

FORM C - DEGREE/PROGRAM CHANGE

CIP CODE

Date: 9/15/08

Olen P. Matthews
(Name of individual initiating curricular change form)

Assigned by
Associate Provost
for Academic Affairs

Professor, Chair, 277-5041
(Title, position, telephone number)

opmatt@unm.edu
(Email address)

- ROUTING (All Four Collated Sets)**
1. Department Chairperson
 2. College Curriculum Committee
 3. College or School Faculty (if necessary)
 4. College or School Dean/Dean of Instruction
 5. Office of the Registrar—Catalog
 6. Director of relevant Library
 7. FS Graduate Committee (graduate courses)
 8. FS Undergraduate Committee (undergraduate courses)
 9. FS Curriculum Committee
 10. Assoc. Provost for Academic Affairs
 11. Faculty Senate
 12. Board of Regents (new degree only)

Geography
(Department/Division/Program/Branch)

* Plan for curricular process to take at least 12 months.

Mark Appropriate Program:

This form is for Masters of Science Degree
Name of New or Existing Program

Undergraduate Degree Program

This program is or would be located in current undergraduate/graduate catalog
on page(s) 212

Graduate Degree Program (For existing degree only)

Mark appropriate category:

	NEW	REVISION OF	DELETION	NAME CHANGE
Degree <u>MS</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Major	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concentration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Certificate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emphasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Department	<input type="checkbox"/>	NA	<input type="checkbox"/>	<input type="checkbox"/>
Subject Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Give exact title and requirements as they should appear in the catalog. See current catalog for format within the respective college (attach additional sheets if necessary). Identify in bracket form what is being changed.

See attachment: M.S. Geography Degree Changes.

Change concentration name from Geographic Information Technology to Geographic Information Sciences.

Reason(s) for Request (attach additional sheets if necessary).

See attachment: Reasons for Request.

Registrar's note: Catalog lists name of concentration as Geog. Info. Sciences, but approved name is Geog. Info. Tech. This form formalizes name in current catalog.

Attach statements to address Budgetary and Faculty Load Implications and Long-range planning.

Does this change affect in a significant way, any other departmental programs/branch campuses? Yes No

If yes, have you resolved these issues with department/branch involved? _____ (attach statement)

Proposed Effective Term: Fall, 2009
Term Year

Required Signatures:

Department Chair <u>Olen P. Matthews</u>	Date <u>11/3/08</u>
College Curriculum Committee _____	Date _____
College or School Faculty (if necessary) _____	Date _____
College or School Dean/Dean of Instruction _____	Date <u>11/12/08</u>
Office of the Registrar—Catalog <u>Elizabeth A. Boston</u>	Date <u>11/05/08</u>
Director of relevant Library _____	Date <u>12-1-08</u>
FS Graduate Committee (graduate courses) _____	Date <u>2/5/09</u>
FS Undergraduate Committee (undergraduate courses) _____	Date _____
FS Curriculum Committee _____	Date <u>3-5-09</u>
Assoc. Provost for Academic Affairs _____	Date <u>3/11/09</u>
Faculty Senate _____	Date _____
Board of Regents _____	Date _____

Entered Banner

Entered Catalog

For Registrar's Office ONLY

Copies Mailed

M.S. Geography Degree Changes

Current MS degree with changes. The changes are to the Plan I and Plan II requirements to reflect the addition of concentrations and curriculum revisions. Deleted material is in [].

M.S. Geography

Concentrations: a) environmental management (human/environmental interaction) or b) geographic information sciences (GIS, GPS and remote sensing).

A master's degree is offered under both Plan I and Plan II as described in the earlier pages of this catalog. Any student planning to go on for a Ph.D. is strongly urged to take Plan I and write a thesis. A minor may be taken under either plan with the approval of the Geography Department's Graduate Advisory Committee. In place of a minor, approved courses in related fields may be substituted. Minimum requirements for the Geography M.S. degree are as follows:

[Plan I	Credits
GEOG 501	3
GEOG 504	3
One geography seminar:	3
One GI Science seminar:	3
Four graduate credit or 500-level geography courses	12
Thesis	6
	Total 30
Plan II	
GEOG 501	3
GEOG 504	3
Nine additional graduate-credit or 500-level geography courses	27
	Total 33]

Candidates under Plan I will be examined orally on their thesis. Candidates under Plan II will be tested with both oral and written examinations on a topic selected by his or her graduate committee from the two areas listed below. Part or all of the Plan II exam may be applied and require field work. A regional focus in any of the two topics is acceptable.

1. Environmental Management (Human/Environmental Interaction).
2. Geographic Information Sciences.

A graduate student who elects to do a master's degree in geography should have either an undergraduate degree in geography (or related field) or be prepared to make up deficiencies as determined by the Geography Department's Graduate Advisory Committee. Students must select an advisor who will help them design their programs and guide them through their tenure in the department. All programs are subject to approval by the Graduate Advisory Committee. Students must earn grades of B (3.0 GPA) or better in all courses on their plan of study, including those at the undergraduate level. GRE scores are required for application to the M.S. program.

Proposed MS degree requirements. Text from catalog remains the same.

[Required of all MS Students	Credits
GEOG 501 History and Methods in Geography	3
GEOG 502 Approaches to Geographic Research	3
Plan I Environmental Management Concentration	(Additional courses)
GEOG 514 Natural Resources Management Seminar or	
GEOG 515 Cultural and Political Ecology	3
Two additional courses from the Environmental Management List (514, 515, 561, 562, 563, or 564)	6
One Course from GIScience List (525, 580L, 581L, 582L, 583L, 584L, 585L, 586L, 587L, or 588L)	3
Two Elective Courses	6
Thesis	6
Total for Plan I Environmental Management Concentration:	30 Credits

Plan I Geographic Information Sciences Concentration	(Additional Courses)
GEOG 525 Seminar: Geographic Information Science	3
Three Courses from the GIScience List (580L, 581L, 582L, 583L, 584L, 585L, 586L, 587L, or 588L)	9
One course from the Environmental Management List (514, 515, 561, 562, 563, or 564)	3
One Elective Course	3
Thesis	6
Total for Plan I Geographic Information Technology [Science] Concentration:	30 Credits

Plan II Environmental Management Concentration	(Additional courses)
GEOG 514 Natural Resources Management Seminar or	
GEOG 515 Cultural and Political Ecology	3
Three additional courses from the Environmental Management List (514, 515, 561, 562, 563, or 564)	9
One Course from GIScience List (525, 580L, 581L, 582L, 583L, 584L, 585L, 586L, 587L, or 588L)	3
Four Elective Courses	12
Total for Plan II Environmental Management Concentration:	33 Credits

Plan II Geographic Information Sciences Concentration	(Additional Courses)
GEOG 525 Seminar: Geographic Information Science	3
Four Courses from the GIScience List (580L, 581L, 582L, 583L, 584L, 585L, 586L, 587L, or 588L)	12
Two courses from the Environmental Management List (514, 515, 561, 562, 563, or 564)	6
Two Elective Courses	6
Total for Plan II Geographic Information Technology [Science] Concentration:	33 Credits

Reasons for Request

The Geography Department went through Academic Program Review in the Spring of 2008. The reviewers approved the Department's proposed modifications of the M.S. degree and recommended a substantial number of courses be dropped with additional courses being added as new faculty are added to the Department. The review team also recommended that the M.S. degree be revised to focus on Geographic Information Science and Environmental Management as the Department proposed. Implementing these changes has required the deletion, modification, and addition of a substantial number of courses. Changes in the M.S. degree reflect those course modifications. With the addition of four new faculty members in the past two years, these revitalized programmatic changes can be implemented.

Budgetary and Faculty Load Implications and Long Term Planning:

As a result of the Academic Program Review recommendations, the Department's course offering will be more focused. The Department's revitalized degree programs will require a smaller Part-time/Temporary Budget. Currently the Department offers 18 courses each year with Part-time/Temporary faculty. With the revisions in place this will be reduced to 10 courses per year. Most of these courses are evening or weekend courses or will be taught by experts in GIScience currently employed at UNM's Earth Data Analysis Center. A course rotation list is included to show that the faculty can cover the changes. Also included is a list of course changes so the total number of courses dropped, modified, or added can be seen.

Department of Geography
Master of Science in Geography
Plan for Assessment of Student Learning Outcomes
The University of New Mexico

A. College, Department and Date

1. College: *College of Arts & Sciences*
2. Department: *Department of Geography*
3. Date: *May 10, 2008*

B. Academic Program of Study

M.S. Geography

C. Contact Person for the Assessment Plan

Maria Lane, Assistant Professor, mdlane@unm.edu

D. Broad Program Goals & Measurable Student Learning Outcomes

1. Broad Program Learning Goals for this Degree Program

- A. Students will learn to conduct legitimate and original research on geographical topics.
- B. Students will develop an ability to communicate clearly and effectively.
- C. Students will prepare themselves for professional careers in Geography.

2. List of Student Learning Outcomes (SLOs) for this Degree Program

- A.1. Students will be able to state an original research question appropriate for geographic analysis.
- A.2. Students will be able to state how a research project contributes to an existing body of geographic literature.
- A.3. Students will be able to design legitimate geographic methodology.
- A.4. Students will be able to implement legitimate geographic methodology.
- A.5. Students will be able to explain and assess the results of original geographic research.
- B.1. Students will be able to communicate clearly and effectively in a written format.
- B.2. Students will be able to communicate clearly and effectively in an oral format.
- C.1. Students will be able to enter professional positions or Ph.D. programs related to geography or environmental management.

E. Assessment of Student Learning Three-Year Plan

1. Priority Student Learning Outcomes

Over the next three years (2008-2011), the Department of Geography will assess all of the learning outcomes listed above. These program outcomes are responsive to UNM's broad student learning goals, as shown in the following table.

University of New Mexico Student Learning Goals				
Program SLOs	Knowledge	Skills	Responsibility	Program SLO is conceptually different from university goals.
A.1. Students will be able to state an original research question appropriate for geographic analysis.	X	X		
A.2. Students will be able to state how a research project contributes to an existing body of geographic literature.	X	X		
A.3. Students will be able to design legitimate geographic methodology.	X	X	X	
A.4. Students will be able to implement legitimate geographic methodology.		X	X	
A.5. Students will be able to explain and assess the results of original geographic research.		X	X	
B.1. Students will be able to communicate clearly and effectively in an oral format.		X	X	
B.2. Students will be able to communicate clearly and effectively in a written format.		X	X	
C.1. Students will be able to enter professional positions related to geography or environmental management.		X	X	

2. How will learning outcomes be assessed?

Learning outcomes under goals A and B will be assessed using each M.S. student's final professional product as evidence of learning. Since students are allowed to choose either a thesis option (Plan I) or a non-thesis option (Plan II) to meet their graduate requirements, these products will be slightly different. The outcome related to goal C will be assessed via indirect evidence of professional placement. Specific methods and plans for assessment are described fully on the following pages.

Note: Program Assessment for the M.S. in Geography will include evidence from all students who graduate from the program during each three-year assessment cycle.

2. How will learning outcomes be assessed? (continued)

MEASUREMENT PROCESS #1

Outcomes:

- A.1. Students will be able to state an original research question appropriate for geographic analysis.
- A.2. Students will be able to state how a research project contributes to an existing body of geographic literature.

Measurement Process:

- i. Assessment of these outcomes will use the student's final professional product as evidence of student learning, as follows:
 - Plan I students: written thesis and oral thesis defense
 - Plan II students: research proposal generated in the required class GEOG 501
- ii. This is a direct measurement.
- iii. The program performance target for these outcomes is defined as "acceptable" or better performance by 100% of graduating students. The standards for "acceptable" are defined in the attached Rubric A, which breaks each outcome into multiple components.

MEASUREMENT PROCESS #2

Outcomes:

- A.3. Students will be able to design legitimate geographic methodology.
- A.4. Students will be able to implement legitimate geographic methodology.
- A.5. Students will be able to explain and assess the results of original geographic research.

Measurement Process:

- i. Assessment of these outcomes will use the student's final professional product as evidence of student learning, as follows:
 - Plan I students: written thesis and oral thesis defense
 - Plan II students: written answer and oral defense of field problem assignment
- ii. This is a direct measurement.
- iii. The program performance target for these outcomes is defined as "acceptable" or better performance by 100% of graduating students. The standards for "acceptable" are defined in the attached Rubric A, which breaks the outcome into multiple components.

MEASUREMENT PROCESS #3

Outcome:

- B.1. Students will be able to communicate clearly and effectively in an oral format.

Measurement Process:

- i. Assessment of this outcome will use the student's final professional product as evidence of student learning, as follows:
 - Plan I students: oral thesis defense
 - Plan II students: oral defense of field problem assignment
- ii. This is a direct measurement.
- iii. The program performance target for this outcome is defined as "acceptable" or better performance by 100% of graduating students. The standard for "acceptable" is defined in the attached Rubric B, which breaks the outcome into multiple components.

2. How will learning outcomes be assessed? (continued)

MEASUREMENT PROCESS #4

Outcome:

- B.2. Students will be able to communicate clearly and effectively in a written format.

Measurement Process:

- i. Assessment of this outcome will use the student's final professional product as evidence of student learning, as follows:
 - Plan I students: written thesis
 - Plan II students: written answer to field problem assignment
- ii. This is a direct measurement.
- iii. The program performance target for this outcome is defined as "acceptable" or better performance by 100% of graduating students. The standard for "acceptable" is defined in the attached Rubric B, which breaks the outcome into multiple components.

MEASUREMENT PROCESS #5

Outcome:

- C.1. Students will be able to enter professional positions or Ph.D. programs related to geography or environmental management.

Measurement Process:

- i. Assessment of this outcome will use self-reported evidence of job placement after graduation. This will be collected by each student's major faculty advisor and will be compiled by the Department on an annual basis.
- ii. This is an indirect measurement.
- iii. The program performance target for this outcome is that 75% of our former graduate students will hold a professional position or will be enrolled in a Ph.D. program related to geography or environmental management within two years of graduation.

3. When will learning outcomes be assessed? When and in what forum will the results of the assessment be discussed?

In general, assessment will be conducted on a rolling basis. Each time a student writes and orally defends a thesis or field problem, three Geography faculty members will independently measure the student's mastery of outcomes using Rubrics A and B.

Note: For Plan II students, two of the outcomes (A.1 and A.2) will be assessed using evidence from the written research proposal submitted in the required class GEOG 502. After the conclusion of this class each spring, the instructor will file all students' proposals so that they can be retrieved at the time of each Plan II student's field problem defense. At that time, the committee will take the additional step of reviewing the GEOG 502 proposal for purposes of assessment, using Rubric A.

Completed rubrics A and B will be placed in an assessment file (to be administered by the departmental Assessment Coordinator) as soon as they are completed. Each summer, the Assessment Coordinator will produce an annual report on the number of students assessed and the average scores recorded for each outcome. This report will be distributed to the entire faculty and to the Advisory Board. This report will also include a synopsis of self-reported professional placement, as gathered by faculty members and compiled by the Department Administrator.

3. When will learning outcomes be assessed? (continued)

Modifications to the assessment instruments/methods will be discussed each year at the annual faculty retreat. Changes in program curriculum/pedagogy will be discussed every third year, beginning in summer 2010. (See next section for details regarding this process.)

TIMELINE

- **Summer 2008**
 - appointment of Assessment Coordinator
 - assignment of assessment duties for 2008-209
- **Fall 2008 - Spring 2009**
 - rolling assessment of final professional products
- **Summer 2009**
 - annual report compiled/distributed
 - faculty review of assessment procedures
 - assignment of assessment duties for 2009-2010
- **Fall 2009 - Spring 2010**
 - rolling assessment of final professional products
- **Summer 2010**
 - annual report compiled/distributed
 - faculty review of assessment procedures
 - faculty review of M.S. program
 - assignment of assessment duties for 2010-2011
- **Fall 2010 - Spring 2011**
 - rolling assessment of final professional products
- **Summer 2011**
 - annual report compiled/distributed
 - faculty review of assessment procedures
 - assignment of assessment duties for 2011-2012

4. What is the unit's process to analyze/interpret assessment data and use results to improve student learning?

All members of the Geography faculty will participate in the assessment process at various levels, as described below.

- a) Evidence will be gathered by the major faculty advisor for each graduating student, either in the collection of the written thesis/field problem, the convening of an oral defense of thesis/field problem, or the collection of self-reported professional placement data.

4. What is the unit's process to analyze/interpret assessment data and use results to improve student learning? (continued)

- b) Analysis of direct measures A.1-A.5 and B.1-B.2 will be conducted by three members of the Geography faculty for each student, typically the three members of the student's graduate committee. (If, however, the committee is not made up entirely of Geography faculty members, additional Geography faculty member(s) will be recruited to read the thesis or field problem and attend the oral defense for purposes of assessment.)
- c) Analysis of the indirect measure C.1 will be conducted by a member of the faculty, who will be assigned to compile and statistically analyze the data collected by each faculty member about his or her students' professional placement.
- d) Annual reports will be prepared by the Assessment Coordinator and circulated to the full faculty and the advisory board.
- e) Given the small size of the Geography faculty, interpretation of all measurements will be conducted by the faculty as a whole. Annual reports will be used as a basis for discussing assessment mechanisms/procedures (on an annual basis) as well as curricular design and pedagogical approaches (every third year). Priority areas for discussion at the annual faculty retreat will include:

2009, 2010, 2011

- Quality of data collected
- Completeness of data collected
- Reliability of data collected
- Potential improvements to measurement instruments
- Potential improvements to assessment procedures
- Assignment of assessment responsibilities for the coming year

2010

- Student performance levels on each outcome
 - Potential explanations for any missed targets
 - Desired improvements to student learning
 - Curricular approaches to improving student learning
 - Pedagogical approaches to improving student learning
 - Modifications to program goals and outcomes
 - Modifications to performance targets
- f) Recommendations will be voted on by the entire faculty and will be circulated annually to the advisory board, the Dean of Arts and Sciences, and the Provost's Office of Assessment.

RUBRIC A: COMPETENCIES IN GEOGRAPHICAL RESEARCH

Program Outcome	Criteria for "Acceptable" Performance	Assessment			
		Superior	Good	Acceptable	Not Acceptable
A.1. Student will be able to state an original research question appropriate for geographic analysis. <i>Plan I: thesis</i> <i>Plan II: 502 proposal</i>	1. States a research question.				
	2. The research question is original.				
	3. The research question is appropriate for geographic analysis.				
A.2. Student will be able to state how a research project contributes to an existing body of geographic literature. <i>Plan I: thesis</i> <i>Plan II: 502 proposal</i>	1. Identifies relevant subfields in the literature of geography and other relevant disciplines.				
	2. Makes a statement about how the research question fits into the existing body of literature.				
	3. Characterizes the potential contribution of the research.				
A.3. Student will be able to design legitimate geographic methodology. <i>Plan I: thesis</i> <i>Plan II: field problem</i>	1. Defines the study area or scale of analysis.				
	2. Justifies the limits of the study area or scale of analysis.				
	3. Identifies data sources appropriate to the research question.				
	4. Justifies the selection of data sources appropriate to the research question.				
	5. Identifies analytical methods appropriate to the research question.				
	6. Justifies the selection of analytical methods appropriate to the research question.				
A.4. The student will be able to implement legitimate geographic methodology. <i>Plan I: thesis</i> <i>Plan II: field problem</i>	1. Explains the method(s) and their application(s).				
	2. Methods are applied correctly.				
A.5. Students will be able to explain and assess the results of original geographic research. <i>Plan I: thesis</i> <i>Plan II: field problem</i>	1. Draws conclusions.				
	2. Supports conclusions with evidence.				
	3. Assesses the limitations of the research and its conclusions.				

RUBRIC B: COMPETENCIES IN COMMUNICATION

Program Outcome	Criteria for "Acceptable" Performance	Assessment			
		Superior	Good	Acceptable	Not Acceptable
B.1. Student will be able to communicate clearly and effectively in a written format. <i>Plan I: thesis</i> <i>Plan II: field problem</i>	1. Writing has a limited number of distractions caused by misspelled words, poor grammar, or inappropriate punctuation.				
	2. Meaning of sentences can generally be grasped on a single reading because of concise prose, fluent sentence structure, and clear pronoun reference.				
	3. Structure is organized in a logical way.				
	4. Uses maps and other graphics that are appropriate illustrations for the text.				
B.2. Student will be able to communicate clearly and effectively in an oral format. <i>Plan I: thesis</i> <i>Plan II: field problem</i>	1. Uses appropriate volume, eye contact, pacing, and gestures to engage the audience.				
	2. Uses visual aids that are appropriate illustrations for the oral presentation.				
	3. Structure is organized in a logical way.				
	4. Adheres to time limits without rushing.				