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SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATE

From H. M. EVANS, REGISTRAR AND SECRETARY
EXECUTIVE COMMITTEE OF THE SENATE
COMMITTEE ON GRADUATE STUDIES

Subject NEW GRADUATE COURSES - BI SC

Date NOVEMBER 12, 1970

This is to advise that the Executive Committee of the Senate Committee on Graduate Studies at their meeting on November 9, 1970, approved the following graduate courses in Biological Sciences:

BiSc 802-3
BiSc 812-3
BiSc 813-3
BiSc 826-3
BiSc 848-3

These courses are now being forwarded to Senate for approval.

E C S. 17

SIMON FRASER UNIVERSITY

MEMORANDUM

Dr. J. Webster Dean of Graduate Studies	From B.L. Funt Dean of Science
Subject New Course Proposals	Date October 21, 1970

At the Faculty of Science meeting of October 19th, the Faculty approved course proposals for Biological Sciences 802, 812, 813, 826 and 848. I would appreciate your ensuring that these are given early consideration by the Senate Committee on Graduate Studies so that they may proceed to Senate as soon as possible.

BLF/ma

cc: Dr. G. Geen
M.McGinn✓

FACULTY OF SCIENCE MEETING OF OCTOBER 19, 1970

BIOLOGICAL SCIENCES PROPOSED GRADUATE COURSES

The Graduate Studies Committee at its meeting of October 13th approved the course proposals for Biological Sciences 802, 812, 813, 826 and 848. Three of the courses, 812, 826 and 848, have been offered as Special Topics courses, and the present recommendation is that these may be instituted as permanently designated courses. This is in keeping with actions in the Faculty, where it has proved desirable to indicate on a continuing basis the areas of proficiency of a department and the possible course offerings. The scheduling of the offerings is determined by the departments on the basis of need and on the basis of available faculty to present the courses in any given year.

Courses 802 and 813 are completely new courses and have not been offered before as Special Topics.

B. L. Funt

SIMON FRASER UNIVERSITY

MEMORANDUM

To Dr. B. L. Funt Dean of Science	From Dr. G. H. Geen Biological Sciences
Subject Graduate Courses	Date September 22, 1970

Reference is made to your memorandum of August 14, 1970.

Attached are forms for each of the following proposed new graduate courses.

BISC. 802-3 Genetics

812-3 Fungal Physiology and Development

813-3 Biochemistry of the Algae.

826-3 Advanced Electrophysiology

848-3 Nematology .

Glen H. Geen
Acting Head

GHG:kmb

SIMON FRASER UNIVERSITY

MEMORANDUM

To Dr. J. S. Barlow, Acting Dean of Science.	From Dr. G. H. Geen, Acting Head, Department of Biological Sciences.
Subject New Graduate Courses	Date July 21, 1970.

The following new graduate courses have been approved by the Department of Biological Sciences. I would appreciate early consideration of these by the Faculty of Science Graduate Studies Committee. Three of these courses (812, 826 and 848) have already been offered as Special Topics courses. Biology 802 and 813 have yet to be offered. Need for these courses is a reflection of developing graduate programs in these areas. These courses can be offered with present faculty and a minimum of new equipment.

The proposed courses, their Calendar numbers and descriptions are as follows.

802-3 Regulation of genetic activity.

812-3 Fungal physiology and development.

The unique characteristics of the fungi as a biological group will be examined. Topics covered will include: nutrition, environmental effects of growth and reproduction, enzyme activity, spore germination, mycelial growth patterns, translocation and biological compounds. The correlation between fungal growth requirements and fungal ecology will be constantly developed.

813-3 Biochemistry of the Algae.

Particular topics to be covered will include: extra-cellular products produced by algae, cell matrix, cell membrane, algal lipids, enzymes, chloroplast structure and function, and other topics related to algal biochemistry.

826-3 Advanced electrophysiology

Recent techniques for stimulating and recording from excitable tissues and cells will be used to examine fundamental biological processes.

848-3 Nematology

A study of the concepts of host-parasite relationships as exemplified by nematode parasites of plants and insects. Special problems associated with the nematode organism and its way of life and their relevance to human society.

Glen H. Geen

GHG/ms

RECEIVED
JUL 21 1970
DEAN OF SCIENCE OFFICE

29-C (a

FACULTY OF SCIENCE

NEW COURSE PROPOSAL

I CALENDAR INFORMATION

Department: Biological Sciences Course Number: 802 Title: Genetics

Sub-title or Description:
Detailed examination of areas of genetics including genetic regulations, chromosome structure, recombination, etc. The precise area chosen for intensive study will vary.

Credit Hours: 3 Vector Description: 2-2-0

Pre-requisite(s):
Demonstrated knowledge of genetics. Consent of instructor.

II ENROLMENT AND SCHEDULING

Estimated Enrolment: 3-5

Semester Offered (e.g. Yearly, every Spring; twice yearly, Fall and Spring):

About once a year.

When course will first be offered:
Offered in 70-3 as Special Topics.

III JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department and from courses in other departments in the University?

The course will involve detailed examination of specific areas dealt with generally in the undergraduate program in genetics.

B. What is the range of topics that may be dealt with in the course?

Genetics

C. How does this course fit the goals of the department?

The course reflects the competency of the faculty to teach in this field.

D. How does this course affect degree requirements?

Required of graduate students in the field of genetics.

E. What are the calendar changes necessary to reflect the addition of this course?

F. What course, if any, is being dropped from the calendar if this course is approved?

N/A

G. What is the nature of student demand for this course?

Graduate students in field of genetics.

Probable 3-5 students per year.

H. Other reasons for introducing the course.

Previously taught as Special Topic.

IV BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

Dr. C. L. Kemp, Dr. I. R. Glen

B. What are the special space and/or equipment requirements for this course?

N/A

C. Any other budgetary implications of mounting this course:

Nil

APPROVAL - Faculty ~~Undergraduate~~ Curriculum Committee: Oct. 13, 1970

Faculty: Oct. 19, 1970

Senate:

G-70-49
29-C (b)

FACULTY OF SCIENCE

NEW COURSE PROPOSAL

I CALENDAR INFORMATION

Department: Biological Sciences Course Number: 812 Title: Fungal Physiology and Development

Sub-title or Description: The unique characteristics of the fungi as a biological group will be examined. Topics covered will include: nutrition, environmental effects of growth and reproduction, enzyme activity, spore germination, mycelial growth patterns, translocation and biological compounds. The correlation between fungal growth requirements and fungal ecology will be constantly developed.

Credit Hours: 3 Vector Description: 2-2-0

Pre-requisite(s): BISC 326 + 301 or permission of instructor.

II ENROLMENT AND SCHEDULING

Estimated Enrolment: 4 - 5

Semester Offered (e.g. Yearly, every Spring; twice yearly, Fall and Spring):

Yearly, every fall

When course will first be offered: Fall 1970 as a Special Topics

III JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department and from courses in other departments in the University?

This course will consider the unique physiological properties of the fungi i the context of their morphology and ecology. It will consider respiration, macro- and micro-nutrients, and the effects of environmental factors on growth and development. The economic significance of the fungi from the standpoint of industrial mycology will be covered also.

B. What is the range of topics that may be dealt with in the course?

- Fungal structure and the implications of structure on metabolism
- Fungal metabolism
- The effect of environmental factors on metabolism. Growth & Developmen
- Natural products.
- Fungal hormones
- Spore dormancy and germination
- Special methodological problems in fungal physiology

C. How does this course fit the goals of the department?

It is oriented toward a consideration of a group of organisms as living entities in a holistic sense, therefore it fits the "living organisms in nature" theme of the Department well.

D. How does this course affect degree requirements?

It does not

E. What are the calendar changes necessary to reflect the addition of this course?

Addition of a new graduate course number.

F. What course, if any, is being dropped from the calendar if this course is approved?

None.

G. What is the nature of student demand for this course?

Approximately 4 or 5 students/year in Biosciences and Chemistry are in need of such a course.

H. Other reasons for introducing the course.

No equivalent course at the University of British Columbia.

IV BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

Dr. M. McClaren (possibly also Dr. J. Rahe).

B. What are the special space and/or equipment requirements for this course?

None. Seminar room plus research lab space is adequate.
Equipment: Most if on hand in Department now if required.

C. Any other budgetary implications of mounting this course:

None

APPROVAL - Faculty ~~Undergraduate~~ Curriculum Committee: October 13, 1970

Faculty: October 19, 1970

Senate:

FACULTY OF SCIENCE

NEW COURSE PROPOSAL

I CALENDAR INFORMATION

Department: Biological Sciences Course Number: 813-3 Title: Biochemist of the Alg

Sub-title or Description:
Particular topics to be covered will include: extra-cellular products produced by algae, cell matrix, cell membrane, algal lipids, enzymes, chloroplast structure and function, and other topics related to algal biochemistry.

Credit Hours: 3 Vector Description: 2-0-4

Pre-requisite(s):
BISC. 301-3

II ENROLMENT AND SCHEDULING

Estimated Enrolment: 3 - 10

Semester Offered (e.g. Yearly, every Spring; twice yearly, Fall and Spring):
Yearly at most, maybe less frequent, depending upon demand.

When course will first be offered:
1970-3

III JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department and from courses in other departments in the University?

Biochemistry of the Algae. Very specialized topic, no undergraduate or graduate course covers this material. This course is meant to fill in our program in marine biology.

B. What is the range of topics that may be dealt with in the course?

Biochemistry.

C. How does this course fit the goals of the department?
The department has an active interest in marine biology. This course fits in with marine sciences offered by the department.

D. How does this course affect degree requirements?
Not at all.

E. What are the calendar changes necessary to reflect the addition of this course?

Add this course to the calendar.

F. What course, if any, is being dropped from the calendar if this course is approved?

None.

G. What is the nature of student demand for this course?

Graduate student demand seems to average 5 - 10 per annum.

H. Other reasons for introducing the course.

IV BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

Science. Dr. H. L. Speer

B. What are the special space and/or equipment requirements for this course?

Lecture hall space (moderate), lab. space.
Some equipment needed for lab.

C. Any other budgetary implications of mounting this course:

None

APPROVAL - Faculty ~~Undergraduate~~ Curriculum Committee: October 13, 1970

Faculty: October 19, 1970

Senate:

FACULTY OF SCIENCE

NEW COURSE PROPOSAL

I CALENDAR INFORMATION

Department: Biological Sciences Course Number: 826 Title: Advanced Electrophysiology

Sub-title or Description:

Recent techniques for stimulating and recording from excitable tissues and cells will be used to examine fundamental biological processes.

Credit Hours: 3 Vector Description: 1-0-6

Pre-requisite(s):
Upper level animal physiology or equivalent.

II ENROLMENT AND SCHEDULING

Estimated Enrolment: 8 - 10

Semester Offered (e.g. Yearly, every Spring; twice yearly, Fall and Spring):

Not more often than yearly, perhaps less often as need arises.

When course will first be offered:

When need arises and time permits.

III JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department and from courses in other departments in the University?

It appears to be unique - refer to Special Topics 859-3.

See attached.

B. What is the range of topics that may be dealt with in the course?

Refer to 859-3.

See attached.

C. How does this course fit the goals of the department?
Developing graduate programme.

D. How does this course effect degree requirements?

It provides 3 credits.

E. What are the calendar changes necessary to reflect the addition of this course?

None, except to insert this new course.

F. What course, if any, is being dropped from the calendar if this course is approved?

None.

G. What is the nature of student demand for this course?
It interests most of them.

Probable 8-10 students per year.

H. Other reasons for introducing the course.
To advertise department competence in this subject.

IV BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

Dr. Belton

B. What are the special space and/or equipment requirements for this course?
Laboratory with room for 2 or 3 sets of electrophys. equipment. Low electrical and mechanical noise level. Minimal equipment required if alternated with 305.

C. Any other budgetary implications of mounting this course:

1 Technician (part-time)	Living material $200. Nitella, squid, frog, rats, crabs, or crayfish.

APPROVAL - Faculty ~~Undergraduate~~ Graduate Curriculum Committee: October 13, 1970

Faculty: October 19, 1970

Senate:

Peter Belton

BIOLOGICAL SCIENCES 859-3

Special Topics

Electrophysiology Techniques

A practically oriented course to examine recent techniques for stimulating and recording from excitable tissues and cells.

Single plant, nerve and muscle cells will be investigated using intracellular and extracellular techniques and a variety of myograms and neurograms will be recorded with external electrodes.

Format

One full day per week will be used to discuss, set up and test each technique. Equipment will be available for the rest of the week for individual research projects. Visits will be arranged to one or more electronic workshops and to other electrophysiology groups.

Information

Those who have already expressed an interest in the course should see me before September 8 to discuss its details. If there is general interest in this type of a course, I shall arrange a meeting to discuss its expansion when space and equipment permit.

BIOLOGICAL SCIENCES 339

ELECTROPHYSIOLOGY TECHNIQUES

Tentative programme. Mondays and/or Tuesdays.

Sept. 12 Preliminary meeting, 1:30 p.m. 80H corridor

Sept. 15 Set up and test equipment for stimulation, recording, calibration.
Make electrodes.

Sept. 22 Test electrodes, familiarization with Tektronix equipment. Pen recorders, oscilloscope photography, tape recording.

Sept. 22 - 29 Field trip to electronic workshop.

Sept. 29 External recording from plant cells. Sucrose gap and other extracellular techniques

Oct. 6 Frog sartorius muscle. Resting and electrotonic potentials.

Oct. 6 - 13 Field trip for crayfishing.

Oct. 13 Frog sciatic nerve. Crayfish giant axons, squid axons if available.

Oct. 20 Frog neuromuscular junction. Fast and slow muscle Frog/Crayfish.

Oct. 27 Excitation-contraction coupling.
Insect/Frog/Crayfish.

Nov. 3 Electrocardiogram/encephalogram.

Nov. 10 Frog/Insect electroretinogram

Nov. 24 Insect ears

Dec. 1 Frog/Insect chemoreceptors.

29-C (1)

FACULTY OF SCIENCE

NEW COURSE PROPOSAL

I CALENDAR INFORMATION

Department: Biological Sciences Course Number: 848 Title: Nematology

Sub-title or Description:

A study of the concepts of host-parasite relationships as exemplified by nematode parasites of plants and insects. Special problems associated with the nematode organism and its way of life and their relevance to human society.

Credit Hours: 3 Vector Description: 2-2-0

Pre-requisite(s):
(Bachelor's degree in Biology)

II ENROLMENT AND SCHEDULING

Estimated Enrolment: 5

Semester Offered (e.g. Yearly, every Spring; twice yearly, Fall and Spring):
As demand requires but probably not more than every alternate year.

When course will first be offered:

71-1 semester.

III JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department and from courses in other departments in the University?

This is a specialized area of study and there are no similar courses in the University -- see section I above.

B. What is the range of topics that may be dealt with in the course?

Physiology of the host-parasite relationship.
Aspects of ecology and morphology which are pertinent.
Relationship of the nematode with other pathogens in disease complexes.
Relative importance of the organisms in agriculture and medical disease problems.

C. How does this course fit the goals of the department?

It forms part of the graduate pestology programme after core courses.

D. How does this course affect degree requirements?

This course may be taken for credit towards a degree.

E. What are the calendar changes necessary to reflect the addition of this course?

None.

F. What course, if any, is being dropped from the calendar if this course is approved?

None.

G. What is the nature of student demand for this course?

Varied

H. Other reasons for introducing the course.

It has been asked for in previous years and has had to be given as a Special Topic.

IV BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

One faculty member already on staff.

B. What are the special space and/or equipment requirements for this course?

A small room for discussions and talks and research laboratory for projects.

C. Any other budgetary implications of mounting this course:

The majority of the equipment is already available in the Department.

APPROVAL - Faculty ~~Under~~graduate Curriculum Committee: October 13, 1976

Faculty: October 19, 1976

Senate: