S.87-46

SIMON FRASER UNIVERSITY

MEMORANDUM

TO: Senate

FROM: J.W.G. Ivany, Chair, SCAP

SUBJECT: Faculty of Arts
Department of Geography
Reference: SCUS 87-46 (revised)
SCAP 87-52

DATE: Nov.19, 1987

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

MOTION: "That Senate approve and recommend approval to the Board of Governors, as set forth in S.87-46 the revisions to program requirements for the B.A. in Geography and for the B.Sc. in Geography including

New courses:

GEOG 100-3	Human Geography
GEOG 102-3	World Problems in Geographic Perspective
GEOG 162-3	Canada
GEOG 212-3	Geography of Natural Hazards
GEOG 213-3	Geomorphology I
GEOG 214-3	Climatology
GEOG 215-3	Biogeography
GEOG 221-3	Economic Geography
GEOG 241-3	Social Geography
GEOG 253-3	Aerial Photographic Interpretation
GEOG 354-4	Digital Cartography
GEOG 355-4	Geographic Information Systems
GEOG 356-4	Cognitive Cartography
GEOG 358-2	Field Techniques in Physical Geography
GEOG 359-2	Methods in Human Geography
GEOG 417-4	Biometeorology

GEOG 446-4 Geography in Contemporary Societies
GEOG 466-4 Latin American Regional Development
GEOG 490-4 Selected Topics

Course Deletions:
GEOG 101-3 General Geography
GEOG 121-3 Economic Geography
GEOG 141-3 Social Geography
GEOG 242-3 Social Space
GEOG 262-3 Canada
GEOG 311-3 Hydrology
GEOG 312-3 Natural Hazards
GEOG 318-3 Sedimentology and Past Environments
GEOG 319-3 Mass Transfer in the Biosphere
GEOG 346-3 Geography of Contemporary Societies
GEOG 411-5 Models in Hydrometeorology
GEOG 429-5 Selected Topics in Economic Geography
GEOG 449-5 Selected Topics in Cultural Geography
GEOG 499-15 Directed Readings/Field Studies

FOR INFORMATION

Acting under delegated authority, the Senate Committee on Undergraduate Studies approved the following minor changes as set out in S.87-46:

- prerequisite changes for GEOG 250-3, GEOG 251-3, GEOG 263-3, GEOG 265-3,
- change of credit hours and prerequisites for GEOG 301, GEOG 323, GEOG 324, GEOG 343, GEOG 344, GEOG 361, GEOG 362, GEOG 375, GEOG 381, GEOG 382, GEOG 383, GEOG 385, GEOG 412, GEOG 416, GEOG 418, GEOG 420, GEOG 421, GEOG 423, GEOG 424, GEOG 431, GEOG 444, GEOG 460, GEOG 464, GEOG 469, GEOG 470, GEOG 475, GEOG 498
- course revisions to GEOG 313-4, GEOG 314-4, GEOG 315-4, GEOG 353, GEOG 413, GEOG 452, GEOG 453,
- change of credit hours for GEOG 317, GEOG 407, GEOG 426, GEOG 441, GEOG 491
- change of title, course description and credit hours for GEOG 322, GEOG 422,
- change of title, credit hours and prerequisites for GEOG 325, GEOG 415
- change of credit hours, course description and prerequisites for GEOG 351, GEOG 369,
- change of title for GEOG 404-2, GEOG 405-4

- change of title, credit hours, course description and prerequisites for GEOG 414
- change of course number from GEOG 319 to GEOG 419 and change of credit hours and prerequisites
- change of title, course description and prerequisites for GEOG 445
- change of title and credit hours for GEOG 462

DEPARTMENT OF GEOGRAPHY CURRICULUM REVIEW

GENERAL STATEMENT

A. This revision was prompted by a number of circumstances. First, the present program has been in effect, with some modifications, since 1966. It has been an excellent program. But during the past two decades the discipline has evolved in a variety of ways which have been reflected in the curriculum by a series of incremental changes. The accumulation of these has resulted in some imbalances and lack of clarity. Thus the feeling has grown that the structure of the program itself should be re-examined.

Second, during the last six years the department has suffered the loss through retirement of four senior faculty members. One more such loss will be felt next year, and one faculty member resigned from the university. There have been four replacements. This turnover, along with the evolving interests of the continuing faculty, represent the particulars of the generally changing complexion of the discipline as they apply in this department. The re-shaping of courses, the proposals for new courses and the elimination of others, along with the prospect of changes in coming years, combine to suggest the need to provide a curriculum structure capable of accommodating the development of the program for the forseeable future. To this end the proposals modify the sub-disciplinary groupings of courses in addition to proposing courses for addition and deletion.

Third, it is anticipated that the collective action in the Faculty of Arts to change its breadth requirements will have an impact on the lower level courses. Proposals for the first and second years respond in part to this new context.

Fourth, the department also belongs to the Faculty of Science, offering the B.Sc., and any changes must therefore reflect the contexts of two Faculties and their requirements while at the same time the geography program must be maintained and developed coherently.

B. The most important general changes are:

1. The fleshing out of the second year offerings. The incorporation of second year courses much more systematically into the 'streams' of courses provides for the more effective operation of the pre-requisite structure.

2. The proposal for changes in the first year human geography requirements is that the courses be of a more general character, leaving the beginnings of sub-disciplines to the second year.

3. At the upper levels, the human geography courses have been placed into a comprehensive grouping, rather than the more specialized groups that are used at present. This allows for more freedom of course selection.

4. A 'technical' stream has been introduced, and new courses are proposed in this. The department is uniquely situated to develop this stream, having unusually good technical facilities for it and faculty who specialize in this rapidly developing branch of the discipline. In particular, this stream emphasizes computer-assisted cartography, aerial photography and digital image processing.

5. It is proposed that all upper levels courses, with three minor exceptions, carry four credit hours. The present system of three and five credits has been criticized by faculty and students alike. The use of four credits across the board is generally agreed to allow for the same amount of instruction time in a sequence of 300 and 400 level courses while eliminating differential expectations regarding work loads.

6. The size and scope of the overall program, as proposed, remains almost identical with the present program.

CREDIT HOUR ANALYSIS: present calendar

Year 1	5 courses @ 3 credit hours	= 15 hrs
Year 11	7 courses @ 3 credit hours	= 21 hrs
Sub Total	**12 courses**	**= 36 hrs**
Year 111	26 courses @ 3 credit hours	= 78 hrs
Year 1V	1 course @ 2 credit hours = 2 hrs 1 course @ 3 credit hours = 3 hrs 1 course @ 4 credit hours = 4 hrs 31 courses @ 5 credit hours = 155 hrs 1 course @ 15 credit hours = 15 hrs	=179 hrs
Sub Total	**61 courses**	**=257 hrs**
ALL LEVELS	**73 COURSES**	**293 HRS**

Note: These calculations include Geography 222-3 and 425-5 which were dropped in late 1986.

CREDIT HOUR ANALYSIS: proposed

Year I	5 courses @ 3 credit hours	= 15 hrs
Year II	11 courses @ 3 credit hours	= 33 hrs
Sub total	**16 courses**	**= 48 hours**
Year III	24 courses @ 4 credit hours 2 courses @ 2 credit hours	= 96 hrs = 4 hrs
Year IV	33 courses @ 4 credit hours 1 course @ 2 credit hours	= 132 hrs = 2 hrs
Sub Total	**60 courses**	**= 234 hours**
Total courses, all levels: 16+60 = 76		**= 76 courses**
Total credit hours, all levels: 48+234 = 282		**= 282 hours**

The effect of the proposed changes, in terms of the size and scope of the program in Geography, is to lose 11 credit hours but

(CALENDAR ENTRY)

The Department of Geography offers a program of study within the Faculty of Arts leading to the degree of Bachelor of Arts with Honors, Major or Minor standing in Geography. Students interested in a Bachelor of Science degree in Geography should refer to the Faculty of Science section of this Calendar.

GENERAL PROGRAM

(Students should check that they have fulfilled the requirements of the Faculty of Arts as detailed in the Faculty of Arts section of this Calendar.)

Lower Division Minimum Course Requirements: B.A.

1. Students intending to Major, Minor or take Honours in Geography are required to take:
Geography 100-3 Human Geography
Geography 111-3 Physical Geography (6 credit hrs)

2. B.A. Honors and major students must take **one** course at the 200 level from Section A and both Geography 221-3 and 241-3 from Section B. In addition, 250 or 251 are required from Section C.
(12 credit hrs)

3. For the Minor the following are required: Geography 100-3, 111-3, 221-3 or 241-3, and 250-3. (12 credit hrs)

Section A - Physical Geography
Geography 111-3 Physical Geography
112-3 Introductory Geology
213-3 Geomorphology I
214-3 Climatology I
215-3 Biogeography

Section B - Human Geography
Geography 100-3 Human Geography
102-3 World Problems in Geographic Perspective
212-3 Geography of Natural Hazards
221-3 Economic Geography
241-3 Social Geography

Section C - Techniques and Special Requirements
Geography 250-3 Cartography I
251-3 Methods in Spatial Analysis
253-3 Aerial Photographic Interpretation

Section D - Regions
Geography 162-3 Canada
263-3 Selected Region
265-3 Geography of British Columbia

Upper Division minimum course requirements: B.A.

Students are expected to consult with a Departmental Undergraduate Adviser when they formally declare a Major, Honors or Minor in Geography. Students who do not seek advice run the risk of prolonging their programs.

Majors and Honors students are required to take:

1. **Twenty (20)** semester hours of 300 level courses, including **Geography 301-4** and at least **one** course from Section A.
(20 credit hrs)

2. **Twelve (12)** semester hours of 400 level courses, including at least **one** course from Section D. (12 credit hrs)
(Total hrs req'd: 32)

Honors students

In addition, Honors students must take **Geography 491-4**, and **fourteen (14)** additional credit hours from courses in the 300 and 400 level listings. (18 credit hrs)
(Total hrs req'd: 50)

Minor

Sixteen (16) credit hours in Geography courses numbered 300 and 400.
(16 credit hrs)

Division Structure: Upper Levels

Division 300

Division 400

Section A Physical Geography

313-4 Geomorphology II
314-4 Climatology II
315-4 Regional Ecosystems
317-4 Soil Geography

412-4 Quaternary Geology & Geomorph
413-4 Geomorphology III
414-4 Climatology III
415-4 Advanced Biogeography
416-4 Pleistocene Geography
417-4 Biometeorology
418-4 Terrain Evaluation
419-4 Mass Transfer in the Biosphere

Section B Human Geography

301-4 Ggic Ideas & Methodology
322-4 World Resources
323-4 Geog of Manufacturing
324-4 Geog of Transportation
325-4 Gg of Service Activities
343-4 Geog of Trans Societies
344-4 Geog of Mod Indus Societies
361-3 Intro to Urban Geography
362-4 Geog of Urban Development
369-4 Human Microgeography
375-4 Historical Geography I
381-4 Political Geography
382-4 Population Geography
383-4 Regional Planning I
385-4 Introduction to Agricultural Geography

420-4 Comparative Cultural Geog
421-4 Geog of Resource Development
422-4 Geog of Third World
423-4 Gg of Tour & Outdoor Rec.
424-4 Urban Transportation
426-4 Ind Org, Loc & Planning
431-4 Landscape in Sci & Art
441-4 Urban Regions
444-4 Regional Planning II
445-4 Resource Planning
446-4 Gg of Contempory Soc
475-4 Historical Geography II

Section C Techniques and Special Requirements

351-4 Cartography II
353-4 Remote Sensing
354-4 Digital Cartography
355-4 Geog Info Systems
356-4 Cognitive Cartography
358-2 Field Techniques- Physical
359-2 Methods-Human

404-2 Directed Readings
405-4 Directed Readings
407-4 Quantitative Methods in gg
452-4 Adv Top in Geoprocessing
453-4 Digital Image Propcessing
490-4 Selected Topics
491-4 Honours Essay
498-4 Field Studies

Section D Regions

460-4 Selected Regions
462-4 Canada and the United States
464-4 Intertropical Africa
466-4 Latin American Reg Dev
469-4 Canadian North & Middle North
470-4 Western Canada

GEOGRAPHY PROGRAM -- BACHELOR OF SCIENCE

Location: Room 7123 - Classroom Complex
Telephone: 291-3321

Geography (B.Sc.)
Advising Committee:
W.G. Bailey
C.B. Crampton
E.J. Hickin
I. Hutchinson
M.C. Roberts
R.B. Sagar

Advisor:
Ida Curtis
7124 Classroom Complex
291-4128

The Department of Geography offers a program of study within the Faculty of Science leading to the degree of Bachelor of Science with a major or honors in Geography. Students interested in a Bachelor of Arts degree in Geography should refer to the Faculty of Arts.

Requirements for the Bachelor of Science in Geography are set out below.

A student entering the program should contact a member of the Advising Committee to plan the course work for one of the recommended options: biogeography, climatology, geomorphology or terrain evaluation.

Geography Major Program

LOWER DIVISION COURSE REQUIREMENTS
(total Required Hours - 54)

a) Required Geography Courses:

	GEOG	100-3	Human Geography
		111-3	Physical Geography
		112-3	Introductory Geology
Two of	GEOG	213-3	Geomorphology I
		214-3	Climatology I
		215-3	Biogeography
One of		221-3	Economic Geography
		241-3	Social Geography
One of	GEOG	250-3	Cartography I
		253-3	Aerial Photographic Interpretation

(21 semester hours)

b) Required Faculty of Science Courses:

	BISC	101-4	Introduction to Biology
		102-4	Introduction to Biology

(8 hours)

	CHEM	102-3	General Chemistry I for Physical Sciences
		103-3	General Chemistry II for Physical Sciences
		115-2	General Chemistry Laboratory I

(8 hours)

	PHYS	101-3	General Physics I
		102-3	General Physics II
		130-2	General Physics Laboratory A

(8 hours)

	MATH	101-3	Introduction to Statistics A
or	MATH	102-3	Introduction to Statistics B
and			
	MATH	151-3	Calculus I
		152-3	Calculus II
or			
	MATH	154-3	Calculus I for the Biological Sciences
		155-3	Calculus II for the Biological Sciences

(9 hours)

Any student planning to take further courses in Chemistry, Mathematics or Physics may need to take MATH 251-3. Further, any student planning to take additional courses in Chemistry may need to take CHEM 118-2.

c) Courses outside the Faculty of Science and outside the department of Geography Science stream:
A minimum of 6 hours.

UPPER DIVISION COURSE REQUIREMENTS
(Total Specified Hours - 37)

a) Required Geography Courses - 300 Level

Three of:

GEOG	313-4	Geomorphology II
	314-4	Climatology II
	315-4	Regional Ecosystems
	317-4	Soil Geography

(12 hours)

One of:

GEOG	322-4	World Resources
	323-4	Geography of Manufacturing
	324-4	Geography of Transportation
	325-4	Geography of Service Activities
GEOG	343-4	Geography of Transitional Societies
	344-4	Geography of Modern Industrial Societies
	362-4	Geography of Urban Development
GEOG	369-4	Human Microgeography
	375-4	Historical Geography I
	381-4	Political Geography
	382-4	Population Geography
	383-4	Regional Planning I
	385-4	Introduction to Agricultural Geography

(4 hours)

and One of:

GEOG	301-4	Geographic Ideas and Methodology
	351-4	Cartography II
	353-4	Remote Sensing
	354-4	Digital Cartography
	355-4	Geographic Information Systems
	356-4	Cognitive Cartography

(4 hours)

b) Required Geography Courses - 400 Level

Two of:-

GEOG	412-4	Quaternary Geology and Geomorphology
	413-4	Geomorphology III
	414-4	Climatology III
	415-4	Advanced Biogeography
	416-4	Pleistocene Geography
	417-4	Biometeorology
	418-4	Terrain Evaluation
	419-4	Mass Transfer in the Biosphere

(8 hours)

Plus 8 additional hours of Upper Level courses from any 300 or 400 level courses in Geography

c) Faculty of Science Courses

A minimum of 9 semester hours of 300-400 division BISC, CHEM, MATH or PHYS courses.

(9 hours)

A student must present a total of 44 semester hours of upper division credit (excluding EDUC 401, 402, 405 and 406), and additional credit in any courses (excluding EDUC 401, 402, 405, and 406) sufficient to bring the total credit for the degree to 120 semester hours. (See Faculty of Science requirements).

Program for Honors

The Honors program is the same as the Major program except that 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. A student must complete a total of 132 semester hours of credit . (See Faculty of Science requirements.) Entry into the honors program requires the approval of the department.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information** **Department** Geography

Abbreviation Code: GEOG **Course Number:** 100 **Credit Hours:** 3 **Vector:** 2-1-0

Title of Course: Human Geography

Calendar Description of Course:
This course introduces the basic systematic approaches in the study of contemporary human geography including the distribution of population, spatial aspects of economic, cultural and political development, landscape and resource study.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions):
Students with credit for Geography 101-3, Geography 121-3 or Geography 141-3 may not take this course for further credit. No pre-requisites.

What course (courses), if any, is being dropped from the calendar if this course is approved: Geography 101.

2. **Scheduling**

How frequently will the course be offered? At least twice a year.

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? L.J. Evenden, E.M. Gibson, R.B. Horsfall, R. Hayter, P.M. Koroscil A. MacPherson, J.T. Pierce.

3. **Objectives of the Course**
To survey the contemporary field of human geography and to demonstrate and foster a problem-oriented approach as a preparation for more advanced courses.

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: 10/19/87 Nov 9 87

Roger Hayter — **Department Chairman**

[signature] — **Dean**

[signature] — **Chairman SCUS**

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

Arts 78-3

Simon Fraser University
Department of Geography

011

Geography 100-3

Introduction to Human Geography

This course is a basic introduction to human geography. It surveys the approaches and general topical areas in the contemporary field including distributions of populations, their social, economic, cultural and political traits; landscapes and resources; case studies will be drawn from a wide variety of locations.

Required text: Stoddard, Robert H., Brian W. Blouet, and David J. Wishart, Human Geography: People, Places and Cultures, Prentice-Hall, 1986.

Topics:	Chapter Reading
1. The geographical approach	1
2. Population distributions and why - historical - contemporary - migrations	2, 3, 4
3. Culture regions	5, 6, 7
4. Economic development - agricultural distributions - industrialization - resource development - population distributional correlates	9, 10
5. Political space - national - international - sub-national - impacts on spatial interaction	8
6. Settlement forms and processes - rural - urban	11
7. "Human Impact on the environment" - natural vs. artificial landscapes - transformations by traditional societies, by agriculturalists, by industrial and urban societies.	12
8. Contemporary issues of resource depletion and creation and the problem of "future scenarios"	13

Grading

Final exam: 50%
Mid term: 20%
Tutorial: 10%
Assignments: 20%

Field trips are included.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

012

NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** Geography

Abbreviation Code: GEOG **Course Number:** 102 **Credit Hours:** 3 **Vector:** 2-1-0

Title of Course: World Problems in Geographic Perspective

Calendar Description of Course:

Current world - scale problems are examined in their regional and global contexts, with emphasis being placed on the importance of dynamics of the natural environment in human affairs.

Nature of Course Topical introduction to the field. Lecture/tutorial

Prerequisites (or special instructions):

None

What course (courses), if any, is being dropped from the calendar if this course is approved: Geog. 101

2. **Scheduling**

How frequently will the course be offered? Once per year at first, possibly more if demand justifie

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? A. Gill, R. Hayter, J. Brohman

3. **Objectives of the Course**

This course is designed to meet the needs of a wide spectrum of first year students who desire an understanding of the geographic background to world and major regional events and processes.

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: 10/19/87 Nov. 9'87

Roger Hayter — Department Chairman
R C Brown — Dean
Chairman, SCUS

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

Arts 78-3

GEOGRAPHY 102-3

World Problems in Geographic Perspective

This course examines selected current world issues and problems from a geographic perspective. Environmental, social, cultural and political issues are considered in the context of both their regional and global settings. Long-term global issues such as environmental pollution, food production and distribution, political tensions, population pressures and problems of development provide examples of the foci to be developed. Illustrative examples and specific case studies will vary over time in response to changing world situations.

The following topics are selected from the required text and illustrate the focus on current issues:

- -Environmental pollution
- -Famine/food resources
- -Population growth and control
- -Energy problems
- -Political tensions and disputes
- -Resource depletion
- -Economic development
- -Problems of urbanisation

Required Texts

R. J. Johnston and P. J. Taylor (eds.) 1986, A World in Crisis: Geographical Perspectives, New York: Blackwell.

Andrew Boyd, 1983, An Atlas of World Affairs, 7th edit. New York: Methuen

Course Evaluation

Students will be evaluated on a mid-term examination(15%), a final examination (40%), one major term paper (25%) and seminar exercises (20%).

SENATE COMMITTEE ON UNDERGRADUATE STUDIES [redacted]

NEW COURSE PROPOSAL FORM

014

1. **Calendar Information** — Department: Geography

Abbreviation Code: GEOG Course Number: 162 Credit Hours: 3 Vector: 2-[illegible]0

Title of Course: Canada

Calendar Description of Course:
The geographical character of Canada; the Canadian environment, regional differences in socio-economic growth.

Nature of Course: Lecture/Tutorial

Prerequisites (or special instructions):

Students with credit for Geog. 262 may not take this course for further credit.

What course (courses), if any, is being dropped from the calendar if this course is approved: Geog. 262

2. **Scheduling**

How frequently will the course be offered? 4 in 6 semesters

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? A. Gill, M.E. Eliot Hurst, P.M. Koroscil

3. **Objectives of the Course**

No change from Geog. 262. Reassignment to new number.

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: 10/19/87	Nov. 9 '87	
Department Chairman	Dean	Chairman, SCUS

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

Arts 78-3

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information **Department** GEOGRAPHY

Abbreviation Code: GEOG **Course Number:** 212 **Credit Hours:** 3 **Vector:** 2-1-(

Title of Course: Geography of Natural Hazards

Calendar Description of Course: An introduction to the occurrence and origin of natural hazards such as volcanic eruptions, landslides etc. Interaction between the relevant natural processes and society will be examined, as well prediction of natural events and the amelioration of the effects of such events within different cultural contexts.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions):

Geog. 111-3 or 112-3 Students who completed Geog. 312 prior to 88-3 may not take this course for further credit.

What course (courses), if any, is being dropped from the calendar if this course is approved: GEOG 312-3

2. Scheduling

How frequently will the course be offered? 1 in 3 semesters

Semester in which the course will first be offered? 88-3?

Which of your present faculty would be available to make the proposed offering possible? C.B. Crampton R.B. Sagar

3. Objectives of the Course

Expose students to the nature of the wide array of physical events that can influence and even mould societal behaviour on the Earth..

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

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

5. Approval

Date: 10/19/87	Nov. 9'87	
Roger Hooke	R C Bonn	
Department Chairman	**Dean**	**Chairman**

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

Arts 78-3

Simon Fraser University
Department of Geography

Geography 212-3
ANO

Geography of Natural Hazards

Tentative Course Outline

The course will focus on the occurrence, origin, and impact of natural hazards, including volcanoes, earthquakes, landslides, avalanches, floods, droughts, tropical storms, pests and diseases. Efforts to predict, avoid, and reduce the impacts of natural disasters in different cultural settings will be considered. Examples will be drawn from diverse sources, with B. C. and Canadian events emphasized as appropriate!

Some Lecture Topics:

1. Working definitions of "natural hazards" and a review of their global significance.

2. Plate tectonics, earthquakes and volcanic eruptions.

3. Hazards in mountain environments - landslides (and snow avalanches).

4. Floods, tropical storms and drought.

5. Biological hazards - pests and diseases.

Each topic will include a discussion of:

(a) the physical processes underlying their occurrence;
(b) techniques for predicting their occurrence and assessing the type and degree of risk;
(c) technological and social adjustments, particularly those unique in response to the hazard type.

Organization:

There will be one two-hour lecture and one one-hour tutorial a week plus a one-day field trip (cost $5.00), ideally
and/or - please try to keep these dates open, 9:00 a.m. to 4:00 p.m.

Grades Grades will be based on a mid-term exam (20%), a short paper covering a tutorial presentation topic (20%), and final exam (60%) that will include one compulsory question on the field trip..

Required Text: Whittow, J. 1980. Disasters (Univ. of Georgia Press.)

A schedule of topics and list of reserve material will be available first week of semester.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information**

Department: Geography

Abbreviation Code: GEOG Course Number: 213 Credit Hours: 3 Vector: 2-0-2

Title of Course: Geomorphology I

Calendar Description of Course:
An examination of landforms, processes, laws, and theories of development; types and distributions.

Nature of Course: Lecture/Laboratory

Prerequisites (or special instructions):
Geog. 111 or 112. Students who completed Geog. 313 prior to 88-3 may not take this course for further credit.

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? Twice yearly.

Semester in which the course will first be offered? Fall and Spring.

Which of your present faculty would be available to make the proposed offering possible? M.C. Roberts, E.J. Hickin, C.B. Crampton

3. **Objectives of the Course**

To provide an introduction to the study of landforms: processes, laws, theories of development, types and distributions.

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: 10/19/87	Nov. 9 '87	
Roger Hayter	RC Brown	[signature]
Department Chairman	Dean	Chairman, SCUS

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

Arts 78-3

Simon Fraser University
Department of Geography

Geography 213-3
E. J. Hickin

Course Outline

General: Geography 213 is a course in geomorphology which will examine the following topics:

1. Theory and Methodology of geomorphology
2. Structural geomorphology
3. Morphologic evolutionary systems
4. Weathering, mass movement and hillslope development
5. Drainage basins and river networks
6. Fluvial geomorphology
7. Glacial geomorphology
8. Coastal geomorphology
9. Climatic geomorphology

Course Format: Each week there will be two one-hour lectures and generally a two-hour lab/tutorial. Some labs may be replaced by field trips. Arrangements for these trips are enrollment-dependent and will be finalised after the start of classes.

Text: R. J. Chorley, S. Schumm & D. Sugden, 1984, Geomorphology, Methuen, New York, 606 p.

Grades: Grading will be based on the following components:

(a)	class assignments	25%
(b)	mid-term examination I	25%
(c)	mid-term examination II	25%
(d)	term paper	25%

There is no final examination.

Further Information: Dr. E. J. Hickin
Room 7131CC, Department of Geography

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** GEOGRAPHY

Abbreviation Code: GEOG **Course Number:** 214 **Credit Hours:** 3 **Vector:** 2-0

Title of Course: Climatology I

Calendar Description of Course: A review of the basic principles and processes involved in physical and dynamic climatology, with particular emphasis on global distributions and change.

Nature of Course Lecture/laboratory

Prerequisites (or special instructions):

Geog. 111 Students who completed Geog. 314 prior to 88-3 may not take this course for further credit.

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? 2 of 3 semesters

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible?
W.G. Bailey R.B. Sagar

3. **Objectives of the Course**

Develop core climatology introduced in Geog. 111-3

4. **Budgetary and Space Requirements** (for information only)

What additional recources will be required in the following areas:

Faculty -

Staff -

Library -

Audio Visual -

Space -

Equipment -

5. **Approval**

Date: 10/19/87 Nov. 9 '87

Department Chairman — Dean — Chairman

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

Arts 78-3

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Simon Fraser University
Department of Geography

Geography 214
ANO

Course Outline (Preliminary)

Climatology I

Description: The course introduces major topics in the field of climate through an examination of such basic concepts as the energy balance, water balance (atmospheric and terrestrial) and the general circulation. Results of the essential processes working on different time and space scales will be considered in relation to Canadian and global conditions.

Lecture Topics:

1. Properties of the atmosphere
2. Climate and energy source - solar radiation distributions
3. Radiation, balances and budgets
4. Precipitation, evaporation and transpiration
5. Global Hydrological cycle and the water balance
6. General circulation of the atmosphere, pressure and winds
8. Disturbances and storms
9. Climatic regimes: spatial distributions
10. Climatic change.

Organization: One 2 hour lecture and one 2 hour lab. session per week.

Text: Henderson-Sellers A., Peter J. Robinson, 1986. Contemporary Climatology, Longman U.K./ John Wiley N.Y. LSBN 0-582-30057-6.

Evaluation:		
	Mid-session examination	20
	Lab. assignments	30
	Final examination	50
		100

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** Geography

Abbreviation Code: GEOG **Course Number:** 215 **Credit Hours:** 3 **Vector:** 2-0-2

Title of Course: Biogeography

Calendar Description of Course:

An examination of the abiotic and biotic factors that control the distribution and development of plant communities, including climatic and geological change.

Nature of Course Lecture/Lab

Prerequisites (or special instructions):

Geog. 111 Students who completed Geog. 315 prior to 88-3 may not take this course for further credit. Students granted credit for Geog. 215 may not be granted credit for BISC 204.

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? 2/year

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? Ian Hutchinson

3. **Objectives of the Course**

Reviews the geographical factors that limit the distribution and abundance of plant species and that control the development of plant communities. Explains the importance of biotic and abiotic interactions in the vegetation landscape.

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: 10/26/87 — Nov. 9 '87 —

Roger Hayter — R. C. Brown — [signature]

Department Chairman — **Dean** — **Chairman, SCUS**

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

Arts 78-3

Department of Geography
Simon Fraser University

Geography 215

Biogeography
Course Outline

This course examines the abiotic and biotic factors that control the geographic distribution and development of plant communities, including geological and historical environmental change.

Course Organization
The course will consist of one 2-hour lecture and a 2-hour laboratory session.

Course Grading
Laboratory assignments will account for 50% of the course grade. The remaining 50% will be divided equally between a midterm and a final examination.

Texts: Kellman, M.C. "Plant Geography". Methuen (2nd edition)
Clapham, W.B. "Natural Ecosystems". Macmillan (2nd edition)

Lecture Topics:

What is Biogeography?
Reconstructing Biogeographic and Evolutionary Histories
Population Variation and Demographics
The Atmospheric Factor in Plant Distribution
The Edaphic Factor in Plant Distribution
Competition, Cooperation & Predation
The Organization of Ecological Communities
Island Biogeography
Disturbance and Community Dynamics
Primary Productivity
Biogeochemical Cycling
Biotic Conservation

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

REVISION

023 23

NEW COURSE PROPOSAL FORM

1. **Calendar Information**

Department Geography

Abbreviation Code: GEOG **Course Number:** 221-3 **Credit Hours:** 3 **Vector:** 2-1-0

Title of Course: Economic Geography

Calendar Description of Course:

The basic concepts of economic geography, involving consideration of the spatial organization and development of economic and resource based systems.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions):

Geog. 100 Students with credit for Geog. 121 may not take this course for further credit.

What course (courses), if any, is being dropped from the calendar if this course is approved:

Geog. 121

2. **Scheduling**

How frequently will the course be offered? 5 in 6 semesters

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? J.A.C. Brohman, M.E. Eliot Hurst, J.P. Pierce, R. Hayter, S.T. Wong

3. **Objectives of the Course**

No change from Geog. 121. Reassignment to new number.

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: 10/19/87 Nov. 9 '87

R. Hayter — Department Chairman

RC Brohman — Dean

Chairman, SCUS

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

Arts 78-3

SENATE COMMITTEE ON UNDERGRADUATE STUDIES REVISION 34

024

NEW COURSE PROPOSAL FORM

1. **Calendar Information** Department: Geography

Abbreviation Code: GEOG Course Number: 241-3 Credit Hours: 3 Vector: 2-1-0

Title of Course: Social Geography

Calendar Description of Course:

Systematic consideration of the spatial and environmental bases of societies, in historical and cultural perspective.

Nature of Course: Lecture/Tutorial

Prerequisites (or special instructions):

Geog. 100 Students with credit for Geography 141 may not take this course for further credit.

What course (courses), if any, is being dropped from the calendar if this course is approved:

Geog. 141

2. **Scheduling**

How frequently will the course be offered? 5 in 6 semesters

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? E.M. Gibson, R.B. Horsfall, A. MacPherson, P.M. Koroscil

3. **Objectives of the Course**

No change from Geog. 141. Reassignment to new number.

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: 10/19/87	Nov. 9 '87	
R. Hayter	R C Brown	[signature]
Department Chairman	Dean	Chairman, SCUS

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

Arts 78-3

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department Geography

Abbreviation Code: GEOG **Course Number:** 253 **Credit Hours:** 3 **Vector:** 2-0-4

Title of Course: Aerial Photographic Interpretation

Calendar Description of Course: Uses of aerial photography and air photo interpretation in geography. The course is divided into four sections: (1) technical background regarding aerial photography and photo interpretation; (2) air photo interpretation and mapping; (3) application of air photo interpretation; and (4) Introduction to remote sensing.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):

GEOG 100 & 111. Students who have completed GEOG 353 prior to 88-3 may not take this course for further credit.

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 per year

Semester in which the course will first be offered? Fall 1988 or later.

Which of your present faculty would be available to make the proposed offering possible? A.C.B. Roberts

3. Objectives of the Course

The course represents a view of geographic fieldwork with an emphasis on remotely sensed material.

4. Primary and Space Requirements (for information only)

What additional resources will be required in the following areas:

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

5. Approval

Date: 10/19/87	Nov. 9 '87	
Roger Hayter	R C Brun	
Department Chairman	**Dean**	**Chairman**

SCUS 73-14b:- (When completing this form, for instructions see Memorandum SCUS 73-34a. Attach course outline).

Arts 73-3

Simon Fraser University
Department of Geography

Geography 253-3

AERIAL PHOTOGRAPHIC INTERPRETATION

General Information

The course deals with aerial photography and air photo interpretation as a primary cartographic technique in geography and resource inventories. The course is divided into three sections: 1) technical background regarding aerial photography, air photo interpretation and cartography; 2) application of air photo interpretation and resource mapping to environmental analysis, and; 3) introduction to remote sensing.

Nine elementary laboratory exercises provide a basis for practical experience and further study in aerial photography and related cartographic applications.

The final grade for the course will be determined from the laboratory assignments, a mid-term test and a final examination as follows:

Laboratory exercises	50%
Mid-term test	20%
Final examination	30%

The final examination must be passed or a subsequent oral examination must be taken by students who failed the final exam but have sufficient marks for a passing grade.

Supplies: Students are requested to buy a pocket stereoscope and staedtler grease pencils (red, blue, green, yellow) all other material and instruments will be supplied by the Department of Geography.

Text Book: AVERY, T.E.,and G.L. Berlin, 1985, Interpretation of Aerial Photographs, 4th Edition, Burgess, Minneapolis.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information **Department** Geography

Abbreviation Code: GEOG **Course Number:** 354 **Credit Hours:** 4 **Vector:** 2-0-4

Title of Course: Digital Cartography

Calendar Description of Course:
Computational aspects of cartography. Map projections; data input; spatial data manipulation; computer-assisted mapping. Students who do not know any programming will have to take a short introduction to Fortran.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):
GEOG. 250 and GEOG. 251 and permission of 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 per year.

Semester in which the course will first be offered? Fall 1988 or later.

Which of your present faculty would be available to make the proposed offering possible? T.K. Poiker.

3. Objectives of the Course

The course provides the basis of computer cartography. The lectures present the conceptual basis of the topic. For geographers without much computer knowledge, the emphasis in the labs will be on the usage of mapping programs, for students with computing knowledge it will be on programming projects.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

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

5. Approval

Date: 10/19/87 Nov. 9'87

Department Chairman — Dean — Chairman

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

Arts 78-3

GEOG 354-4
Digital Cartography
Thomas K. Poiker

The study of the structures and algorithms for the storage and display of cartographic data. The emphasis is on the conceptual basis of computer cartography (as an extension of cartography) and the procedural solutions of storage and display problems. The application of cartographic programs is persued especially by those students with less programming knowledge. However, a short course in the basics of Fortran is provided for everybody.

1. Data Structures.
   - (a) Spatial data structures
     - (i) Raster vs. Vector
     - (ii) Geometry - Topology
     - (iii) Spatial Search (Quadtree, Excell, etc)
   - (b) Data Base Management Systems
     - (i) Hierarchical DBs.
     - (ii) Relational DBs.
     - (iii) Application to GIS.
   - (c) Data structure interfaces and conversions.
     - (i) Graphic to digital conversion concepts.
     - (ii) Vector-raster-vector conversions.
2. Algorithms
   - (a) Mathematics.
     Transformations, map projections.
   - (b) Points
     - (i) Input.
     - (ii) Triangulation.
     - (iii) Interpolation (assumptions, different approaches, comparison).
   - (c) Lines
     - (i) Input.
     - (ii) Symbolism.
     - (iii) Generalization.
     - (iv) Smoothing.
     - (v) Fractals.
   - (d) Polygons
     - (i) Structures.
     - (ii) Input.
     - (iii) Point-in-polygon.
     - (iv) Overlay.
   - (e) Surfaces
     - (i) Structures.
     - (ii) Input.
     - (iii) Contouring.
     - (iv) Other representations (3-D, shading, inclined contours, shaded contours, colour, etc).
     - (v) Slope ananlysis, visibility, etc.
     - (vi) Surface Modelling.

<u>Reading.</u>

Burrough, P.

Monmonier, M.

Peucker, T.K.

Other readings will be provided during the course.

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SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information **Department** Geography

Abbreviation Code: GEOG **Course Number:** 355 **Credit Hours:** 4 **Vector:** 2-0-4

Title of Course: Geographic Information Systems

Calendar Description of Course:
Introduction to Geographic Information Systems; cadastral systems; thematic mapping and census systems; resource systems; digital elevation systems; topographic mapping systems. Data bases; data analysis.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):
Geography 250 and Geography 251 and permission of 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 per year.

Semester in which the course will first be offered? Fall 1988 or later.

Which of your present faculty would be available to make the proposed offering possible? T.K. Poiker

3. Objectives of the Course

The course gives an overview of Geographic Information Systems. The lectures present the conceptual basis of the topic. For geographers without much computer knowledge, the emphasis in the labs will be on the usage of mapping programs, for students with computing knowledge it will be on programming projects.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

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

5. Approval

Date: 10/19/87 Nov. 9'87

Department Chairman	Dean	Chairman

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

Arts 78-3

GEOG 355-4
Geographic Information Systems.
Thomas K. Poiker

This course focuses on the collection, storage, manipulation and display of geographic data. The emphasis is on geographic systems and the modelling of geographic information. Data base concepts from Computing Science, data analysis and decision suppport systems from Operations Research and accuracy considerations from Surveying are external influences to be considered.

1. Introduction to Geographic Information Systems.
   (a) Components of a Geographic Information System.
   (b) GIS - Land Information System.
   (c) System Functions.
   (d) Attributes of an Effective Information System.
   (e) Categorization.
   (f) Geo-Referencing.
   (g) Quality.
   (h) Strengths and Weaknesses.
2. The Dimensions of GIS.
   (a) Political/institutional.
   (b) Data/information/knowledge.
   (c) Procedural.
3. Information Systems Analysis and Design.
   (a) Defining the System's Scope and Technical Objectives.
   (b) Studying the current Physical System.
   (c) Studying the Current Logical System.
   (d) Identifying the Design Alternatives.
   (e) Designing the New System.
4. File Storage.
   (a) General Concepts.
   (b) Media and Devices.
   (c) Access Methods.
5. Data Base Storage.
   (a) Traditional Filing Systems.
   (b) Data Base Systems.
   (c) Architecture of Data Base Systems.
   (d) Standard Data Base Approaches.
6. Types of Geographic Information Systems.
   (a) Cadastral
   (b) Topographic
   (c) Digital Elevation Models
   (d) Resources Systems
   (e) Thematic Mapping
7. Land Information Modelling.
   (a) Phenomena-Based vs. Land-Related Data Organisation.
   (b) Entity-Relationship Model.
   (c) The Geographic Phenomena Model and the Spatial Representation Model.
   (d) Integration of Themes.
8. The Politics of Geographic Information Systems.
9. Introduction to Applications.
   (a) Categories and Size of Proplems; Efficient Access.

(b) Analysis Programs, Lack of Integrated Analysis Programs.

(c) Integration of Functions.

(d) Remote Sensing/GIS Interfaces.

(i) General Considerations: Raster vs. Vector, Resolution; Coordinate Adjustment; Absolute vs Probabilistic data; Multi-variable Mapping.

(ii) Criticism in the Literature.

(iii) Existing Interfaces.

(e) Applications.

10. Systems Modelling.

(a) Location-Allocation Modelling.

(b) Spatial Interaction Modelling.

(c) Spatial Generalization, Statistics of Spatial Data.

(d) Surface Modelling.

11. Decision Support Systems.

(a) Categories of Decisions.

(b) The Decision-Making Process.

(c) Management Practice.

(d) DSS Design.

12. Social and Political Questions.

(a) The Sociology of Information Systems.

(b) The Political Impact.

Readings.

Burrouhgs, R.A.

Lodwick,G.D. and M. Feuchtwanger(1987): Position-Based Land Information Systems. Manuscript.

Tomlinson, Roger(1984): Investigation of Digital Cartographic Status and Developments in Canada. 5 vols. Ottawa.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information**

Department Geography

Abbreviation Code: GEOG **Course Number:** 356 **Credit Hours:** 4 **Vector:** 2/2/0

Title of Course: Cognitive Cartography

Calendar Description of Course:
Analyzes the map-user interface, the basic perceptual and cognitive processes used by the map reader, and the principles of design and presentation which lead to effective map use.

Nature of Course Lecture/Seminar

Prerequisites (or special instructions):
Geog. 100 and 250; or Geog. 101 or 121 or 141, if completed prior to 88-3, and Geog. 250.

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 per year.

Semester in which the course will first be offered? (?)

Which of your present faculty would be available to make the proposed offering possible? W. Gill, R.B. Horsfall.

3. **Objectives of the Course**

To provide the student cartographer with the background and training in perception and cognition needed to assure effective cartographic communication to varied audiences, including the visually impaired. The student will be able to both design effective maps and evaluate existing maps for effective communication.

4. **Budgetary and Space Requirements** (for information only) None envisioned.

What additional resources will be required in the following areas:

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

5. **Approval**

Date: 10/19/87 Nov. 9 '87

Department Chairman | Dean | Chairman, SCUS

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

Arts 78-3

Geog. 356-4 R.B.Horsfall
Vector 2/2/0

Cognitive Cartography

Prerequisites 100, 250 (prerequisite or corequisite)

Objectives To provide the geography student with the background and training in perception and cognition needed to assure effective cartographic communication to varied audiences, including the visually impaired. The student will be able to both design effective maps and evaluate existing maps for effectiveness of communication.

Course structure: 2 hours lecture, one 2 hour tutorial per week. Each student will complete a series of projects designed to clarify lecture material and to further his/her understanding of the user's cognitive processes in interpreting and appreciating the map as an information source. Design principles of the tactual map will be explored in some detail, as the tactual base provides a good deal of information about cognitive processes in map reading which cannot be easily obtained through other means.

Course Grade will be based on:

Midterm Exam	20%
Final Exam	30%
Tutorial Participation	20%
Class Projects	30%

Texts: Spatial Orientation: Theory, Research, and Application eds. Pick, H.L.Jr., and L.P. Acredolo Plenum Press, 1983 (required)

Tactual Perception: a Sourcebook eds. Schiff, W. and E. Foulke Cambridge Press, 1982

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SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information** **Department** Geography

Abbreviation Code: GEOG **Course Number:** 358 **Credit Hours:** 2 **Vector:** 0-0-5

Title of Course: Field Techniques in Physical Geography

Calendar Description of Course: The theory and practice of selected field and experimental techniques in physical geography.

Nature of Course Field Work & Laboratory

Prerequisites (or special instructions):

One of GEOG 213, 214, 215; or one of Geog. 313, 314, 315 if completed prior to 88-3.

What course (courses), if any, is being dropped from the calendar if this course is approved:

2. **Scheduling**

How frequently will the course be offered? Once every 4 semesters

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? Colin B. Crampton, William G. Bailey, Ian Hutchinson, Edward J. Hickin, Michael C. Roberts, R. Brian Sagar

3. **Objectives of the Course**

To insure that physical geography students are exposed to the most commonly used field methods.

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: 10/19/87 | Nov. 9 '87 | ______

[signature] | [signature] | [signature]

Department Chairman | **Dean** | **Chairman, SCUS**

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

Arts 78-3

Department of Geography
Simon Fraser University

Geog 358-2

Field Techniques in Physical Geography

This course is designed to acquaint the student with selected, but widely used field techniques in the area of physical geography. Emphasis will be on those methods that are used in a wide range of courses, and are a fundamental skill of the practicising physical geographer.

The format of the course is that of a 5 hour field laboratory. Burnaby Mountain will be the major field site.

Topics to be Covered

1. Elementary Land Surveying: *Plane Tabling*
2. Elementary Land Surveying: *Levelling*
3. Drilling Techniques: *Recovery, Logging and Description of Cores*
4. Field Mapping for Geomorphology
5. Instrumentation for Climatic Measurements
6. Basic Soil Identication Procedures

Equipment Needed
Each member of the course is required to have the following:
field notebook (+ pens, pencils, scale, etc)
camera
backpack
Be prepared to work outside in the rain!

Grading
There will be a term project (35% of the grade) and the written reports for each of the techniques (65% of the grade).

Readings
There is no assigned textbook for the course, but reference material will be assigned for each section - this will be on library reserve.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

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NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** Geography

Abbreviation Code: GEOG **Course Number:** 359 **Credit Hours:** 2 **Vector:** 2-0-2

Title of Course: Research Methods in Human Geography

Calendar Description of Course:

A practical introduction to field methods employed by human geographers. Particular emphasis is placed on rural and urban classification procedures, questionnaire methods, participant and landscape observation and recording.

Nature of Course Lecture/Field work

Prerequisites (or special instructions):
Geog. 221 and 241; or Geog. 121 and 141 if completed prior to 88-3.

What course (courses), if any, is being dropped from the calendar if this course is approved:

2. **Scheduling**

How frequently will the course be offered? once per year

Semester in which the course will first be offered? 88-3

Which of your present faculty would be available to make the proposed offering possible? R. Hayter

3. **Objectives of the Course**

To educate students in the practice of collecting, coding and evaluating information. The course will enhance research skills.

4. **Budgetary and Space Requirements (for information only)**

What additional resources will be required in the following areas:

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

5. **Approval**

Date: 10/19/87 Nov. 9 '87

Roger Hayter — Department Chairman

R C Bowen — Dean

Chairman, SCUS

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

Arts 78-3

Simon Fraser University
Department of Geography

GEOG 359- 2

Course Outline

Field Methods in Human Geography

This course offers a practical introduction to the research methods employed by human geographers in collecting and classifying data from primary and secondary sources. Particular emphasis is placed on rural and urban land classification procedures, questionnaire and interview methods, archival research and the use of censuses. Secondary (library) sources of data have expanded significantly and they provide "ready made" information on an increasingly wide range of topics of interest to human geographers. At the same time collecting primary information from the field, that is by direct observation, is deeply engrained in the history of geography. There continues to be a significant range of research problems that can only be effectively addressed through field work. Field work allows researchers to generate their own 'primary' data which pertain specifically to their research goals. Thus a principal reason for field work which is time consuming and often expensive, is because published 'secondary' data sources are not pertinent. Field work also provides direct evidence of 'context' of the particular subject under study.

Required Text: J.F. Lounsbury and F.T. Aldrich: Introduction to Geographic Field Methods and Techniques: Toronto: Charles Merrill, 1986.

Course Organisation

The course involves lectures, fieldwork based (assigned) projects and the presentation and writing-up of these projects.

1. Introduction: Data Sources in Human Geography

2. Archival Research

3. Using Census Material

4. Land Classification Procedures

5. Questionnaire Methods

6. Participant Observation

7. Research Design

Course Evaluation

Students will be expected to complete five field-work based projects worth 20% each; two on land use classification; and two on questionnaire/interview methods and one in participant observation. For some of these projects students will be expected to code, tabulate and map data on a micro-computer.

References

E.R. Babbie, The Practice of Social Research. Belmont: Wadsworth, 1986 (4th edition)

C. Board, "Field Work in Geography with Particular Emphasis on the Role of Land-Use Survey", Frontiers in Geographical Teaching edited by R.J. Chorley and P. Haggett. London: Methuen, 1965: 186-214.

M.P. Collins, "Field Work in Urban Areas", in R.J. Chorley and P. Haggett - ibid: ch. 10.

R. Daugherty, Science in Geography: Data Collection. Oxford University Press, 1974.

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SENATE COMMITTEE ON UNDERGRADUATE STUDIES

040

NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** Geography

Abbreviation Code: GEOG **Course Number:** 417 **Credit Hours:** 4 **Vector:** 2-2-0

Title of Course: Biometeorology

Calendar Description of Course: An introduction to current research efforts in biometeorology; theory and application of mathematical models to describe processes of radiation, heat and mass transfer.

Nature of Course Lecture/Seminar

Prerequisites (or special instructions):
Geog. 314 or permission of instructor; Math 151 and 152 or Math 154 and 155 or Math 157 and 158. Students who completed Geog. 314 prior to 88-3 do not have the prerequisite.

What course (courses), if any, is being dropped from the calendar if this course is approved: Geography 411-5

2. **Scheduling**

How frequently will the course be offered? once in 6 semesters

Semester in which the course will first be offered? spring 1989

Which of your present faculty would be available to make the proposed offering possible?
W. G. Bailey; R. B. Sagar

3. **Objectives of the Course**

Introduces students to biometeorology. Permits familiarity with the theory and application of mathematical models of radiation, heat and mass transfer.

4. **Budgetary and Space Requirements (for information only)**

What additional resources will be required in the following areas:

Faculty	no
Staff	no
Library	no
Audio Visual	no
Space	no
Equipment	no

5. **Approval**

Date: 10/19/87	Nov. 9 '87	
Roger Hayter	R C Bowen	
Department Chairman	**Dean**	**Chairman, SCUS**

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

Arts 78-3

Simon Fraser University
Department of Geography

Geography 417-4
W.G. Bailey

Biometeorology

Outline: An introduction to current research efforts in biometeorology; theory and application of mathematical models to describe processes of radiation, heat and mass transfer.

Prerequisite: Geography 314-4 or permission of instructor., Math 151 and 152 or Math 154 and 155 or Math 157 and 158.

Literature Sources: 1. Textbook - Montieth, J.L. 1973. Principles of Environmental Physics. Edward Arnold, 241 pp.
2. References - Readings, handouts and articles from other sources will be assigned to go with specific lecture topics. Some of this material will be put on reserve in the library.

Evaluation Scheme: Term paper 50
Final examination 50
100

Organization: One two-hour lecture and one two-hour seminar session per week

Lecture Topics:

1. Introduction to biometeorology
2. Modelling radiative exchanges between the atmosphere and the surface
3. Heat and mass transfer processes
4. Modelling heat and mass transfer between the atmosphere and the surface
5. Meteorological influence on the global distribution of vegetation

Term Paper: A term paper and term paper outline are required for this course. A list of topics and guidelines will be made available during the first week of classes.

Final Examination: A final examination will be scheduled. The examination format will be essay questions.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES REVISION 102

042

NEW COURSE PROPOSAL FORM

1. **Calendar Information** Department Geography

Abbreviation Code: GEOG Course Number: 446 Credit Hours: 4 Vector: 2-2-0

Title of Course: Geography of Contemporary Societies

Calendar Description of Course:

Examination and analysis of the contemporary landscape as a cultural expression of Anglo-Saxon thought since the 1920s. The focus will be on North American landscapes, but with reference to convergent phenomena elsewhere in the world. The effect upon the contemporary landscape of certain ideas and institutions prevalent in Anglo-~~Nature of Course~~ Saxon cultures since World War I. The origin, spread and differentiation of selected humanized landscape features are constructed. Lecture/Tutorial

Prerequisites (or special instructions):

Geog. 344 Courses in the humanities and fine arts are recommended.

What course (courses), if any, is being dropped from the calendar if this course is approved: Geog 346

2. **Scheduling**

How frequently will the course be offered? 1 in 6 semesters

Semester in which the course will first be offered? 89-3

Which of your present faculty would be available to make the proposed offering possible? E.M. Gibson

3. **Objectives of the Course**

No change from Geog. 346. Reassignment to new number.

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: R. Hayter ic 10/19/87 Nov. 9 '87

R. Hayter ic		
Department Chairman	Dean	Chairman, SCUS

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

Arts 78-3

043[10]

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information **Department** Geography

Abbreviation Code: GEOG **Course Number:** 466 **Credit Hours:** 4 **Vector:** 2-2-

Title of Course: Latin American Regional Development

Calendar Description of Course: The course introduces students to a geographical analysis of patterns of Latin American development and planning. It is divided into two sections: geographical/historical development of selected countries; and analysis of common Latin American developmental models. A geographical perspective is used which stresses the interconnectedness of spatial and socio economic structures.

Nature of Course Lecture/Seminar

Prerequisites (or special instructions):

60 Hours including 8 hours Upper Division Geography

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 4 semesters

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? J. Brohman

3. Objectives of the Course

1. Add to regional courses offered in Geography.
2. Complement other courses offered in Latin American Studies.
3. Allow for study of developmental concepts from a geographical perspective, and a focus on problems specific to the Latin American region.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty
Staff
Library None
Audio Visual
Space
Equipment

5. Approval

Date: 10/19/87 Nov. 9 '87

Department Chairman — Dean — Chairman

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

Arts 78-3

Simon Fraser University
Department of Geography

Geography 466
John Brohman

Course Outline

Latin American Regional Development

This course introduces students to a geographical analysis of concepts and issues common to patterns of Latin American development and planning. The course is divided into two basic sections. The first section will focus on the geographical and historical development of selected countries which are thought to be representative of broader developmental patterns for Latin America as a whole. In the second section common Latin American developmental models will be analyzed using case studies from the countries studied in the first section to explain how such models have affected development in concrete geographical terms. Through emphasis on traditional geographical subject matter, the course will address developmental issues and problems from a perspective which stresses the interconnectedness of spatial and socioeconomic structures. This affords students an opportunity to study developmental concepts from a geographical perspective, while enhancing their grasp of contemporary questions and problems specific to the Latin American region.

Text

A list of readings will be placed on reserve in the library, and a schedule of these readings will be distributed at the first class meeting.

Weeks	Lecture Topics

Part I - Historical/Geographical Treatment of Specific Countries

Week 1 - Mexico
2 - Central America
3 - Brazil, Argentina
4 - Cuba, Nicaragua

Part 2 - Geographical Analysis of Developmental Models

Week 5 & 6 - Extractive and Agroexport Model
7 & 8 - Import-Substitution and Internally-Oriented Growth
9 & 10 - Rural Development and the 'Basic Needs' Approach
11 & 12 - Revolution and Structural Change
13 - Summary of Contemporary Issues and Problems

Mid-term Examination - 20
Final Examination - 40
Term Paper - 25
Class Participation - 15

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. **Calendar Information** — **Department** Geography

Abbreviation Code: GEOG **Course Number:** 490 **Credit Hours:** 4 **Vector:** 2-2-0

Title of Course: Selected Topics

Calendar Description of Course:
The topics will vary from semester to semester depending on the interests of faculty and students.

Nature of Course Lecture/tutorial

Prerequisites (or special instructions):
75 credit hours including 30 credit hours in Geography

What course (courses), if any, is being dropped from the calendar if this course is approved: 419-5, 429-5, 449-5

2. **Scheduling**

How frequently will the course be offered? As required and approved by chairman.

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

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

3. **Objectives of the Course**

To allow for occasional extensions of existing courses and an opportunity for new courses to be offered experimentally.

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: 10/19/87	Nov. 9'87	
Roger Hayter	R C Bowman	
Department Chairman	**Dean**	**Chairman, SCUS**

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

Arts 78-3

FOR INFORMATION 046

Revision: GEOG 250-3 Cartography I
An introduction to the interpretation of maps and air photographs. (Lecture/Laboratory)
Prerequisite: GEOG 100 or 102 and GEOG 111 or 112.

Previous: GEOG 250-3 Cartography I
An introduction to the interpretation of maps and air photographs. (Lecture/Laboratory)
Prerequisite: At least 15 credit hours including GEOG 111 and one of GEOG 121 or 141.

Changes: Change in prerequisite statement.

Rationale: Prerequisites have been renumbered.

FOR INFORMATION

Revision: GEOG 251-3 Methods in Spatial Analysis
A systematic introduction to the quantitative and theoretical approaches to the study of geography
(Lecture/Tutorial/Laboratory)
Prerequisite: Geog. 100-3 or 102-3 and Geog. 111-3 or 112.

Previous: GEOG 251-3 Methods in Spatial Analysis
A systematic introduction to the quantitative and theoretical approaches to the study of geography.
(Lecture/Tutorial/Laboratory)
Prerequisite: At least 15 credit hours.

Changes: Prerequisite is made more specific.

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 263-3 Selected Regions
A study of the geographical character of a major world region. (Lecture/Tutorial)
Prerequisite: At least 9 credit hours.
This course may not be counted more than once toward the degree.

Previous: GEOG 263-3 Selected Regions
A study of the geographical character of a major world region. (Lecture/Tutorial)
Prerequisite: At least 15 credit hours.
This course may not be counted more than once toward the degree

Changes: Change in pre-requisite

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 265-3 Geography of British Columbia
An examination of the physical landscape, the migration process, resource exploitation and the development of the settlement patterns. (Lecture/Tutorial)
Prerequisite: At least 9 credit hours.

Previous: GEOG 265-3 Geography of British Columbia
An examination of the physical landscape, the migration process, resource exploitation and the development of the settlement patterns. (Lecture/Tutorial)

Changes: Addition of prerequisite

Rationale: Program revision

FOR INFORMATION 050

Revision: GEOG 301-4 Geographic Ideas and Methodology
A study of contemporary geographical concepts in historical perspective, the course will examine the traditional approaches to the subject matter of geography, giving particular attention to present day methodological debate and foci of interest. (Lecture/Seminar)
Pre-requisite: Completion of 30 credit hours, including 15 in Geography.

Previous: GEOG 301-3 Geographic Ideas and Methodology
A study of contemporary geographical concepts in historical perspective, the course will examine the traditional approaches to the subject matter of geography, giving particular attention to present day methodological debate and foci of interest. (Lecture/Seminar)
Prerequisite: Completion of 30 credit hours.

Changes:
1. Credit hours from 3 to 4.
2. pre-requisite change.

Rationale: Program revision.

FOR INFORMATION

REVISION 42

051

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

[redacted] COURSE PROPOSAL FORM

1. **Calendar Information** **Department** Geography

Abbreviation Code: GEOG **Course Number:** 313 **Credit Hours:** 4 **Vector:** 2-0-2

Title of Course: Geomorphology II

Calendar Description of Course: Intermediate analysis in fluvial, glacial and coastal geomorphology with particular reference to British Columbia

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):
Geog. 213 (formerly 313) Students who completed Geog. 313 prior to 88-3 may take this course for further credit. Students who completed Geog. 413 prior to 88-3 may not take this course for further credit.

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 to twice yearly

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? M.C. Roberts, E.J. Hickin, C.B. Crampton

3. **Objectives of the Course**

To develop the analysis of fluvial, glacial and coastal Geomorphology, with emphasis on processes and process-laws.

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: 10/19/87 Nov. 9 87

[signature] [signature]

Department Chairman **Dean** **Chairman, SCUS**

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

Arts 78-3

FOR INFORMATION

Revision.

Simon Fraser University
Department of Geography

Geography 313-4

Course Outline

General Geography 313 is an intermediate course in geomorphology which will examine morphology, processes and process laws in:

1. fluvial geomorphology
2. glacial geomorphology
3. coastal geomorphology

Course format: Each week there will be two one hour lectures and generally a two hour lab/tutorial. Some labs. may be replaced by field trips.

Text: M. Selby, 1985, Earth's Changing Surface, Clarendon Press, Oxford, 606pp.

Grades: Grading will be based on the following components:

(a)	class assignments:	25%
(b)	mid term exam:	25%
(c)	term paper:	25%
(d)	final exam:	25%

Further information: Dr. E. J. Hickin

FOR INFORMATION

REVISION 053 44

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

[redacted] COURSE PROPOSAL FORM

1. **Calendar Information** **Department** Geography

Abbreviation Code: GEOG **Course Number:** 314 **Credit Hours:** 4 **Vector:** 2-0-2

Title of Course: Climatology II

Calendar Description of Course: An introduction to atmospheric science with emphasis on processes in the boundary layer; examination of the radiation, energy and water balances; description and analysis of heat and mass transfer.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):
Geog. 214 (formerly 314) or permission of instructor. Math 151 and 152 or Math 154 and 155 or Math 157 and 158 are recommended. Students who completed Geog. 314 prior to 88-3 may take this course for further credit.

What course (courses), if any, is being dropped from the calendar if this course is approved:

2. **Scheduling**

How frequently will the course be offered? Once per year

Semester in which the course will first be offered? Fall of 1988

Which of your present faculty would be available to make the proposed offering possible? W.G. Bailey; R.B. Sagar

3. **Objectives of the Course**

Introduce students to the nature and physical processes of the climatology of the boundary layer.

4. **Budgetary and Space Requirements (for information only)**

What additional resources will be required in the following areas:

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

5. **Approval**

Date: 10/26/87	Nov. 9 '87	
Roger Munro	R C Foss	
Department Chairman	Dean	Chairman

SCUS 73-24b:- (When completing this form, for instructions see Memorandum SCUS 73-24a. Attach course outline).

Arts 70-3

FOR INFORMATION 0345

REVISION

Simon Fraser University
Department of Geography

Geography 314-4
W.G. Bailey

Climatology II

Boundary Layer Climatology

Outline: An introduction to atmospheric science with emphasis on processes in the boundary layer; examination of the radiation, energy and water balances; description and analysis of the processes of heat and mass transfer.

Prerequisite: Geography 214-3 or permission of instructor. Math 151 and 152 or Math 154 and 155 or Math 157 and 158 are recommended.

Literature Sources:
1. Textbook - Oke, T.R. 1978. Boundary Layer Climates. Methuen, 372 pp.
2. References - Readings, handouts and articles from other sources will be assigned to go with specific lecture topics. Some of this material will be put on reserve in the library.

Evaluation Scheme:

Laboratory assignments	25
Term paper	20
Mid-term examination	25
Final examination	30
	100

Organization: One two-hour lecture and two-hour laboratory session per week.

Lecture Topics:

1. Introduction to boundary layer climates
2. Principles of radiation transfer; radiation balances
3. Energy balances of various surfaces
4. Water balances of various surfaces
5. Models of heat and mass transfer processes
6. Applications of theory to boundary layer problems

Term Paper: A term paper and term paper outline are required for this course. A list of topics and guidelines will be made available during the first week of classes.

Mid-Term Examination: A mid-term examination will be held. Its format will be short answer.

Final Examination: The final examination will be scheduled during the examination period. The examination format will be short answer and essay questions.

FOR INFORMATION REVISION

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

[redacted] COURSE PROPOSAL FORM

1. Calendar Information **Department** Geography

Abbreviation Code: GEOG **Course Number:** 315 **Credit Hours:** 4 **Vector:** 2-2

Title of Course: Regional Ecosystems

Calendar Description of Course:

Physical and biological characteristics of regional ecosystems; historical evolution of biomes, management of biotic resources.

Nature of Course Lecture/Seminar

Prerequisites (or special instructions):

GEOG. 215 (formerly Geog. 315) or BISC. 204 Students who completed Geog. 315 prior to 88-3 may take this course for further credit.

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 per year

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? I. Hutchinson

3. Objectives of the Course

Examines the dynamics of the world's major biomes: tropical rain forests, savannas, deserts, etc. Considers these in terms of current, historical and geological time. Examines problems of biotic resource management in each biome.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty No

Staff No

Library No

Audio Visual No

Space No

Equipment No

5. Approval

Date: 10/19/87 Nov. 9 '87

Department Chairman **Dean** **Chairman,**

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

Arts 78-3

Revision: GEOG 317-4 Soil Geography
An introduction to soils and soil geography. Factors and processes of soil formation, profile description and soil surveying. Elementary field and laboratory techniques of soil analysis. (Lecture/Laboratory)
Pre-requisite: At least 30 credit hours including GEOG 111 or 112.

Previous: GEOG 317-3 Soil Geography
An introduction to soils and soil geography. Factors and processes of soil formation, profile description and soil surveying. Elementary field and laboratory techniques of soil analysis. (Lecture/Laboratory)
Prerequisite: At least 30 credit hours including GEOG 111 or 112.

Changes: Credit hours from 3 to 4.

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 322-4 World Resources
An analysis of the use and development of natural resources from a geographic, economic and institutional perspective. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 111 and 221 (formerly GEOG 121).

Previous: GEOG 322-3 Geography of Primary Activities
An examination of the physical, social, economic and political factors giving rise to the geography of primary activities. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 111 and 121.

Changes:
1. Change in title and course description.
2. Change of credit hours from 3 to 4.

Rationale: The course will focus more on the global distribution and use of natural resources including water resources. The original course was devoted exclusively to primary activities.

FOR INFORMATION

Revision: GEOG 323-4 Geography of Manufacturing
Basic analyses of manufacturing location, linkages and flows, and the processes of decision making, locational adaptation and adoption. (Lecture/Tutorial)
Prerequisite: GEOG 221 (formerly GEOG 121).

Previous: GEOG 323-3 Geography of Manufacturing
Basic analyses of manufacturing location, linkages and flows, and the processes of decision-making, locational adaptation and adoption. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 121.

Changes:

1. Change in pre-requisite from Geog 121 to Geog. 221.
2. Change in credit from 3 to 4 credits.

Rationale:

1. It is proposed that Geog. 121 become Geog. 221.
2. Four credits better reflects teaching effort and student requirements.

FOR INFORMATION 059

Revision: GEOG 324-4 Geography of Transportation
An empirical and theoretical examination of the geographical aspects of transportation systems.
(Lecture/Tutorial)
Prerequisite: Geography 221 (formerly Geography 121) and Geography 241 (formerly Geography 141).

Previous: GEOG 324-4 Geography of Transportation
An empirical and theoretical examination of the geographical aspects of transportation systems.
(Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 121.

Changes: Credit hours from 3 to 4.

Prerequisite change.

Rationale: Program revision

FOR INFORMATION

060

Revision: GEOG 325-4 Geography of Service Activities
Central place theory, marketing and retail location, urban economic base, land use models, and tourism.
(Lecture/Tutorial)
Prerequisite: Geography 221 (formerly Geography 121).

Previous: GEOG 325-3 Geography of Tertiary and Quaternary Activities
Central place theory, marketing and retail location, urban economic base, land use models, and tourism.
(Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 121.

Changes: Title change
Credit hours from 3 to 4
Pre-requisite change

Rationale: Program revision

Revision: GEOG 343-4 Geography of Transitional Societies
Theoretical and empirical approaches to environmental problems of the world's transitional societies, environmental and cultural change, cultural processes and the development of primary production and urban growth.
(Lecture/Tutorial)
Prerequisite: GEOG 241 (formerly GEOG 141)

Previous: GEOG 343-3 Geography of Transitional Societies
Theoretical and empirical approaches to environmental problems of the world's transitional societies, environmental and cultural change, cultural processes and the development of primary production and urban growth.
(Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 141.

Changes: Credit hours from 3 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 344-4 Geography of Modern Industrial Societies
The theme of this course is the effect upon modern urban morphology of certain ideas and institutions prevalent in Anglo-Saxon cultures between the late 18th and early 20th centuries. The origin, spread and differentiation of selected man-made landscape features are systematically reconstructed. (Lecture/Seminar)
Prerequisite: Geography 241 (formerly Geography 141). Geography 301-4 and courses in 19th century English literature and history are recommended.

Previous: GEOG 344-3 Geography of Modern Industrial Societies
The theme of this course is the effect upon modern urban morphology of certain ideas and institutions prevalent in Anglo-Saxon cultures between the late 18th and early 20th centuries. The origin, spread and differentiation of selected man-made landscape features are systematically reconstructed. (Lecture/Seminar)
Prerequisite: At least 30 credit hours including GEOG 141, in addition, GEOG 301 and courses in 19th century English literature and history are recommended.

Changes: Credit hours from 3 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 351-4 Cartography II
Cartographic processes and techniques with an emphasis on thematic cartography; photographic process; the computer as a cartographic tool.
(Lecture/Laboratory)
Prerequisite: Geog. 250 or 251.

Previous: GEOG 351-3 Cartography II
Cartographic techniques and materials; processes and photographic methods applicable to cartographic and geographic presentation; problems of presentation.
(Lecture/Laboratory)
Prerequisite: At least 30 credit hours including GEOG 250.

Changes: Credit hour change.
Pre-requisite change.
Course description change.

Rationale: Program revision.

FOR INFORMATION VISION

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

064

[redacted] COURSE PROPOSAL FORM

1. **Calendar Information** Department: Geography

Abbreviation Code: GEOG Course Number: 353 Credit Hours: 4 Vector: 2-0-4

Title of Course: Remote Sensing

Calendar Description of Course: Applied remote sensing and image analysis. Topics include air photo interpretation, multispectral and colour photography, thermal imagery, multispectral scanners, microwave applications, satellite imagery and SPOT data. The relation of remote sensing information and Geographic Information Systems is discussed. Manual interpretation and computer analysis will be used.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):
Geog. 253 (formerly Geog. 353) Students who completed Geog. 353 prior to 88-3 may take this course for further credit. Students who completed Geog. 453 prior to 88-3 may not take this course for further credit.

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 per year

Semester in which the course will first be offered? Fall 1988 or later

Which of your present faculty would be available to make the proposed offering possible? A.C.B. Roberts

3. **Objectives of the Course**

The course represents a view of geographic fieldwork with an emphasis on remotely sensed material

4. **Budgetary and Space Requirements (for information only)**

What additional resources will be required in the following areas:

Faculty None

Staff "

Library "

Audio Visual "

Space "

Equipment "

5. **Approval**

Date: 10/19/87 Nov. 9'87

Roger Hayter — RC Bow

Department Chairman — Dean — Chairman

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

Arts 78-3

FOR INFORMATION

Simon Fraser University
Department of Geography

Geography 353-4

Course Outline

Remote Sensing

Remote Sensing: Applied remote sensing and image analysis. Topics include air photo interpretation, multispectral and colour photography, reconnaissance aerial photogrpahy, thermal imagery, multispectral scanners, microwave applications, satellite imagery and SPOT data. The relation of remote sensing information and Geographic Information Systems is discussed.

The first half of the course covers remote sensing principles, instrumentation and analysis. The second half deals with remote sensing applications in geography and resource management and will include student presentations. A seminar/laboratory format will be used with lectures and discussions on outlined topics. Readings will be assigned in advance of the topics and applications will be oriented toward specific resource interests of the students. Six practical laboratory assignments are included to familiarize students with important basic aspects of applied remote sensing.

NOTE: There will be a laboratory fee of approximately $40 to cover some of the field expenses related to the aerial photography flights.

Grading will be based upon a term paper, related seminar presentation and laboratory assignments.

Prerequisite: Geog. 253

ESSAY: (40%) Topics to be related to remote sensing applications in resource management. Involves planning of a remote sensing mission including problem definition, rationale, literature review, mission logistics and interpretational requirements.

SEMINAR PRESENTATION:

(15%) Presentation of a defined problem and related previous research from a selected essay topic.

TAKE HOME EXAMINATION: (15%)

LABORATORY ASSIGNMENTS: (30%)

Revision: GEOG 361-4 Introduction to Urban Geography
This course will introduce basic concepts in the study of urban geography by systematically identifying and examining major components of urban structure.
(Lecture/Seminar)
Prerequisite: At least 30 credit hours including GEOG 221 (formerly GEOG 121) and GEOG 241 (formerly GEOG 141). It is preferable to take this course before taking GEOG 362.

Previous: GEOG 361-3 Introduction to Urban Geography
This course will introduce basic concepts in the study of urban geography by systematically identifying and examining major components of urban structure.
(Lecture/Seminar)
Prerequisite: At least 30 credit hours including GEOG 111, 121 and 141. It is preferable, but not essential, to take this course before taking GEOG 362.

Changes: Credit hours from 3 to 4.
Prerequisite change.

Rationale: To make pre-requisites consistent with program changes.

FOR INFORMATION

Revision: GEOG 362-4 Geography of Urban Development
This course will apply the principles of urban geographical analysis to the study of urbanization as exemplified in the development of cities in Europe and North America.
(Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 221 (formerly 121) and GEOG 241 (formerly 141). It is preferable to take this course after GEOG 361.

Previous: GEOG 362-3 Geography of Urban Development
This course will apply the principles of urban geographical analysis to the study of urbanization as exemplified in the development of cities in Europe and North America.
(Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 111, 121 and 141. It is preferable, but not essential, to take this course after GEOG 361.

Changes: Credit hours from 3 to 4.
Prerequisite change.

Rationale: To make pre-requisites consistent with program changes.

FOR INFORMATION

Revision: GEOG 369-4 Human Microgeography
An examination of human interaction with physical environment, focussing on the individual as the unit of analysis, with special emphasis upon designed environments. A series of field studies will be required of each student.

(Lecture/Seminar)

Prerequisite: Geog. 241 (formerly 141).

Previous: GEOG 369-3 Human Microgeography
An examination of human interaction with physical environment, focussing on the individual as the unit of analysis, with special emphasis upon designed environments.

(Lecture/Seminar)

Prerequisite: At least 30 credit hours including GEOG 141.

Changes:
1. Change in number of credits from 3 to 4
2. Change in course description
3. Change in Prerequisite

Rationale: Programme re-arrangement.

FOR INFORMATION

Revision: GEOG 375-4 Historical Geography I
Geographical factors in the settlement of Canada and the United States; the role of the frontier; and geographic factors in the changingnature of the perception of resources. (Lecture/Seminar)
Pre-requisite: Geography 241 (formerly 141).

Previous: GEOG 375-3 Historical Geography I
Geographical factors in the settlement of Canada and the United States; the role of the frontier; and geographic factors in the changing nature of the perception of resources. (Lecture/Seminar)
Prerequisite: At least 30 credit hours including GEOG 141.

Changes: Credit hours from 3 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 381-4 Political Geography
Theoretical approaches to problems of the interactions of political decisions and power structures with territorial organization. (Lecture/Tutorial)
Pre-requisite: Geography 241 (formerly 141).

Previous: GEOG 381-3 Political Geography
Theoretical approaches to problems of the interactions of political decisions and power structures with territorial organization. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 141.

Changes: Credit hours from 3 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 382-4 Population Geography
A study of the application of theories of population growth and demographic techniques; a consideration of the implications of these on the distribution and evolution of population in selected areas. (Lecture/Tutorial)
Pre-requisite: Geography 221 (formerly 121) and Geography 241 (formerly 141).

Previous: GEOG 382-3 Population Geography
A study of the application of theories of populaton growth and demographic techniques; a consideration of the implications of these on the distribution and evolution of population in selected areas. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 121 and 141.

Changes: Credit hours from 3 to 4
Prerequisite change.

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 383-4 Regional Planning I
Concepts and theories of regional development and environmental planning; the spatial component of regional planning problems; goal formulation, process and implementation. (Lecture/Tutorial)
Prerequisite: GEOG. 221 (formerly 121) and GEOG 241 (formerly 141). Students with credit for GEOG 443-5 may not take this course for further credit.

Previous: GEOG 383-3 Regional Planning I
Concepts and theories of regional development and environmental planning; the spatial component of regional planning problems; goal formulation, process and implementation. (Lecture/Tutorial)
Prerequisite: At least 75 credit hours. Students with credit for GEOG 443-5 may not take this course for further credit.

Changes: Change in credit from 3 to 4 credits.

Prerequisite change.

Rationale: Four credits better reflects teaching effort and student requirements.

FOR INFORMATION

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073

Revision: GEOG 385-4 Introduction to Agricultural Geography
A critical examination of the current theories and issues in the study of the patterns and processes underlying the agricultural landscape. Emphasis will be placed on the Canadian agricultural scene. (Lecture/Tutorial)
Prerequisite: Geography 221 (formerly 121).

Previous: GEOG 385-3 Introduction to Agricultural Geography
A critical examination of the current theories and issues in the study of the patterns and processes underlying the agricultural landscape. Emphasis will be placed on the Canadian agricultural scene. (Lecture/Tutorial)
Prerequisite: At least 30 credit hours including GEOG 121.

Changes: Credit hours from 3 to 4
Prerequisite change

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 404-2 Directed Readings

Previous: GEOG 404-2 Seminar

Changes: Title change only

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 405-4 Directed Readings
Designed for upper level Geography Major and Honors students who wish to continue research started in conjunction with an earlier course.
Prerequisite: Permission to enter Directed Reading courses requires written consent of both the faculty member willing to supervise the research, and the Chairperson of the Department.

Previous: GEOG 405-4 Seminar
Designed for upper level Geography Major and Honors students who wish to continue research started in conjunction with an earlier course.
Prerequisite: Permission to enter Seminar courses requires written consent of both the faculty member willing to supervise the research, and the Chairperson of the Department.

Changes: Title change only.

Rationale: Program revision.

FOR INFORMATION 076

Revision: GEOG 407-4 Quantitative Methods in Geography
An examination of the basic quantitative techniques used in geographical investigation. (Lecture/Seminar)
Prerequisite: 60 credit hours including GEOG 251 or MATH 101.

Previous: GEOG 407-3 Quantitative Methods in Geography
An examination of the basic quantitative techniques used in geographical investigation. (Lecture/Seminar)
Prerequisite: 60 credit hours including GEOG 251 or MATH 101.

Changes: Credit change from 3 to 4 credits.

Rationale: Program revision.

FOR INFORMATION 077

Revision: GEOG 412-4 Quaternary Geology and Geomorphology
Stratigraphy of the Quaternary Period; geomorphic and sedimentary evidence of glaciation; models of glacial and periglacial environments. Laboratory and field study of glacial deposits. (Lecture/Laboratory/Field Work)
Prerequisite: Geography 213. Students who completed Geography 313-3 prior to 88-3 already have the required pre-requisite and may enrol directly in this course.

Previous: GEOG 412-5 Quaternary Geology and Geomorphology
Stratigraphy of the Quaternary Period; geomorphic and sedimentary evidence of glaciation; models of glacial and periglacial environments. Laboratory and field study of glacial deposits. (Lecture/Laboratory/Field Work)

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION REVISION 83

078

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

[redacted] COURSE PROPOSAL FORM

1. **Calendar Information**

Department Geography

Abbreviation Code: GEOG **Course Number:** 413 **Credit Hours:** 4 **Vector:** 2-0-3

Title of Course: Geomorphology III

Calendar Description of Course: Advanced treatment of topics in Glacial & Fluvial Geomorphology with emphasis on current research problems.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions):

Geog. 313 Students who completed Geog. 413 prior to 88-3 may take this course for further credit.

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 four to five semesters

Semester in which the course will first be offered?

Which of your present faculty would be available to make the proposed offering possible? M.C. Roberts, E.J. Hickin, C.B. Crampton

3. **Objectives of the Course**

To introduce students to current research problems in glacial and fluvial geomorphology and to the techniques of field research.

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: 10/19/87 Nov. 9'87

Department Chairman | Dean | Chairman, SCUS

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

Arts 78-3

FOR INFORMATION

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Simon Fraser University
Department of Geography

Geography 413-4
E. J. Hickin

Course Outline

Geography 413 will examine advanced theory in fluvial geomorphology. It will include discussions of the following topics:

1. Magnitude and frequency of channel-forming events
2. Fluvial mechanics of open-channel flow
3. Sediment transport
4. Morphology of channel cross-sections
5. River channel patterns
6. Floodplain morphology and sedimentology
7. River profiles
8. River adjustments to environmental changes at various timescales.

The text for the course is Fluvial Forms & Processes (1984) by D. Knighton (Edward Arnold, London), 218 pp.

The course will take the form of a lecture/seminar series on theory and an accompanying program of weekly assignments and labs. of a more technical character. Additional reading will be assigned at various times during the semester.

Grading for the course will be based on

Assignments:	30%
Mid-term Exam:	30%
Term Paper/Project:	40%

Further information is available from the Instructor, Professor E.J. Hickin (Room 7228CC).

FOR INFORMATION

Revision: GEOG 414-4 Climatology III
The influence of climate on human activities, with emphasis on such broad fields as agriculture and hydrology, and on climatic variation.
(Lecture/Laboratory)

Prerequisite: Geog. 214

Previous: GEOG 414-5 Climatology II
Applied climatology. Field techniques and the statistical tools used with reference to selected universal problems.
(Lecture/Seminar)

Prerequisite: At least 60 credit hours including GEOG 314.

Changes: Credit hours from 3 to 4.
Title change.
Course description revised.
Prerequisite change.

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 415-4 Advanced Biogeography
A survey of advanced biogeographic theory, and techniques of vegetation analysis. The application of these theories and techniques to biotic resources management is also examined.
Prerequisite: GEOG 315. Studentswho completed GEOG 315-3 prior to 88-3 also require permission of the instructor.

Previous: GEOG 415-5 Biogeography II
Applied biogeography. A survey of biogeographic theory and the application of these principles to the conservation and exploitation of biotic resources. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 315.

Changes: Title is changed and sub-title omitted.

Change from 5 to 4 credits.

Prerequisite change.

Rationale: The applied component is now relegated to secondary importance in the course material, and theoretical and methodological issues are emphasised.

FOR INFORMATION

Revision: GEOG 416-4 Pleistocene Geography
An examination of the physical geomorphic, pedologic and biotic processes and evidence from human geography of the period will be studied as they affect landscape changes.
(Lecture/Seminar)
Prerequisite: One of GEOG 213 (formerly 313), 214 (formerly 314), 215 (formerly 315), 317.

Previous: GEOG 416-5 Pleistocene Geography
An examination of the physical geomorphic, pedologic and biotic processes and evidence from human geography of the period will be studied as they affect landscape changes.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including one of GEOG 313, 314, 315, 317, 318.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 418-4 Terrain Evaluation
The extensive classification of a landscape based on geology, geomorphology, soils, vegetation, and historic and current land-use, and the assessment of qualitative values as an aid to multiple land-use management.
(Lecture/Seminar)
Prerequisite: Two of GEOG 213 (formerly 313), 215 (formerly 315) and 317.

Previous: GEOG 418-5 Terrain Evaluation
The extensive classification of a landscape based on geology, geomorphology, soils, vegetation, and historic and current land-use, and the assessment of qualitative values as an aid to multiple land-use management.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 313, 315 and 317.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

Revision: GEOG 419-4 Mass Transfer in the Biosphere
An introduction to the processes responsible for mass transfer in the biosphere. Emphasis will be given to the transfer of toxic agents in the environment.
(Seminar/Laboratory)
Pre-requisite: Geography 314 or 315 or enrolment in Environmental Toxicology Minor Program or Environmental Toxicology Extended Studies Diploma.

Previous: GEOG 319-3 Mass Transfer in the Biosphere
An introduction to the processes responsible for mass transfer in the biosphere. Emphasis will be given to the transfer of toxic agents in the environment.
(Lecture/Laboratory)
Prerequisite: At least 30 credit hours including GEOG 111.

Changes:
1. Geography 319-3 reassigned to 419-4.
2. Credit hours from 3 to 4.
3. Pre-requisite change.

Rationale: Program revision.

FOR INFORMATION 92 085

Revision: GEOG 420-4 Comparative Cultural Geography
A comparative study of selected world cultures and landscapes in the light of recent theoretical developments in geography. (Lecture/Seminar)
Prerequisite: GEOG 343 and 344.

Previous: GEOG 420-5 Comparative Cultural Geography
A comparative study of selected world cultures and landscapes in the light of recent theoretical developments in geography. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 242 and two of GEOG 343, 344, 346.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 421-4 Geography of Resource Development
Geographical aspects of development and management of natural resources. Particular attention will be given to contemporary problems in Western Canada.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 322 plus 8 hours of 300 division geography courses.

Previous: GEOG 421-5 Geography of Resource Development
Geographical aspects of development and management of natural resources. Particular attention will be given to contemporary problems in Western Canada.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 322 plus 9 hours of additional courses from GEOG division A.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

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087

Revision: GEOG 422-4 Geography of the Third World
A geographic study of 'development' and 'underdevelopment' with particular references to selected lesser developed regions.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 111, 221 (formerly 121), 241 (formerly 141).

Previous: GEOG 422-5 The Geography of Lesser Developed Countries
A geography study in both theoretical and empirical terms of 'development' and 'under-development' with particular references to selected lesser developed regions.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 111, 121, 141.

Changes:
1. Change from 5 to 4 credits.
2. Change in title and calendar description.

Rationale:
1. Better reflects teaching effort and student responsibilities.
2. New title and description are more appropriate.

Revision: GEOG 423-4 Geography of Tourism and Outdoor Recreation
Factors underlying the changing geography of tourism and outdoor recreation on a regional, national, and international scale. Case studies from a variety of cultural settings illustrate planning strategies designed to cope with economic, social and biophysical impacts.
(Lecture/Seminar)
Prerequisite: 12 hours of upper division geography courses.

Previous: GEOG 423-5 Geography of Tourism and Outdoor Recreation
Factors underlying the changing geography of tourism and outdoor recreation on a regional, national, and international scale. Case studies from a variety of cultural settings illustrate planning strategies designed to cope with economic, social and biophysical impacts.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours, including GEOG 121, 141 and 12 hours of courses from GEOG, division A.

Changes: Credit change from 5 to 4 hours.
Pre-requisite change.

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 424-4 Urban Transportation
An extension of the theoretical and conceptual approach to transportation (GEOG 324-4), but with application to urban areas. (Lecture/Seminar)
Prerequisite: Geography 324, and 361 or 362.

Previous: GEOG 424-5 Urban Transportation
An extension of the theoretical and cenceptual approach to transportation (GEOG 324-3), but with application to urban areas. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 324 and GEOG 361 or 362.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

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090

Revision: GEOG 426-4 Industrial Organization, Location & Planning
Relationships between corporate and regional planning and methods for assessing the effectiveness of locational incentive schemes. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 323 or 383.

Previous: GEOG 426-5 Industrial Organization, Location & Planning
Relationships between corporate and regional planning and methods for assessing the effectiveness of locational incentive schemes. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 323 or 383.

Changes: Credit change from 5 credits to 4 credits

Rationale: Program revision.

FOR INFORMATION

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691

Revision: GEOG 431-4 The Landscape in Science, Art, Music and Literature
This course focusses on landscape, the central study of geography. It does not, however, restrict itself to considering only the scientific interpretations of landscape, but investigates how these interpretations have influenced and interacted with aesthetic perceptions of landscape. (Lecture/Seminar)
Prerequisite: Geography 344.

Previous: GEOG 431-5 The Landscape in Science, Art, Music and Literature
This course focuses on landscape, the central study of geography. It does not, however, restrict itself to considering only the scientific interpretations of landscape, but investigates how these interpretations have influenced and interacted with aesthetic perceptions of landscape. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 12 hours of courses from Geography division A, or the minimum requirements for taking a 400 level course for students majoring in subjects other than Geography.

Changes: Credit hour changes
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

99
092

Revision: GEOG 441-4 Geography of Urban Regions
An evaluation of the nature of urbanization, having specific reference to theories of urban spatial structure and to comparisons of urbanization in Canada and abroad.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 361 or 362.

Previous: GEOG 441-5 Geography of Urban Regions
An evaluation of the nature of urbanization, having specific reference to theories of urban spatial structure and to comparisons of urbanization in Canada and abroad.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 361 or 362.

Changes: Change from 5 to 4 credits

Rationale: Program revision.

FOR INFORMATION

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093

Revision: GEOG 444-4 Regional Planning II
The practice of regional planning is approached through case and workshop studies of real-life situations.
(Lecture/Seminar/Laboratory)

Prerequisite: 60 credit hours including Geog. 383-4. Geog. 361-4 is recommended.

Previous: GEOG 444-5 Regional Planning II
The practice of regional planning is approached through case and workshop studies of real-life situations.
(Lecture/Seminar/Laboratory)
Prerequisite:GEOG 383-3 (formerly 443-5) and at least 60 credit hours including 12 hours of courses from Geography division A. GEOG 361 is recommended.

Changes: 1. Change of Pre-requisite.

2. Credit hour change from 5 to 4.

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 445-4 Resource Planning
This course introduces the student to the principles and practices of resource planning within a Canadian context. Special attention is paid to land-use planning as it relates to major resource sectors. (Lecture/Seminar)
Prerequisite: GEOG 322 or 385.

Previous: GEOG 445-5 Rural Planning
This course introduces the student to the principles and practices of rural land-use planning, and to their application as demonstrated by Canadian case studies. (Lecture/Seminar)
Prerequisite: At least 60 credit hours, preferably including GEOG 121, 322 and/or 385.

Changes:
1. Change in course title.
2. Change in course description.
3. Prerequisite change.

Rationale: The course title was changed because of the inappropriateness of the term 'rural' in discussing resource-land use planning in B.C. and northern Canada.

FOR INFORMATION REVISION

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SENATE COMMITTEE ON UNDERGRADUATE STUDIES

[redacted] COURSE PROPOSAL FORM

1. **Calendar Information** **Department** Geography

Abbreviation Code: GEOG **Course Number:** 452 **Credit Hours:** 4 **Vector:** 2-0-4

Title of Course: Advanced Topics in Geoprocessing

Calendar Description of Course: An in-depth treatment of selected subjects in Computer Mapping and Geographic Information Systems. Topics will vary in accordance with trends in the subject and with faculty and student interests.

Nature of Course Lecture/Laboratory

Prerequisites (or special instructions): GEOG 354 or 355 Students who completed Geog. 452 prior to 88-3 may take this course for further credit.

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 5 or 6 semesters

Semester in which the course will first be offered? Fall 1988 or later.

Which of your present faculty would be available to make the proposed offering possible? T.K. Poiker

3. **Objectives of the Course**

The course is a sequel to GEOG 354 and 355 and treats selected subjects in-depth. The selection of the subjects follows the background of the students and the leading research problems of the time.

4. **Laboratory and Space Requirements (for information only)**

What additional resources will be required in the following areas:

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

5. **Approval**

Date: 10/19/87	Nov. 9'87	
Rose Hunter	Robin	
Department Chairman	Dean	Chairman

SCUS 73-24b:- (When completing this form, for instructions see Memorandum SCUS 73-34a. Attach course outline).

Arts 78-3

FOR INFORMATION

GEOG 452-4
Advanced Topics in Geoprocessing
Thomas K. Poiker

Calendar Description of Course:

An in-depth treatment of selected subjects in Computer Mapping and Geographic Information Systems. Topics will vary in accordance with trends in the subject and with faculty and student interests.

Prerequisites:

GEOG 354 or GEOG 355 or permission of instructor.
Students who completed Geog. 452 prior to 88-3 may take this course for further credit.

Overview.

Geoprocessing is another term for the fields of Digital Cartography and Geographic Information Systems, emphasizing the conceptual and procedural components of these fields. The course will build on the courses with the above names but select two to three topics from these courses and treat them in much more detail. Most topics will be approached as teamworks.

Examples of topics:

1. Design, specification and programming of a procedure. For example:
   (a) Develop a contouring program that is optimal under certain conditions.
   (b) Develop a resource analysis program using concepts from image processing.
   (c) Develop a program to teach map projections.
2. User analysis and systems components.
3. Develop a framework for a user needs study and apply it to some local institutions.
4. Artificial Intelligence applications.
   (a) Develop a simple program for cartographic design.
   (b) Develop a program for map colouring.
5. Semantic Modelling in Geographic Information Systems.
   (a) Apply several approaches of semantic modelling to a set of functions.
   (b) Describe a particular GIS using a semantic modelling framework.

Reading

Reading lists will be developed for the different projects.

FOR INFORMATION

SENATE COMMITTEE ON UNDERGRADUATE STUDIES REVISION

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097

NEW COURSE PROPOSAL FORM

1. **Calendar Information** Department Geography

Abbreviation Code: GEOG Course Number: 453 Credit Hours: 4 Vector: 2-0-

Title of Course: Digital Image Processing

Calendar Description of Course:

Computational aspects of remote sensing. Systems consideration; statistical extraction; image enhancement; thematic information extraction; change detection.

Nature of Course Lecture/laboratory

Prerequisites (or special instructions):

Geography 353 Students who completed Geog. 453 prior to 88-3 may take this course for credit.

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 per year

Semester in which the course will first be offered? 88-3 or 89-1

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

A.C.B. Roberts

3. **Objectives of the Course**

The course provides the basis of computational remote sensing. Lectures will present the conceptual basis of the topic.

4. **Budgetary and Space Requirements** (for information only)

What additional resources will be required in the following areas:

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

5. **Approval**

Date: 10/19/87 Nov. 9 87

Department Chairman Dean Chairman, SCUS

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

Arts 78-3

FOR INFORMATION

GEOG 453-4
Digital Image Processing
A.C.B.Roberts

Computational aspects of Remote Sensing. Systems concideration; statistical extraction; image enhancement; thematic information extraction; change detection.

1. Introduction to Digital Image Processing.
   (a) Data collection.
   (b) Resolution.
   (c) Digital processing.
2. Data Acquisition.
   (a) Data formats.
   (b) Densitometer Approach.
   (c) Data in digital format.
3. Systems consideration.
4. Statistical Extraction.
5. Display alternatives.
6. Image processing.
   (a) Radiometric correction.
   (b) Geometric correction.
7. Image enhancement.
   (a) Reduction and magnification.
   (b) Contrast.
   (c) Filtering.
   (d) Edge enhancement.
8. Thematic information extraction.
   (a) Supervised classification.
   (b) Unsupervised classification.
9. Change detection.
10. The interface of Remote Sensing and Geographic Information Systems.

Reading.

Jensen, John R.: Introductory Digital Image Processing: A Remote Sensing Perspective. Prentice Hall, 1986

Swain, Philip H ad Shirley M Davis (eds): Remote Sensing: The Quantitative Approach. McGraw Hill, 1978.

FOR INFORMATION

Revision: GEOG 460-4 Selected Regions
A study of the geographical character of a major world region. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 8 hours of Upper Division geography courses.

Previous: GEOG 460-5 Selected Regions
A study of the geographical character of a major world region. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 12 hours of courses from Geography division A.

Changes: Credit hours from 5 to 4
Prerequsitie change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 462-4 Canada and the United States
Selected problems in the geography of Canada; emphasizes territorial differentiation in cultures, regional resources problems, interregional resource conflicts, and the question of the geographical basis for national unity.
(Lecture/Seminar)
Pre-requisite: At least 60 credit hours including 8 hours of upper division geography.

Previous: GEOG 462-5 Canada
Selected problems in the geography of Canada; emphasizes territorial differentiation in cultures, regional resource problems, interregional resource conflicts, and the question of the geographical basis for national unity.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including 12 hours of courses from Geography division A.

Changes:

1. The course will broaden to include coverage of the United States and Canada.
2. Title change reflects changes in course orientation.
3. Change from 5 to 4 credits.

Rationale:

1. The Department offers lower level regional courses on Canada and British Columbia and an upper level course on Western Canada but does not offer any course on the U.S. Industrialised North America is widely recognized as an integrated regional unit in global terms which can be effectively and systematically analysed within similar terms of reference.
2. Title change reflects changes in course orientation.
3. Credit change better reflects teaching effort and student responsibilities.

FOR INFORMATION

Revision: GEOG. 464-4 Intertropical Africa
Africa between the tropics; attention will also be given to the general problems of low-latitude regions and developing countries. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 8 hours of Upper Division Geography.

Previous: GEOG 464-5 Intertropical Africa
Africa between the tropics; attention will also be given to the general problems of low-latitude regions and developing countries. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 12 hours of courses from Geography division A.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 469-4 The Canadian North and Middle North
Special attention will be given to resource appraisal and utilization, spatial organization, and the consideration of future development; comparisons will be made with experience of sub-arctic development in other parts of the world. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 8 hours of Upper Division Geography.

Previous: GEOG 469-5 The Canadian North and Middle North
Special attention will be given to resource appraisal and utilization, spatial organization, and the consideration of future development; comparisons will be made with experience of sub-arctic development in other parts of the world. (Lecture/Seminar)
Prerequisite: At least 60 credit hours including 12 hours of courses from Geography division A.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 470-4 The Geography of Western Canada
A regional geographic interpretation of British Columbia and the Prairies. The physical environment, population, land tenure, regional resource problems, economic development and the settlement process will be examined to explain the geographic character of Western Canada.
(Lecture/Tutorial)
Prerequisite: At least 60 credit hours including 8 hours in upper division Geography

Previous: GEOG 470-5 The Geography of Western Canada
A regional geographic interpretation of British Columbia and the Prairies. The physical environment, population, land tenure, regional resource problems, economic development and the settlement process will be examined to explain the geographic character of Western Canada.
(Lecture/Tutorial)
Prerequisite: At least 60 credit hours including GEOG 262 amd 12 hours of courses from Geography division A.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision.

FOR INFORMATION

Revision: GEOG 475-4 Historical Geography II
An examination of the ways in which the study of historical geography has been adapting to new problems, new methodologies, new techniques, and new sources. The course will attempt to deal primarily with the application of historical geography to a North American context with an emphasis on Canada and British Columbia.
(Lecture/Seminar)
Prerequisite: GEOG 375.

Previous: GEOG 475-5 Historical Geography II
An examination of the ways in which the study of historical geography has been adapting to new problems, new methodologies, new techniques, and new sources. The course will attempt to deal primarily with the application of historical geography to a North American context with an emphasis on Canada and British Columbia.
(Lecture/Seminar)
Prerequisite: At least 60 credit hours including GEOG 375.

Changes: Credit hours from 5 to 4
Prerequisite change

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 491-4 Honors Essay
All candidates for honors will be required to submit a major paper on a geographical topic to be selected in consultation with the Department.
Prerequisite: 105 credit hours and consent of supervisor. See a departmental academic advisor for details.

Previous: GEOG 491-5 Honors Essay
All candidates for honors will be required to submit a major paper on a geographical topic to be selected consultation with the Department.
Prerequisite: 105 credit hours and consent of supervisor. See a departmental academic advisor for details.

Changes: Credit hours from 5 to 4

Rationale: Program revision

FOR INFORMATION

Revision: GEOG 498-4 Field Studies
Special studies and practical problems in field techniques.
(5 hour Field/Laboratory)
Prerequisite: 60 credit hours, including 30 hours of courses in Geography, and permission of department.

Previous: GEOG 498-5 Field Studies
Special studies and practical problems in field techniques.
(5 hour Field/Laboratory)
Prerequisite: 75 credit hours including 30 hours of courses in Geography.

Changes: Credit hours from 5 to 4
Pre-requisite change

Rationale: Program revision.