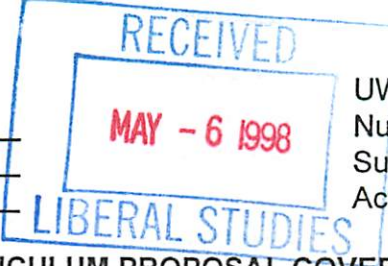


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



UWUCC USE Only
Number: _____
Submission Date: _____
Action-Date: _____

09-14b
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UWUCC App. 10/19/99
Senate App 2/1/00

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Darlene Richardson/Karen Rose Cercone Phone x 2379

Department Geoscience

II. PROPOSAL TYPE (Check All Appropriate Lines)

_____ **COURSE** _____
Suggested 20 character title

_____ New Course* _____
Course Number and Full Title

_____ Course Revision _____
Course Number and Full Title

_____ Liberal Studies Approval + _____
for new or existing course Course Number and Full Title

_____ Course Deletion _____
Course Number and Full Title

_____ Number and/or Title Change _____
Old Number and/or Full Old Title

_____ New Number and/or Full New Title

_____ Course or Catalog Description Change _____
Course Number and Full Title

PROGRAM: Major _____ Minor _____ Track

_____ New Program* _____
Program Name

Program Revision* BS Environmental Geoscience
Program Name

_____ Program Deletion* _____
Program Name

_____ Title Change _____
Old Program Name

_____ New Program Name

III. Approvals (signatures and date)

Darlene Richardson
Department Curriculum Committee

[Signature]
Department Chair

[Signature]
College Curriculum Committee

[Signature]
College Dean

[Signature]
+ Director of Liberal Studies (where applicable)

[Signature]
*Provost (where applicable)



Rev



II. DESCRIPTION OF CURRICULUM CHANGE

1. Catalog Description

The catalog description of the program remains the same as in the current undergraduate catalog with the following changes in program specifications.

Bachelor of Science--Environmental Geoscience

Liberal Studies: as outlined in Liberal Studies section with the following specifications: 56-57

Mathematics: MA 121 or 123

Natural Science: CH 111/112 or 113/114

Liberal Studies elective: MA 122 or 124, no courses with GS prefix

Major: 29

Required courses:

GS 121/122	Physical Geology lecture and lab	4sh
GS 131/132	Historical Geology lecture with lab	4sh
GS 310	Environmental Geology	3sh
GS 321	Mineralogy	3sh
GS 322	Igneous and Metamorphic Petrology	3sh
GS 325	Structural Geology	3sh
GS 331	Hydrogeology	3sh
GS 332	Geochemistry	3sh
GS 380	Research Techniques in Geoscience	2sh
GS 480	Geoscience Seminar	1sh

Other Requirements: 23-30

Biology sequence:

BI 111	Principles of Biology I	4sh
BI 250	Principles of Microbiology	3sh

Chemistry sequence:

CH 231	Organic Chemistry I	4sh
CH 323	Analytical Methods	4sh

Controlled Electives: 8-9sh

BI 112	Principles of Biology II	4sh
BI 272	Conservation of Plant and Animal Resources	3sh
BI 321	Environmental Protection I	3sh
BI 322	Environmental Protection II	3sh
BI 362	Ecology	3sh
CH 322	Instrumental Analysis	4sh
CH 341	Physical Chemistry I	4sh

Controlled Electives (continued)

CO 110	Problem Solving & Structured Programming	3sh
CO 250	Introduction to Numerical Methods	3sh
CO 310	Data Structures	3sh
GE 314	Map and Photograph Interpretation	3sh
GE 316	Introduction to Geographic Information Systems	3sh
GE 343	Geography of Fresh Water Resources	3sh
GE 415	Remote Sensing	3sh
GE 417	Technical Issues in GIS	3sh
GS 326	Field Geology	3sh
GS 327	Geomorphology	3sh
GS 411	Sedimentary Petrology	3sh
GS 412	Stratigraphy	3sh
GS 432	Coal Geology	3sh
GS 440	Subsurface Geology	3sh
One summer field course:		
GS 336	Geology of the Northern Rockies, or	3sh
GS 337	Geology of Newfoundland, or	3sh
GS 338	Geology of the American Southwest, or	3sh
GS 441	Carbonate Geology-- Florida	3sh
PY 111/121	Physics I Lecture/Lab (1)	4sh
PY 112/122	Physics II Lecture/Lab	4sh

Foreign Language Intermediate Level (2,3) 0-6sh

Free Electives:**8-16****Total Degree Requirements:****124**

- (1) Students who plan to pursue an advanced degree in environmental geoscience are strongly advised to take the physics sequence as their controlled electives.
- (2) Intermediate-level foreign languages may be included in Liberal Studies electives.
- (3) Six credits of computer language may substitute for the foreign language requirement: CO 110 and CO 310 (recommended), or other higher-level CO courses with department permission in consultation with the Computer Science Department.

2. Summary of proposed changes:

We propose the following changes to the BS in Environmental Geoscience, shown in comparison to the current program below:

CURRENT PROGRAM

Mathematics: MA 123
Liberal Studies Electives: MA 124, no courses with GS prefix

Six credits of computer language may be used to meet the foreign language requirement: CO 220, 310 or higher-level CO classes with department permission in consultation with the Computer Science Department

PROPOSED PROGRAM

Mathematics: MA 121 or MA 123
Liberal Studies electives: MA 122 or MA 124, no courses with GS prefix

Six credits of computer language may substitute for the foreign language requirement: CO 110 and 310 (recommended) or higher-level CO classes with department permission in consultation with the Computer Science Department.

Added to Required Courses:
GS 380 Research Techniques in Geoscience

Added to list of controlled electives:
BI 322 Environmental Protection II
GE 316 Introduction to Geographic Information Systems
GE 343 Geog. of Fresh Water Resources
GE 417 Technical Issues in GIS
GS 412 Stratigraphy
One summer field course:
GS 336 Geology of the Northern Rockies,
or GS 337 Geology of Newfoundland
or GS 338 Geology of the Am. Southwest
or GS 441 Carbonate Geology--Florida

Removed from list of controlled electives:
CO 220 Applied Computer Programming

We request permission to change our mathematics requirement to include the sequence MA 121/MA 122 in addition to MA 123/MA 124. This will bring our math requirement into alignment with our chemistry requirement, which currently gives students the option of taking

either the basic introductory sequence (CH 111/112) or a more rigorous introductory course (CH 113/114). After two years of requiring all students to take the more rigorous mathematics course, we have found that transfer students from other campuses and students without previous computer experience are often set back by the need to learn the Mathematica computer program in order to pass the MA 123/MA 124 sequence. We will continue to encourage all our students to take calculus at the most rigorous level they can handle, but we would also like to give them the option of a solid but less computer-oriented course.

Given the recent change in CO 110 Problem Solving and Structured Programming from use of FORTRAN to C++ (using a procedural approach) and the continued use of C++ in CO 310 Data Structures (using an object oriented approach), we believe that the sequence CO 110 and CO 310 is more appropriate to our students' needs than CO 220 and CO 250. This change has been both recommended and endorsed by the Computer Science Department. Because of these changes, we seek to delete CO 220 from the list of controlled electives. We changed the wording from "may be used to meet" to "may substitute for" in footnote (4) as suggested by the college curriculum committee.

We also request permission to add the existing course GS 380, Research Techniques in Geoscience, to our list of required core courses. GS 380 was created in 1995 specifically to be a core course taken by first-semester seniors, but mistakenly was not included as such in our 1995 program revision. GS 380 Research Techniques in Geoscience gives students an overview of geologic research techniques as well as experience in carrying out a geologic research project and then writing it up for professional publication. It was designed to form the research basis on which students could build in taking the required second-semester senior course, GS 480 Geoscience Seminar. Since most of our seniors already take GS 380 as a controlled elective, adding this course to the core will simply ensure that all students enter GS 480 with equal footing. The addition of GS 380 (2sh) to our core will not significantly impact the number of free electives that remain in the major. Free electives will decrease from a range of 10-18sh to 8-16sh. This change will put us on par with the BS in Chemistry (9-17 free electives) and the BS in Biology (13 free electives.)

Finally, we want to add several additional Geography and Geoscience courses and one Biology course to our list of controlled electives from which our Environmental Geoscience students can choose 8-9sh of upper-level course work. These courses either focus on newly developed technologies such as GIS (Geographic Information Systems), are appropriate for increasing the students' knowledge of environmental protection, or allow students to further develop their field geology skills with Stratigraphy or with one of the department's summer regional field courses in the Northern Rockies, Newfoundland, American Southwest or Florida. Due to their specialized regional nature, we are restricting students to use of one summer regional field course in the controlled elective category. Other field courses may be taken as free electives if desired.

III. IMPLEMENTATION

1. Students currently in the program will continue to take MA 123/124 and may take GS 380 as a controlled elective. Students entering the program in Fall 1998 will have the option of taking

MA 121/122 or MA 123/124 and will take GS 380 as a required core course. Current students who opt for the computer literacy component instead of the foreign language requirement will be given the opportunity to take either CO 220 and CO 310 (or other higher-level CO course) or CO 110 and CO 310 (or other higher-level CO course). Students who enter in Fall 1998 will take CO 110 and CO 310 (or other higher-level CO course).

2. The proposed changes will not affect teaching loads. We have a letters of support from affected departments. We have taught GS 380 for two years now and have accommodated the course by rotation of some of our 300- and 400-level courses. No additional faculty has been authorized.

3. Other resources are adequate.

4. We do not expect either an increase or a decrease in enrollments as a result of this revision.

IV. COURSE PROPOSALS--no course proposals necessary

V. LETTERS OF SUPPORT

Letters of support from the Liberal Studies Committee, Biology, Computer Science, Geography and Mathematics Departments are contained in the appendix. A letter from the Biology Department, granting a waiver for Environmental Geoscience students to enroll in BI 250 without taking BI 112 is also contained in Appendix I.