

S.74-54

# SIMON FRASER UNIVERSITY

## MEMORANDUM

To SENATE

From SENATE GRADUATE STUDIES COMMITTEE

Subject CHANGES IN KINESIOLOGY GRADUATE  
COURSES AND MASTERS PROGRAM

Date APRIL 16, 1974

MOTION:

"That Senate approve, as set forth in S.74-54B and summarized in S.74-54A, the changes in the Kinesiology graduate program."

SUMMARY OF CHANGES

1. Change in regulations covering credits and courses for the M.Sc.(Kinesiology) degree.

2. (a) Retain

- Kines.805-3 - Special Topics, but add description
- Kines.898 - M.Sc.(Kinesiology) Thesis

(b) Discontinue

- Kines.803-3 - Seminar Kinesiology I
- Kines.806-3 - Anatomical, Physiological and Mechanical Aspects
- Kines.807-3 - Psycho-Social, Cultural and Development Aspects
- Kines.811-3 - Special Topics - Anatomy
- Kines.812-3 - Special Topics - Anthropometry
- Kines.813-3 - Special Topics - Biomechanics
- Kines.814-3 - Special Topics - Cultural Aspects
- Kines.815-3 - Special Topics - Exercise Biochemistry
- Kines.816-3 - Special Topics - Exercise Physiology
- Kines.817-3 - Special Topics - Learning and Motor Performance
- Kines.818-3 - Special Topics - Sports Medicine

and Substitute

- Kines.820-5 - Human Physiological Systems I
- Kines.825-3 - Seminar - Learning and Motor Development
- Kines.830-3 - Functional Human Anatomy
- Kines.835-3 - Kinanthropometry and Human Development
- Kines.840-3 - Gross Body Mechanics
- Kines.850-3 - Selected Topics in Mammalian Bioenergetics
- Kines.860-5 - Human Physiological Systems II
- Kines.865-3 - Neural Control of Movement
- Kines.870-3 - Human Systems Modelling
- Kines.875-3 - Histo-physiology
- Kines.880-3 - Internal Biomechanics
- Kines.885-3 - Seminar on Man-Machine Systems
- Kines.890-3 - Engineering Aspects of Human Function

S.74-54B

AS AMENDED AND APPROVED  
BY SGSC FEB.12, 1973  
AND APR.8, 1974.

THE ACADEMIC PLANNING  
COMMITTEE HAS RULED THAT  
THESE CHANGES DO NOT  
CONSTITUTE THE FORMATION  
OF A NEW PROGRAM.

KINESIOLOGY GRADUATE COURSE PROPOSAL

PROPOSED CHANGES IN KINESIOLOGY GRADUATE COURSE OFFERINGS

RATIONALE

The revisions to the graduate program which are proposed are designed so that a student can specialize in an area of interest more than is possible under the present system, yet which will provide a program of sufficient flexibility to allow in depth studies in adjacent areas of interest. This proposal therefore, represents a more structured approach in terms of subject matter, but allows more freedom for the graduate student in planning his or her education.

The graduate offerings have been expanded slightly to take advantage of special competencies of the faculty in Kinesiology. Up to the present time, most of the graduate students in the department have taken the human physiology course offered by the Faculty of Medicine at U.B.C. This is no longer possible, due to the increased intake of Medical students. However, the planned Physiology courses, if implemented, will replace this and will result in considerable convenience to students with consequent benefits to the University through the retention of these students on campus. Otherwise, the contents of the proposed courses represents material currently taught under the special topics courses now available. The additional courses proposed will not cause an increase in the total number of courses offered over a given period of time, since, in general, a special topics course that would otherwise be taught in that period, would not be offered.

A significant increase in our graduate student enrollment has already resulted in an increase in the frequency with which existing courses are offered. The proposed repacking of content may in fact decrease the total course offerings by enabling us to offer formally a specified course content at a given time. Graduate students can thus plan in advance to receive certain material together in a group and classes will be larger, but will be taught less frequently. At the same time, students will receive recognition on their transcripts for having gained competence in the areas specified explicitly in the course titles.

PRIORITIES

The human physiology courses represent the most urgent of the changes, and should substantial delay in approving this proposal seem likely, we request as an interim measure, the following change in the graduate calendar:

Substitute:

Study Program and Courses

The minimum requirements for M.Sc. (Kinesiology) are 18 semester hours of graduate courses and a thesis. At least 9 credit hours will be selected from the graduate course offerings\* in Kinesiology. These and courses in ancilliary areas will be chosen in consultation with the candidate's supervisory committee. For further information and regulations, refer to General Regulations section, pages XX to XX.

\* Insert →  
For:

Study Program and Courses

The minimum requirements for M.Sc. (Kinesiology) degree are 18 semester hours of graduate courses and a thesis.

Two courses offered by the Department are required:

Kines. 806-3 Anatomical, Physiological and Mechanical Aspects.

Kines. 807-3 Psycho-Social, Cultural and Development Aspects.

Under the direction of the candidate's supervising committee, the balance of the 18 course hour requirement may be made up of:

Kines. 803-3 Seminar Kinesiology (when it is offered)

and one of:

Kines. 805-3 Special Topics

or  
Kines. 811-3 to 818-3

and any graduate level course offered by other departments of the University.

For further information and regulations, refer to General Regulations section, pages XX to XX.

\* Note: If the subject matter of a listed course has been previously completed with graduate credit the course may not be taken again for credit

New Graduate Course Proposal Form

CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 805-3

Title: Special Topics

Description: Seminar opportunity to develop under a faculty supervisor special interests in some considerable depth.

Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

JUSTIFICATION:

See general rationale

RESOURCES:

Which Faculty member will normally teach the course: Faculty

What are the budgetary implications of mounting the course: No additional expense

See rationale

Are there sufficient Library resources (append details): Yes, see librarian's report

- Appended: a) Outline of the Course
- b) An indication of the competence of the Faculty member to give the course.
- c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Date: \_\_\_\_\_

1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 820-5

Title: Human Physiological Systems I

Description: A detailed study of the principles of human cardiovascular and respiratory physiology, including biophysical aspects of body fluids and the musculo-skeletal systems. Renal physiology and the homeostatic functions of the kidney.

Credit Hours: 5 Vector: 3-0-6 Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 10 When will the course first be offered: When approved

How often will the course be offered: Annually

3. JUSTIFICATION:

See general rationale.

4. RESOURCES:

Which Faculty member will normally teach the course: E. Banister, G. Bhakthan, A. Davison, T. Calvert

What are the budgetary implications of mounting the course: No additional expense.

See rationale.

Are there sufficient Library resources (append details): Yes, see librarians report

- Appended: a) Outline of the Course
- b) An indication of the competence of the Faculty member to give the course
- c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 820-5

*Human Physiological Systems I*

Topics of Study:

1. Together with Kines 860-5, this will comprise a two semester course equivalent in depth and content to a medical physiology course.
2. Blood, haemostatics and haemodynamics, lymphatics and body fluid compartments. Pathological aspects.
3. Principles of cardiovascular and respiratory mechanics. Clinical evaluation of function, and the nature of disease processes.



1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 825-3  
 Title: Seminar - Learning and Motor Development  
 Description: Study of selected topics from skill learning including the development of skills in children and changes in skill due to aging.  
 Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5-10 When will the course first be offered: When approved  
 How often will the course be offered: Annually subject to demand

3. JUSTIFICATION:

See general rationale

4. RESOURCES:

Which Faculty member will normally teach the course: J. Montgomery, T. Calvert  
 What are the budgetary implications of mounting the course: No additional expense, see rationale.  
 Are there sufficient Library resources (append details): Yes, see librarians report

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Faculty: \_\_\_\_\_ Date: \_\_\_\_\_  
 Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kinesiology 825-3

Seminar - Learning and Motor Development

Topics of Study:

Seminar study of skill learning and human performance including:

- 1) Skills in civilized man
- 2) Learning and Skilled Performance
- 3) Component Processes and Performance
- 4) Fatigue
- 5) Measurement of skill
- 6) Human Capacity
- 7) Ergonomics

1. CALENDAR INFORMATION:

Department: Kinesiology Course Number: 830-3  
 Title: Functional Human Anatomy  
 Description: A detailed study of how the musculo-skeletal system functions normally and how and why normal function is disturbed by trauma and disease.  
 Credit Hours: \_\_\_\_\_ Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5-10 When will the course first be offered: When approved  
 How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale

4. RESOURCES:

Which Faculty member will normally teach the course: G. Bhakthan, A. Chapman  
 What are the budgetary implications of mounting the course: No additional expense, see rationale.

Are there sufficient Library resources (append details): Yes, see librarians report

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Faculty: \_\_\_\_\_ Date: \_\_\_\_\_  
 Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_  
 Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 830-3

Functional Human Anatomy

Topics of Study:

1. The functional units of the musculo skeletal system and their associated structures.
2. Adpatations of the musculo-skeletal system to compensate a disability due to injury.
3. Development and classification of joints
4. Metabolic disorders of muscle and bone and inflamatory diseases of joints.

1. CALENDAR INFORMATION:Department: Kinesiology Course Number: 835-3Title: Kinanthropometry and Human DevelopmentDescription: To provide detailed insights into strategems and tactics in studying human size, shape, composition, proportion, maturation, gross function as related to normal and atypical growth, exercise, performance and nutrition.Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_2. ENROLLMENT AND SCHEDULING:Estimated Enrollment: 5 - 10 When will the course first be offered: When approvedHow often will the course be offered: Annually, subject to demand3. JUSTIFICATION:See general rationale4. RESOURCES:Which Faculty member will normally teach the course: Dr. W.D. RossWhat are the budgetary implications of mounting the course: No additional expensesee rationaleAre there sufficient Library resources (append details): Yes, see librarian's reportAppended: a) Outline of the Course  
b) An indication of the competence of the Faculty member to give the course  
c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 835-3

*Kinanthropometry and human development.*

*Topics of study:*

1. *Physical anthropology, anthropometry, kinanthropometry. Academic disciplines and commercial concern.*
2. *Design of cross sectional and longitudinal multi-variable studies*
3. *Theory of error applied & kinanthropometric technique.*
4. *Selected kinanthropometric techniques.*
5. *Human dimensional analysis.*
6. *Physique rating systems.*
7. *Maturation indices.*

1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 840-3

Title: Gross Body Mechanics

Description: To study in dept. the selected aspects of the application and relevance of Newtonian mechanics to human gross bodily movement. Emphasis will be in terms of quantitative measurement of forces produced in human movement and their accuracy in both prediction and modification of human activity

Credit Hours: 5 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 When will the course first be offered: 73-3

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale

4. RESOURCES:

Which Faculty member will normally teach the course: A. Chapman

What are the budgetary implications of mounting the course: No additional expense.

see rationale

Are there sufficient Library resources (append details): Yes, see librarians report

- Appended: a) Outline of the Course
- b) An indication of the competence of the Faculty member to give the course
- c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 840-3

*Gross Body Mechanics*

Topics of Study:

1. *The muscles as generators of impulse including the modification and intergration of muscular force.*
2. *The relationship between (linear and angular) forces transmitted to the floor and subsequent movements of the body.*
3. *Measurements of both impulse and movements of segments of the body and their applications to prediction of maximal and submaximal performance and modification of techniques.*



1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 850-3

Title: Selected Topics in Mammalian Bioenergetics

Description: As in title.

Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5-10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale

4. RESOURCES:

Which Faculty member will normally teach the course: A. Davison

What are the budgetary implications of mounting the course: No additional expense

~~see rationale~~

Are there sufficient Library resources (append details): Yes, see librarians report

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 850-3

*Selected Topics in Mammalian Bioenergetics*

Topics of Study:

1. *A study in detail of selected aspects of the energetics of human function, from the thermodynamics of digestive absorption or cardiovascular function to the energy metabolism of muscle or brain. Treatment will be a series of seminars covering selected areas in depth, rather than an attempt at a comprehensive overview.*

1. CALENDAR INFORMATION:

Department: KINESIOLOGY

Course Number: 860-5

Title: Human Physiological Systems II

Description: Study of the integrative and regulatory mechanisms of the human body, with an emphasis on the functioning of the endocrine and nervous systems and the interactions between them.

Credit Hours: 3

Vector: \_\_\_\_\_

Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale.

4. RESOURCES:

Which Faculty member will normally teach the course: F. Ranister, G. Bhakthan, A. Davison  
T. Calvert

What are the budgetary implications of mounting the course: No additional expense

see rationale

Are there sufficient Library resources (append details): Yes, see librarian's report

- Appended: a) Outline of the Course
- b) An indication of the competence of the Faculty member to give the course
- c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Kines. 860-5

Human Physiological Systems II

Topics of Study:

1. Positive and negative feedback in homeostatic mechanisms and the role of the endocrine system and the central nervous system.
2. Principles of reflex action and controls in the central nervous system.
3. Integrative mechanisms in the endocrine system, the autonomic nervous system, the hypothalamon/hypophysial systems, the endocrine system, and related neuroendocrine interactions.

1. CALENDAR INFORMATION:Department: Kinesiology Course Number: 805-3Title: Neural Control of MovementDescription: The elaboration of cybernetic models for skill performance which includes information processing, statistical decision making and control components. There will be an emphasis on the functional factors in the central nervous system which limit skilled performance.Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_2. ENROLLMENT AND SCHEDULING:Estimated Enrollment: 5 - 10 When will the course first be offered: When approvedHow often will the course be offered: Annually, subject to demand3. JUSTIFICATION:See general rationale.4. RESOURCES:Which Faculty member will normally teach the course: J. Montgomery, T. CalvertWhat are the budgetary implications of mounting the course: No additional expensesee rationaleAre there sufficient Library resources (append details): Yes, see librarians reportAppended: a) Outline of the Course  
b) An indication of the competence of the Faculty member to give the course  
c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

*Neural Control of Movement*

Topics of Study:

1. *Attention and physiological limits to information processing.*
2. *Information queueing and and sampling.*
3. *Statistical basis for decisions.*
4. *Closed loop and open loop control of motor output.*
5. *Automation and central programming.*

1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 870-3

Title: Human Systems Modelling

Description: Systems analysis will be applied to a variety of physiological problems. Quantitative tools will be developed and computer simulation will be introduced.

Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale

4. RESOURCES:

Which Faculty member will normally teach the course: T. Calvert

What are the budgetary implications of mounting the course: No additional expense  
see rationale

Are there sufficient Library resources (append details): Yes, see librarian's report

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

*Human Systems Modelling*

Topics of Study:

1. An introduction to the theory of feedback control systems. Analysis techniques for the frequency and time domains will be developed.
2. Analog and digital techniques for computer simulation.
3. The application of (1) and (2) to a variety of physiological systems, e.g. - respiratory, cardio-vascular, movement and posture control.



New Graduate Course Proposal Form

CALENDAR INFORMATION:

Department: Kinesiology Course Number: 875-3  
Title: Histo-physiology

Description: Histophysiology, biochemical cytology and fine structural studies of mammalian tissue with emphasis on human organ system. The course will comprise small research projects where cytochemical and fine structural techniques can be adopted to investigate the project

Credit Hours: 3 Vector: 1-0-6 Prerequisite(s) if any: K. 336  
or equivalent:

ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5-10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

JUSTIFICATION:

See general rationale

RESOURCES:

Which Faculty member will normally teach the course: N.M.G. Bhakthan

What are the budgetary implications of mounting the course: No additional expense  
see rationale

Are there sufficient Library resources (append details): Yes, see librarians report

Appended: a) Outline of the Course  
b) An indication of the competence of the Faculty member to give the course.  
c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_

Kinesiology 875-3

Histo-physiology

Topics of Study:

1. *Histophysiology, biochemical cytology and fine structural studies of mammalian tissues.*
2. *Emphasis on human organ system*
3. *Research projects where cytochemical and fine structural techniques can be adopted to investigate the projects.*

New Graduate Course Proposal Form

Form GS.8

1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 880-3

Title: Internal Biomechanics.

Description: To relate the laws of mechanics to the function and structure of tissues and systems of the human body. Emphasis will be in relation to internal events occurring in normal and abnormal human states.

Credit Hours: 3 Vector: 2-1-3 Prerequisite(s) if any: K. 402

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: when approved

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale.

4. RESOURCES:

Which Faculty member will normally teach the course: A. Chapman

What are the budgetary implications of mounting the course: No additional expense

see rationale

Are there sufficient Library resources (append details): Yes, see librarian's report

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

*Internal Biomechanics*

Topics of Study:

1. *The mechanics of muscular contraction as applied to forces induced in joints (joint surfaces, tendons, ligaments, etc.) hydrodynamics of synovial fluid.*
2. *The nature and consequences of internal stresses imposed upon structures by external forces.*
3. *The effects upon 1 and 2 of exercise and therapy, and the modifications occurring in 1 and 2 as a result of abnormal states.*
4. *The design of prostheses in relation to the mechanical modelling of internal events.*

1. CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 885-3

Title: Seminar on Man-Machine Systems.

Description: A study of the principles involved in integrating human capabilities into complex machine systems.

Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: When approved

How often will the course be offered: Annually, subject to demand

3. JUSTIFICATION:

See general rationale.

4. RESOURCES:

Which Faculty member will normally teach the course: Team: Calvert, Chapman, Davison, Montgomery, Ross

What are the budgetary implications of mounting the course: No additional expense  
see rationale

Are there sufficient Library resources (append details): Yes, see librarian's report

- Appended: a) Outline of the Course
- b) An indication of the competence of the Faculty member to give the course
- c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Senate: \_\_\_\_\_ Date: \_\_\_\_\_

Seminar on Man-Machine Systems.

Topics of Study:

1. The definition of human capabilities for sensory information processing, control and energy utilization.
2. The study of elements at the interface between man and machine - displays, control devices; the mechanical definition of tasks and the design of working environments.
3. The integration of man in complex systems.

New Graduate Course Proposal Form

CALENDAR INFORMATION:

Department: KINESIOLOGY Course Number: 890-3

Title: Engineering Aspects of Human Function

Description: The application of engineering principles to the study of normal and abnormal human function.

Credit Hours: 3 Vector: \_\_\_\_\_ Prerequisite(s) if any: \_\_\_\_\_

ENROLLMENT AND SCHEDULING:

Estimated Enrollment: 5 - 10 When will the course first be offered: When approved

How often will the course be offered: \_\_\_\_\_

JUSTIFICATION:

To strengthen the department course offerings in the area of rehabilitation and mechanical aspects of Kinesiology, and to give students an insight into clinical and environmental problems of abnormal human function.

RESOURCES:

Which Faculty member will normally teach the course: New

What are the budgetary implications of mounting the course: Preparation of course material and teaching aids

Are there sufficient Library resources (append details): \_\_\_\_\_

- Appended:
- a) Outline of the Course
  - b) An indication of the competence of the Faculty member to give the course.
  - c) Library resources

Approved: Departmental Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Graduate Studies Committee: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_

Engineering Aspects of Human Function

Topics of Study:

1. Bio-Engineering analysis of locomotion: three dimensional analysis of dynamic force systems; forces transmitted by joints, muscles and ligaments; power requirements of normal activity; problems in abnormal human function.
2. Mechanics of the spine.
3. Lubrication of load bearing joints
4. Dynamic characteristics of the human body.
5. Clinical and biomechanical aspects of current prosthetic practise: function of external limb prostheses and orthopaedic implants; problems in prosthetic design.
6. Cardio-respiratory function: mechanics of lung function; dynamics of respiratory gas flow; hemodynamics; function and design of artificial organs.

Library Resources:

There are a number of books available at present in the library on:

Bio Engineering - various aspects  
Biomechanics and Kinesiology  
Cardio-Respiratory function

Estimate purchase of further 12 books approximately for course.

Journals:

Library holds:

Bone and Joint Surgery  
Journal of Biomechanics  
BioMedical Engineering  
plus 1 or 2 others in general area.



Kines. 890-3

*Engineering Aspects of Human Function*

Teaching Resources:

*Replacement staff member: background in Engineering and Physiology/Medicine*

*(Plus: Cooperation from U.B.C. Faculty and Hospitals)*