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The Two Hundred and Twenty-Ninth Report of the Curricular Affairs Committee: Proposal for a B.S. degree in Physics and Physical Oceanography

University of Rhode Island Faculty Senate

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THE UNIVERSITY OF RHODE ISLAND
Kingston, Rhode Island

FACULTY SENATE
BILL

Adopted by the Faculty Senate

TO: President Edward D. Eddy

FROM: Chairperson of the Faculty Senate

1. The attached BILL, titled The Two Hundred and Twenty-Ninth Report of the Curricular Affairs Committee: Proposal for a B.S. degree in Physics and Physical Oceanography, is forwarded for your consideration.
2. The original and two copies for your use are included.
3. This BILL was adopted by vote of the Faculty Senate on April 3, 1986.
(date)
4. After considering this bill, will you please indicate your approval or disapproval. Return the original or forward it to the Board of Governors, completing the appropriate endorsement below.
5. In accordance with Section 10, paragraph 4 of the Senate's By-Laws, this bill will become effective April 24, 1986, three weeks after Senate approval, unless: (1) specific dates for implementation are written into the bill; (2) you return it disapproved; (3) you forward it to the Board of Governors for their approval; or (4) the University Faculty petitions for a referendum. If the bill is forwarded to the Board of Governors, it will not become effective until approved by the Board.

April 4, 1986
(date)

Richard Katula
Richard Katula
Chairperson of the Faculty Senate

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

Returned.

- a. Approved _____.
- b. Approved subject to final approval by Board of Governors .
- c. Disapproved _____.

April 14, 1986
(date)

Edward D. Eddy
President

Junior Year

First Semester

CHM 431 (3), 335 (2), OCG 501 (3), general education requirement (3) and free elective (3).

Junior Year

Second Semester

CHM 432 (3), OCG 521 (3), general education requirements (6) and free electives (6).

Senior Year

First Semester

CHM 401 (3), 425 (2), 427 (3), OCG 493 (3), and free elective (3-5).

Senior Year

Second Semester

CHM 412 (3), 414 (2), OCG 494 (3) and free electives (6-8).

E. INTERINSTITUTIONAL CONSIDERATIONS

There are presently no undergraduate oceanography concentrations available at any Rhode Island institutions of higher education, nor at any other NEBHE institutions. Students with a good background in chemistry from CCRI or RIC should be able to transfer into this program. Its availability should serve as an effective recruiting mechanism from the New England area (via NEBHE listing) and from other areas as well.

F. RESOURCES

No additional resources are required for this program.

G. EVALUATION

The program will be continuously evaluated by Chemistry and Chemical Oceanography faculty participating in the program as to effectiveness in attracting students, quality of students and their success in professional careers or further graduate study. An advisor in Chemistry and an advisor in Chemical Oceanography is a requirement of this program, and entry into the program at the junior year will require approval by both departments.

FACULTY SENATE

March 19, 1986

Faculty Senate Curricular Affairs Committee
Two Hundred and Twenty-Ninth Report

Proposal for a B.S. Degree in Physics and Physical Oceanography

At its meeting of January 27, 1986 the Faculty Senate Curricular Affairs Committee approved the proposal from the College of Arts and Sciences, the Graduate School of Oceanography and the Department of Physics for a new Interdisciplinary Bachelor of Science degree in Physics and Physical Oceanography. In accordance with section 8.85.10 of the University Manual, the Curricular Affairs Committee forwarded the proposal to the Office of the Vice President for Business and Finance with a request that a budgetary impact statement for the proposal be prepared. In his memorandum dated February 14, 1986, Mr. Vernon Wyman, Assistant to the Vice President for Business and Finance stated that the program "would be supported within current staffing and budgetary resources, suggesting that ... potential and positive effects on retention and recruitment would come at no additional cost to the Institution."

Based upon Mr. Wyman's statement, the Faculty Senate Executive Committee concluded on March 18, 1986 that the proposed B.S. degree does not require review and ranking by the New Program Review Committee because it meets the criteria for exemption set forth in section 8.85.24 of the University Manual:

If programs do not require the allocation of general revenue funds for direct costs or if the program can be entirely supported by reprogramming existing departmental funds, or if the amount of general revenue funds required per year does not exceed the current calendar year minimum salary of an instructor, no review under 8.85.20 shall be required.

The Curricular Affairs Committee recommends that the Faculty Senate approve the following proposal for the creation of a new Bachelor of Science Degree in Physics and Physical Oceanography (the proposal is in the format required by the Board of Governors for Higher Education):

A. PROGRAM INFORMATION

1. Name of institution: University of Rhode Island
2. Department and College: Physics Department, College of Arts and Sciences
3. Title of proposed program: Bachelor of Science in Physics and Physical Oceanography

4. Academic area: Physics, Oceanography
5. HEGIS title and classification code:
6. Intended date of initiation: Fall 1986
7. Anticipated date of first degrees: Spring 1987
8. Intended location: Kingston and Narragansett Bay Campuses of the University of Rhode Island
9. Institutional review and approval process: The proposal was approved by the Department of Physics, Graduate School of Oceanography, College of Arts and Sciences and Faculty Senate Curricular Affairs Committee.
10. Summary description: The proposed program is interdisciplinary, combining physics and physical oceanography. It includes most of the course requirements for the present B.S. in physics, with an emphasis on classical physics, and adds courses in fluid dynamics and physical oceanography. The program will prepare students to pursue professional careers or graduate study in either physics or physical oceanography.
11. Resources required: The program incorporates already existing courses that are not overenrolled and are taught by current faculty; moreover, it will utilize existing space and facilities. Therefore, no new or additional resources will be required.
12. Signature of the President _____
13. Persons to be contacted during the review:

Dr. M. Beverly Swan
Assistant Vice President for Academic Affairs
The University of Rhode Island
Kingston, RI 02881
(401) 792-2447

or

Dr. Surendra S. Malik, Chair
Department of Physics
The University of Rhode Island
Kingston, RI 02881
(401) 792-2071

Dr. John A. Knauss
Vice President, Marine Programs
The University of Rhode Island
Narragansett, RI 02882
(401) 792-6222

B. RATIONALE

The present program addresses several perceived needs and opportunities. Many undergraduate students who are interested in physics do not realize the career choices open to them with that curriculum; at the same time, the Physical Oceanography graduate program at GSO would profit from having high-quality physics majors made aware at an earlier stage of their undergraduate careers of the opportunities available in oceanography. These opportunities include technical positions in private and government oceanographic research institutions at both bachelor and postgraduate levels; demand for scientists with such backgrounds can only grow with increasing recognition of the importance of understanding ocean phenomena in wisely utilizing available marine resources.

An undergraduate program in general oceanography cannot fulfill these objectives because of the problem of superficiality which plagues most interdisciplinary majors. The present approach, by carefully delimiting the cognate fields, gives a thorough grounding in the basic sciences, and also provides flexibility to the student by preserving his or her option of entering either field.

C. INSTITUTIONAL ROLE

The proposed program fits in well with the emphasis on marine programs at URI. Since no additional resources are required, it represents an innovative and more efficient utilization of existing faculty expertise. A further dividend will be increased interaction between Physics and Graduate School of Oceanography faculty.

D. CONTENT

1. Proposed catalog description:

BACHELOR OF SCIENCE IN PHYSICS AND PHYSICAL OCEANOGRAPHY

This demanding program includes a comprehensive background in physics and a solid introduction to physical oceanography. The curriculum includes a full set of physics and mathematics courses required for a B.S. in physics, with extra emphasis on classical physics, plus additional upper division or graduate level courses in fluid dynamics and physical oceanography.

The senior physics research project (PHY 483 and 484) will be undertaken in the Graduate School of Oceanography under the supervision of a GSO faculty member. In addition to this, the student may find summer employment and/or participate in oceanographic research cruises after his or her junior year.

Students graduating in this course of study will be well prepared to pursue either conventional physics career options or careers in physical oceanography. For physical oceanographers at the B.S. level, technical positions in private or government oceanographic research laboratories are available. Students who continue on to graduate studies should expect to find high demand for physical oceanographers with advanced degrees. It is recommended that students planning to attend an oceanography graduate school take PHY 520 (Classical Dynamical Theory); students wishing to keep open the option of physics at the graduate level should take PHY 452 (Nuclear Physics). Students entering the URI Graduate School of Oceanography from this program will have a significant head start in comparison with those entering from most other undergraduate institutions.

A total of 129 credits is required for graduation.

2. Detailed curriculum for the program

Freshman Year

First Semester

MTH 141 (3), CHM 101, 102 (4) and general education requirements (8-10).

Freshman Year

Second Semester

MTH 142 (3), PHY 213, 285 (4), CSC 201 (3) and general education requirements (6).

Sophomore Year

First Semester

MTH 243 (3), PHY 214, 286 (4), CSC 202 (3) and general education requirements (6).

Sophomore Year

Second Semester

MTH 244 (3), PHY 334 (3), 341 (3) and general education requirements (6-9).

Junior Year

First Semester

PHY 322 (3), 381 (3), 425 (3), MTH 381 (3), EST 409 (3) and free elective (3).

Junior Year

Second Semester

MCE 354 (3), MTH 300-400 level elective (3), PHY 331 (3), 382 (3), 420 (3) and free elective (3).

Senior Year

First Semester

OCG 501 (3), PHY 483 (3), 451 (3), 455 (3), 520 (3) and free elective (3).

Senior Year

Second Semester

OCG 510 (3), PHY 484 (3), 402 (1), 452 (3) and free electives (6).

E. INTERINSTITUTIONAL CONSIDERATIONS

There are presently no undergraduate oceanography concentrations available at any Rhode Island institutions of higher education, or at any other NEBHE institutions. Students with a good background in physics from CCRI or RIC should be able to transfer into this program. Its availability should serve as an effective recruiting mechanism from the New England area (via NEBHE listing) and from other URI drawing areas as well.

F. RESOURCES

No additional resources are required for this program.

G. EVALUATION

The program will be continuously evaluated by Physics and Physical Oceanography faculty participating in the program as to effectiveness in attracting students, quality of the students, and their success in professional careers or further graduate study. Quality of incoming students will be monitored by requiring advisement by both Physics and Graduate School of Oceanography faculty prior to entering the program.

Faculty Senate
Library Committee Report
1985-86

Introduction

At the conclusion of last year's Library Committee report, we stated that in the year ahead "we intended to concern ourselves primarily with developing strategies . . . leading toward attaining physical expansion of the Library" and secondarily "to explore additional avenues . . . to increase the financial support available to the Library." And that is exactly what we have done, formulating plans to educate the University community about the planned enlargement of the Library and seeking sources of capital funds for its construction.

Physical Expansion

During the summer, we met for long sessions on two occasions, the second time joined by Vice President William R. Ferrante, to review and comment on the initial versions of the "Library Expansion Plan," a planning document drafted by the Library staff. At the end of the summer, we still hoped this proposal might be recommended by University officials for inclusion among the educational funding items to be submitted to Rhode Island voters in referenda in November, 1986. Following formal review of the University's strategic development priorities, however, as Vice President Ferrante explained to us in October, it was decided to defer the Library expansion plan until November, 1988, when, we understand, it will form the University's principal priority for bonding.

Since that time (interrupted by URI-AAUP's job action in support of improved faculty compensation), we have explored ways in addition to public bonding to acquire capital funds to be used to expand the Library and to support administrative officials in their efforts to remove the debt service obligations which pose an insuperable barrier to large scale public bonding for University projects. In a meeting with President Eddy, we have recommended that the University launch a major capital fund drive, making the Library a principal beneficiary, so as to reduce the \$15,000,000 currently projected as needed through public bonding to finance the "Library Expansion Plan." In talking with him, and with other University officials, we have expressed our concern that the enlargement of the Library not be made hostage to the University's inability to assume the debt service on so large an amount of public indebtedness.

Education

The major activity remaining for the year (this report to the Faculty Senate forms its first phase) involves an educational campaign designed to inform various constituencies in the University community about the need for expansion of the Library and about the character of the development plan. The Library staff has condensed the expansion

plan into a narrative statement which we will use in talking with such groups as the Graduate Council, the Graduate Student Association, the Council of Deans, the Student Senate and the Alumni Council. We hope this effort will help to clarify the reasons why a major enlargement of the Library is necessary so soon after the last addition was completed and to make known the dimensions of the program envisioned for the period 1985-2010.

Funding

The Library Committee's report in 1983-84, as many earlier reports, concluded with the statement that "more supportive administrative policies should be adopted to assure the Library's proper role within the institution." We can report very happily that during the past year support of this kind has been forthcoming under President Eddy's and Vice President Ferrante's leadership. The Library's capital budget for the acquisition of book stocks and equipment was increased by 20% for the current academic year over 1984-85--from \$1,251,489 to \$1,500,000. A portion of this increase was made possible as a result of the State Legislature's approval last spring of the University's request for restrained funding. It is indeed a pleasure to commend those responsible for this impressive new support for the Library.

We regret to report that the Council of Deans overwhelmingly opposed our recommendation last year calling for the establishment of a University policy under which a portion of overhead funds from research grants be assigned to the Library for acquisition and support activities. However, we trust this negative response has not settled the matter once and for all. Since the Library is vital to research productivity, we continue to believe it is owed a portion of research support funding.

Library Staff

We cannot conclude this report without also commending the commitment of the besieged Library staff whose numbers fall far short of the standard recommended for a library at a research university the size of URI. At a recent committee meeting, when, in the course of reviewing the latest version of the "Library Expansion Plan," those present inquired about the additional personnel necessary to staff an expanded University Library, the Dean of Libraries provided us with an account of the remarkable accomplishment of the present Faculty, noticeably fewer in number than needed to operate the Library effectively. It was a truly impressive tribute to their dedication to the University community. We feel it essential to tell you about their commitment and, through our report, to inform everyone at URI.

Members of the Committee:

Gordon S. Armstrong, THE