1. **Catalog Description**

2. **Student Learning Objectives**

   A. Student learning objectives designed to help students achieve the following goals:

   1). Students will demonstrate the ability to write and speak effectively with the completion of the writing active segment of the oceanography course. Students will complete a 6-8 page term paper involving library research with at least 5 references cited in the text of the paper. Students will participate in class discussions on oceanographic topics.

   2). Students will demonstrate the ability to think critically with the completion of the term paper and the exams. Students will be required to think analytically on all exams. They must be able to synthesize and coordinate specific processes to answer analytical questions. Students will learn the interrelationships of oceanography with other sciences, including physics, chemistry, biology and geology. Students will analyze graphs, tables, and figures to determine specific inter-relationships and intra-relationships among the various fields of oceanography.

   3). Students will function as responsible citizens as a result of the inherent nature of oceanography. Oceans touch every continent and most of the countries and greatly affect every ecological system. Students will learn how oceans affect every ecological system.

   B. Additional objectives

   1). Students will relate oceanography to some aspect of their majors in the required term paper. In this manner, the term paper will offer the student the opportunity to broaden their knowledge of their major to some aspect of oceanography (e.g., an English/Literature major might write about mythology of the oceans; a History major might write about the Titanic; a Biology major might write about whales; etc.)

3. **Course Outline**
( Number in parentheses indicate the number of 50 minute lectures, total of 45 lectures)

   **Introduction (1)**
   
   Age & Origin of the Ocean
   General Characteristics of the Ocean
   Distribution of Land & Water

   **Permanence of the Ocean Basins (7)**
   
   Introduction to Plate Tectonics
   Ocean Floor Topography
   Volcanism
   Continental Margins
   Age and Depths of the Ocean Basins

   **Seawater (4)**
   
   Water Chemistry
   Forms of Water
Salts in Water
   Thermal Properties
   Physical Properties
   Density of Seawater
   Hydrologic Cycle

Exam I (1)

Ocean Currents (7)
   Surface Currents
   Coriolis Effect
   Ekman Spiral
   Water Masses
   Deep Ocean Currents
   Geostrophic Currents

Waves, Tides, and Beaches (6)
   Ideal Waves
   Shallow Waves
   Seismic Sea Waves
   Internal Waves
   Tides
   Beaches and Beach Processes

Exam II (1)

Coasts (2)
   Estuaries

Life in the Ocean (6)
   Marine Organisms
   Light
   Nutrients
   Marine Ecosystems

Sediments of the Ocean (3)
   Lithogenous Sediment
   Biogenous Sediment
   Hydrogenous Sediment
   Turbidity Currents

Exam III (1)

Special Topics in Oceanography (6)
   Ocean Resources
   Law of the Sea
   Fisheries
   Petroleum
   Energy from the Ocean
   Weather and Oceanography
   Ocean Engineering
   Oceans and Transportation - A Historical Perspective

Final Exam
4. **Evaluation of Student Learning**

A. How student learning objectives will be evaluated:
   1). Three exams and a final exam will be given as noted in the outline. Exams will be analytical multiple choice.
   2). A written report, consisting of 6-8 pages of library researched material will examine a topic chosen by the student in the first six class meetings. The topics are not limited by those listed in the outline.
   3). The grade for each student will be calculated using the following criteria:
      - Exam 1 20%
      - Exam 2 20%
      - Exam 3 20%
      - Written Presentation 20%
      - Final Exam 20%
      - Total 100%

B. Satisfaction of Oceanography as a “writing active” general education course:
   1). The 6-8 page term paper of an oceanographic related topic, which the student chooses, must have at least 5 references. The paper must have all references cited in the body of the text that are cited in the bibliography. This paper is to allow the student to pursue a topic in depth and aids in the mastering of course content as well as strengthen writing skills. Graded term papers are available for inspection by the last week of classes.

5. **Rationale**

A. The segment of the general education program into which Oceanography will be placed is **SCIENTIFIC AWARENESS** under Physical Sciences.

B. Few people are aware of the significance of the oceans throughout Earth’s history and the multitude of scientific interactions between the ocean, the atmosphere, and the continents in determining the past, present, and future of the planet Earth. Oceanography is an excellent interdisciplinary course to discuss the principles, methods and applications of physics, chemistry, biology, and geology at the 2000 level. The study of the oceanography will better equip general education students in the near future in understanding how oceanography can help solve the problems of feeding 100,000 new mouths daily, creating new energy sources for an energy starved world, and forecasting major storms that can save millions of dollars in damage and many human lives.

As a 3000 level core course it was open to students generally without academic background in the subject matter. However the course expectations has been modified very slightly to make it compatible with changing it from 3000-level to 2000 level. Also there is no 3000-level course required in the new general education program. There are no prerequisites for this course.

C. This is a revision of ESC/GEL 3450C and should maintain the same curriculum i.d. as ESC/GEL 3450C.

D. This course is an elective in geography major, geography minor and earth science minor for teacher certification. It is required in the earth science minor.

6. **Implementation**

A. Geology/Geography department staff will be assigned to teach this course. [Initial Instructor: Dr. James F. Stratton]

C. Because of the historically large numbers of students taking this course and the large number of handouts and other purchased materials, a $3.00 approved course charge is assessed.
D. Term to be first offered: Spring 2001

7. **Community College Transfer**
   A community college course may be judged equivalent to this course.

8. **Date approved by the Geology/Geography Department:** 2/18/2000

9. **Date approved by the COS Curriculum Committee:** 3/24/2000

10. **Date approved by the CAA:** 10/19/2000

   Contact person: Alan Baharlou
   Phone #: 217-581-2626