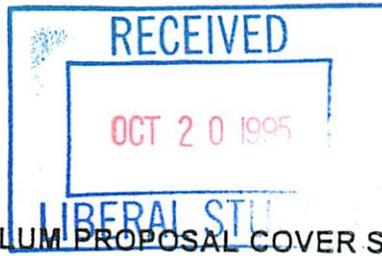


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



UWUCC USE Only
Number: 95-40f
Submission Date: App 12/12/95
Action-Date: Senate App 2/6/96

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Karen Rose Gercone Phone 5623
Department Geoscience

II. PROPOSAL TYPE (Check All Appropriate Lines)

- COURSE** Earth Sci for Ed I / Earth Sci for Ed I Lab
Suggested 20 character title
- New Course*** _____
Course Number and Full Title
- Course Revision** GS 111 Earth Science for Educators I
Course Number and Full Title
GS 112 Earth Science for Educators I Lab
- 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*** _____
Program Name
- Program Deletion*** _____
Program Name
- Title Change** _____
Old Program Name

New Program Name

III. Approvals (signatures and date)

Karen Rose Gercone 4-7-95 John D. Ed 4-7-95
Department Curriculum Committee Department Chair
[Signature] John D. Ed 10/20/9
College Curriculum Committee College Dean

+ Director of Liberal Studies (where applicable)

*Provost (where applicable)

Introduction:

Course revision: "Old" courses GS 101/102 Earth Science (GO) Lecture/Lab will be revised to GS 111/112 Earth Science for Educators I with changes in prerequisites, lab hours, and course descriptions.

Old:

GS 101 Earth Science Geology and Oceanography 3c-0l-3sh
A nonmathematical treatment of introductory oceanography and geology designed specifically for nonscience majors.

New:

GS 111 Earth Science for Educators I 3 credits
3 lecture hours
Prerequisites: Natural Science/Science Education Majors only (3c-0l-3sh)

An in-depth treatment of introductory oceanography and geology designed specifically for Secondary Science Education majors. Focuses on fundamentals of the Earth's physical processes and history; and on the ocean's dynamics, chemistry and tectonics.

Old:

GS 102 Earth Science Geology and Oceanography Lab 0c-2l-1sh
Should be taken concurrently with GS 101
Lab experiences in various aspects of oceanography and geology. Includes field trip(s).

New:

GS 112 Earth Science for Educators I Lab 1 credit
3 lab hours
Prerequisites: Natural Science/Science Education Majors only (0c-3l-1sh)
Corequisites: Enrollment in GS 111

Lab experiences in various aspects of oceanography and geology, designed to provide concepts and skills for future teaching to Secondary Education majors. Includes field trip(s).

Summary of proposed revisions for Earth Science for Educators I (GS 111-112)**OLD COURSES**

GS 101 Earth Science (GO) Lecture
 GS 102 Earth Science (GO) Lab

This primarily non-majors course combined a half-semester of geology and oceanography for students fulfilling their Liberal Studies science requirements. Labs were two hours long, and could not encompass in-depth problem-solving or extensive field work.

REVISED COURSES

GS 111 Earth Sci for Ed I Lecture
 GS 112 Earth Sci for Ed I Lab

This course will be tailored for secondary science education majors (Bio, Chem, Physics and General Science Ed majors). Lectures in geology and oceanography will cover topics most pertinent to future teachers, while three-hour labs will emphasize problem-solving and field work.

3. Justification for revision of Earth Science for Educators I (GS 111-112)

a. Justification for changes in prerequisites: Earth Science has been our traditional survey course of the four branches of geoscience: geology, oceanography, meteorology and astronomy. In the past, this course served double-duty, fulfilling non-major science requirements and also giving science education majors an introduction to the geosciences. With the creation of our new Introduction to Geoscience non-major course sequence, Earth Science (GO) will be renamed Earth Science for Educators I and renumbered as GS 111-112. The course will be made more specialized and useful to the future secondary teachers who will now be its sole audience. We plan to use a more expensive and longer-lasting textbook, so students can keep it for future reference. We also plan to tailor non-text readings to secondary education interests and to increase labs from two hours in length to three.

b. Justification for changes in catalog description: The new catalog descriptions more accurately represent course content:

c. Justification for change in lab hours: The change in lab hours will allow us to add more samples and more problem-solving applications to our lab exercises. Please see the course proposal overview for discussion of how the department plans to accommodate the one extra contact hour generated each semester by this change.

Old syllabi (appended)

Part III - Letters of Support (appended)

Biology - requested

Chemistry - received

Physics - requested
College of Education - requested

1. New Syllabi of Record:

Syllabi of record are attached for the both parts of the revised course sequence Earth Science for Educators I (GS 111-112).

GS 111 Earth Science for Educators I

I. Catalog Description:

GS 111 Earth Science for Educators I

3 credits

3 lecture hours

Prerequisites: Natural Science/Science Education Majors only

(3c-0l-3sh)

An in-depth treatment of introductory oceanography and geology designed specifically for Secondary Science Education majors. Focuses on fundamentals of the Earth's physical processes and history; and on the ocean's dynamics, chemistry and tectonics.

II. Course Objectives

1. Students will learn about the Earth's oceans, surface rocks and interior layers.
2. Students will understand the complex interactions between these earth systems.
3. Students will study the past history of the Earth's oceans and continents, and see how current geological and oceanographic processes may affect the Earth's future.
4. Students will gain enough knowledge and understanding of earth processes to design and teach secondary classes in these subjects.

III. Course Outline

A. The Earth's major features (4 hours)

1. Earth structure

Internal layers of the earth

External oceans and continents

2. Plate tectonics

Theory of plate motion

Modern examples of plate boundaries

B. The rock cycle (4 hours)

1. Basic building blocks

Minerals

2. The major rock types

Igneous rocks

Metamorphic rocks

Sedimentary rocks

C. Surficial Processes (5 hours)

1. The hydrologic cycle
 - Weathering and soils
 - Mass wasting
 - Rivers and streams
2. Geomorphology and climates
 - Glaciers, deserts and wind
 - Landscape development

D. Subsurface Processes (4 hours)

1. Processes that create natural hazards
 - Earthquakes
 - Volcanoes and igneous activity
2. Processes that shape the Earth
 - Rock deformation
 - Mountain building

E. The Ancient Earth (4 hours)

1. How to tell time
 - Absolute age dating
 - Relative age dating
2. History of the Earth
 - Evolution of continents and atmospheres
 - Life on earth

F. Basics of oceanography (6 hours)

1. What is the ocean made of?
 - Origin of the ocean
 - Composition of the oceans
 - Properties of seawater
2. How does the ocean work?
 - Plate tectonics revisited
 - Sea-floor topography
 - Ocean sediments

G. Ocean currents and circulation (5 hours)

1. Fluids in motion
 - Atmospheric circulation
 - Ocean circulation
2. Types of currents
 - Surface ocean currents
 - Thermohaline circulation
 - Tides and tidal currents

H. Ocean and land interactions (5 hours)

1. Beaches
 - Waves

- Longshore currents
- Rip-tides
- 2. Tidal flats and other coastal features
 - Tides revisited
 - Shoreline erosion
- I. Life and resources of the oceans (5 hours)
 - 1. The chain of life
 - Photosynthesis and primary productivity
 - Coral reefs
 - 2. Ocean resources
 - Minerals, energy and waste
 - Climate change and current events

IV. Evaluation Methods

The final grade for this course will be determined as follows:

- 80% Tests. Four tests, consisting of short and long essay questions.
- 5% Quizzes. Several short unannounced quizzes will be given in class.
- 15% In-class writing assignments.

The final point total will be divided by maximum possible points and grades will be assigned on the scale: 90-100%=A; 80-89%=B; 70-79%=C; 60-69%=D; and below 60%=F.

Note: Evaluation methods may differ slightly under different instructors (ie, additional quizzes and/or reading assignments).

V. Required Textbook, Supplemental Book and Readings

Tarbuck, E.J. and Lutgens, F.K., 1994, EARTH SCIENCE (7th Edition). New York: McMillan College Publishing Company, 755 p.

VI. Special Resource Requirements: None

VII. Bibliography:

Conte, D.J., Thompson, D.J., and Moses, L.L., 1994, EARTH SCIENCE: A HOLISTIC APPROACH. Dubuque: Wm.C Brown, 439 p.

Foster, R.J., 1991, GEOLOGY (6th Ed), New York: Merrill Publishing, 228 pp.

Gross, M.G., 1990, OCEANOGRAPHY (6th Ed). New York: Merrill Publishing, 190 p.

Ingmanson, D.E. and Wallace, W.J., 1993, OCEANOGRAPHY: AN INTRODUCTION (5th

Ed.). New York: Wadsworth Publishers, 493 p.

Laing, D., 1991, THE EARTH SYSTEM: AN INTRODUCTION TO EARTH SCIENCE:
Dubuque: Wm. C. Brown, 590 p.

Press, F. and Siever, R., 1986, EARTH. New York: W.H. Freeman and Company. 656 p

Skinner, B.J. and Porter, S.C., 1995, THE BLUE PLANET: AN INTRODUCTION TO
EARTH SYSTEMS SCIENCE. New York: John Wiley & Sons, 493 p.

GS 112 Earth Science for Educators I Lab

I. Catalog Description:

GS 112 Earth Science for Educators I Lab 1 credit
3 lab hours
Prerequisites: Natural Science/Science Education Majors only (0c-3l-1sh)
Co-requisites: Enrollment in GS 111

Lab experiences in various aspects of oceanography and geology, designed to provide concepts and skills for future teaching to Secondary Education majors. Includes field trip(s).

II. Course Objectives

1. Students will learn systems of identification for minerals, rocks types and fossils.
2. Students will understand how to collect and map geologic data in the field.
3. Students will learn navigation skills, ocean geography and basic seawater properties.
4. Students will understand how sediments, waves and coastal processes build up and contribute to marine ecosystems.

III. Course Outline

- A. Basic geological principles (3 labs)
 - Mineral identification
 - Rock identification
 - Fossil identification
- B. Mapping skills and field work (3 labs)
 - Topographic maps
 - Geologic maps
 - Field trip to Shelocta
- C. Lab Midterm Exam (1 lab)
- D. Basic oceanographic principles (2 labs)
 - Geography and navigation
 - Seawater properties
- E. Applications of oceanography (4 labs)
 - Marine sediments
 - Waves
 - Coastal processes
 - Marine ecosystems
- F. Lab Final Exam (1 lab)

IV. Evaluation Methods

Grades for GS 111 (lecture) and GS 112 (lab) are reported separately and do not affect each other. Your grade for GS 112 will be determined as follows:

80% Tests. Two two-hour lab exams will consist of sample identification, map and chart analysis and short essay questions.

20% Quizzes. Weekly quizzes will consist of short answer or sample identification questions.

The final point total will be divided by maximum possible points and grades will be assigned on the scale: 90-100%=A; 80-89%=B; 70-79%=C; 60-69%=D; and below 60%=F.

V. Required Textbook, Supplemental Book and Readings

IUP Earth Science for Educators Lab Manual. This lab manual was locally developed to take advantage of the unique local geology and laboratory facilities of IUP. Several nationally published lab manuals were consulted during the development process to ensure quality, parity and relevance to national trends in earth science teaching.

VI. Special Resource Requirements: None.

VII. Bibliography:

Foster, R.J., 1991, GEOLOGY (6th Ed), New York: Merrill Publishing, 228 pp.

Gross, M.G., 1990, OCEANOGRAPHY (6th Ed). New York: Merrill Publishing, 190 p.

Ingmanson, D.E. and Wallace, W.J., 1993, OCEANOGRAPHY: AN INTRODUCTION (5th Ed.). New York: Wadsworth Publishers, 493 p.

Laing, D., 1991, THE EARTH SYSTEM: AN INTRODUCTION TO EARTH SCIENCE: Dubuque: Wm. C. Brown, 590 p.

Professor Karen Rose Cercone
Office: 112 Walsh Hall
Hours: MWF 1-3 pm or by appointment

WEEK	LECTURE TOPIC	READING ASSIGNMENT
1	Hypotheses and theories in earth science. discovering the internal structure of the earth.	(115-9; 145-8)
2	The igneous rocks: classification, occurrence, tectonic significance and controversies over origin.	(20-35)
3	The sedimentary rocks: classification and occurrence; relationship to earth climate and ocean chemistry.	(35-48)
4	The metamorphic rocks: classification and occurrence. Ore deposits: their geologic development and utilization.	(49-55)
5	The theory of plate tectonics: development, evidence, and uses. Types of plate margins and their effects on rock structures.	(126-161)
6	Landscape evolution: landslides, earthquakes, floods and the human factor. Water resources	(119-125) (99-109)
7	The geologic record: age of the earth, rocks as documents of geologic history, the evolution of life and the Gaea hypothesis.	(167-179)

Grading in this half of the course: two hourly exams will be averaged with grades for each exam adjusted to a mean of 75% so that 90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D and below 60% = F. Grading for the entire course will consist of the average of your geology and oceanography grades. Lecture and lab grades are reported separately and do not affect each other.

Text: R.Foster, GEOLOGY (5th Ed.) Merrill Publishing Company.

Additional readings: Articles on file at the Library Reserve Desk as assigned in class. Information from these readings will be covered on both exams.

Professor Karen Rose Cercone
Office: 112 Walsh
Hours: MWF 1-3

WEEK	LAB EXERCISE
1	Mineral classification: describe and learn to identify the important rock-forming minerals
2	Rock identification: describe and learn to identify the igneous, sedimentary and metamorphic rocks; determine the genetic relationships between rock types
3	Fossil identification: classify groups of fossils and learn their uses in dating and correlation of rocks
4	Field exercise: using mineral, rock and fossil identification skills developed in previous labs, an actual rock sequence will be described and its geologic history will be reconstructed
5	Use of topographic maps: reading elevation data and utilizing it to determine suitable locations for various types of construction.
6	Use of geologic maps: reading geologic documents and using them to reconstruct geologic histories of various areas.
7	EXAM

Grading for this course consists of 6 lab reports worth 15 points each and a final exam worth 100 points. The exam will be adjusted to a mean of 75% so that 90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; and below 60% = F. Geology and oceanography lab grades will be averaged to obtain the final grade for the course.

Text: Earth Science Geology Lab manual, available at Kinko's

GS 101 Earth Science OCEANOGRAPHY
Lecture Outline

11

Summer Session: July 1 - July 10, 1987

Dr. D. Richardson

Office: 116 Walsh Hall

Office hours: every class day 3-4 pm

Lecture topics:

Introduction to oceanography: what is it, why we study it, brief history of ocean exploration, coordinate systems, living and non-living marine resources (read Gross, 1985, preface, 1-2, 9-13, 15, 110-111, 151-161)

Ocean basins: bathymetry, physiography, geology, evolution (Gross, 1-8, 15-33)

Properties of seawater: the water molecule, temperature, salinity, density, sound, illumination (Gross, 35-63)

Oceanic circulation: surface and deep, upwelling, downwelling, tides (Gross, 65-81, 88-94)

Coastal (Shoreline) processes: waves and beaches, estuaries (Gross, 83-88, 94-98, 101-113)

Life in the oceans: conditions, diversity (Gross 115-136)

Sediments: sources, distribution, geological and biological processes (139-149, re-read 122-125, 131-136)

Nutrients and pollutants: environmental oceanography

Text: Gross, M.G., 1985, Oceanography, 5th edition and additional readings from scientific journals and newspaper articles will be assigned.

Course assessment:

Examinations contain 2 types of questions: questions designed to encourage you to develop a particular line of reasoning to solve a problem and questions designed to consolidate (synthesize) what you have learned in lectures and readings. Course assessment for GS 101 Oceanog lectures will be based on 2 exams, 7 July and 10 July. Each test is comprised of 60 multiple choice, true-false, matching, etc.-type questions, op-scan computer corrected. The first test will cover material from "Introduction" to "Surface ocean circulation." The second will cover the remainder of the lecture topics. Final assessment for GS 101 (Geol and Oceanog) will be 50% Geol and 50% Oceanog. The grades on each test will be adjusted to a mean = 75% so that $\geq 90\%$ = A, 80-89% = B, 70-79% = C, 60-69% = D, and $\leq 59\%$ = F.

Units:

Although many units are in the International System of Units (i.e. metric) in accordance with contemporary scientific practice, current oceanographic usage retains nautical miles and fathoms for distance and depths. 1 nautical mile = 6080 feet or 1.15 land mile or 1.853 kilometer. 1 fathom = 6 feet or 1.83 meters.

Geology Terms:

You should be familiar with the meaning of the following terms: asthenosphere, basalt, Benioff zone (subduction zone), constructive, destructive, conservative plate margins, continental crust, earthquakes (epicenter, focus, magnitude), faulting and folding of rocks, geological time scale, granite, lithosphere, magma, magnetic anomalies, oceanic crust, plate tectonics, seafloor spreading, sediment transport, sorting, and deposition.

GS 102 EARTH SCIENCE LAB
OCEANOGRAPHY PORTION
FALL 1988

Dr. D. Richardson
Office: 116 Walsh Hall
Office hours: MF 1-2, W 1-4

Schedule of labs:

- 8 September 1988 Navigation, Plot course changes of R/V IUP Explorer
- 15 September Bathymetry, Contouring and Profiling
- 22 September Chemical Oceanography: measuring salinity and temperature
- 29 September Temperature and Upwelling: Part I of thermoclines and haloclines
- 6 October Part II of thermoclines and haloclines, water masses and mixing
- 13 October Nutrients and Pollutants
- 10 October End-of-course test

Course text:

Richardson, D.S., 1986, Oceanography Lab manual is available at Hinko's (Oakland Avenue). You are expected to read the appropriate lab material before coming to lab.

Course assessment:

The grade in the oceanography portion of GS 102 will be based on a test given on October 10, 1988 and the average of 5 quizzes. The test will count 75% and the average of the quizzes will count 25% to the total grade. The test and quizzes will be OPEN BOOK, short answer, and problem solving on the material covered in the labs. Your final grade in GS 102 will be 50% oceanography and 50% geology. The grade of the oceanography test will be adjusted to a mean - 75% so that ≥ 90% - A, 80-89% - B, and so on.

Date: March 22, 1995

To: John Butzow, Dean of the College of Education
Curriculum Committee Chair, College of Education

From: Karen Rose Cercone, Geoscience Curriculum Contact

Subject: Proposed Geoscience Course Revisions

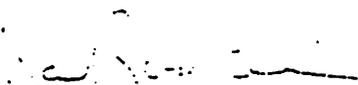
I have attached a course revision proposal which affects the GS 101-104 Earth Science course sequence taken by many Secondary Science Education majors. As part of a major overhaul of our introductory classes, the Geoscience Department plans to rename this course sequence Earth Science for Educators I and II and renumber it as GS 111-114. We plan to restrict future enrollment to science education majors only (ie, Earth and Space Science Ed, General Science Ed, Bio Ed, etc), plus any other science majors who are currently required to take Earth Science. The new GS 111-114 Earth Science for Educators will retain the traditional number of credits (3 lecture, 1 lab) but some lecture sections may become writing-intensive and all labs will be lengthened to three hours rather than two to allow more rigorous treatment of the material.

Please let me know within the next two weeks if you have any comments or suggestions on this planned revision. If the revision creates no problems for your department, I would appreciate you sending along a letter to that effect to be attached to our course proposal.

Thanks.

Date: March 22, 1995

To: Dennis Whitson, Chair of the Physics Department
Curriculum Committee Chair, Physics Department

From: Karen Rose Cercone, Geoscience Curriculum Contact 

Subject: Proposed Geoscience Course Revisions

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Thanks.

Date: March 22, 1995

To: Pothen Varughese, Chair of the Chemistry Department
Curriculum Committee Chair, Chemistry Department

From: Karen Rose Cercone, Geoscience Curriculum Contact

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Thanks.

Date: March 22, 1995

To: Bob Prezant, Chair of the Biology Department
Curriculum Committee Chair, Biology Department

From: Karen Rose Cercone, Geoscience Curriculum Contact

Subject: Proposed Geoscience Course Revisions

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Please let me know within the next two weeks if you have any comments or suggestions on this planned revision. If the revision creates no problems for your department, I would appreciate you sending along a letter to that effect to be attached to our course proposal.

Thanks.

Date: March 22, 1995

To: Susan Forbes, Chair of the Geography Department
Curriculum Committee Chair, Geography Department

From: Karen Rose Cercone, Geoscience Curriculum Contact

Subject: Proposed Geoscience Course Revisions

I have attached a course revision proposal which affects the GS 121/122 Physical Geology and GS 131/132 Historical Geology course sequence taken by many of your majors. As part of a major overhaul of our introductory classes, the Geoscience Department plans to restrict these two courses to Geology, Geoscience, Earth & Space Science Education, Anthropology and Geography majors only. The new courses will retain the same number of credits (3 lecture, 1 lab) and traditional format of a two semester overview of geology, but some of the lecture sections may become writing-intensive and all labs will be lengthened to three hours rather than two to allow more rigorous treatment of the material. We plan to petition the Liberal Studies committee for permission to allow the sequence to still fulfill the Liberal Studies lab science requirement for your majors, as it does now.

Please let me know within the next two weeks if you have any comments or suggestions on this planned revision. If the revision creates no problems for your department, I would appreciate you sending along a letter to that effect to be attached to our course proposal.

Thanks.

Date: March 22, 1995

To: Sarah Neusius, Chair of the Anthropology Department
Curriculum Committee Chair, Anthropology Department

From: Karen Rose Cercone, Geoscience Curriculum Contact

Subject: Proposed Geoscience Course Revisions

I have attached a course revision proposal which affects the GS 121/122 Physical Geology and GS 131/132 Historical Geology course sequence taken by many of your majors. As part of a major overhaul of our introductory classes, the Geoscience Department plans to restrict these two courses to Geology, Geoscience, Earth & Space Science Education, Anthropology and Geography majors only. The new courses will retain the same number of credits (3 lecture, 1 lab) and traditional format of a two semester overview of geology, but some of the lecture sections may become writing-intensive and all labs will be lengthened to three hours rather than two to allow more rigorous treatment of the material. We plan to petition the Liberal Studies committee for permission to allow the sequence to still fulfill the Liberal Studies lab science requirement for your majors, as it does now.

Please let me know within the next two weeks if you have any comments or suggestions on this planned revision. If the revision creates no problems for your department, I would appreciate you sending along a letter to that effect to be attached to our course proposal.

Thanks.

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Department of Geography and Regional Planning
Indiana University of Pennsylvania
10 Leonard Hall
Indiana, Pennsylvania 15705-1087

(412) 357-2250

IUP

March 28, 1995

Dear Karen,

Sue Forbes asked me to circulate the attached course proposal/revisions among the Geography faculty, and to forward any information to you. Sorry about the delay in getting this back to you, but some faculty mailboxes seem to be the proverbial "bottomless pits" into which everything disappears.

Everyone was satisfied with the proposal, and there were no suggestions for changes. There is one cosmetic change that you might consider making in paragraph one of your cover letter. Our department has both geography and regional planning majors, so you should change Geography to "Geography/Regional Planning" under the "restricted to" departments.

Sincerely,



Joe Bencloski

IUP CHEMISTRY DEPARTMENT

To: Karen Rose Cercone
Geoscience Curriculum Contact

From: Pothan Varughese, Chair
Chemistry Department



Date: March 30, 1995

Subject: Geoscience Course Revisions

I have looked through your geoscience course revision proposal. GS 111-114, Earth Science for Education I and II, are not required courses for any of the degree programs in the Chemistry Department. Therefore, I do not think the proposed course revision will affect the students in our department or the department in any way.

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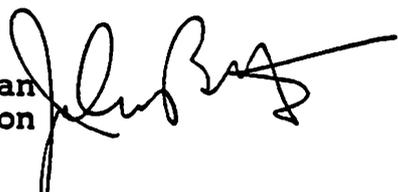
MEMORANDUM FROM
COLLEGE OF EDUCATION

DATE: April 6, 1995

SUBJECT: Approval Course Revision
GS 111/112

TO: Chairpersons Mill and Kuzneski
UWCC

FROM: John W. Butzow, Dean
College of Education



The TECC Curriculum Committee has approved the use of the revised GS 111/112 course in the secondary science teacher education programs.

cc: Ms. Sutton

~~MS~~

12.GS111.MEM

(412) 357-2730



April 6, 1995

Dr. Karen R. Cercone
Geoscience Department
Walsh 112

Dear Dr. Cercone:

We have reviewed your proposal regarding the Physical Geology and Historical Geology courses, and we fully support your plan to restrict these courses to students in specific majors. We believe this will result in more rigorous courses, as clustering students from cognate fields will permit more demanding and focused assignments and reading.

As you know, we encourage our students to take Geoscience classes as their science option because this topic is closely linked with our field, especially for our students interested in archeology. In recent years, a substantial proportion of our students in the archeology track have pursued a minor in Geology because of its relevance to the professional work of archeologists. We believe that your proposal to limit these two courses to selected majors will strengthen the linkage between our programs.

If I can provide any additional information in support of your proposal, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Miriam Chaiken'.

Miriam Chaiken, Ph. D.
Chairperson