

# SIMON FRASER UNIVERSITY

S.77-72

## MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

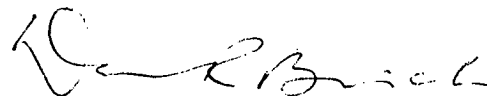
Subject B.Sc. Program in Geography

Date 5th May, 1977

Action taken by the Senate Committee on Undergraduate Studies at its meeting on 26th April, 1977 gives rise to the following motion:

### MOTION

That Senate approve, and recommend approval to the Board of Governors, the proposal for a B.Sc. Program in Geography, as set forth in paper S.77-72



Daniel R. Birch

# SIMON FRASER UNIVERSITY

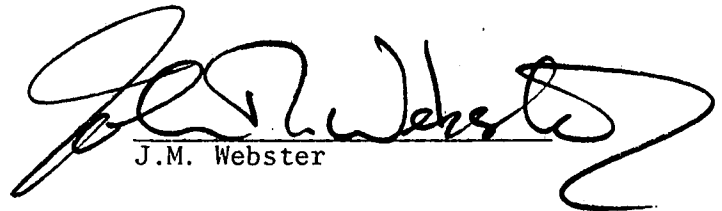
SCUS 77-19

## MEMORANDUM

To H. Evans, Registrar  
Secretary to SCUS  
Subject B.SC. PROGRAM IN GEOGRAPHY,  
MAJOR, HONORS

From J.M. Webster, Dean  
Faculty of Science  
Date March 28, 1977

Attached you will find a proposal for a B.Sc. Program in Geography. This proposal was approved by the Faculty of Science at its meeting of Thursday, March 24, 1977, and is herewith forwarded to the Senate Committee on Undergraduate Studies for consideration.

  
J.M. Webster

JMW/pel  
Encl.

RECEIVED

MAR 28 1977

RE. OFFICE  
MAIL DESK

# SIMON FRASER UNIVERSITY

## MEMORANDUM

To Mr. H.M. Evans, Registrar

From Sheila Roberts, Secretary

Faculty of Arts Curriculum

Committee

Subject Geography B.Sc. Programme

Date April 19, 1977

The Faculty of Arts Curriculum Committee at its meeting of April 7, 1977 included the B.Sc. Programme in Geography on its Agenda for discussion. The Committee raised no objections to the programme.

S. Roberts

cc. M. Roberts  
Geography Department



SIMON FRASER UNIVERSITY, BURNABY, B.C., CANADA V5A 1S6  
DEPARTMENT OF GEOGRAPHY; 291-3111

March 7, 1977

Dr. David Ryeburn  
Faculty of Science Curriculum Committee  
Department of Mathematics  
Simon Fraser University  
Burnaby, B.C.  
V5A 1S6

Dear David:

I am enclosing a copy of our revised regulations for the B.Sc. programme in Geography. May I take this opportunity to indicate to you that most other universities in Canada offer such a degree, including:

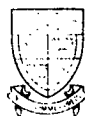
University of British Columbia  
University of Victoria  
McGill University  
Queen's University  
University of Calgary  
McMaster University  
University of Alberta  
University of Toronto

This is not an exhaustive list but, at least, it indicates to you the range and stature of institutions offering the degree.

The Physical Geography components of the discipline are sciences. Majors in these areas require a basic science training in order to obtain full benefit from the Physical Geography programme. Students wishing to pursue Physical Geography in its proper scientific context are presently forced to transfer to one of the other provincial universities (or elsewhere).

Most other universities recognise the interdisciplinary nature of geography by granting both Arts and Science degrees in the subject; S.F.U. is one of the few exceptions. We see the B.Sc. programme in Geography as a strengthening of the Department and University offerings, and as a much needed option for science students interested in pursuing a degree in physical geography.

Sincerely,



*Michael C. Roberts*

Michael C. Roberts  
Chairman

MCR/mgb  
T-11

B.Sc. (Major, Honors - Geography)

GENERAL DEGREE

Lower Division Requirements

|    |                    |             |             |          |    |
|----|--------------------|-------------|-------------|----------|----|
| A. | Geography Courses: | Geog. 111-3 | Geog. 121-3 |          |    |
|    |                    | Geog. 112-3 | Geog. 141-3 |          |    |
|    |                    |             | Geog. 250-3 |          |    |
|    |                    |             |             | 15 hours | 15 |
| B. | Science Courses:   | Bisc. 101-4 | Bisc. 102-4 | 8        | "  |
|    |                    | Chem. 104-3 | Chem. 105-3 |          |    |
|    |                    |             | & 115-2     | 8        | "  |
|    |                    | Phys. 101-3 | Phys. 102-3 |          |    |
|    |                    |             | & 131-2     | 8        | "  |
|    |                    | Math. 101-3 | Math. 151-3 |          |    |
|    |                    |             | & 152-3     |          |    |
|    |                    |             | or          |          |    |
|    |                    |             | Math. 154-3 |          |    |
|    |                    |             | & 155-3     | 9        | "  |
|    |                    |             |             | 33 hours | 33 |

Any student planning to take further courses in chemistry, mathematics, or physics may need to take Math. 253. Further, any student planning to take additional courses in chemistry may need to take Chem. 117.

C. Courses outside the Faculty of Science and outside the Department of Geography science stream - a minimum of 6 hours.

TOTAL LOWER DIVISION REQUIRED HOURS 54

## Upper Division Requirements

### A. Geography Courses - 300 Division

|           |                                             |                     |
|-----------|---------------------------------------------|---------------------|
| Three of: | Geog. 313-3, 314-3, 315-3<br>317-3, & 318-3 | 9 hours             |
| One of:   | Geog. 322-3, 323-3, 324-3<br>& 325-3        | 3 hours             |
| One of:   | Geog. 343-3, 344-3, 362-3<br>375-3 & 431-5  | 3 (or 5) hours      |
|           |                                             | 15 hours 15 (or 17) |

### B. Geography Courses - 400 Division

|         |                                                             |             |
|---------|-------------------------------------------------------------|-------------|
| Two of: | Geog. 413-5, 414-5 &<br>415-5, 418-5                        | 10 hours    |
| One of: | Geog. 421-5, 460-5, 461-5<br>462-5, 464-5, 467-5<br>& 469-5 | 5 hours     |
| Must:   | Geog. 407-3                                                 | 3 hours     |
|         |                                                             | 18 hours 18 |

### C. Faculty of Science Courses a minimum of 10 hours of 300-400 Division courses.

10 hours 10

### TOTAL UPPER DIVISION REQUIRED

HOURS 43 (or 45)

A student must present a total of 44 hours of upper division credit excluding Education 401, 402 and 405.

### Honors Degree

The Honors Program is the same as the Major Program except it must include a minimum of 60 semester hours of 300-400 Division courses, of which 48 must be in Geography or Faculty of Science subjects. Entry into the Honors Program requires Department's approval.

B.Sc. (Major - Geography)

Biogeography Emphasis  
Sample Program

1st Semester

Geog. 111-3 - Physical Geography  
Geog. 112-3 - Introduction to Geology  
Math. 101-3 - Statistics  
Bisc. 101-4 - Introduction to Biology I  
Math. 154-3 - Calculus I for Bio. Science.

16 hours

2nd Semester

Geog. 121-3 - Economic Geography  
Phys. 101-3 - General Physics I  
Bisc. 102-4 - Introduction to Biology II  
Chem. 104-3 - General Chemistry I  
Chem. 115-2 - General Chemistry Laboratory

15 hours

3rd Semester

Geog. 250-3 - Cartography I  
Phys. 102-3 - General Physics II  
Phys. 131-2 - General Physics Laboratory  
Chem. 105-3 - General Chemistry II  
Math. 155-3 - Calculus II for Bio. Science  
Bisc. 204-3 - Introduction to Ecology

17 hours

4th Semester

Geog. 315-3 - Biogeography I  
Geog. 314-3 - Climatology I  
Cmpt. 103-3 - Introduction to Programming  
Bisc. 304-3 - Animal Ecology  
Geog. 141-3 - Social Geography

15 hours

Biogeography Emphasis (cont'd.)

5th Semester

- \*Geog. 343-3 - Transitional Societies
- Geog. 313-3 - Geomorphology I
- Bisc. 300-3 - Aspects of the Environment
- Geog. 317-3 - Soils
- Cmpt. 118-3 - Computing Projects in Arts and Science
- OR
- Cmpt. 141-1 and 151-1 - Computing Projects:  
Biology & Geog.

14 hours (or 15)

6th Semester

- Geog. 415-5 - Biogeography II
- Bisc. 404-3 - Plant Ecology
- Bisc. 310-3 - Plants and Animals of B.C.
- Bisc. 337-3 - Comparative Morphology
- Cmpt. 250-3 - Computer Uses in Environmental Studies

7th Semester

17 hours

- Geog. 416-5 - Pleistocene Geography
- Geog. 407-3 - Quantitative Methods
- Bisc. 407-3 - Population Dynamics
- Geog. 322-3 - Primary Activities

14 hours

8th Semester

- Geog. 414-5 - Climatology II
- Geog. 443-5 - Regional Planning
- Geog. 421-5 - Resource Development

15 hours

TOTAL HOURS

123 (124)



B.Sc.. (Major - Geography)

FLUVIAL GEOMORPHOLOGY EMPHASIS

Sample Programme

1st Semester

Geog. 111-3 - Phys. Geog.  
Geog. 112-3 - Geology  
Math. 101-3 - Statistics  
Bisc. 101-4 - Introductory Biology  
Geog. 141-3 - Cultural Geography

16 hours

5th Semester

Geog. 362-3 - Urban Development  
Math. 312-4 - Multidimensional  
Calculus  
Geog. 413-5 - Geomorphology II  
Geog. 407-3 - Quant. Methods  
Chem. 117-2 - Quant. Chem. Lab

17 hours

2nd Semester

Geog. 250-3 - Cartography I  
Math. 151-3 - Calculus I  
Bisc. 102-4 - Introductory Biology  
Phys. 101-3 - General Physics  
Chem. 104-3 - General Chemistry

16 hours

6th Semester

Geog. 452-5 - Computer  
Cartography  
Geog. 314-3 - Climatology I  
Geog. 318-3 - Sedimentology  
Chem. 416-3 - Analytical  
Chemistry

14 hours

3rd Semester

Math. 152-3 - Calculus II  
Chem. 105-3 - General Chemistry  
Phys. 102-3 - General Physics  
Geog. 121-3 - Economic Geography  
Phys. 131-2 - General Physics Lab.  
Chem. 115-2 - General Chemistry Lab.

16 hours

7th Semester

Geog. 416-5 - Pleistocene  
Geography  
Geog. 421-5 - Resource  
Development  
Math. 469-4 - Fluid Dynamics

14 hours

4th Semester

Phys. 211-3 - Mechanics  
\*Geog. 322-3 - Primary Activities  
Bisc. 204-3 - Ecology  
Geog. 313-3 - Geomorphology  
Math. 253-4 - Calculus III

16 hours

8th Semester

Geog. 462-5 - Canada  
\*Geog. 343-3 - Transitional  
Societies  
\*\*Geog. 415-5 - Biogeography

13 hours

\* Electives within Geography

TOTAL HOURS 122

\*\* Bisc. 204-3 is acceptable as the  
pre-requisite for Geog. 415-5 in this programme.

B.Sc. (Major - Geography)

Climatology Emphasis

Sample Program

1st Semester

Geog. 111-3 - Physical Geography  
Math. 154-3 - Calculus (Bisc.) I  
Bisc. 101-4 - Intro. Biology I  
Phys. 101-3 - General Physics I  
Chem. 104-3 - General Chemistry

16 hours

2nd Semester

Geog. 112-3 - Introductory Geology  
Math. 155-3 - Calculus (Bisc.) II  
Phys. 102-3 - General Physics II  
Bisc. 102-4 - Introductory Biology II  
Chem. 105-3 - General Chemistry II

16 hours

3rd Semester

Geog. 141-3 - Cultural Geography  
Geog. 121-3 - Economic Geography  
Chem. 115-2 - General Chemistry Lab.  
Math. 101-3 - Statistics  
Elective (Arts)-3

14 hours

4th Semester

Geog. 212-3 - Natural Hazards  
Geog. 314-3 - Climatology  
Phys. 131-2 - General Physics Lab.  
Bisc. 204-3 - Introduction to Ecology  
Geog. 250-3 - Cartography I

14 hours

5th Semester

Geog. 317-3 - Soils  
Geog. 315-3 - Biogeography I  
Math. 253-4 - Calculus III  
Math. 302-3 - Statistical Methods  
Phys. 211-3 - Mechanics

16 hours

6th Semester

Geog. 313-3 - Geomorphology  
\*Geog. 322-3 - Primary Activities  
\*Geog. 375-3 - Historical Geog.  
Bisc. 300-3 - Aspects of Environ.  
Arts Elective - 3

15 hours

7th Semester

Geog. 407-3 - Quantitative Method  
in Geog.  
Geog. 415-5 - Biogeography II  
Geog. 421-5 - Resource Development  
Phys. 333-4 - Instru. in Life Sci

17 hours

8th Semester

Geog. 414-5 - Climatology II  
Geog. 416-5 - Pleistocene Geog.  
Geog. 462-5 - Canada

15 hours

\* Elective in Geography

TOTAL HOURS 123

THE HISTORY OF THE  
CITY OF BOSTON  
FROM THE FIRST SETTLEMENT  
TO THE PRESENT TIME

By SAMUEL JOHNSON

Vol. I. 1630-1700

The first settlement of the city of Boston was made in the year 1630, by a company of Puritan settlers, who were sent from England to the Massachusetts Bay. They found the land already occupied by a few Indians, but they drove them off, and built the city on the site of the present town. The first church was built in 1630, and the first school in 1631. The city grew rapidly, and by 1680 it was one of the largest and most important cities in the colony.

The city of Boston was the center of the Puritan movement in the colony, and it was here that the first steps were taken towards the establishment of a representative government. The first town meeting was held in 1630, and the first city council was organized in 1631. The city was the seat of the first university in the colony, and it was here that the first printing press was established.

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B.Sc. (Major - Geography)

TERRAIN ANALYSIS EMPHASIS

Sample Program

1st Semester

Geog. 111-3 - Physical Geography  
Math. 101-3 - Statistics  
Bisc. 101-4 - Introduction to  
Biology I  
Chem. 104-3 - General Chemistry I  
Math. 154-3 - Calculus for Bio.  
Science I

16 hours

5th Semester

Geog. 314-3 - Climatology I  
Geog. 315-3 - Biogeography I  
Geog. 313-3 - Geomorphology I  
\*Geog. 343-3 - Transitional  
Societies  
Bisc. 300-3 - Aspects of the  
Environment

15 hours

2nd Semester

Geog. 141-3 - Social Geography  
Cmpt. 103-3 - Introduction to  
Programming I  
Bisc. 102-4 - Introduction to  
Biology II  
Chem. 105-3 - General Chemistry II  
Math. 155-3 - Calculus for Bio.  
Science II

16 hours

6th Semester

Geog. 317-3 - Soils  
Geog. 407-3 - Quantitative  
Methods in Geog.  
Geog. 421-5 - Resource Develop.  
Bisc. 310-3 - Plants & Animals  
of B.C.  
Chem. 117-2 - Quant. Chem. Lab.

16 hours

3rd Semester

Geog. 250-3 - Cartography I  
Geog. 112-3 - Introduction to  
Geology  
Geog. 212-3 - Natural Hazards  
Phys. 101-3 - General Physics  
Chem. 115-2 - General Chemistry  
Laboratory  
Cmpt. 118-3 - Computing Projects in  
Arts and Sciences

OR

Cmpt. 141-1 and 151-1 - Computing  
Projects: Biology & Geog.

16 (or 17) hours

7th Semester

Geog. 413-5 - Geomorphology II  
Geog. 415-5 - Biogeography II  
Chem. 416-3 - Modern Methods in  
Analytical Chem.

13 hours

4th Semester

Geog. 121-3 - Economic Geography  
Phys. 102-3 - General Physics II  
Cmpt. 250-3 - Computer Uses in  
Environmental Studies  
Bisc. 204-3 - Introduction to Ecology  
Phys. 131-2 - General Physics Laboratory

14 hours

8th Semester

Geog. 322-3 - Primary Activities  
Geog. 469-5 - North American  
Middle North  
Geog. 418-5 - Terrain  
Evaluation  
Bisc. 404-3 - Plant Ecology

16 hours

TOTAL HOURS 122 (or 123)

COURSES THAT COULD BE DESIGNATED  
SCIENCE COURSES FOR THE  
B.Sc. PROGRAMME IN GEOGRAPHY

ENVIRONMENTAL SCIENCE AND RELATED  
COURSES IN GEOGRAPHY

|             |                                      |
|-------------|--------------------------------------|
| Geog. 111-3 | Physical Geography                   |
| Geog. 112-3 | Introductory Geology                 |
| Geog. 212-3 | Geography of Natural Hazards         |
| Geog. 250-3 | Cartography I                        |
| Geog. 251-3 | Methods in Spatial Analysis          |
| Geog. 313-3 | Geomorphology                        |
| Geog. 314-3 | Climatology I                        |
| Geog. 315-3 | Biogeography I                       |
| Geog. 317-3 | Soil Geography                       |
| Geog. 318-3 | Sedimentology and Past Environments  |
| Geog. 351-3 | Cartography II                       |
| Geog. 413-5 | Geomorphology II                     |
| Geog. 414-5 | Climatology II                       |
| Geog. 415-5 | Biogeography II                      |
| Geog. 416-5 | Pleistocene Geography                |
| Geog. 418-5 | Terrain Evaluation                   |
| Geog. 407-3 | Quantitative Methods in Geography    |
| Geog. 452-5 | Theoretical and Computer Cartography |

COURSES IN THE FACULTY OF SCIENCE

ADVISING LISTS

B.Sc. (Major - Geography)

ADVISING LIST - BIOLOGICAL SCIENCES

This list is designed to aid advisors in the Geography B.Sc. programme. It will be most useful for aiding those students who wish to concentrate in Biogeography.

Required Courses

Bisc. 101 and 102

Recommended Courses

|           |                                                                       |
|-----------|-----------------------------------------------------------------------|
| Bisc. 202 | Genetics                                                              |
| Bisc. 204 | Introduction to Ecology                                               |
| Bisc. 300 | Physical and Chemical Aspects of the Environment                      |
| Bisc. 304 | Animal Ecology                                                        |
| Bisc. 310 | The Plants and Animals of British Columbia                            |
| Bisc. 337 | Comparative Morphology, Distribution and Evolution of Vascular Plants |
| Bisc. 346 | Biosystematics                                                        |
| Bisc. 400 | Evolution                                                             |
| Bisc. 404 | Plant Ecology                                                         |
| Bisc. 407 | Population Dynamics                                                   |
| Bisc. 409 | Field Ecology                                                         |
| Bisc. 432 | Chemical Pesticides and the Environment                               |
| Bisc. 435 | Introduction to Pestology                                             |



B.Sc. (Major - Geography)

ADVISING LIST - CHEMISTRY COURSES

This list is designed to aid advisors in the Geography B.Sc. programme. It will be most useful in those situations where a student wishes to widen his/her chemistry knowledge (e.g. students with an interest in soils or environmental quality).

Required Courses

Chem. 104 and 105  
Chem. 115

Recommended Courses

|           |                                             |
|-----------|---------------------------------------------|
| Chem. 004 | Pollution, Energy and Resources             |
| Chem. 117 | Quantitative Chemistry Laboratory           |
| Chem. 233 | Inorganic Chemistry of Biological Processes |
| Chem. 235 | Geochemistry                                |
| Chem. 416 | Modern Methods of Analytical Chemistry      |

ADVISING LIST - MATHEMATICS COURSES

This list is designed to aid advisors in the Geography B.Sc. programme. It will be of most use in those situations where a student wishes to widen his mathematical background (e.g. students with an interest in the hydraulics section of fluvial geomorphology or computer cartography).

Required Courses

Math 101  
Math 151 and 152, or Math 154 and 155

Recommended Courses

|          |                                                 |
|----------|-------------------------------------------------|
| Math 104 | Elementary Computational Methods                |
| Math 161 | Statics                                         |
| Math 232 | Elementary Linear Algebra                       |
| Math 253 | Calculus III                                    |
| Math 302 | Statistical Methods                             |
| Math 305 | Statistical Analysis of Sample Surveys          |
| Math 310 | Introduction to Ordinary Differential Equations |
| Math 312 | Multidimensional Calculus                       |
| Math 361 | Mechanics of Deformable Media                   |
| Math 469 | Fluid Dynamics                                  |

B.Sc. (Major - Geography)

ADVISING LIST - PHYSICS COURSES

This list is designed to aid advisors in the Geography B.Sc. programme.

Required Courses

Phys. 101 and 102  
Phys. 131

Recommended Courses

|           |                                                         |
|-----------|---------------------------------------------------------|
| Phys. 181 | Introduction to Physical Science in<br>Archaeology      |
| Phys. 211 | Intermediate Mechanics                                  |
| Phys. 221 | Intermediate Electricity and Magnetism                  |
| Phys. 333 | Introduction to Instrumentation in the<br>Life Sciences |

B.Sc. (Major - Geography)

ADVISING LIST - MISCELLANEOUS COURSES

This list is designed to aid advisors in the Geography B.Sc. programme.

Recommended Courses

|           |                                                        |
|-----------|--------------------------------------------------------|
| Arc. 365  | Ecological Archaeology                                 |
| Arc. 372  | Archaeology Laboratory Techniques                      |
| Arc. 410  | Advanced Archaeometry                                  |
| Arc. 411  | Archaeological Dating                                  |
| Econ. 362 | Economics of Natural Resources                         |
| Hist. 217 | Canada to Confederation                                |
| Hist. 218 | Canada since Confederation                             |
| Pol. 221  | Introduction to Canadian Government                    |
| Pol. 222  | Introduction to Canadian Politics                      |
| Cmpt. 103 | Introduction to a High Level Programming<br>Language I |
| Cmpt. 151 | Computing Project - Geography                          |
| Cmpt. 250 | Computer Uses in Environmental Studies                 |