses (9 credits): | | |
| | ANP 325 | Anthropology of the Environment and Development | 3 |
| | ANP 431 | Gender, Environment and Development | 3 |
| | CSUS 310 | History of Environmental Thought and Sustainability | 3 |
| | CSUS 464 | Environmental and Natural Resource Policy
in Michigan | 3 |
| | EC 201 | Introduction to Microeconomics | 3 |
| | EC 251H | Microeconomics and Public Policy | 4 |
| | EC 335 | Taxes, Government Spending and Public Policy | 3 |
| | EC 425 | Law and Economics (W) | 3 |
| | EC 435 | Public Expenditures (W) | 3 |
| | EEP 255 | Ecological Economics | 3 |
| | EEP 320 | Environmental Economics | 3 |
| | EEP 460 | Natural Resource Economics | 3 |
| | FOR 466 | Natural Resource Policy | 3 |

	FW	211	Introduction to Gender and Environmental Issues	3
	FW	419	Applications of Geographic Information Systems to Natural Resource Management	4
	FW	445	Biodiversity Conservation Policy and Practice	3
	FW	481	Global Issues in Fisheries and Wildlife	3
	GEO	453	Metropolitan Environments: Urban Forms and Land Uses	3
	GEO	454	Geography of Environment and Development	3
	HST	391	Environmental History of North America	3
	MC	459	Science, Technology, Environment and Public Policy Capstone	3
	PLS	310	Public Bureaucracy in the Policy Process	3
	PLS	313	Public Policy Analysis	3
	SOC	452	Environment and Society	3
	UP	353	Land Use Planning	4
	UP	433	Introduction to Environmental Planning	4
	UP	488	The Sustainable and Climate Resilient City	3
	ZOL	446	Environmental Issues and Public Policy	3
4.	The following course:			
	GEO	432	Environmental Ethics (W)	3

Effective Fall 2014.

**SPATIAL INFORMATION PROCESSING
 SPECIALIZATION**

The spatial information processing specialization, which is administered by the Department of Geography, is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University. With the approval of the department and college that administer the student's degree program, the courses that are used to satisfy the requirements for the specialization may also be used to satisfy the requirements for the bachelor's degree.

The spatial information processing specialization is designed to develop academic expertise and professional competence in collecting, manipulating, analyzing, and displaying spatially-referenced information through the geographic subdisciplines of cartography, remote sensing, and geographic information systems.

Students who plan to complete the requirements for the spatial information processing specialization should contact the undergraduate advisor for spatial information processing in the Department of Geography.

**Requirements for the Spatial Information Processing
 Specialization**

The student must complete a minimum of 21 credits in courses as specified below:

	CREDITS
1. The following course:	3
GEO 221 Introduction to Geographic Information	3
2. One of the following courses:	3
GEO 490 Independent Study	3
GEO 498 Internship in Geography	3
3. Four of the following courses:	15 or 16
GEO 324 Remote Sensing of the Environment	4
GEO 326 Thematic Cartography	4
GEO 423 Map Production and Design	4
GEO 424 Advanced Remote Sensing	4
GEO 463 Introduction to Quantitative Methods for Geographers and Planners	3

Insert ①

MINOR IN GEOGRAPHY

The Minor in Geography, which is administered by the Department of Geography, provides a fundamental foundation to the breadth of study within the field of geography as well as grounding in general geographic theory.

The minor is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University other than the Bachelor of Arts or Bachelor of Science Degrees in Geography. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor's degree. At least 12 unique credits counted towards the requirements for a student's minor must not be used to fulfill the requirements for that student's major.

Students who plan to complete the requirements for the minor should consult an undergraduate advisor in the Department of Geography.

Requirements for the Minor in Geography

Complete a minimum of 21 credits in the Department of Geography from the following:

	CREDITS
1. A minimum of 9 credits from the following:	
GEO 113 Introduction to Economic Geography	3
GEO 151 Cultural Geography	3
GEO 203 Introduction to Meteorology	3
GEO 206 Physical Geography	3
GEO 206L Physical Geography Laboratory	1
GEO 221 Introduction to Geographic Information	3
2. A minimum of 3 credits from the following:	
GEO 204 World Regional Geography	3
GEO 330 Geography of the United States and Canada	3
GEO 333 Geography of Michigan and the Great Lakes Region	3

MINOR IN ENVIRONMENTAL SCIENCE, RESOURCE MANAGEMENT, AND PRACTICE

The Minor in Environmental Science, Resource Management, and Practice, which is administered by the Department of Geography, emphasizes study in environmental theory, management and practice from a social science perspective.

The minor is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor's degree.

Students who plan to complete the requirements for the minor should consult an undergraduate advisor in the Department of Geography.

Requirements for the Minor in Environmental Science, Resource Management, and Practice

Students must complete 18 credits, with a minimum 2.0 grade-point average from the following: CREDITS

- | | | | |
|----|--|--|---|
| 1. | The following course (3 credits): | | |
| | GEO 211 | Environmental Policy and Practice | 3 |
| 2. | One of the following courses (3 or 4 credits): | | |
| | FW 444 | Conservation Biology | 3 |
| | GEO 206 | Physical Geography | 3 |
| | GEO 333 | Geography of Michigan and the Great Lake Region | 3 |
| | GEO 409 | Global Climate Change and Variability | 3 |
| | GLG 201 | The Dynamic Earth | 4 |
| 3. | Three of the following courses (9 credits): | | |
| | ANP 325 | Anthropology of the Environment and Development | 3 |
| | ANP 431 | Gender, Environment and Development | 3 |
| | CSUS 310 | History of Environmental Thought and Sustainability | 3 |
| | CSUS 464 | Environmental and Natural Resource Policy in Michigan | 3 |
| | EC 201 | Introduction to Microeconomics | 3 |
| | EC 251H | Microeconomics and Public Policy | 4 |
| | EC 335 | Taxes, Government Spending and Public Policy | 3 |
| | EC 425 | Law and Economics (W) | 3 |
| | EC 435 | Public Expenditures (W) | 3 |
| | EEP 255 | Ecological Economics | 3 |
| | EEP 320 | Environmental Economics | 3 |
| | EEP 460 | Natural Resource Economics | 3 |
| | FOR 466 | Natural Resource Policy | 3 |
| | FW 211 | Introduction to Gender and Environmental Issues | 3 |
| | FW 419 | Applications of Geographic Information Systems to
Natural Resource Management | 4 |
| | FW 445 | Biodiversity Conservation Policy and Practice | 3 |
| | FW 481 | Global Issues in Fisheries and Wildlife | 3 |
| | GEO 453 | Metropolitan Environments: Urban Forms and Land Uses | 3 |
| | GEO 454 | Geography of Environment and Development | 3 |
| | HST 391 | Environmental History of North America | 3 |
| | MC 459 | Science, Technology, Environment and Public Policy Capstone | 3 |
| | PLS 310 | Public Bureaucracy in the Policy Process | 3 |
| | PLS 313 | Public Policy Analysis | 3 |
| | SOC 452 | Environment and Society | 3 |
| | UP 353 | Land Use Planning | 4 |
| | UP 433 | Introduction to Environmental Planning | 4 |
| | UP 488 | The Sustainable and Climate Resilient City | 3 |
| | ZOL 446 | Environmental Issues and Public Policy | 3 |
| 4. | The following course: | | |
| | GEO 432 | Environmental Ethics (W) | 3 |

- GEO 335 Geography of Latin America 3
 - GEO 336 Geography of Europe 3
 - GEO 337 Geography of Asia-Pacific (I) 3
 - GEO 338 Geography of Africa 3
3. Complete a minimum of 9 additional credits in Geography courses, of which 6 credits must be at the 400-level. The courses must be approved by the student's academic advisor.

MINOR IN GEOGRAPHIC INFORMATION SCIENCE

The Minor in Geographic Information Science, which is administered by the Department of Geography, provides a fundamental foundation to the breadth of study within the field of geographic information science.

The minor is available as an elective to students who are enrolled in bachelor's degree programs at Michigan State University other than the Bachelor of Science Degree in Geographic Information Science. With the approval of the department and college that administers the student's degree program, the courses that are used to satisfy the minor may also be used to satisfy the requirements for the bachelor's degree. At least 12 unique credits counted towards the requirements for a student's minor must not be used to fulfill the requirements for that student's major.

Students who plan to complete the requirements for the minor should consult an undergraduate advisor in the Department of Geography.

Requirements for the Minor in Geographic Information Science

CREDITS

Complete a minimum of 20 credits in the Department of Geography from the following:

- 1. The following course (3 credits):
 - GEO 221 Introduction to Geographic Information 3
- 2. One of the following courses (3 credits):
 - GEO 490 Independent Study 3
 - GEO 498 Internship in Geography 3

Both Geography 490 and 498 must have geographic information science, remote sensing, or cartography content to fulfill this requirement. Students should obtain advisor approval prior to enrolling in a section of either of these courses.
- 3. Complete a minimum of 14 credits from the following courses:
 - GEO 324 Remote Sensing of the Environment 4
 - GEO 325 Geographic Information Systems 3
 - GEO 363 Introduction to Quantitative Methods for Geographers . . 3
 - GEO 419 Application of Geographic Information Systems
to Natural Resources Management 4
 - GEO 423 Cartographic Design and Production 4
 - GEO 424 Advanced Remote Sensing 4
 - GEO 425 Problems in Geographic Information Science (W) 3
 - GEO 426 Thematic Cartography 4
 - GEO 428 Digital Terrain Analysis 4
 - GEO 453 Metropolitan Environments: Urban Forms
and Land Uses 3
 - GEO 494 Remote Sensing Field Techniques 2

Additional courses as approved by the student's academic advisor.

TEACHER CERTIFICATION OPTIONS

A geography disciplinary minor is available for secondary teacher certification.

Students who elect the geography disciplinary minor must contact the Department of Geography to plan their programs of study.

For additional information, refer to the statement on *TEACHER CERTIFICATION* in the *Department of Teacher Education* section of this catalog.

GRADUATE STUDY