SIMON FRASER UNIVERSITY

S.83-96

MEMORANDUM

SENATE	From: SENATE COMMITTEE ON UNDERGRADUATE STUDIES
Subject: CHANGES - BIOLOGICAL SCIENCES	Date: NOVEMBER 15, 1983

Action undertaken by the Senate Committee on Undergraduate Studies at its meeting of November 15, 1983 gives rise to the following motions:-

MOTION 1:

"That Senate approve and recommend approval to the Board of Governors, as set forth in S.83-96 , the proposed

New course BISC 004-3 Apiculture: An introduction to bees and beekeeping."

MOTION 2:

"That Senate approve and recommend approval to the Board of Governors, as set forth in S.83-96 , the proposed

New courses MASC 413-3 Biology of Marine Molluscs
MASC 440-3 Biology of Marine Birds
MASC 445-3 Biology of Marine Mammals
MASC 446-3 Comparative Ethology"

Subject to the approval of the above courses by Senate and the Board of Governors the committee approved waiver of the normal two semester time lag requirement in order that these courses may be first offered in Summer 84-2.

Subject to the approval of MASC 446-3 the following note will be added to BISC 410-3:

"Students who have received credit for MASC 446-3 may not take BISC 410-3 for further credit toward a B.Sc. degree at SFU."

F-83-4

SCUS 83-53B

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Biological Sciences

Abbreviation Code: BISC Course Number: 004 Credit Hours: 3 Vector: 3-0-1

Title of Course: Apiculture: an introduction to bees and beekeeping

Calendar Description of Course:
The course will stress the biology of bees as well as management for honey production, and will provide the necessary information required to begin beekeeping. Lecture topics will include basic honeybee biology, beekeeping equipment, seasonal management, and disease prevention.

Nature of Course Lectures and Saturday laboratory (1-2 sessions)

Prerequisites (or special instructions): None

What course (courses), if any, is being dropped from the calendar if this course is approved: None

2. Scheduling

How frequently will the course be offered? Every two years

Semester in which the course will first be offered? 86-1

Which of your present faculty would be available to make the proposed offering possible? Dr. M. L. Winston

3. Objectives of the Course

The major objectives of this course are to
1) provide background in basic honeybee biology, and
2) introduce students to beekeeping management.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty	None
Staff	None
Library	None
Audio Visual	None
Space	None
Equipment	None

5. Approval

Date: Dec 6, 1982 OCT 24 1983

Department Chairman Dean Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a

Apiculture: An Introduction to Bees and Beekeeping

This course was offered as SCI 010 jointly with Continuing Studies in 82-1, and approximately 60 students enrolled, 40 for credit and 20 for audit or non-credit. This course is the only University-level course in bee biology and management in Western Canada; only the universities of Manitoba and Guelph offer similar courses. The Fraser Valley area has the highest concentration of beekeepers in B.C., and the demand for and level of interest in this course has been evident from the enthusiastic response of the students and local beekeeping organizations.

The first lectures will discuss aspects of bee biology, such as colony organization, caste, anatomy, life cycle, and development. Subsequent lectures will cover the construction and use of beekeeping equipment, management procedures throughout the year, and nectar and pollen. The final lectures will include more advanced bee topics such as disease control and queen rearing. Guest lecturers from the B.C. Ministry of Agriculture or commercial beekeepers will be used when appropriate. One or two Saturday laboratories will be devoted to demonstrations of technique.

A beekeeping handbook is currently being developed by myself in cooperation with the B.C. Ministry of Agriculture and the Honey Producers Association which will be used as the textbook for the course. Until that is completed, the text will be The Hive and the Honeybee, which is a standard reference and text on bees. Other reference materials from which reading assignments may be drawn are appended. All of these materials are currently held or on order in the S.F.U. Library.

M. L. Winston
Nov/82

Relevant Library material (all in S.F.U. Library)

Journals

J. Apicultural Research
American Bee Journal, Apicultural Abstracts
Bee World
Insectes Sociaux
Psyche
J. Economic Entomology
Annals Entomological Society of America
Canadian Entomologist
Behavioral Ecology and Sociobiology
Science
Oecologia
J.Kansas Entomological Society
Apidologie
Gleanings in Bee Culture

Books

The Social Behavior of the Bees	C.D. Michener
The Insect Societies	E. O. Wilson
Honey, a Comprehensive Survey	E. Crane
Pollen: Biology, Biochemistry, and Management	R.G. Stanley and H.F. Liskens
Contemporary Queen Rearing	Harry Laidlaw
Insect Pollination of Crops	J.B. Free
Anatomy and Dissection of the Honeybee	H. A. Dade
The Dance Language and Orientation of Bees	K. v. Frisch
Anatomy of the Honey Bee	R.E. Snodgrass
Bumblebee Economics	B. Heinrich
The Social Organization of Honeybees	J.B. Free
The Behavior and Social Life of Honeybees	C. R. Ribbands

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Mr. Harry Evans, Registrar	From: K. K. Nair, Chairman, Dept. of Biological Sciences.
Subject: MARINE SCIENCE COURSES	Date: October 25, 1983

The WCUMBS Management Council has recommended that the attached courses be added to the existing list of marine science courses. Since these courses will be offered in the summer of 1984, I would request that the 8 month lead time be waived.

K. K. Nair

KKN/ms
Encls.

SIMON FRASER UNIVERSITY

F-83-6

MEMORANDUM

To: Dr. A. G. Sherwood, Chairman, Faculty of Science Undergraduate Curriculum Committee	From: K. K. Nair, Chairman, Dept. of Biological Sciences
Subject: NEW UNDERGRADUATE COURSES	Date: September 26, 1983

The Management Council of the Western Canadian Universities Marine Biological Society has recommended that the attached courses be added to our existing list of Marine Science (MASC) courses.

The above courses have been approved by the DUCC.

K. K. Nair

KKN/ms
Encl.

BAMFIELD
MARINE
STATION

TO: Dr. K.K. Nair
FROM: Dr. R.E. Foreman
DATE: August 24, 1983.

Re: Proposed Marine Science Courses

The proposed new undergraduate courses will generally be offered every other year or, occasionally, every third year. The three graduate courses will probably be offered yearly depending on availability of instructors.

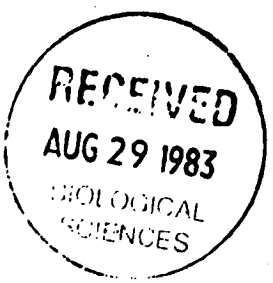
Library facilities at Bamfield, complimented by a cooperative inter-library loan program with the five member universities, are adequate for the courses proposed (MRSC 413, 440, 445, 446, 500, 501, and 502).

Please let me know if I can be of further assistance.

Ron

Dr. Ronald E. Foreman,
Director.

REF/lm



SIMON FRASER UNIVERSITY

MEMORANDUM

To: Mr. H. Evans, Registrar

From: K. K. Nair, Chairman, Dept. of Biological Sciences

Subject: MARINE SCIENCE COURSES

Date: November 21, 1983

This is in reference to the discussion we had regarding the above.

The Bamfield Marine Station (BMS) was established by a consortium of five Western Canadian universities, the Universities of Alberta, B. C., Calgary, Victoria and Simon Fraser University. One of the major activities of the Station is to offer a summer undergraduate programme that is available to students from member universities as well as to those who belong to non-member universities. With this end in view the BMS developed a series of courses in Marine Sciences (MASC) which were approved by member universities' Senate and included them in their respective Calendars under a separate heading "Marine Science" (see page 171, SFU Calendar).

As the Station now wishes to expand the offerings in Marine Sciences, and also because of sufficient interest shown by students for topics in additional fields in Marine Science, the Director of the BMS proposed a set of new courses for inclusion in the Calendar of member universities. These courses were evaluated by the Academic Committee of the Western Canadian Universities Marine Biological Society, and approved by the Management Council of the Society.

A more detailed outline of the proposed courses is herewith enclosed. Of the two 500 level courses, 501 and 502, the 501 is a total immersion course with the faculty and students interacting with each other almost on an hourly basis throughout the period of this course. The amount of work involved is not less than that of semester courses. The same can be said about the 502. Hence the quality of these courses is not different from that of other courses. By having short term intensive courses, the Station is able to attract some of the distinguished scientists whose services may not be available for longer periods because of their commitments elsewhere.

I would like to conclude by saying that if these new courses are not approved by the Senate our own students will be at a disadvantage relative to those in other universities, and will be forced to register for these courses at another member university.

If you need additional information please contact me at local 3535.

Kknair.

K. K. Nair

KKN/ms
cc Dr. J. F. Cochran
Dr. J. M. Webster

Encls.

Biology of Marine Molluscs

Marine Science 413

Credit: 3 units

Calendar Description:

An advanced course of selected topics emphasizing functional morphology, ecology and evolution of this diverse phylum. Field trips will be undertaken to survey the representative molluscs of the Bamfield region. Students will be expected to complete and independent field or laboratory study of selected molluscs.

Prerequisites: Marine Science 410 or equivalent.

Topic Outline:

Introduction to the phylum.

Topics to be covered for all the following classes include: basic features, functional morphology, ecology, and evolution

Class Polyplacopora
Class Monoplacophora
Class Aplacophora
Class Gastropoda, Subclass Prosobranchia
Class Gastropoda, Subclass Opisthobranchia
Class Cephalopoda
Class Scaphopoda
Class Bivalvia

Biology of Marine Birds

Marine Science 440

Credit: 3 units

Calendar Description:

A study of the interrelationship of birds and the marine environment. Lectures will emphasize the systematics and ecological relationships, behavior, life histories, movements and conservation of marine birds. Census techniques and methods of the studying marine birds in the field will be treated as we observe seabirds and marine-associated birds in the Barkley Sound region. Seabird identification, classification, morphology, plumages and molt will be examined in the laboratory.

Prerequisites: Advanced standing in Vertebrate Zoology or permission of the instructor.

Topic Outline:

Course topics will be covered not only in the formal lectures, but also in the film sessions and discussions in the lab and field periods.

What is a marine bird?
- Taxonomic survey
- General adaptations - morphology, behavior, ecology, and physiology

Marine birds environment
Breeding season, movements & molts
Breeding ecology
Life & death of marine birds
Regulation of marine bird numbers
Interspecific relations & some evolutionary considerations
Biological conservation of marine birds

Biology of Marine Mammals

Marine Science 445

Credit: 3 units

Calendar Description:

A survey course covering systematics and distribution of marine mammals, their sensory capabilities and physiology, with special emphasis on the Cetacea. The course includes lectures, laboratory periods and numerous field trips in the Barkley Sound region. The course will involve an independent field study.

Prerequisites: Introductory Vertebrate Zoology

Topic Outline:

- Introduction
  - Taxonomic relationships
  - Problems & adaptations arising from the invasion of the sea
  - Phylogeny and evolution
  - Order Sirenia - distribution, evolution & physiology
  - Order Pinnipedia - distribution, fisheries, diving physiology & functional morphology
  - Order Cetacea, Suborder Odontoceti - distribution, feeding, migration & history of whaling in B.C.
  - Sound production in marine mammals
  - Vision in marine mammals
  - Social behavior & communication
  - Predator & prey relationships
  - Schooling theory
  - Sexual behavior
  - Cognitive studies

Comparative Ethology

Marine Science 446

Credit: 3 units

Calendar Description:

A comparative study of marine animals (vertebrate and invertebrate) emphasizing behavioral description, underlying physiological mechanisms, the biological significance of behavior and behavioral evolution. The course will include independent laboratory and field studies.

Prerequisites: Introductory courses in Invertebrate Zoology, Vertebrate Zoology, Ecology & Physiology

Topic Outline:

Introduction to ethology
Migration & long distance direction finding
Biological rhythms (clocks)
Behavioral ecology - mating systems, foraging theory & parental investment
Evolution & genetics of behavior
Human ethology

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Biological Sciences

Abbreviation Code: MASC Course Number: 413 Credit Hours: 3 Vector: _____

Title of Course: Biology of Marine Molluscs

Calendar Description of Course:
An advanced course of selected topics emphasizing functional morphology, ecology and evolution of this diverse phylum. Field trips will be undertaken to survey the representative molluscs of the Bamfield region. Students will be expected to complete an independent field or laboratory study of selected molluscs.

Nature of Course

Prerequisites (or special instructions): MASC 410 or equivalent

What course (courses), if any, is being dropped from the calendar if this course is approved: none

2. Scheduling

How frequently will the course be offered? Once in 2 years

Semester in which the course will first be offered? 1984-2

Which of your present faculty would be available to make the proposed offering possible? n/a

3. Objectives of the Course

To offer advanced training in the biology of marine molluscs

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty	none
Staff	none
Library	none - see attached letter from Dr. R. Foreman, Director, Bamfield Marine Station
Audio Visual	none
Space	none
Equipment	none

5. Approval

Date: Sept 26, 83 OCT 24 1983

Department Chairman Dean Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Biological Sciences

Abbreviation Code: MASC Course Number: 440 Credit Hours: 3 Vector: _____

Title of Course: Biology of Marine Birds

Calendar Description of Course:

A study of the interrelationship of birds and the marine environment. Lectures will emphasize the systematics and ecological relationships, behavior, life histories, movements and conservation of marine birds. Census techniques and methods of studying marine birds in the field will be stressed during field trips in the Barkley Sound region. Seabird identification, classification, morphology, plumages and molt will be examined in the laboratory.

Nature of Course

Prerequisites (or special instructions): Advanced standing in Vertebrate Zoology or permission of the instructor.

What course (courses), if any, is being dropped from the calendar if this course is approved: none

2. Scheduling

How frequently will the course be offered? Once in 2 years

Semester in which the course will first be offered? 1984-2

Which of your present faculty would be available to make the proposed offering possible? n/a

3. Objectives of the Course

To offer advanced training in the biology of Marine Birds

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty	none
Staff	none
Library	none - see attached letter from Dr. R. Foreman, Director, Bamfield Marine Station
Audio Visual	none
Space	none
Equipment	none

5. Approval

Date: Sept. 26, 83 OCT 24 1983

Department Chairman Dean Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Biological Sciences

Abbreviation Code: MASC Course Number: 445 Credit Hours: 3 Vector: _____

Title of Course: Biology of Marine Mammals

Calendar Description of Course:

A survey course covering systematics and distribution of marine mammals, their sensory capabilities and physiology, with special emphasis on the Cetacea. The course includes lectures, laboratory periods and numerous field trips in the Barkley Sound region. The course will involve an independent field study.

Nature of Course

Prerequisites (or special instructions): BISC 306-3, Introductory Vertebrate Zoology

What course (courses), if any, is being dropped from the calendar if this course is approved: none

2. Scheduling

How frequently will the course be offered? Once in 2 years

Semester in which the course will first be offered? 1984-2

Which of your present faculty would be available to make the proposed offering possible? n/a

3. Objectives of the Course

To provide advanced training in the biology of marine mammals.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty	none
Staff	none
Library	none - see attached letter from Dr. R. Foreman, Director, Bamfield Marine Station
Audio Visual	none
Space	none
Equipment	none

5. Approval

Date: Sept 26, '83 OCT 24 1983

Department Chairman Dean Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Biological Sciences

Abbreviation Code: MASC Course Number: 446 Credit Hours: 3 Vector: _____

Title of Course: Comparative Ethology

Calendar Description of Course:
A comparative study of marine animals (vertebrate and invertebrate) emphasizing behavioral description, underlying physiological mechanisms, the biological significance of behavior and behavioral evolution. The course will include independent laboratory and field studies.

Nature of Course

Prerequisites (or special instructions): Introductory courses in Invertebrate Zoology, Vertebrate Zoology, Ecology and Physiology. BISC 306, 316, 305. Students who have received credit for BISC 410-3 may not take MASC 446-3 for credit towards a B.Sc. degre at S.F.U.

What course (courses), if any, is being dropped from the calendar if this course is approved: none

2. Scheduling

How frequently will the course be offered? Once in 2 years

Semester in which the course will first be offered? 1984-2

Which of your present faculty would be available to make the proposed offering possible? n/a

3. Objectives of the Course

To provide the students with advanced training in comparative behaviour of marine animals.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty	none
Staff	none
Library	none - see attached letter from Dr. R. Foreman, Director, Bamfield Marine Station
Audio Visual	none
Space	none
Equipment	none

5. Approval

Date: Sept. 26, 83 OCT 24 1983

Department Chairman Dean Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a.