

# SIMON FRASER UNIVERSITY

S. 83-43

## MEMORANDUM

To..... SENATE.

From..... SENATE COMMITTEE ON UNDERGRADUATE  
STUDIES

Subject..... PROPOSED NEW COURSE - BISC 419-3 -  
WILDLIFE BIOLOGY

Date..... 27 APRIL 1983.

Action undertaken by the Senate Committee on Undergraduate Studies at its meeting of April 19, 1983 gives rise to the following motion:

MOTION: "That Senate approve and recommend approval to the Board of Governors, as set forth in S.83-43, the proposed new course BISC 419-3 - Wildlife Biology"

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: BIOLOGICAL SCIENCES

Abbreviation Code: BISC Course Number: 419 Credit Hours: 3 Vector: 2-0-4

Title of Course: Wildlife Biology

Calendar Description of Course: Theoretical and applied aspects of ecology and behaviour in relation to wildlife populations and their habitats, with emphasis on important mammals and birds in British Columbia. Attendance on local field trips is required.

Nature of Course Lecture and Laboratory

Prerequisites, (or special instructions):

BISC 304 Animal Ecology, with BISC 316 Vertebrate Biology recommended.

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

2. Scheduling

How frequently will the course be offered? Once/year

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? Dr. Alton S. Harestad

3. Objectives of the Course

- 1) to understand principles of bioenergetics and nutrition and how they apply to selected wildlife species.
- 2) to know the habitat and other requirements common to all wildlife and provide specific examples.
- 3) to understand principles of population dynamics and behaviour and how to interpret them to solve problems in wildlife biology.
- 4) to illustrate the biological bases which determine the way wildlife respond to forest, agricultural and recreational practices.

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 J.F. Cahan

[Signature]  
Department Chairman

Dean

Chairman, SCUS

Proposed new undergraduate course BISC 419 WILDLIFE BIOLOGY

Rationale

A course in wildlife biology at Simon Fraser University would both complement the existing biology curriculum and satisfy student interest in Biological Sciences, as well as the Resource Management Program. Environmental awareness increased substantially by the late 1960's and continues to be sustained. Besides this awareness, use of natural systems has become intensive through development and population growth, and clearly stretches ecosystems to their limits of productivity and integrity. Both phenomena have generated high public concern for wildlife and contribute to the significance of the wildlife resource in British Columbia.

British Columbia enjoys diverse and important species of wildlife. The topographic relief and climatic differences between coastal and interior, and southern and northern portions of the province result in a great diversity of vegetation zones. The diversity of habitats in these zones support many wildlife species. Of 163 species of mammals and 409 species of birds occurring in Canada, 71% occur in British Columbia. Our province has a greater diversity of wildlife than any other province or territory in Canada.

The strong public concern and great diversity of wildlife in British Columbia compel us to ensure students have the opportunity to study wildlife biology, explore its principles and understand its practices. A wildlife course would fit into the Ecology Stream in Biological Sciences. The proposed course provides a framework by which theory and principles learned in the Ecology Stream can be interpreted and applied to understanding scientific and public issues concerning wildlife biology.

This proposed wildlife biology course was offered as a Special Topics course, BISC 472, in semester 82-1. Although a 4th-level course, response was strong, with 20 students completing the course.

## Course Outline

### Lectures

Lectures will explore principles of behaviour and ecology and apply them to interpret responses of wildlife to environmental changes. The following subjects will be covered.

- overview and significance of the wildlife resource in British Columbia
- energy budgets: metabolism, heat production and loss
- bioenergetics and nutrition of ruminants and non-ruminants
- habitat requirements of wildlife: food, water, and cover
- behaviour: feeding, social organization, responses to physical factors
- dispersal and spatial organization
- reproduction and mortality
- population growth and regulation
- harvesting wildlife: principles and practice with emphasis on large mammals and furbearers
- biology and management of selected wildlife species.

### Laboratories

- orders of B.C. mammals and their morphological characteristics; factors generating the wide diversity of wildlife in B.C. are examined
- Rodentia and Carnivora are considered in greater detail, noting the ecological relationships between them. The concept of niche is explored by comparing various aspects of the life histories of the Mustelidae.
- Identification of B.C. mammals learned in the first lab sessions is used to analyze owl casts. The food habits and bioenergetics of Barn Owls from gross energy intake to metabolizable energy is calculated and discussed.
- It is beyond the scope of BISC 419 to treat all 228 species of birds resident in B. C. Two lab sessions examine the important groups of birds, emphasizing morphological adaptations to ecological niches.
- Seabirds are considered in detail. A map showing numbers and composition of seabird colonies along the B.C. coast is used to examine trends in distribution and colonial behaviour. The adaptive significance of these trends is discussed.
- In 3 lab sessions students consider relationships between shrubs, trees, snow and ungulates. They measure shrub productivity as it relates to forest practices and in the field examine the effects of snow on forage availability. During a field trip to a local wildlife refuge deer use in various plant associations is estimated by pellet group counts and habitat requirements are discussed.

Laboratories (contd.)

- reproductive parameters of wildlife populations are determined by aging fisher and wolverine from dental annuli and using foetal counts to calculate age specific natality and mortality.
- The final lab sessions acquaint students with some of the applications of simulation models in wildlife biology. Importance of various parameters and harvest rates are examined for their effects on the population dynamics of selected ungulates.

**S' N FRASER UNIVERSITY**

**MEMORANDUM**

|         |                                                    |      |                                            |
|---------|----------------------------------------------------|------|--------------------------------------------|
| To      | C. L. Kemp, Chairman<br>DUCC<br>Biological Science | From | M. Deutsch<br>Sciences Division<br>Library |
| Subject | Wildlife Biology, BISC 419                         | Date | 82/09/08                                   |

The Library can adequately support the proposed new course, Wildlife Biology, Bisc 419. Book and journal material in the area of wildlife biology have been purchased continuously for the past ten years. Printed indexing publications (Biological Abstracts, Zoological Record, etc.) as well as computer searchable databases are available. All periodicals requested on your memo (82/08/31) are in the Library; four books not available will be ordered. No additional funds are required.

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