

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Senate **From:** J.M. Munro, Chair
Senate Committee on
Academic Planning

Subject: Undergraduate Curriculum Revisions **Date:** November 15, 1994
Faculty of Applied Sciences

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

Motion:

"that Senate approve and recommend approval to the Board of Governors the curriculum revisions for the Faculty of Applied Sciences as set forth in S.94-66 as follows:

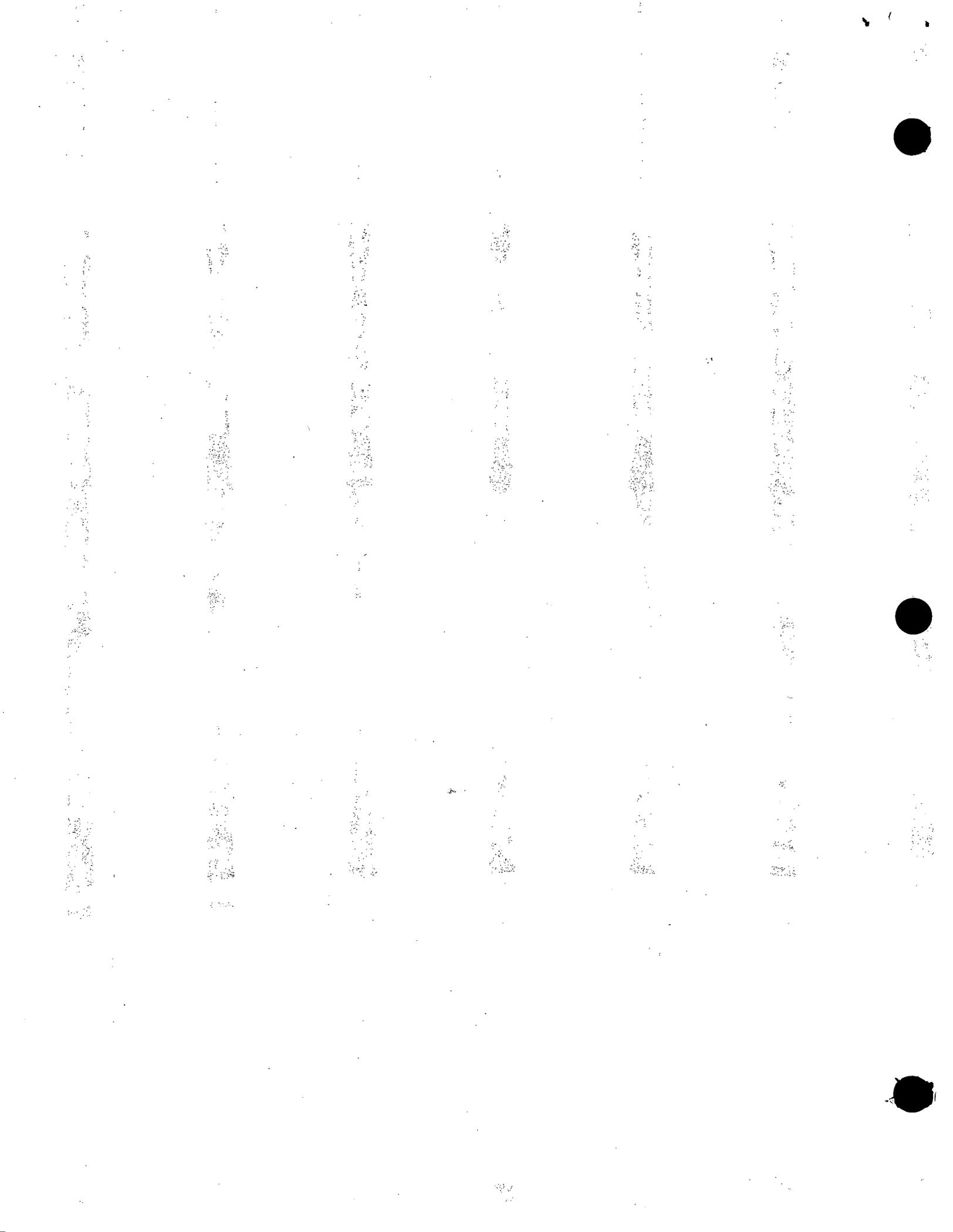
S.94 - 66a	School of Communication
S.94 - 66b	School of Computing Science
S.94 - 66c	School of Engineering Science
S.94 - 66d	School of Kinesiology"

In all cases agreement has been reached between the Faculty and the Library in the assessment of library costs associated with new courses.

School of Communication

SCUS Reference: SCUS 94 - 8a
SCAP Reference: SCAP 94 - 54a

- i) Deletion of -
CMNS 499 - 15 Individual Study Semester
- ii) New courses -
CMNS 224 - 3 Social Issues in Communication
CMNS 423 - 4 Negotiation as Communication
- iii) Changes in the Honors program



Simon Fraser University
MEMORANDUM

To: Parveen Bawa, Associate Dean
Faculty of Applied Sciences

From: Bill Richards
Director, Undergraduate Studies
School of Communication

Subject: Curriculum Revisions

Date: 8 October, 1994

The School of Communication has approved the following revisions to our Undergraduate Program on October 6, 1994. These changes include two new courses and substantial revisions to our Honors Program. The new course proposals, a description of the changes to the Honors Program, and proposed Calendar revisions are attached. We requested a library report about two weeks ago and will forward it as soon as it arrives. The School of Communication agrees to cover any related Library expenses that may arise from these changes.

Changes

1. Delete CMNS 499-15, Individual Study Semester.

This course provided a way for students to do what amounted to an honors project without receiving an honors degree. As the entry requirements for this course are essentially the same as the entry requirements for the honors program, anyone wishing to do this course could just as well do an honors degree, so this course serves no real need.

2. Add the following courses

CMNS 224-3, Social Issues in Communication

and

CMNS 423-4, Negotiation as Communication

3. Modify the following courses

Replace CMNS 497-2, Honors Colloquium with CMNS 497-5, Honors Research Proposal
and

CMNS 498-16, Honors Project with CMNS 498-10, Honors Research Project

The modifications to these courses are described under "Modifications to the Honors Program."

4. Modify the way prerequisites for upper level CMNS courses are handled for some honors students.

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Communication

Abbreviation Code: CMNS New Course No: 224 Credit Hours: 3 Vector: 2-1-0

Title of Course: Social Issues and Communication

Calendar Description of Course:

This course introduces students to the foundations of interdisciplinary analysis for the study of communication by examining how social issues are represented within the media and popular culture. The course examines images and arguments that characterize debates over social issues such as poverty, sexuality, morality, crime, and the economy. Several critical perspectives on how "commonsense" understandings of social issues gain popularity in the media will be analyzed in terms of the relationship of power to knowledge and of political economy to systems of representation and communication.

Nature of Course: Lecture/Tutorial

Prerequisites (or special instructions): Required: a) at least 30 credit hours; b) one course in any of English, History, Philosophy, Contemporary Arts, or Humanities; and c) one course in any of Sociology, Anthropology, Political Science, Psychology, or Womens' Studies. Strongly recommended: CMNS 110.

What course(s), if any, is being dropped from the calendar if this course is approved: No courses will be dropped; it will be taught by a new faculty member.

2. Scheduling

How frequently will the course be offered? Once a year

Semester in which the course will first be offered? 1996-1

Which of your present faculty would be available to make the proposed offering possible? Gail Faurschau will be the primary instructor; the course could also be taught by Paul Heyer, Martin Laba, Alison Beale.

3. Objectives of the Course (rationale) The course is designed as a foundation theory course for the undergraduates in Communication. Its purpose is to provide students with theoretical and practical background in comparative historical and interdisciplinary analysis. Students will develop comparative analytic skills by reading and viewing texts in a wide range of genres in communication. This course will be most useful for students who intend to take CMNS 304, 310, 323, 331, 334, 345, and 365.

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: Already sufficient

Space: None

Equipment: None.

5. Approval

Date: 11 October 1994

Oct. 13, 1994

NOV. 22/94

Robert D. Anderson
Department Chair

Lawrence Bauer
Dean

[Signature]
Chair, SCUS

SOCIAL ISSUES AND COMMUNICATION, CONT'D...

RATIONALE FOR NEW COURSE PROPOSAL SCHOOL OF COMMUNICATION CMNS 224-3

RATIONALE:

This course is designed as a foundational theory course for the undergraduate curriculum in the School of communication. Its main purpose is to provide students with a background in comparative historical and interdisciplinary analysis. In addition to reading and viewing texts in a wide range of genres in communication, students will practice developing their comparative analytic skills in various class assignments. I have discussed this course with many of my colleagues in the School who had expressed concern that students are enrolling in third and fourth year courses without an adequate theoretical background to undertake expected assignments. In particular, this course will assist to prepare students for CMNS 304, 310, 323, 331, 334, 345, and 365.

REQUIREMENTS:

First assignment: 4 page critical analysis	10%
Take-home Mid-term test (10 pages)	25%
Second Assignment: 10 page critical analysis	20%
Final Exam	30%
Tutorial	15%

MATERIALS:

Two reading kits available at the University Bookstore
(Two copies of kits will be placed on reserve in the Library)

PROVISIONAL TOPIC OUTLINE

NOTE: Readings given below are primarily sources for lectures. Only a selection of these sources will constitute readings for students.

1) INTRODUCTION; *Critical Reading and Writing*

Sources: Linda Flower, *Problems Solving Strategies for Writing*.

2) FRAMEWORKS OF EXPERIENCE

Sources and Readings: "Frameworks of Experience." *Philosophy of the Social Sciences*, Vernon Pratt; *The everyday World as Problematic*, Dorothy Smith; *Ways of Seeing*, John Berger; Selections from *The Burnside Community History Book*.

SOCIAL ISSUES AND COMMUNICATION CON'T

3) SYSTEMS OF REPRESENTATION I: NINETEENTH CENTURY PARADIGMS IN POLITICAL ECONOMY:

Sources and Readings: *Property and Prophets: Economic Institutions and Ideologies*, E.K. Hunt; *The Order of Things*, Michael Foucault. Selected readings from J.S. Mill, Karl Marx and Adam Smith.

4) CLASSICAL HUMANISM, LIBERAL DEMOCRACY, AND THE PUBLIC SPHERE

Sources and Readings: *Beyond Economic Man: Feminist Theories of Economics*, ed. Marianne A. Feber and Julie A. Nelson. *Life and Times of Liberal Democracy*, C. B. MacPherson, "Rethinking the Public Sphere; A Contribution to the Critique of Actually Existing Democracy", Nancy Fraser, in *The Phantom Public Sphere*, ed. Bruce Robbins

5) POVERTY AND REPRESENTATION I

Sources and Readings: Selections from *The Holy Bible*, *David Copperfield*, Charles Dickens; *Grapes of Wrath*, John Steinbeck; *Knowing the Poor*, Brian Green; "Krzysztof Wodiczko's Homeless Project and the Site of Urban 'Revitalization'", Rosalyn Deutsche in *Critical Image*, ed. Carol Squires.

6) POVERTY AND REPRESENTATION II

Sources and Readings: "God's Sanitary Law: Slum Clearance and Photography in Late Nineteenth Century Leeds", and "The Currency of the Photograph: New Deal Reformism and Documentary Rhetoric", in *The Burden of Representation*, Johnathan Tagg. "The Welfare State and Moral Regulation" Nancy Fraser and Linda Williams

7) CRIME: THE MEDIA, POLITICS AND MORAL PANICS

Sources and Readings: *Policing the Crisis*, Stuart Hall; *The Rich Get Richer and the Poor Get Prison*. *Reading Rodney King, Reading Urban Uprising*, ed. Robert Gooding-Williams. *Crack Wars*, Avital Ronell. Screenings of selections from network television "reality" cop shows.

SOCIAL ISSUES AND COMMUNICATION CON'T

8) SYSTEMS OF REPRESENTATION II: RACE, SEX AND SCIENCE IN THE NINETEENTH CENTURY

Sources and Readings: *Racist Culture*, David Goldberg; *Race and Empire in British Politics*, Paul B. Rich; *Race: The History of an Idea in America*, Thomas F. Gosset; *The History of Sexuality* vol 1, Michael Foucault.

9) US AND THEM: ANXIETY, ENVY AND IMAGES OF THE OTHER

Sources and Readings: "Stereotypes", in *Disease and Representation: Images of Illness, Madness and Sexuality*, Sander Gilman; *Black Skin, White Masks*, Frantz Fanon; *Anti-Semite, Jew*, Jean Paul Sartre; *Reading National Geographic*, ed. Jane Collins and Catherine Lutz

10) SOCIAL ALLEGORIES AND THE POLITICAL UNCONSCIOUS

Sources and Readings: "Reification and Utopia in Mass Culture" and *The Political Unconscious*, Frederick Jameson; "Black Ladies, Welfare Queens and State Minstrels: Ideological War by Narrative Means", Wahneema Lubiano, *Metaphors We Live By*, George Lakoff.

11) GOOD AND EVIL: MORAL CODING AND THE RHETORIC OF SELF-RIGHTEOUSNESS

Sources and Readings: "Hill, Thomas and the Use of Racial Stereotype" Neil I. Painter, "Legitimation Ads, The Story of the Family and How it Saved Capitalism", *Reading Ads Socially*, Robert Goldman; "Policing Aids", Simon Watney; *Beyond Good and Evil*, Friedrich Nietzsche; *Real Woman and the Politics of Abortion*, Lorna Irwin (Ph. D thesis, York University, 1991)

12) CONSUMING IMAGES: HUMANISM AND THE AMERICAN DREAM

All Consuming Images, Stuart Ewen, "Consuming Social Change: The United Colors of Benetton", in *Disturbing Pleasures*, Henry Giroux.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Communication

Abbreviation Code: CMNS New Course No: 423 Credit Hours: 4 Vector: 2-2-0

Title of Course: Negotiation as Communication

Calendar Description of Course: This course provides frameworks and tools through which to understand and evaluate negotiation as a form of communication. The objective of the course is to provide an understanding of the role of communication in the negotiating process, and the consequences of different kinds of negotiation strategies in intercultural, international, competitive, and conflictual situations. It combines theoretical discussion with practical case studies, involves guest-negotiators and analysts, and provides an appreciation of the world-wide scale and importance of negotiation as a basis for clarifying relationships.

Nature of Course: Lecture/Seminar

Prerequisites (or special instructions): One of CMNS 322 or CMNS 346

What course(s), if any, is being dropped from the calendar if this course is approved:
None. This course has been offered as Special Topics several times.

2. Scheduling

How frequently will the course be offered? once every four semesters

Semester in which the course will first be offered? 1996-1

Which of your present faculty would be available to make the proposed offering possible?
Jan Walls and Bob Anderson

3. Objectives of the course (rationale) The course extends the material discussed in CMNS 322 (Communication in Conflict and Intervention) and CMNS 346 (International Communication)

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: 11 October 1994 Oct. 13, 1994 Nov 22/94

Robert D. Anderson

Patricia Bawa

JAS

Department Chair

Dean

Chair, SCUS

Cmns 423: NEGOTIATION AS COMMUNICATION
Robert Anderson and Jan Walls

Course Description:

This course provides frameworks and tools through which to understand and evaluate negotiation as a form of communication. The objective of the course is to provide an understanding of the role of communication in the negotiating process, and the consequences of different kinds of negotiation strategies in intercultural, international, competitive, and conflictual situations. It combines theoretical discussion with practical case studies, involves guest-negotiators and analysts, and provides an appreciation of the world-wide scale and importance of negotiation as a basis for clarifying relationships.

Rationale:

The course extends the material discussed in Cmns 322 (Communication in Conflict and Intervention) and Cmns 346 (International Communication).

Course Outline:

- Week 1 Concepts and Definitions** -- negotiation, mediation, arbitration. Communication in different contexts: frame analysis.
- Erving Goffman, Frame Analysis. Harmondsworth: Penguin, 1974.
 - Erving Goffman, The Presentation of Self in Everyday Life, Basic Books, 1962
- Week 2 Recapitulation of Conclusions of CMNS 322** (e.g. conflict analysis frameworks) and CMNS 346 (e.g. institutional, cultural and discourse factors in cross-cultural miscommunication). Domestic and international examples.
- Linda L. Putnam and Michael E. Roloff (eds.), Communication and Negotiation. Newbury Park, Calif.: Sage, 1992.
- Week 3 Language and Negotiation:** interpretation and translation of situations. How differences in language and institutional context create challenges for capturing both letter and spirit in translation. Examples from French-English experience in Canada.
- P.H. Gulliver, Disputes and negotiations : a cross-cultural perspective. New York: Academic Press, 1979.
 - Gerard I. Nierenberg, The Art of Negotiating. New York: Hawthorn Books, 1968.
- Week 4 Intercultural Negotiation:** institutionally conditioned differences in negotiation style. Examples from Japanese, Chinese, and First Nations experiences.
- Oded Shenkar and Simcha Ronen, "The cultural context of negotiations: the implications of Chinese interpersonal norms". *The Journal of Applied Behavioral Science*, 23 no 2, 1987, 263-75.
 - Glen Fisher, "International negotiation: cross-cultural perception". *The Humanist*, 43, N/D '83, 14-18.
 - Program on Conflict Resolution (University of Hawaii) Researching Disputes Across Cultures and Institutions, 1990.
- Week 5 Negotiation in Bilateral and Multilateral Situations** -- Differences between dyads, networks, and free-for-alls. Examples from labour-management, local land-use, and United Nations experiences.
- Jacob Bercovitch and Jeffrey Z. Rubin (eds), Mediation in International Relations. New York, St. Martins Press 1992

- Frank Fischer and John Forester (eds.), The Argumentative Turn in Policy Analysis and Planning. Durham, N.C.: 1993.

Week 6 Case study: International Negotiation (states, statutory negotiation, jurisdictions).

- Bertram I. Spector (ed.), International Environmental Negotiation: Insights for Practice. International Institute for Applied Systems Analysis, 1992.
- Oran R. Young, "Negotiating an International Roulette Climate Regime: The Institutional Bargaining for Environmental Governance" in Nazli Chouri (ed) Global Accord: Environmental Challenges and International Responses, Cambridge Mass, MIT Press, 1993.
- I. William Zartman, International Multilateral Negotiation: Approaches to the Management of Complexity. San Francisco, CA : Jossey-Bass, 1994.

MID-TERM TEST

Week 7 Case study: Negotiation in Competitive Situations

- Vincent P. Crawford, "Explicit communication and bargaining outcomes", *The American Economic Review*, 80, My 1990, 213-19.
- Roger Fisher and William Ury, Getting to Yes. Toronto, Penguin, 1991.

Week 8 Case study: Negotiation in Conflict Situations

- Roger Fisher and Scott Brown, Getting Together: Building Relationships As We Negotiate. Toronto: Penguin, 1989.
- Lana M. Hinshaw et al, "Attitudes toward women and approaches to conflict resolution in college", *The Journal of Social Psychology*, 133, D 1993, 865-7.

Week 9 Negotiator as Heroine/Hero, and Negotiator as Tragic Failure

- Deborah M. Kolb, The Negotiators. MIT Press, 1985 .
- Deborah M. Kolb and Associates, When Talk Works: Profiles of Mediators. San Fransisco, Jossey-Bass Publishers, 1994.

Week 10 Case study: Negotiation and Team-Work: the special world of committees, boards, councils.

- A. G. Bailey, The Tactical Uses of Passion, Cornell University Press, 1985
- Guy O. Faure and Jeffrey Z. Rubin, Culture and Negotiation. London, Sage Publications, 1993.

Week 11 Negotiation and Communication Media -- How communication technologies and mass media markets may aid and hinder negotiation procedures. Examples from public sector employee-management negotiations.

- use of current video examples

Week 12 Negotiating Nationhood: regional, economic, linguistic and ethnic images and interests. Examples from the Canadian experience.

- Leonard Doob, Intervention - Guides and Perils. New Haven, Yale University Press, 1993.

Case Studies

- environmental negotiation
- workplace negotiation,
 - domestic conflict negotiation,
 - summit diplomatic negotiation
 - international business negotiation

Proposed change in the Honors program in Communication

Currently

- a) The current program calls for one 16-credit independent study semester (CMNS 498-16) followed by a two-credit Colloquium (CMNS 497-2) at which the results of the Honors project are presented to the student's committee and to other Honors students. The great majority of students ask for deferrals in CMNS 498 because they are unable to finish the project in one semester.

- b) Honors students are not distinguished from other students when prerequisites are assessed when they register for courses.

Proposed

- a) The program will be split into two semesters. In the first semester students will enroll in a 5-credit course (CMNS 497-5) entitled "Honors Research Proposal." This course will be offered every year in the fall semester. It will have regular meetings and be run as a seminar. In this course students will prepare a formal proposal for their research. The proposal will include a literature review, a rationale for the proposed research, and specific description of procedures to be used, data to be collected, and analyses to be conducted. Students will discuss their research topics with one another and will make presentations at various points in the semester as they tackle different parts of their proposals. The final product of the course, a formal research proposal, will be presented in an oral exam chaired by the professor responsible for the course and attended by the student's honors supervisor. The goal is to assure that students enter the research semester with the background knowledge and analytic skills they need to conduct their projects. This course will be the responsibility of the Director of the undergraduate studies committee.

The second semester, Honors Research Project, will be a 10- credit course (CMNS 498-10) in which they enroll when they are ready to conduct their research. This new course will be organized in a fashion similar to the current 16-credit study semester, except that the content of the current two-credit Honors Colloquium (CMNS 497) will merged into this course, with the presentation being held at the end of the semester.

- b) First class Honors students, those whose CGPA is above 3.5, may have all prerequisites waived for CMNS courses. If, for example, such an Honors student wishes to enroll in a 400-level CMNS course for which s/he does not have the prerequisites, the prerequisites will be waived. This will give superior students an opportunity to expand the range of their studies. As there is a risk that a student's performance will suffer because a prerequisite course has not been taken, responsible Honors students will exercise this privilege carefully.

Proposed Calendar changes

1. Delete the section on page 68 headed "Individual Study Semester".
2. Replace the section on page 69 headed "Honors Program" with the following

Honors Program

Admission

Communication majors wishing to apply to the honors program should obtain the appropriate application form from the Communication general office. *The deadline for application submission is March 15th each year.* In terms of course requirements, the main difference between the regular Communication program and the Honors program is that Honors students must complete an Honors Project (described below). The application form requires the student to describe the proposed Honors project and obtain the signatures of: the director of the Undergraduate Studies Committee, who must approve the project; a Communication faculty member who agrees to supervise the execution of the project; and one other faculty member who agrees to be on the student's Supervisory Committee.

The School reserves the right to limit the number of honors students if faculty resources are not available for their supervision. In such a case, priority for registration in the honors program will be given to the students with a higher CGPA.

Admission to the honors program requires a cumulative grade point average of 3.0 for the following courses:

Other admission requirements are as follows:

- successful completion of at least one of CMNS 260-3 or CMNS 261-3 and one of CMNS 301-4, 362-4, or 363-4.
- a minimum grade point average of 3.0 in Communication courses
- completion of 75 semester hours of university course work with a minimum cumulative grade point average of 3.0 or higher
- approval and signature of a faculty member willing to advise the honors project. Students having difficulty finding an honors supervisor should contact the School's Undergraduate Advisor for assistance.

Continuation

To remain in the honors program, students must

- maintain a minimum grade point average of 3.0 or higher for all courses taken in each semester
- maintain a minimum grade point average of 3.0 or higher for all Communication courses taken in each semester

Students not meeting the requirements may be dropped from the program but may apply for readmission at a later date.

Completion

To receive an honors in Communication, students must

- meet the graduation requirements for a degree in Communication
- meet the honors graduation requirements of the University and the Faculty of Applied Sciences
- successfully complete an honors project (CMNS 497-5 and CMNS 498-10)
- obtain certification by the Undergraduate Studies Committee that the program has been satisfactorily completed.

The Honors Project

Students must have completed at least 90 credit hours of university work, with at least 20 credit hours in upper division Communication courses before enrolling in the honors project. A plan must be approved by the faculty supervisor and by the director of the Undergraduate Studies program before work is begun. A pamphlet describing the requirements for the honors project can be obtained from the Communication General Office.

The honors project is carried out in two stages: CMNS 497-5, Honors Research Proposal, and CMNS 498-10, Honors Research Project. CMNS 497 will be offered every fall semester. Students may enrol in CMNS 498 in any semester subsequent to the one in which they complete CMNS 497.

School of Computing Science

SCUS Reference: SCUS 94 - 8b
SCAP Reference: SCAP 94 - 54b

- i) New courses -
 - MACM 101 - 3 Discrete Mathematics I
 - MACM 201 - 3 Discrete Mathematics II
 - CMPT 407 - 3 Computational Complexity
 - CMPT 417 - 3 Intelligent Systems
- ii) Changes to Major and Honors requirements
- iii) Changes to Minor requirements
- iv) Changes to Certificate Program

For Information:

Acting under delegated authority of Senate, SCUS has approved the following revisions as detailed in SCUS 94 - 8 b:

Change of prerequisites: CMPT 105, 201, 275, 290, 300, 305, 307, 354, 383, 384, 400, 410,
413, 461, 480, 483

Change of credit hours: CMPT 479

Simon Fraser University
MEMORANDUM

To: Parveen Bawa, Associate Dean
Faculty of Applied Sciences

From: Ze-Nian Li
Director, Undergraduate Programs
Computing Science

Subject: Curriculum Revisions

Date: October 11, 1994

Please forward the following curriculum revisions from the School of Computing Science to the Senate Committee on Undergraduate Studies.

This package includes revisions approved by the School of Computing Science and the Faculty of Applied Sciences in years 93-94 and 94-95 so far. MACM 101, 201 proposals were recently approved by the Faculty of Science (Sept. 29, 1994). The proposed new courses incur virtually no additional library costs. Should there be any need of purchasing new library books, the School of Computing Science will arrange it.

[** I am still waiting for the Library Report on CMPT 407 and 417. I was told that Ralph Stanton was just back from a vacation. Also, I am waiting for the support letter from Math for CMPT 407.]

The approved changes are as follows:

1. New courses:

MACM 101 Discrete Mathematics I
MACM 201 Discrete Mathematics II
CMPT 407 Computational Complexity
CMPT 417 Intelligent Systems

2. Changes in existing courses:

- (a) Prerequisite change to CMPT 105.
- (b) Prerequisite changes to CMPT 201, 275, 290, 300, 305, 307, 354, 383, 384, 400, 410, 413, 461, 480 and 483, to introduce MACM 101 and/or MACM 201 as appropriate.
- (c) Change CMPT 479-4 to CMPT 479-3

3. Changes to the CMPT Major and Honors requirements to introduce MACM 101 and MACM 201.

4. Changes to the CMPT Minor requirements to introduce MACM 101.

5. Changes to the Certificate Program in Computing Studies requirements to introduce MACM 101.

Rationale for New Courses School of Computing Science

MACM 101 & 201 - Discrete Mathematics I & II

Rationale: This two-course sequence on discrete math aims to give students a better understanding in one of the fundamental subjects in Computing Science. After the introduction of MACM 101 and 201, CMPT 205 and MATH 243 will be phased out. Other related changes to Computing Science programs are described later in this document.

CMPT 407 - Computational Complexity

Rationale: Computational Complexity is essential to the study of Computer Science. The course was offered before as CMPT 409 - Special Topics in Theoretical Computing Science. It is now proposed to be created as a new course.

** This course should be added to Table 1 - Computing Science Concentrations (P. 70 SFU Calendar) under *Theoretical Computing Science*.

CMPT 417 - Intelligent Systems

Rationale: This course on Intelligent/Expert Systems was offered as CMPT 419 - Special Topics in Artificial Intelligence for the last five years. By creating CMPT 417, (a) the course will have its proper title, (b) the prerequisites will be more appropriate (changed from CMPT 410 to CMPT 201, 205 and 384).

** This course should be added to Table 1 - Computing Science Concentrations (P. 70 SFU Calendar) under *Artificial Intelligence*.

Program Alteration and Rationale: CMPT Majors and Honors Program School of Computing Science

The lower division requirements of the CMPT Major and Honors programs are changed as follows:

Current Requirements			Revised Requirements		
CMPT	101-4	Modula 2 (or 104)	CMPT	101-4	Modula 2 (or 104)
	105-3	Fundamental Concepts of Computing		105-3	Fundamental Concepts of Computing
	201-4	Data and Program Organization		201-4	Data and Program Organization
	205-3	Introduction to Formal Topics in Computing Science		275-4	Software Engineering
	275-4	Software Engineering		290-3	Introduction to Digital Systems
	290-3	Introduction to Digital Systems		MACM	101-3
MATH	151-3	Calculus I	MATH	151-3	Calculus I
	152-3	Calculus II		152-3	Calculus II
	232-3	Elementary Linear Algebra		232-3	Elementary Linear Algebra
PHIL	001-3	Critical Thinking	PHIL	001-3	Critical Thinking
	214-3	Elementary Formal Logic II		214-3	Axiomatic Logic
STAT	270-3	Introduction to Probability and Statistics	STAT	270-3	Introduction to Probability and Statistics I

Rationale:

These changes have several benefits.

1. This relieves a problem recognized by all CMPT 205 instructors: the course has too much material for one semester.
2. An earlier exposure to formal topics in discrete mathematics topics is quite useful for second year CMPT courses.
3. A more in-depth exposure to this area is necessary to support the required third-year theory course CMPT 307 and other upper division courses.
4. The new two-course MACM sequence resolves a long-standing point of contention between Mathematics and Computing Science about the overlap between CMPT 205 and MACM 243. This was of a particular concern for joint programs such as MSSC and MACM Joint Honors. Now the conflicting courses CMPT 205 and MATH 243 are both to be phased out and replaced by the complementary courses MACM 101 and MACM 201.

Program Alteration and Rationale: CMPT Minor Program School of Computing Science

The lower division requirements of the CMPT Minor program is changed as follows:

Current Requirements			Revised Requirements		
CMPT	101-4	Modula 2 (or 104)	CMPT	101-4	Modula 2 (or 104)
	105-3	Fundamental Concepts of Computing		105-3	Fundamental Concepts of Computing
	201-4	Data and Program Organization		201-4	Data and Program Organization
	205-3	Introduction to Formal Topics in Computing Science		275-4	Software Engineering (or 290-3 Introduction to Digital Systems)
	275-4	Software Engineering (or 290-3 Introduction to Digital Systems)	MACM	101-3	Discrete Mathematics I
MATH	151-3	Calculus I	MATH	151-3	Calculus I
PHIL	001-3	Critical Thinking	PHIL	001-3	Critical Thinking

Rationale: This change updates the CMPT Minor program to use the new course MACM 101 in place of the old course CMPT 205.

Program Alteration and Rationale: Certificate in Computing Studies School of Computing Science

The *required* courses of the Certificate in Computing Studies are changed as follows. (There is no change to the elective courses.)

Current Requirements			Revised Requirements		
CMPT	098-3	Computers, Applications and Programs	CMPT	098-3	Computers, Applications and Programs
	101-4	Modula-2 (or 104)		101-4	Modula-2 (or 104)
	105-3	Fundamental Concepts of Computing		105-3	Fundamental Concepts of Computing
	201-4	Data and Program Organization		201-4	Data and Program Organization
	205-3	Introduction to Formal Topics in Computing Science		275-4	Software Engineering
	275-4	Software Engineering	MACM	101-3	Discrete Mathematics I
MATH	151-3	Calculus I	MATH	151-3	Calculus I

Rationale: This change updates the Certificate in Computing Studies program to use the new course MACM 101 in place of the old course CMPT 205.

**SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM**

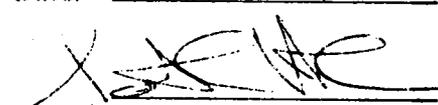
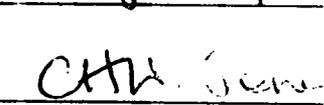
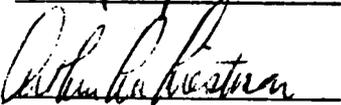
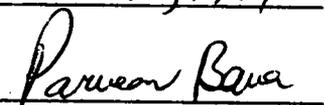
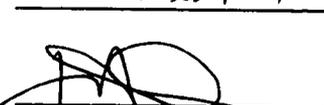
1. *Calendar Information* Department: **Computing Science/Mathematics**
 Abbreviation Code: **MACM** Course Number: **101** Credit Hours: **3** Vector: **3-0-0**
 Title of Course: **Discrete Mathematics I**
 Calendar Description of Course:
Introduction to counting, induction, automata theory, formal reasoning, modular arithmetic.
 Nature of Course:
Lecture
 Prerequisites (or special instructions):
BC Math 12
 What course (courses), if any, is being dropped from the calendar if this course is approved:
MATH 243 and CMPT 205 will be phased out.

2. *Scheduling*
 How frequently will the course be offered? **Every semester.**
 Semester in which the course will first be offered: **Summer 1995**
 Which of your present faculty would be available to make the proposed offering possible?
B. Alspach, B. Bhattacharya, T. Brown, L. Goddyn, A. Gupta, K. Heinrich, P. Hell, A. Liestman, J. Peters, N. Reilly, T. Shermer

3. *Objectives of the Course*
This is an introductory course in Discrete Mathematics for students of both Mathematics and Computing Science. It is part of a two-course sequence with MACM 201.

4. *Budgetary and Space Requirements (for information only)*
 What additional resources will be required in the following areas:
 Faculty **None**
 Staff **None**
 Library **See attached course outline.**
 Audio Visual **None**
 Space **None**
 Equipment **None**

5. *Approval*

Date: <u>June 2, 94</u>  _____ Chair, Math& Stats	Date: <u>Sept. 29</u>  _____ Dean, Science	
Date: <u>May 31, 1994</u>  _____ Director, CMPT	Date: <u>Oct. 13, 1994</u>  _____ Dean, Applied Sciences	Date: <u>Nov. 22/94</u>  _____ Chair, SCUS

Detailed Course Outline MACM 101

Note that there may be some shift in topics depending on the text chosen. In the long run we will probably work towards developing our own set of "units" for this course.

1. Set Theory [0 weeks. Students will be expected to know this material from high-school and will be asked to review it from the text.]
 - (a) subset, union, intersection, complement
 - (b) power sets
 - (c) venn diagrams
2. Counting [4 weeks]
 - (a) induction
 - (b) Sums and Products
 - (c) Permutations and Combinations
 - (d) binomial theorem
 - (e) inclusion/exclusion
 - (f) introduction to probability theory
 - (g) pigeon hole principle
 - (h) introduction to recurrence relations
3. Formal Reasoning [6 weeks]
 - (a) informal vs formal arguments
 - (b) propositional calculus: connectives, laws, inference rules, truth tables
 - (c) introduction to predicate calculus
 - (d) boolean algebras: definition, boolean functions, CNF, DNF, simplifying expressions, prime implicants
 - (e) axiomatic development of naturals and integers, induction, (Euclid's algorithm), modular arithmetic
 - (f) program correctness: algorithms, partial correctness, loop invariants, pre and post conditions
4. Automata theory and Formal languages [2 weeks]
 - (a) Finite state machines, deterministic vs non-deterministic
 - (b) regular expressions, closure rules
 - (c) intro to context-free grammars

Reference books:

1. Biggs, *Discrete Mathematics*, Oxford University Press, 1991.
2. Dierker and Voxman, *Discrete Mathematics*, Harcourt Brace, 1986.
3. Graham, Knuth, Patashnik, *Concrete Mathematics*, Addison-Wesley, 1989.
4. Johnsonbaugh, *Discrete Mathematics*, 1990, 1993.
5. Roberts. *Applied combinatorics*, 1984.
6. Ross and Wright. *Discrete Mathematics*, Prentice Hall, 1985.
7. Tucker, *Applied Combinatorics*, 1980, 1984.

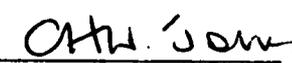
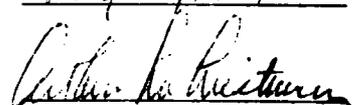
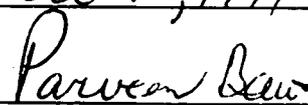
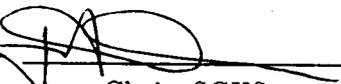
**SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM**

1. *Calendar Information* Department: **Mathematics/Computing Science**
 Abbreviation Code: **MACM** Course Number: **201** Credit Hours: **3** Vector: **3-0-0**
 Title of Course: **Discrete Mathematics II**
 Calendar Description of Course:
A continuation of MACM 101. Topics covered include graph theory, trees, relations, asymptotics, generating functions and recurrence relations.
 Nature of Course:
Lecture
 Prerequisites (or special instructions):
MACM 101
 What course (courses), if any, is being dropped from the calendar if this course is approved:
MATH 243 and CMPT 205 will be phased out.

2. *Scheduling*
 How frequently will the course be offered? **Twice per year.**
 Semester in which the course will first be offered: **Spring 1996**
 Which of your present faculty would be available to make the proposed offering possible?
B. Alspach, B. Bhattacharya, T. Brown, L. Goddyn, A. Gupta, K. Heinrich, P. Hell, A. Liestman, J. Peters, N. Reilly, T. Shermer

3. *Objectives of the Course*
This is a second course in discrete mathematics, for students of both Mathematics and Computing Science. It is part of a two-course sequence with MACM 101 Discrete Mathematics I.

4. *Budgetary and Space Requirements (for information only)*
 What additional resources will be required in the following areas:
 Faculty **None**
 Staff **None**
 Library **See attached course outline.**
 Audio Visual **None**
 Space **None**
 Equipment **None**

5. *Approval*
 Date: June 2, 94 Sept 29
 
 Chair, Math & Stats Dean, Science
 Date: Aug 31, 1994 Oct. 13, 1994 Nov. 22/94
  
 Director, CMPT Dean, Applied Sciences Chair, SCUS

Detailed Course Outline MACM 201

Note that there may be some shift in topics depending on the text chosen. In the long run we will probably work towards developing our own set of "units" for this course.

Course Content

1. Combinatorial analysis [5 weeks]
 - (a) asymptotics: algorithms, recursion, complexity of algorithms, O , Ω , Θ
 - (b) generating functions: limits, sums, infinite sums, partitions, exponential generating functions
 - (c) recurrence relations: first order linear, second order linear homogeneous, nonhomogeneous, using generating functions
2. Set Theory [2 weeks]
 - (a) cardinality, infinite sets, diagonalization
 - (b) partial orders, Hasse diagrams
 - (c) functions, equivalence relations, partitions
3. Graph Theory [2.5 weeks]
 - (a) representations, adjacency matrices
 - (b) components, paths, cycles, degrees
 - (c) digraphs
 - (d) hamiltonian cycles, eulerian cycles, TSP
 - (e) shortest-path algorithms
4. Trees [2.5 weeks]
 - (a) trees, rooted trees, binary trees
 - (b) spanning trees, minimum spanning trees
 - (c) tree traversals
 - (d) applications of trees: decision trees, game trees, prefix codes, Huffman codes

Reference books:

1. Biggs, *Discrete Mathematics*, Oxford University Press, 1991.
2. Dierker and Voxman, *Discrete Mathematics*, Harcourt Brace, 1986.
3. Graham, Knuth, Patashnik, *Concrete Mathematics*, Addison-Wesley, 1989.
4. Johnsonbaugh, *Discrete Mathematics*, 1990, 1993.
5. Roberts, *Applied combinatorics*, 1984.
6. Ross and Wright, *Discrete Mathematics*, Prentice Hall, 1985.
7. Tucker, *Applied Combinatorics*, 1980, 1984.

**SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM**

1. *Calendar Information*

Department: **Computing Science**

Abbreviation Code: **CMPT** Course Number: **407** Credit Hours: **3** Vector: **3-0-0**

Title of Course: **Computational Complexity**

Calendar Description of Course:

Machine models and their equivalences, complexity classes, separation theorems, reductions, Cook's theorem, NP-completeness, the polynomial time hierarchy, boolean circuit models and parallel complexity theory, other topics of interest to the students and instructor.

Nature of Course:

Lecture

Prerequisites (or special instructions):

CMPT 307

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

(This course was once offered as CMPT 409 - Special Topics in Theoretical Computing Science. It is expected that CMPT 409 will be offered less frequently.)**

2. *Scheduling*

How frequently will the course be offered? **Every second year.**

Semester in which the course will first be offered: **95-3 at the earliest.**

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

B. Bhattacharya, A. Gupta, P. Hell, A. Liestman, J. Peters, T. Shermer

3. *Objectives of the Course*

Complexity theory is the study of the resource requirements for algorithmically solving problems. As such, many of the fundamental questions in computer science arise here. In this course, students will be introduced to this area with a particular emphasis on exposing students to the most promising lines of research.

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

What additional resources will be required in the following areas:

Faculty	None
Staff	None
Library	See attached sheet.
Audio Visual	None
Space	None
Equipment	None

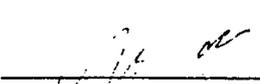
5. *Approval*

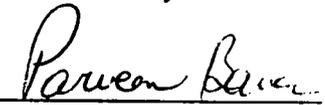
Date:

Oct. 7, 1994

Oct. 13, 1994

Nov. 22/94


Department Chair


Dean


Chair, SCUS

Detailed Course Outline for Computational Complexity

1. Calendar Description:

- (a) *Course Outline:* Machine models and their equivalences, complexity classes, separation theorems, reductions, Cook's theorem, NP-completeness, the polynomial time hierarchy, boolean circuit models and parallel complexity theory, other topics of interest to the students and instructor.
- (b) *Prerequisites:* CMPT 307. A fair level of mathematical sophistication is expected.

2. Place of the course within the computing curriculum:

- (a) *Goals of the course:* The study of the complexity of problems is becoming increasingly important in computer science. This course will emphasize the classification of problems in terms of their complexity and introduce contemporary topics such as parallel classes and probabilistic classes and their relationship to the more standard classes.
- (b) *Reason for the prerequisites:* A fair amount of mathematical maturity is required to understand the concepts.
- (c) *Courses having this course as a prerequisite:* none
- (d) *Related Courses:* CMPT 405, 406, latest offering of 409 and 415

3. Course Outline:

- (a) Machine Models: DTM, NTM, RAM, simulations of one machine by another [2 weeks]
- (b) Complexity Classes: Logspace, NLogspace, P, NP, Pspace, Time and Space bounded computation [2 weeks]
- (c) Reductions: Cook/Turing vs. Karp/many-one [1 week]
- (d) Cook's Theorem, the theory of NP-completeness [2 weeks]
- (e) co-NP, the polynomial-time hierarchy [2 weeks]
- (f) #P, Random Turing Machines [1 week]
- (g) special topics: non-deterministic log-space, Introduction to parallel complexity theory, P-completeness, interactive proof systems [2 weeks]

4. Student evaluation:

Homework assignments 20%, midterm 20%, project 30%, and final exam 30%.

Library Resources for proposed course on complexity theory

Required book for this course (ordered by the library)

Papadimitriou, C. *Computational Complexity*, Addison-Wesley, 1994.

Library books available as reference texts

Balcazar J. *Structural Complexity Vol I and II*, Springer-Verlag, 1988.

Davis M. *Computability, complexity and languages: fundamentals of theoretical computer science*, Academic Press, 1994.

Garey M., Johnson D. *Computers and intractability: a guide to the theory of NP-completeness*, W.H. Freeman and Co, 1979.

Hopcroft J., Ullman J. *Introduction to automata theory, languages, and computation*. Addison-Wesley, 1979.

Kronsjö L. *Algorithms : their complexity and efficiency*, Wiley, 1987.

Solomna A. *Computation and Automata*, Cambridge University Press, 1985.

Wagner K., Wechsung G. *Computational Complexity*, Dordrecht, 1986.

Wegener I. *The complexity of boolean functions*, Stuttgart, 1987.

Wilf H. *Algorithms and complexity*, Prentice-Hall, 1986.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: *Computing Science*

Abbreviation Code: CMPT Course Number: 417 Credit Hours: 3 Vector: 3-0-0

Title of Course: "Intelligent Systems"

Calendar Description of Course: Development of intelligent (*aka* expert) systems, the MYCIN system, abduction and uncertain reasoning, intelligent systems in the Prolog language, modern model-based systems, constraint reasoning methods, exhaustive vs. incremental search techniques, constraint logic programming methods, applications in diagnosis, scheduling, planning, process control and animation.

Nature of Course: Lecture

Prerequisites (or special instructions): CMPT 201, 205 and 384.

What course(s), if any, is being dropped from the calendar if this course is approved: None (however, this course has been previously offered as CMPT-419 Special Topics. By creating CMPT-417 we will both rationalize the place of this course in our curriculum and establish the appropriate prerequisite structure.)

2. Scheduling:

How frequently will the course be offered?: Every second year.

Semester in which the course will first be offered: 95-3 at earliest.

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

B. Havens, B. Hadley, J. Delgrande, V. Dahl

3. Objectives of the Course:

Intelligent Systems (*aka* Expert Systems) are knowledge-based computer programs which emulate the reasoning abilities of human experts. Intelligent System technology is rapidly advancing and being successfully applied in a wide variety of real applications. This course will analyse the underlying methodology of rule-based systems, constraint solving, logic programming, incremental reasoning, and intelligent backtracking. We will look at research applications in diagnosis, knowledge-based design, intelligent scheduling and planning, intelligent animation and others.

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

What additional resources will be required in the following areas:

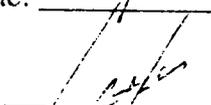
Faculty: None
Staff: None
Library: -- see attached --
Audio Visual: None
Space: None
Equipment: None

5. Approval

Date: Oct. 13, 1994

Oct. 13, 1994

Nov. 22, 1994


Department Chair


Dean


Chair, SCUS

Detailed Course Outline for CMPT-417: Intelligent Systems

1. Calendar Description:

(a) *Course Outline:* Development of intelligent (*aka* expert) systems, the MYCIN system, abduction and uncertain reasoning, intelligent systems in the Prolog language, modern model-based systems, constraint reasoning methods, exhaustive vs. incremental search techniques, constraint logic programming methods, applications in diagnosis, scheduling, planning, process control and animation.

(b) *Prerequisites:* CMPT 201, 205 and 384.

2. Place of the course within the computing curriculum:

(a) Goals of the course:

Intelligent Systems (*aka* Expert Systems) are knowledge-based computer programs which emulate the reasoning abilities of human experts. Intelligent System technology is rapidly advancing and being successfully applied in a wide variety of real applications. This course will analyse the underlying methodology of rule-based systems, constraint solving, logic programming, incremental reasoning, and intelligent backtracking. We will look at research applications in diagnosis, knowledge-based design, intelligent scheduling and planning, intelligent animation and others.

(b) Reason for the prerequisites: Programming maturity (CMPT-201), understanding of formal computational models (CMPT-205) and familiarity with symbolic programming languages (CMPT-384) are essential for the concepts and methods presented in this course.

(c) Courses having this course as a prerequisite: None

(d) Related courses: CMPT-419 as recently offered, CMPT-827, CMPT-410

3. Course Outline:

- **Historical perspective:** development of rule-based systems; MYCIN; abduction; uncertain reasoning; expert systems in Prolog; structural knowledge representations; model-based reasoning [3 weeks].
- **Constraint Reasoning:** definition of constraint satisfaction problems (CSPs); examples in intelligent systems; constraint graphs; levels of consistency; constraint propagation algorithms [3 weeks].
- **Search:** chronological backtracking algorithms; intelligent backtracking methods; hybrid algorithms; variable and value ordering heuristics; belief revision techniques (TMS/ATMS); hypothesis maintenance approaches; constructive / repair-based methods; dynamic backtracking; incremental backtracking [3 weeks].

- Constraint logic programming (CLP): introduction to the CLP framework; types of constraint solvers; dynamic CSPs; search strategy; CLP languages; example applications [2 weeks].
- Scheduling and planning applications: traditional methods; CLP methods for sequencing, job shop, resource allocation and other applications [1 week].
- Diagnosis and design applications: model-based reasoning approaches; combining deductive and abductive methods; examples [1 week].
- Other applications: intelligent control and process monitoring; intelligent animation systems; identifying appropriate intelligent systems tasks; managing the expert systems enterprise [1 week].

4. Student Evaluation:

(40%)	Written assignments
(40%)	Programming project
(20%)	Class participation

Library Resources for Proposed CMPT-417

Required book for this course (ordered by the library)

M. Ginsberg (1993) *Essentials of Artificial Intelligence*, Morgan Kaufmann, San Francisco.

Library books available as reference texts

E. Charniak & D. McDermott (1985) *Introduction to Artificial Intelligence*, Addison-Wesley.

L. Shapiro (1987) *Encyclopaedia of Artificial Intelligence*, John Wiley.

School of Engineering Science

SCUS Reference: SCUS 94 - 8c
SCAP Reference: SCAP 94 - 54c

- i) New course -
ENSC 100 - 3 - Engineering Technology and Society
- ii) Change of electives

For Information:

Acting under delegated authority of Senate, SCUS has approved the following revisions as detailed in SCUS 94 - 8 c:

Change of description: ENSC 101 - 108 series of courses

Simon Fraser University

MEMORANDUM

From : Paul Ho, UCC Chair, ENSC
To : Parveen Bawa, FAS-UCC Chair

Subject : Calender Changes

Date : Oct 6, 94.

The School of Engineering Science has approved the following calender changes on Sept 23, 94:

1. A new course ENSC 100-3,
2. new calender descriptions for the ENSC 101-108 series of courses,
3. replacement of CHEM 103 by MACM 101

Note that the new course requires virtually no additional library costs.

RECEIVED

OCT 26 1994

**FACULTY OF
APPLIED SCIENCES**

NEW COURSE PROPOSAL FORM1. Calendar InformationDepartment: ENSCAbbreviation Code: ENSC Course Number: 100Credit Hours: 3 Vector: 2-0-1Title of Course: Engineering Technology and Society

Calendar Description of Course:

This course is designed to provide an introduction to the practice of engineering, surveying its history and its current state. The social and political aspects of engineering decisions will be illustrated by a number of case studies.

Nature of Course Complementary studies

Prerequisites (or special instructions):

None

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

None2. SchedulingHow frequently will the course be offered? AnnuallySemester in which the course will first be offered? September 1995Which of your present faculty would be available to make the proposed offering possible? Dr. J. Jones; Dr. A. Rawicz3. Objectives of the Course

To give incoming Engineering students a sense of the social, historical and environmental contexts of engineering, and thus motivate them to seek a more complete understanding of their discipline.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty 0Staff 0Library 0Audio Visual 0Space 0Equipment 05. ApprovalDate: September 26, 1994 Oct 28, 1994 Nov 22/94

Albert M. Lavy
Department Chairman

Parvati Bawa
Dean

[Signature]
Chairman, SCUS

Rationale for Introduction of a New Course: ENSC 100-3

ENSC 100-3, Engineering, Technology and Society, will benefit engineering students in a number of ways,

introducing them to the social responsibilities of engineers and the social, historical and environmental dimensions of engineering.

exploring the connections among various technologies as well as the cause and effect relations of their precedent and antecedent technologies.

providing a clearer understanding of what engineering involves, with particular emphasis on the kinds of engineering covered by the School of Engineering Science at SFU.

motivating students and improving retention rates by helping them develop a more vivid sense of the engineering profession and its place in society.

ensuring that the kinds of critical thinking most often encountered in complementary studies courses are introduced at the earliest possible point into the engineering curriculum.

providing students entering ENSC with an opportunity to interact with a number of engineering faculty during their first semester of study

reinforcing the importance of collaborative learning, team work, professional conduct and ethics from the earliest possible point in the program.

Calendar Description, ENSC 100-3 Engineering, Technology and Society

This course introduces students to the evolution of the engineering disciplines and to current engineering practice. A series of case studies will be used to direct attention to the engineer's ethical responsibility for the social and environmental consequences of design decisions, leading to an examination of the nature and scope of engineering knowledge.

Course Outline for ENSC 100: Engineering, Technology and Society

This introductory engineering course is initially offered as an optional complementary studies course dealing with the interaction of science/technology and society. We recommend that engineering students take it as the complementary studies course required in their first semester.

Course Content

Unit 1.

What is engineering? Relationship of engineering to the sciences. 'Trickle-down' theory of engineering as applied science. When technology precedes science. A cold-fusion water heater. Deductive reasoning as the ideal. Engineering reasoning. Modelling. Approximate reasoning. One thousand useful relationships. Dimensional analysis. Branches of engineering. What engineers do and where they work.

Unit 2.

Historical development of engineering in relation to society. Engineering and warfare. Engineering and the environment as an example of the interplay between engineering decisions and societal choices. Great engineering disasters, and how the engineering profession has responded to them.

Unit 3.

Engineering design. Synthesis as one of the characteristics distinguishing engineering from the sciences. Similarities between design in engineering and in the arts, for example, architecture. Nature of the design process, and attempts to automate it. Design and manufacture.

Unit 4.

Relationship of engineering to management and economics. Taylorism, Taguchi methods. Should the engineer who lays out an assembly line be held responsible for the mindless tedium of the assembly-line worker's day? Should the automation engineer be concerned about creating unemployment?

Unit 5.

Overview of electrical and electronic engineering. Power electrical engineering, circuits, devices. How a stereo works. Using stereophonic music as an example, discussion of the product cycle; innovation as a response to technology push or to demand pull. Design decisions involved in determining the final form of the product; the interaction of performance, manufacturability, marketability, maintenance, repair and disposal.

Unit 6.

Overview of mechanical engineering. Thermofluids, materials, kinematics and dynamics. Importance of thermodynamic reasoning. C.P. Snow's use of the Second Law of Thermodynamics as an illustration of the existence of two cultures. What the second law says, and what it means. 'Quality' of energy, and its relevance to power generation.

Unit 7.

Introduction to computer engineering. How a computer works. Engineering and computing science. Computers and communications. The information highway. Artificial intelligence. Neural nets. Social implications of the use of computers: privacy, employment, artificial persons.

Unit 8.

Introduction to biomedical engineering. Ethical questions in biomedicine.

Unit 9.

Research in engineering. Highlights of the research programs currently active in the School.

Methods of Instruction

Each week, students will attend two one-hour lectures and a one-hour seminar in which they discuss assigned readings and further explore the context and social implications of materials covered in the lectures. Each seminar group will also undertake a team project that explores a particular problem related to the social and/or environmental implications of the technologies engineers create. For example, students might be asked to explore ways of producing zero-emission vehicles, examining both technical feasibility and consumer expectations and then identifying potential implications of the technology. Each group will receive a resource file for their project. For the example given above, the file would include introductory material on battery technologies, heat engines, and different points of view on the consequences of vehicle emissions, including acid rain and effects on ozone and CO₂ levels. Students in a seminar group divide responsibility for studying and reporting on sub-topics related to the assigned problem, which will then be discussed by the group as a whole. The seminar group shares responsibility for the completed project, which will be displayed and defended in a poster session and documented in a final report.

It is envisaged that up to ten faculty and staff will each spend one hour per week conducting tutorials. To lighten the associated load, and to ensure consistency between tutorial groups, each tutor will be provided with a course workbook, which will summarize the material that has been covered in class each week, and suggest discussion topics and questions.

Methods of Evaluation

Students will be evaluated by means of pop quizzes in lectures, oral reports on assigned readings in seminar groups, contributions to seminar discussions, group poster sessions, and contributions to a group report. Seminar leaders will ensure that the work is distributed equitably. Final grades will be assigned by the faculty member responsible for the course in consultation with the seminar leaders.

Each tutorial group will also be assigned a problem, which they will work on during the semester in collaboration with their supervisor. 'Resource folders' for ten selected problems will be available to the tutors. Each folder contains readings and other materials related to a problem. When a group selects a problem, the tutor will draw up a schedule for group members to work through and report on the reading material. (A group may suggest its own problem.)

The results of these projects will be displayed in a poster session at the end of the semester; students will take turns in defending their results to faculty members, staff and other students. In addition to the posters, the group will produce a final report, which should be available at the poster session.

Course Text

There is no set textbook for the course. Students will be provided with detailed course notes and with selected readings from engineering literature.

Timing

The first offering of the course will be in Fall, 1995. Depending on the success of this first offering, subsequent offerings may be open to students from other faculties.

Competence of the faculty member to teach course

Dr Jones is a Registered Professional Engineer (P.E.), and has been practicing in various branches of engineering for the past 15 years. Some of the specialised areas in the outline will be covered by faculty members currently active in those areas.

Which course is being dropped to make room for this one?

None; it will be a complementary studies course, added to the list of courses that fulfill complementary studies requirements.

Bibliography

Handouts will be provided in class.

CHEM 103 and MACM 101

1 The Calender Changes

Referring to pg. 74 of the calender, first column, under Semesters One and Two :

From : Cmpl 1-3 first complementary studies elective
To : * MACM 101-3 Discrete Mathematics I

and

From : CHEM 103-3 General Chemistry II
To : Cmpl 1-3 first complementary studies elective

2 Rationale

CMPT recently makes MACM 101 a pre-requisite to CMPT 290, a course taken by all ENSC students. Consequently 3 credits have to be removed from the existing curriculum.

3 Conditions for Approval:

The above proposal is an interim solution to the problem created by MACM 101. CHEM 103, together with MACM 101 will be put back on the table for discussions during the curriculum redesign. A long term solution should be reached and put into effect in the 96/97 calender.

4 Why CHEM 103 ?

It is the cleanest interim solution. There is some flexibility too - for students in the Electronics and Computer Engineering options who like to take CHEM 103, we can allow them to replace one of the computing electives by CHEM 103.

We tried other alternatives that involve special arrangements with Computing Science. They were not viewed favourably.

School of Kinesiology

SCUS Reference: SCUS 94 - 8d
SCAP Reference: SCAP 94 - 54d

New courses -

KIN 481 - 3 Activity-Generated Musculoskeletal Disorders
KIN 423 - 3 Selected Topics in Kinesiology IV
KIN 424 - 3 Selected Topics in Kinesiology V

For Information:

Acting under delegated authority of Senate, SCUS has approved the following revisions as detailed in SCUS 94 - 8 d

Change of prerequisite: KIN 203, 303, 496, 498
Change of title, prerequisite and vector: KIN 343
Change of description: KIN 370, 420, 421, 422
Change of title: KIN 486

To: Dr. Parveen Bawa
Associate Dean
Faculty of Applied Sciences

From: Craig Asmundson
UCC Chair, School of
Kinesiology

Subject: Calendar Changes

Date: Sept. 22/94

At meetings on September 8 and 15, 1994, the School of Kinesiology approved the following changes. Please place these changes for approval on the agenda of the next Faculty of Applied Sciences UCC meeting.

The contents of the changes are:

1. New courses:

- KIN 481-3 - "Activity-Generated Musculoskeletal Disorders"
- KIN 423-3 - "Selected Topics in Kinesiology IV"
- KIN 424-3 - "Selected Topics in Kinesiology V"

2. Changes in existing courses:

- KIN 203-3 - "Computer Applications in Kinesiology - prerequisite change
- KIN 303-3 - "Kinanthropometry" - prerequisite change
- KIN 343-3 - "Fitness Appraisal and Guidance" - course title change, prerequisite change, and course vector change
- KIN 370-3 - "Biomechanics in Physical Activity" - change in Calendar description
- KIN 420-3, KIN 421-3, KIN 422-3 - "Selected Topics in Kinesiology" - change in Calendar description
- KIN 486-3 - "Industrial Design" - change in course title
- KIN 496-3 - "Directed Study I" - change in prerequisites
- KIN 498-3 - "Directed Study II" - change in prerequisites

4. Budgetary and Space Requirements (for information only)

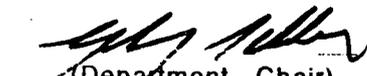
What additional resources will be required in the following areas:

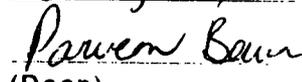
Faculty	none
Staff	none
Library	several books
Audiovisual	none
Space	none (this is a lecture/tutorial course, as are the courses which it replaces)
Equipment	none (this is not a lab course)

5. Approval

Date: 23 Sept 94.

Oct 11, 1994


(Department Chair)


(Dean)

(Chair, SCUS)

SCUS 73-34b:-(When completing this form, for instructions see Memorandum SCUS 73-34a. Attached course outline).Arts 92-3 (* note: a separate library report is now required)

RATIONALE FOR NEW COURSE PROPOSAL

SCHOOL OF KINESIOLOGY

KIN 481-3, "Activity-Generated Musculoskeletal Disorders"

RATIONALE:

This course is designed to replace KIN 341 and 441 (Sports Medicine I and II) which were dropped from the Calendar last year. This new course is proposed because (a) it provides a framework for integrating and extending the Kinesiology student's knowledge of anatomy, physiology, biomechanics, exercise management, and ergonomics/human factors and (b) because it will be useful for students pursuing post-graduate education in medicine and rehabilitation, or careers as exercise therapists or ergonomists. Musculoskeletal disorders are an important concern to society because of the high prevalence, rising incidence, and high cost to compensate/rehabilitate these disorders. It is expected that the course will be of interest to students in the Ergonomics/Human Factors, Physiological Sciences, and Active Health streams in Kinesiology.

Kinesiology 481 - Activity-Generated Musculoskeletal Disorders Course Outline

Instructor

Stephen Brown, with some guest lectures by local experts

Prerequisites

KIN 201, 205, 207, 326, and 380

Course Overview

This course provides a kinesiological approach to musculoskeletal disorders caused by activity, especially postures and movements of workers. Particular attention will be paid to disorders of the back, neck, shoulder, arm and hand. Students will learn injury mechanisms, assessment techniques, prevention and treatment strategies, and motivational and counselling techniques. The effects of age, fitness, training, and psychosocial factors on injury and recovery from injury will be considered.

Topics to be covered

Injury and healing
Pain and pain control
Psychosocial issues
Disorders of the hand and arm
Disorders of the upper back, neck and shoulder
Disorders of the lower back
Effects of aging on work performance and injury
Team approach to diagnosis and management of activity-related disorders
Functional evaluation/Pre-employment physical testing
Motivational and counselling techniques

Course Format

Three hours of lecture and one hour of tutorial per week.

Required textbook

None. Assigned readings from articles and books on Library reserve (see reading list attached). A bound collection of lecture notes will be available at cost of duplicating.

Mark distribution

- 25% Case study I (describe the case of a person with an activity-related musculoskeletal disorder, and discuss the probable factors which caused or contributed to the injury)
- 20% Term paper (review scientific literature relating to a specific topic; see list of suggested topics below)
- 15% Case study II (working with a case study provided by the instructor, suggest appropriate prevention and treatment strategies)
- 40% Final examination (three hours, comprehensive)

Suggested topics for term paper:

- carpal tunnel syndrome in meat cutters
- shoulder injuries in swimmers
- neck disorders in VDT operators
- back injuries in manual material handling
- hand/arm disorders in musicians
- hand and arm overuse injuries in chain saw operators

- lateral epicondylitis
- thoracic outlet syndrome
- exercise vs surgery for treatment of low back pain
- effects of age on susceptibility to injury and speed of healing
- acupuncture in pain control
- interferential nerve stimulation (TENS) in pain control
- effect of ultrasound and laser therapies on tissue healing

Kinesiology 481 - Activity-Generated Musculoskeletal Disorders
Lecture Schedule

(hours allocated to each topic shown in brackets)

1. Tissue properties (e.g., strength, elasticity, blood supply) as they relate to injury and healing (2)
2. The stages in the healing process; role of exercise and other therapies in promoting healing (3)
3. Pain and pain control (2)
4. Psychosocial issues (2 h)
 - Psychological effects of injury
 - Factors affecting recovery from injury (e.g., fitness, economics, motivation, social status)

Each of the following three sections will start with a review of anatomy, then examine mechanisms of injury and prevention strategies. Case studies (see list below) will be used as examples.

5. Disorders of the hand and arm (6 h)
6. Disorders of the upper back, neck and shoulder (3 h)
7. Disorders of the lower back (8 h)
8. Effects of aging on work performance, injury, and healing (1 h)
9. Team approach to diagnosis and management of activity-related disorders (4)
Roles of ergonomist, kinesiologist, general practitioner, osteopath, chiropractor, physiotherapist, occupational therapist, acupuncturist, massage therapist, nutritionist, psychologist, exercise therapist, etc.
Guest speakers from a number of these disciplines will come to discuss their work.
10. Functional evaluation of injured workers/ Pre-employment physical testing: (4)
 - Principles for test design, validation and administration
 - Case studies
11. Motivational and counselling techniques (4)
 - Theories of change
 - Stages of change
 - Motivational interview vs information interview
 - Goal setting; short and long-term
 - Counselling philosophy and techniques

Case studies:

The following case studies will be presented by the instructor in class. Suspected injury mechanisms will be outlined. Complicating factors (e.g., previous injury, chronic pain syndrome, job satisfaction, financial compensation) will be discussed. The roles of health care professionals (e.g., physicians, physiotherapists) and other parties (e.g., WCB, ICBC) will be described.

- carpal tunnel syndrome in a 47-year old female doing repetitive light assembly work
- Raynaud's phenomenon in a 38-year old male worker (from vibration caused by hand-buffing parts on a polishing wheel)
- tendinitis of the hand in a 24-year old male clerk (from filling hundreds of heavy file folders)
- lateral epicondylitis in a 24-year old male ski mechanic (from manual screwdriver use)
- A-C joint subluxation in a 22-year old male rugby player
- 27-year-old male with lumbar soft-tissue injury (whiplash) resulting from MVA
- sciatica in a 70-year old physically active (walking, golf, gardening, ballroom dancing) male
- lumbar muscular strain in a 37-year old female child care worker (from bending and lifting)

SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Kinesiology

Abbreviation Code: KIN Course #: 423 Credit Hrs: 3 Vector: 3-1-0

Title of Course: Selected Topics in Kinesiology IV

Calendar Description of Course:

Selected topics in areas not currently offered as formal courses within the undergraduate course offerings in the School of Kinesiology. The topics in this course will vary from semester to semester, depending on faculty availability and student interest.

Nature of Course: The normal offering will be three, one hour lectures plus one hour of tutorial per week.

Prerequisites (or special instructions): To be announced in the Course Timetable and Registration Instructions.

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? One to two times per year

Semester in which the course will first be offered? 1995-3 or 1996-1

Which of your present faculty would be available to make the proposed offering possible? Any faculty member in the School of Kinesiology.

3. Objectives of the Course:

To provide a vehicle for offering courses on selected topics in areas not currently offered as formal courses within the undergraduate course offerings in the School of Kinesiology.

4. Budgetary and Space Requirements

What additional resources will be required in the following areas:

Faculty - none

Staff - none

Library - none

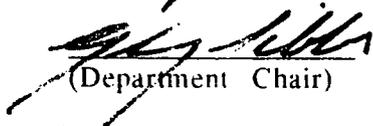
Audio Visual - none

Space - none

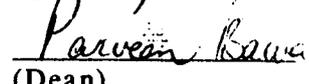
Equipment - none

5. Approval

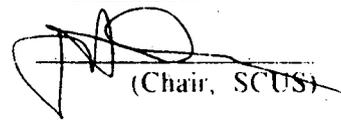
Date: 23 Sept 94


(Department Chair)

Oct 11, 1994


(Dean)

Nov 23 1994


(Chair, SCUS)

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RATIONALE FOR NEW COURSE PROPOSAL

SCHOOL OF KINESIOLOGY

KINESIOLOGY 423-3: SELECTED TOPICS IN KINESIOLOGY IV

RATIONALE:

More selected topics courses are needed in the School of Kinesiology in order to:

- pilot test new courses taught by new faculty and existing faculty
- allow adjunct professors or visiting professors to teach an upper division course related to their area of expertise
- have course numbers to be used for cross-listing courses from other departments or schools. For example, in the 96-1 semester, Gerontology 411, "Health Promotion and Aging", is going to be cross-listed with Kinesiology 421-3, "Selected Topics in Kinesiology II"

SENATE COMMITTEE ON UNDERGRADUATE STUDIES
NEW COURSE PROPOSAL FORM

1. **Calendar Information** **Department:** Kinesiology

Abbreviation Code: KIN **Course #:** 424 **Credit Hrs:** 3 **Vector:** 3-1-0

Title of Course: Selected Topics in Kinesiology V

Calendar Description of Course:

Selected topics in areas not currently offered as formal courses within the undergraduate course offerings in the School of Kinesiology. The topics in this course will vary from semester to semester, depending on faculty availability and student interest.

Nature of Course: The normal offering will be three, one hour lectures plus one hour of tutorial per week.

Prerequisites (or special instructions): To be announced in the Course Timetable and Registration Instructions.

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? One to two times per year

Semester in which the course will first be offered? 1995-3 or 1996-1

Which of your present faculty would be available to make the proposed offering possible? Any faculty member in the School of Kinesiology.

3. **Objectives of the Course:**

To provide a vehicle for offering courses on selected topics in areas not currently offered as formal courses within the undergraduate course offerings in the School of Kinesiology.

4. **Budgetary and Space Requirements**

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: 23 Sept 94
[Signature]
(Department Chair)

Oct. 11, 1994
[Signature]
(Dean)

Nov. 22, 1994
[Signature]
(Chair, SCUS)

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RATIONALE FOR NEW COURSE PROPOSAL

SCHOOL OF KINESIOLOGY

KINESIOLOGY 424-3: SELECTED TOPICS IN KINESIOLOGY V

RATIONALE:

More selected topics courses are needed in the School of Kinesiology in order to:

- pilot test new courses taught by new faculty and existing faculty
- allow adjunct professors or visiting professors to teach an upper division course related to their area of expertise
- have course numbers to be used for cross-listing courses from other departments or schools. For example, in the 96-1 semester, Gerontology 411, "Health Promotion and Aging", is going to be cross-listed with Kinesiology 421-3, "Selected Topics in Kinesiology II"