

~~5072~~

74-5/25

(12)

FACULTY SENATE

CURRICULUM COMMITTEE

Course Approval Form

Department Physical Science

Title Geography

Sponsor(s) Mr. Murray No. of Credits 4

Approved by the department  Graduate

Not recommended by the department Undergraduate

Information copies forwarded: Academic Dean; Chairman; Curriculum Committee

[Signature]  
Signature: Department Chairman

1974 305

ACADEMIC DEAN

Consultation on proposal has been held

Comments:

[Signature] 2/21  
Signature: Academic Dean

CURRICULUM COMMITTEE

Proposal received

Open Hearing held 2/27/75

Returned to the department for the following reason(s):

could not do a convincing case

Approved by the Curriculum Committee 3/12

Presented to Executive Committee of the Faculty Senate as information 3/14

Notifications forwarded: Academic Dean; Department Chairman

[Signature]  
Signature: Chairman, Curriculum Committee

ACADEMIC DEAN

I have reviewed the final documents as approved and concur with same.  
Budget, faculty and library resources are adequate for immediate implementation.

I have reviewed the final documents as approved and concur with same.  
Budget, faculty and/or library allocations for the current academic year  
are inadequate for immediate implementation or implementation in the next  
fiscal year. The earliest that the proposal might be implemented would be

---

HEGIS Taxonomy Number: \_\_\_\_\_

Alan D. ... 3/31/75  
Signature: Academic Dean

Copies forwarded: Chairman, Curriculum Committee; Department Chairman;  
Provost; Registrar

---

REGISTRAR

Approved course description received

Signature: Registrar

---

PROVOST

Official copy and approval sheet filed

Signature: Provost (or designee)

- Note: 1) Course proposal format is attached  
2) A copy of this approval form should accompany each proposal  
3) A copy of a proposed catalogue description of the course must  
accompany the proposal as a separate page.

Delaware State College

Department of Physical Science

- I. Course Title: Oceanography 1919.305  
Department: Physical Science  
Sponsor: Mr. Joseph Waring acting for The New Jersey Marine Science Consortium. The course is sponsored by N.J.M.S.C. and will be presented at the Seaville N.J.M.S.C. facility.
- II. Undergraduate course, Junior level. Catalogue number 1919.305, 4 sh laboratory, lecture, field work, independent projects. The course is being presented this coming summer (1975). We are asking that this course be approved for credit at G.S.C. to widen the course work available to our students. The student must have advanced standing in one of the science programs.
- III. An authority in the field will be engaged by the N.J.M.S.C. to present the course. While all costs of this course will be covered by N.J.M.S.C., the student from G.S.C. will register here and pay the regular course fees to the college.

A. General Aims of the Course

To acquaint the student with the principles of oceanography through classroom, laboratory, and field studies at an intermediate level.

This course is intended to be intermediate between the 200 level "Introduction to the Marine Sciences" and the calculus and physics based "Introduction to Physical Oceanography".

B. Specific Objectives of the Course

To familiarize the student with the principles of Physical chemical, geological and biochemical oceanography and with the collection and interpretation of oceanographic data.

C. Content and Scope of the Course

See attached sheet

D. Procedures, Techniques and Methods

Lectures, demonstrations, laboratory, and field work; independent projects.

E. Instructional Materials

Oceanographic instruments, bathymetric charts, topographic maps, water and sediment sampling and analysis equipment, chemical apparatus, etc.; library resources.

F. Basic Requirements of the Course

Term project (laboratory and field oriented); library research  
~~Mid~~ Midterm and final exam.

G. Selected Bibliography

- American Public Health Association, 1955, Standard Methods for the Examination of Water, 11th ed., Amer. Pub. Health Assoc., Inc., N.Y.
- Barnes, H., 1959, Apparatus and Methods of Oceanography, Part I, Chemical, George Allen and Unwin, Ltd., London.
- Dyrssen, D., and Sagner, D., eds., 1972, The Changing Chemistry of the Oceans, John Wiley Interscience, N.Y.
- Duxbury, A. C., 1971, The Earth and Its Oceans, Addison-Wesley Pub. Co., Reading, Mass.
- Harvey, H.W., 1960, The Chemistry and Fertility of Sea Waters, Cambridge Unvi. Press, Cambridge, England.
- Horne, R. A., 1969, Marine Chemistry, John Wiley Interscience, N.Y.
- Knudsen, M., ed., 1959, Hydrographic Tables, Reported by Tutein and Koch, Copenhagen, 1950.
- Kuenen, P.H., Marine Geology, John Wiley and Sons, Inc., N.Y.
- Martin, D. F., 1968, Marine Chemistry, Vol. I, Analytical Methods, Marcel Dekkar, Inc., N.Y.
- \_\_\_\_\_, 1970, Marine Chemistry, Vol. II, Theory and Applications, Marcel Dakkar, Inc., N.Y.
- Riley, J. P. and Chester, R., 1971, Introduction to Marine Chemistry, Academic Press, N.Y.
- Shepard, F. P., 1973, Submarine Geology, Harper and Row, N.Y.
- Sverdrup, H.U. and others, 1942, The Oceans, Their Physics, Chemistry and Biology, Prentice-Hall, Inc., Englewood Cliffs, N.J.
- Stanley, D. J., ed., 1969, The New Concepts of Continental Margin Sedimentation, Amer. Geol. Inst., Washington.
- U. S. Naval Oceanographic Manual, Instruction Manual for Obtaining Oceanographic Data, 1968, 3rd ed., Pub. No. 607, U. S. Naval Oceanographic Office, Washington.
- Weyel, P.K., 1970, Oceanography, An Introduction to the Marine Environment, John Wiley and Sons, N.Y.
- Zenkovitch, V.P., 1967, Processes of Coastal Development, John Wiley and Sons, N.Y.

H. Texts

- Pirie, R. G., ed., 1973, Oceanography, Contemporary Readings in Ocean Sciences, Oxford Univ. Press, Oxford, Eng.
- Williams, J., 1962, Oceanography, An Introduction to the Marine Sciences, Little, Brown and Co., Boston.

## Oceanography - Scope and Content

### Outline of Course Coverage

#### I. Introduction

- A. History of oceanography
- B. Man and the sea
- C. Origin of the ocean basins
- D. Origin of sea water
- E. General instruments (vessels, platforms, buoys, etc.)

#### II. Physical Oceanography

- A. Physical properties of sea water
- B. Coriolis effect
- C. Surface currents
- D. Subsurface currents
- E. Turbidity currents
- F. Thermohaline circulation
- G. Waves
- H. Tsunamis
- I. Instrumentation and sampling
- J. Heat budget of the oceans
- K. Mixing
- L. Water types and water masses
- M. Hydrological cycle

#### III. Chemical Oceanography

- A. Composition of sea water
- B. Carbon cycle
- C. Nitrogen cycle
- D. Dissolved oxygen
- E. Salinity and chlorinity
- F. Dissolved gases
- G. Nutrients
- H. Particulate matter
- I. Instrumentation and sampling

#### IV. Marine Geology

- A. Bathymetry
- B. Ocean basins and their evolution
- C. Coasts and shorelines
- D. Sedimentation
- E. Beaches
- F. Lagoons and estuaries
- G. Tidal marshes
- H. Seafloor topography
- I. Isostasy
- J. Pleistocene history and its effect on the oceans and shorelines
- K. Continental drift and sea floor spreading
- L. Instrumentation and sampling

V. Biological oceanography

- A. Marine life zones
- B. Benthonic, nektonic and planktonic habits
- C. Marine botany
- D. Marine zoology
- E. Production
- = F. Trophic levels
- G. Food web
- H. Biogeography
- I. Bioluminescence
- J. Marine ecology
- K. Sampling
- L. Instrumentation

VI. Biochemical oceanography

VII. Ocean technology

- 1. Mining
- 2. Coastal engineering
- 3. Food from the sea
- 4. Pollution
- 5. Instrumentation
- 6. Photography
- 7. Submersibles

Course Description:

A course designed to familiarize the student with the principles of physical, chemical, geological and biochemical oceanography and with the collection and interpretation of oceanographic data. The course includes class, laboratory, field work and independent projects, offered in the summer at the New Jersey Marine Sciences Consortium facilities.

Prerequisites: Advanced standing in one of the natural sciences, or permission of the instructor.