# SIMON FRASER UNIVERSITY

# OFFICE OF THE VICE-PRESIDENT, ACADEMIC

## **MEMORANDUM**

Senate D. Gagan, Chair Dund Mm From: Senate Committee on Academic Planning Subject: Faculty of Science -Termination of PBD in Aquaculture (SCUS Reference: SCUS 97-10) (SCAP Reference: SCAP 97-23) Date: March 14, 1997

Action undertaken by the Senate Committee on Undergraduate Studies and the Senate Committee on Academic Planning gives rise to the following motion:

Motion:

To:

"that Senate approve and recommend approval to the Board of Governors, as set forth in S.97 - 43, termination of the Post Baccalaureate Diploma Program in Aquaculture."

# SCUS 97 - 10

# SIMON FRASER UNIVERSITY DEPARTMENT OF BIOLOGICAL SCIENCES

## **MEMORANDUM**

TO: Roger Blackman Chair SCUS

2

FROM: R. Ydenberg Chair Biology DUCC

RE: PBD Aquaculture

DATE: February 3, 1997

Dear Dr.Blackman:

At its January 22, 1997 meeting the DUCC of the Biological Sciences Department, recognizing that the Aquaculture Program no longer existed, and that the last aquaculture students had completed the program, unanimously approved terminating the Post Baccaluarate Program in Aquaculture. As the requisite courses are no longer offered it would seem appropriate to remove the references to it from the calendar.

The relevant passages are shaded on the attached pages.

Ι.

R.Ydenberg

/fmr

# **Programs Offered**

and a second sec

# **University Degrees**

Honorary Degree Doctor of Laws Honoris Causa

#### Faculty of Applied Sciences

Bachelor of Applied Science Bachelor of Arts (Honors) Bachelor of Arts (Honors) Bachelor of Science (Honors) Bachelor of Science (Kinesiology) (Honors) Bachelor of Science (Kinesiology) Master of Applied Science Master of Arts Master of Arts Master of Ingineering Master of Natural Resources Management Master of Science Doctor of Philosophy

#### **Faculty of Arts**

Bachelor of Arts (Honors) Bachelor of Arts (Joint Honors) Bachelor of Arts Bachelor of Fine Arts Bachelor of General Studies Master of Arts Master of Arts in Liberal Studies Master of Fine Arts Master of Publishing Doctor of Philosophy

#### Faculty of Business Administration

Bachelor of Business Administration (Honors) Bachelor of Business Administration Master of Business Administration

#### **Faculty of Education**

Bachelor of Education (Honors) Bachelor of Education Master of Arts Master of Education Master of Science Doctor of Philosophy

#### Faculty of Science

Bachelor of Science (Honors) Bachelor of Science Master of Pest Management Master of Science Doctor of Philosophy

# **Certificates and Diplomas**

All Faculties Post Baccalaureate Diploma

Faculty of Applied Sciences Certificate in Health and Fitness Studies Post Baccalaureate Diploma Post Baccalaureate Diploma in Communication Post Baccalaureate Diploma in Computing Science Post Baccalaureate Diploma in Kinesiology

#### Faculty of Arts

Certificate in Chinese Studies Certificate in Criminology (General) Certificate in Criminology (Advanced) Certificate in Family Studies Certificate in First Nations Language Proficiency Certificate in French Canadian Studies Cerlificate in French Language Proliciency Certificate in Liberal Arts Certificate in Native Studies Research Certificate in Public History Certificate for Senior Citizens Certificate in Spanish Language Proficiency Certificate in Spatial Information Systems Certificate in Teaching ESL Linguistics Certificate in Urban Studies Certificate in Women's Studies Post Baccalaureate Diploma Post Baccalaureate Diploma in Community Economic Development Post Baccalaureate Diploma in Criminology Post Baccalaureate Diploma in Ethnic and Intercultural Relations Post Baccalaureate Diploma in French and Education Post Baccalaureate Diploma in Gerontology Post Baccalaureate Diploma in Humanities Post Baccalaureate Diploma in Public History Post Baccalaureate Diploma in Social Policy Issues Post Baccalaureate Diploma in Teaching English as a Second Language Post Baccalaureate Diploma in Urban Studies

#### Faculty of Education

Certificate in Literacy Instruction Post Baccalaureate Diploma

#### **Faculty of Science**

Certificate in Actuarial Mathematics Post Baccalaureate Diploma in Aquaculture Post Baccalaureate Diploma in Biological Sciences Post Baccalaureate Diploma in Environmental Toxicology 경성) · enfrum Science Centre, (604) 291-4590 Tel, (604) 291-3424 Fax, 神다://www.science.sfu.ca Internet

#### Dean

C.H.W. Jones BSc, PhD (Manc) See Graduate Studies for research interests of faculty members.

#### **Undergraduate Degrees Offered**

Bachelor of Science (Honors) Bachelor of Science

#### **Diplomas and Certificates Offered**

Certificate in Actuarial Mathematics Post Baccalaureate Diploma in Aquaculture Post Baccalaureate Diploma in Biological Sciences Post Baccalaureate Diploma in Environmental Toxicology

#### Major Program

A major program provides a broad general education in several fields of study and some specialization in one field known as the major. Optional programs, which include double majors or majors and minors, are possible. General regulations are in Faculty of Science requirements for the BSc (major). For specific course requirements, refer to the academic department oncerned. Students who do not wish to pursue any specialization may indertake a Bachelor of General Studies (BGS) degree. Information on this atter option may be found in the Faculty of Arts requirements.

#### Requirements for Major

• Students must complete 120 semester hours including the following.

- a minimum of 28 semester hours of upper division credit courses numbered 300 and 400 as specified by the major program
- additional semester hours of upper division credit bringing the total to a minimum of 44 semester hours of upper division credit
- a support of 12 semester hours in subjects taken outside the Faculty of Source (excluding EDUC 401 to 407) including a minimum of 6 semester hours taken in the Faculty of Arts
- a grade point average of 2.00 in the upper division courses required in the program

Additional requirements as specified by the major program and in the *General Information* section of this Calendar may be required.

#### and

for students enrolled at the University beginning Fall 1991or later upper division grade point average (GPA) and cumulative grade point average (CGPA) as specified in the *General Information* section of this Calendar

#### for students enrolled at the University before Fall 1991

a graduation GPA of 2.00 calculated on the required 120 semester hours, or on the last 60 semester hours taken including the 44 semester hours of upper division credit

a GPA of 2.00 in the upper division courses required in the program

## Honors Program

An honors program provides a broad general education with "in depth" study in a single field and requires the student to concentrate his/her studies in the 5th to 8th levels in the chosen field. This program is recommended for students who intend to proceed to advanced degrees, provided that they meet the entrance requirements and maintain the required standing.

Students applying for admission to an honors program will normally have a amulative grade point average of 3.00 (B standing). A student is expected to maintain this standard to continue in the honors program.

## Requirements for Honors and Honors First Class

Students must complete 132 semester hours of credit as prescribed by the bonors program which include the following.

- um of 48 hours of upper division credit in one subject area
- an unit al semester hours of upper division credit bringing the total to a minimum of 60 semester hours of upper division credit
- a minimum of 12 semester hours in subjects taken outside the Faculty of Science (excluding EDUC 401 to 407) including a minimum of six semester hours taken in the Faculty of Arts

• additional requirements as specified by the honors program and in the General Information section of this Calendar.

#### Program Guidelines

- At the outset, students are requested to indicate their intended major so as to facilitate counselling.
- Students who have not determined a major or intend to transfer to a professional school (i.e., Medicine, Dentistry, etc.) should seek advice from the Academic Resource Office or the Office of the Dean of Science.
- Declaration of major or honors must be officially accepted by that department, prior to the completion of 60 credit hours.
- New students intending to take more than 15 semester hours in their first semester of studies should seek advice from the Academic Resource Office, the Office of the Dean of Science or their major department.
- Normally, the graduation requirements, as published in the Calendar at the time of formal declaration of major or honors, will apply.
- In any combination of science programs (honors/minor, major/major, major/minor, minor/minor) the student may not use the same upper division course for formal credits towards both programs. One course might fulfill "content" requirements of two related areas, but in such a case additional replacement credits in upper division work satisfactory to one of the departments or program committees must be taken in one of the
- subjects to fulfill overall credit for the two programs involved. Programs totalling more than 18 hours of credit per semester require the
- Programs totalling more than 18 hours of credit per semester require the approval of the Dean.

#### **Minor Programs**

Consult advisors in appropriate departments when deciding on course selection. Suggested programs and prerequisites are given in each department's Calendar entry. An average grade of at least 2.00 is required in those upper division courses used to satisfy the requirements for a minor.

#### **General Science Program**

This program, consisting of 120 credit hours, provides a broad general education in several fields with some specialization in at least two fields. It requires two minors, one of which must be chosen from within the Faculty of Science. The groupings of courses from which the two minors can be chosen are given under the *General Science Program* section in the Calendar, along with the general course requirements for this degree. It should be noted that all lower division requirements for the two chosen minors must also be completed.

#### University College of the Fraser Valley Program

University College of the Fraser Valley in Abbotsford, BC offers a program leading to a Bachelor of Science. This degree is offered in association with the Faculty of Science and is issued by Simon Fraser University.

#### **Co-operative Education Programs**

Co-operative Education programs are available in Biological Sciences, Chemistry, Earth Sciences, Environmental Science, Geography, Mathematics and Physics. Details are given in the departmental sections and in the *Co-operative Education* section.

#### Associate in Science Diploma

Students who have completed the Associate in Science Diploma from the University College of the Fraser Valley, Douglas College, or Kwantlen College are guaranteed admission to the Faculty of Science provided that they meet the requirements for University admission.

### Withdrawal of Program Approval

A student whose progress, in the judgment of the department, is below the standard for graduation from a program may be refused entry to, or required to withdraw from, that program in the department.

## Transfer Credit and Bachelor of Science Degrees for Students Who Successfully Complete First Year Medical Science Professional Training

Students who complete at least 90 semester hours in a science degree

3.

#### 164 Science – Biological Sciences

## **Co-operative Education Program**

Majors and honors students in Biological Sciences may apply for admission into the Co-operative Education program. The program includes four work semesters during the normal academic program. Interested students should contact the Science Co-op Co-ordinators in Academic Quadrangle 5003, telephone (604) 291-4716, for further information.

# Environmental Toxicology Minor Program

This program gives undergraduates working towards a sciences degree a thorough overview of environmental toxicology. Consequently, students will be better qualified and eligible for employment with various industrial and governmental agencies engaged in environmental monitoring and research.

### **Lower Division Requirements**

The following lower division courses are required. Most students pursuing science degree programs will already have credit for most of these courses. all of

BICH 221-3 Cellular Biology and Biochemistry BISC 101-4 Introduction to Biology 102-4 Introduction to Biology BISC CHEM 102-3 General Chemistry I CHEM 103-3 General Chemistry II CHEM 115-2 General Chemistry Laboratory I CHEM 118-2 General Chemistry Laboratory II CHEM 150-3 Organic Chemistry I CHEM 155-2 Organic Chemistry Laboratory I CHEM 250-3 Organic Chemistry II CHEM 255-2 Organic Chemistry Laboratory II and one of MATH 151-3 Calculus I MATH 154-3 Calculus I for the Biological Sciences and one of MATH 152-3 Calculus II MATH 155-3 Calculus II for the Biological Sciences and one of PHYS 101-3 General Physics I PHYS 120-3 Modern Physics and Mechanics and one of PHYS 102-3 General Physics II PHYS 121-3 Optics, Electricity and Magnetism **Upper Division Requirements** BISC 312-3 Environmental Toxicology I 313-3 Environmental Toxicology II BISC

- BISC 432-3 Chemical Pesticides and the Environment
- STAT 301-3 Statistics for the Life Sciences

plus two of

- BISC 445-3 Environmental Physiology of Animals (prerequisite BISC 305-3)
- CHEM 371-3 Chemistry of the Aqueous Environment (prerequisites CHEM 150 [or 251] and 261)
- GEOG 419-4 Mass Transfer in the Biosphere KIN
- 431-3 Environmental Carcinogenesis

and their prerequisites as noted in the Undergraduate Courses.

Since upper division credit may not count to fulfill credit hours for more than one program, some substitutions may be required. Appropriate course selection for substitutions would be as follows.

- BICH 412-4 Enzymology
- BISC 366-3 Plant Ecophysiology
- 405-3 Cell Physiology BISC
- KIN 305-3 Human Physiology I

306-3 Human Physiology II (Principles of Physiological Regulation) KIN

Students wishing to pursue a minor in Environmental Toxicology should contact the Department of Biological Sciences as soon as possible.

A GPA of 2.00 or higher, is required for the courses in the minor program.

## Post Baccalaureate Diploma Programs

#### **Biological Sciences**

Post Baccalaureate Diploma programs are available in various areas of Biological Sciences for students who have already completed a degree (usually) in science and who wish to upgrade their academic credentials.

Note: course descriptions for the 600 and 800 level courses are given in Biological Sciences section of Graduate Studies in this Calendar.

For information about Post Baccalaureate Diploma p contact the Department of Biological Sciences.



This program specifically meet the needs of students with science who are presently engaged in environmental work and seek to u their training. Practical experience in recent laboratory assay tee will enable students to critically evaluate the data generated by t techniques.

For information about the Post Baccalaureate Diploma program regulations, refer to Continuing Studies.

- **Program Requirements**
- all of BISC 312-3 Environmental Toxicology I
- BISC 313-3 Environmental Toxicology II
- BISC 432-3 Chemical Pesticides and the Environment
- plus two of

BISC CHEM GEOG KIN	445-3 371-3 419-4 431-3	Environmental Physiology of Animals Chemistry of the Aqueous Environment Mass Transfer in the Biosphere Environmental Carcinogenesis
plus one of		
BISC	329-4	Introduction to Experimental Techniques
BISC	429-3	Environmental Techniques I: Separation Methoda
BISC	449-3	Experimental Techniques III: Histochemistry
CHEM	316-3	Introductory Instrumental Analysis
CHEM	357-3	Chemical and Instrumental Methods of Identification
		Organic Compounds
(IN	336-3	Microscopic Anatomy (Histology)
olus all of		
BISC	650-3	Industrial Toxicology
SISC	651-3	Food and Drug Toxicology

- BISC
- 652-3 Problem Analysis in Environmental Toxicology BISC 846-3 Insecticide Chemistry and Toxicology

and their prerequisites (see Undergraduate Courses). the requirements (except prerequisites) have been used to fequir for another degree, additional electives in the area of specialization required. Consult the Department of Biological Sciences.

#### Aquaculture 🗡

This program is for those students with science degrees who wish specialized training in Aquaculture. Specific prerequisites for entry Post Baccalaureate Diploma in Aquaculture are as follows.

- 303-3 Microbiology BISC
- BISC 306-3 Invertebrate Biology
- BISC 326-3 Biology of Non-Vascular Plants
- 416-3 Fish Biology (or equivalent) BISC

#### Requirements

- 630-5 Introduction to Aquaculture Systems BISC
- BISC 631-5 Growth, Reproduction and Nutrition in Aquaculture S
- BISC 632-5 Salmonid Fish Diseases and Their Control
- BISC 633-1 Current Topics in Aquaculture
- 543-4 Introductory Graduate Marketing BUS
- ECON 663-4 The Economics and Management of Aquaculture
- MRM 615-3 Management of Aquaculture Resources Elective

Note: These, like other University diploma programs, are classified undergraduate programs. Some courses listed above are available credit to both Biological Sciences graduate and undergraduates. Co descriptions for the 600 level courses are in Biological Sciences Gra Studies section.

#### Marine Science

Programs in Marine Science may include both BISC and MASC could fulfil the upper division requirements in Biological Sciences. MASC c are offered at the Bamfield Marine Station, Bamfield, BC in conjuncti certain other universities in the summer and fall in 3 or 6 y lock Consult the Department of Biological Sciences in January cou offerings scheduled for the summer and fall, and for their us sub 🖓 for upper division BISC courses in major, minor or honors programs.

Entry to courses requires application through the Department of Biological States and St Sciences, well in advance of commencement of the courses, as sele candidates will be across several universities and enroliments are lim

For information concerning application for entry, fees, and related ma consult the Department of Biological Sciences. To take Marine Scien



s in