SIMON FRASER UNIVERSITY

OFFICE OF THE VICE-PRESIDENT, ACADEMIC

MEMORANDUM

To: Senate

From: D. Gagan
Chair, Senate Committee on Academic Planning

Subject: Faculty of Business Administration -
Curriculum Revisions

Date: April 11, 1996

Action undertaken by the Senate Committee on Academic Planning on April 3, 1996 gives rise to the following motion:

Motion:

"that Senate approve and recommend to the Board of Governors as set forth in S.96 - 39 , the following curriculum revisions in the Faculty of Business Administration

New course: BUS 440-4 Simulation in Management Decision Making
Management Science area - Change in Concentration requirements
Change in Core requirements

Acting under delegated authority of Senate, SCUS has approved the following request as detailed in SCUS 95 - 13:

Change in credit hours and vectors - BUS 473
Change in prerequisites - BUS 468-3
Deletion of BUS 360 as corequisite requirement for all BUS 400 courses

MEMORANDUM

August 10, 1995

TO: W. R. Heath, Secretary
Senate Committee on Undergraduate Studies
FROM: Robert Rogow, Undergraduate Program Director
Faculty of Business Administration
SUBJECT: Proposed Calendar changes

The Faculty of Business Administration requests consideration by SCUS of the following proposed changes in the Business Administration section of the 1996-1997 Calendar. Would you please include them in the agenda for a Fall SCUS meeting?

Library approval and overlap approval from other Faculties have been requested.

(A) Changes in the MANAGEMENT SCIENCE Area:

[1] New Course Proposal:

BUS 440-4 SIMULATION IN MANAGEMENT DECISION MAKING

Calendar Description:
Development and use of simulation models as an aid in making complex managment decisions. Hands on use of business related tools for computer simulation. Issues related to the design and validation of simulation models, the assesssment of input data, and the interpretation and use of simulation output. Prerequisites: BUS 336, BUEC 333, 60 credit hours.

Rationale:
The simulation of business systems has developed into one of the most powerful and widely used tools availabe for the analysis of management decisions. Further, recent developments in computer software have made simulation accessible to the non-specialist. At present our students receive only a very limited exposure to simulation in BUS 336, with some additional material being available in BUS 437 and BUS 462. In addition to forming part of the Management Science concentration, we expect that this course will be of substantial interest to students in related areas such as Management Information Systems, Finance, Marketing, and Accountng.

Attached are a New Course Proposal form and a proposed course outline.

[2] Change in credit hours and vectors:

BUS 473 OPERATIONS MANAGEMENT
Change hours from 5 to 4.
Change vector from 3/2/0 to 3/1/0.

Rationale:
Two changes in recent years, the shift from individual to group projects and the reduction of maximum class size to 35, have permitted the effective teaching of the course material with one fewer tutorial hour per week.

[3] Change in Concentration requirements:

FROM:

MATH 158-3 Calculus for the Social Sciences
BUS 336-4 Management Science
and three of:
ECON 331-5 Introduction to Mathematical Economics
BUEC 433-5 Forecasting in Business and Economics
BUS 437-3 Decision Analysis in Business
445-3 Analysis of Data for Management
473-5 Operations Management

TO:

BUS 336-4 Management Science
473-4 Operations Management
and two of:
BUEC 433-5 Forecasting in Business and Economics
BUS 437-3 Decision Analysis in Business
440-4 Simulation in Managment Decision Making
445-3 Analysis of Data for Managment
462-4 Management Support Systems

Rationale:
The development of new courses (for example, BUS 440 and BUS 462) that are more focussed on the professional needs of management science practitioners has reduced the need to ask students to take other courses (e.g. MATH 158 and ECON 331) that, while desirable, are less central to work in the field.The shift of BUS 473 from an optional to a compulsory status reflects the growing importance of Operations Management methods in current manufacturing practice.

(B) Change in Core requirements:

FROM: "Students must complete the 300 division core courses before their 90th credit hour unless prior permission of the Faculty is obtained."

TO: "Students must complete BUS 360 before their 75th credit hour and other 300 division core courses before their 90th credit hour unless prior permission of the Faculty is obtained."

Rationale:

The Faculty has a strong preference that newly admitted majors take BUS 360, Business Communications, as soon as possible, because its hoped-for positive effect on written and oral business communication skills will be useful in upper division coursework. The mechanism previously chosen to ensure this (making 360 a corequisite for all 400 division BUS courses) has proved awkward to administer. Students not obliged to take 360 (earlier-than-Fall 1994 admits to the Faculty, joint majors, minors, non-majors) have been unable to register for 400 division BUS courses without being individually cleared to do so by Business undergraduate advisers. Under the proposed "before 75 hours" rule, such students would not be prevented from registering for 400 division BUS courses.

(C) Change in Corequisite requirement:

Deletion of "Corequisite: BUS 360" from all BUS 400 courses is requested, as explained in "(C)" above.

SIMON FRASER UNIVERSITY
NEW COURSE PROPOSAL

Calendar Information

Course Number: BUS 440

Course Title: Simulation in Management Decision Making

Credit Hours: 4 Vector: 2/0/2

Course Description (for Calendar). Attach a course outline to this proposal.

Development and use of simulation models as an aid in making complex management decisions. Hands-on use of business related tools for computer simulation. Issues related to the design and validation of simulation models, the assessment of input data, and the interpretation and use of simulation output.

Prerequisite: BUS 336, BUEC 333, 60 credit hours

Corequisite: None

Special Instructions: None

Course(s) to be dropped if this course is approved: BUS 479-5 Business Strategies Simulation

Rationale for Introduction of this Course

Will this be a required or elective course in the curriculum; probable enrolment when offered?

Elective, Enrolment 20-35

The simulation of business systems has developed into one of the most powerful and widely used tools available for the analysis of management decisions. Further, recent developments in computer software have made simulation accessible to the non-specialist. At present our students receive only a very limited exposure to simulation in BUS 336, with some additional material being available in BUS 437 and BUS 462. In addition to forming part of the Management Science concentration, we expect that this course will be of substantial interest to students in related areas such as Marketing, Finance, Accounting, and Management Information Systems.

Scheduling and Registration Information

Indicate Semester and Year this course would be first offered and the planned frequency of offering thereafter.

97-1; Annually, (will offered in 96-1 as a Selected Topics course)

Which of your present CFL faculty have the expertise to offer this course? Will the course be taught by sessional or limited term instructors?

Love, Warburton, Choo. Use of Sessional Instructors not anticipated.

Are there any proposed student fees associated with this course other than tuition fees?

Is this course considered a "duplicate" of any current or prior course under the University's duplicate course policy? Specify.

No

Approvals

Undergraduate Program Director, FBA	Dean, FBA	Chair, SCUS
August 9, 1995	August 9, 1995	
Date	Date	Date

SIMON FRASER UNIVERSITY
NEW COURSE PROPOSAL

RESOURCES

Course Number: BUS 440

Resource Implications:

Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For instance, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering.

BUS 479 dropped. A slight decrease in frequency of offering of other Management Science courses should accomodate the once a year presentation of BUS 440.

Does this course require specialized space or equipment not readily available in the department or university, and if so, how will these resources be provided?

No.

Does this course require computing resources (e.g.: hardware, software, network wiring, use of computer laboratory space) and if so, describe how they will be provided?

$2 000 worth of software required. The Faculty of Business Administration has committed this amount. Computer lab space requirements are moderate. They can and will be provided within the Faculty of Business Administration lab facilities.

COURSE OUTLINE

BUS 440 SIMULATION IN MANAGEMENT DECISION MAKING

This topic sequencing in this outline is based directly on the book, "Simulation for Decision Making" , by Thesen and Travis. Because there will be considerable "hands on" training during the course, a variety of simulation tools will be introduced and developed as the course progresses. Using these tools, the students will complete a series of exercises and/or projects based on the following set of real and imaginary cases:

From "SIMVIEW"
- Fast Food
- Staffing Issues in Casinos
- Modeling Police Units on Patrol
- Repair and Installation of Electrical Equipment
- An Agricultural Products Model: Railway Systems
- Modeling a Bottling Plant
- Same Day Photography and Printing

Real Cases with SFU Participation
- B. C. Biomedical
- Spare Engine Inventory at CP Air

Financial Modeling Cases
- Winston Salem Development
- Some cases from the @RISK selection

1. Introduction

Simulation in management decision making
- Discrete event simulation
- Drawbacks and pitfalls of simulation

Elements of simulation modeling
- Modeling elementary random processes
- Describing dynamic behavior

Commonly used modeling packages
- Template packages
- Spreadsheets
- Simulation languages and animation
- General- purpose programming languages

Interpreting simulation data
- Performance of a single system
- Comparing designs
- Complicating Factors

2. Review of Some Simple Analytic Models

Continuous and discrete probability distributions

Inventory models

Waiting line models

3. Some Simulation Techniques

Discrete event simulations by hand

Spreadsheet Simulations
- Excel and @Risk
- Visual Basic

Template based simulation

4. Simulation Modeling with TOOL X (SIMVIEW and/or a simulation language to yet be determined)

Details of what will be covered.

5. Modeling Input Processes

Defining variables and collecting data

Identifying a suitable distribution

Testing the fit of a distribution
- goodness of fit tests

6. Working with a Single Model

Terminating simulations
- forming confidence intervals
- establishing confidence intervals of a given width

Steady State Simulations
- Minimizing the initial bias
- Gaining independence
- Selecting a method and avoiding problems

Comparing Performance to a Given Standard

Variance Reduction using Antithetic Random Variates

Verification and Validation
- Preventing potential problems
- Finding and correcting problems

7. Comparing Alternative Systems

Comparing two alternatives
- Mann-Whitney test, Student's t-test
- Variance reduction using common random numbers
- Selecting the correct technique

Comparing Several Alternatives
- Using confidence intervals
- One way analysis of variance (not covered in BUEC 333)

Factorial Designs (not covered in BUEC 333)