

S.94-21

**SIMON FRASER UNIVERSITY
OFFICE OF THE VICE-PRESIDENT, ACADEMIC
MEMORANDUM**

To: Senate
From: J. M. Munro, Chair
Senate Committee on Academic Planning
Subject: Department of Mathematics and Statistics - New course
Date: February 17, 1994

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

Motion:

"That Senate approve and recommend approval to the Board of Governors, as set forth in S.94 - 21 the proposed new course:

MATH 339 - 3 Groups and Symmetry"

J. M. Munro

SIMON FRASER UNIVERSITY

Registrar and Secretary of the Senate

MEMORANDUM

To: SCAP From: J. Osborne, Chair
SCUS

Subject: Department of Mathematics and Statistics - New course Date: February 4, 1994

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

Motion:

"That SCAP approve and recommend approval to SCAP the proposed new course:

MATH 339 - 3 Groups and Symmetry"

(Note: Through no fault of the Department of Mathematics and Statistics this course proposal - really dated April 1993 - was not considered last Fall.)

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SENATE COMMITTEE ON UNDERGRADUATE STUDIES
COURSE PROPOSAL FORM

1. Calendar Information

Department: Mathematics and Statistics

Abbreviation Code: MATH Course Number: 339

Credit Hours: 3

Vector: 3-1-0

Title of Course: Groups and Symmetry

Calendar Description of Course: Symmetries, groups, subgroups and generators, isomorphisms, dihedral groups, matrix groups, products, Cayley's Theorem, Lagrange's Theorem and Cauchy's Theorem.

Nature of Course: Lecture

Prerequisites (or special instructions) : MATH 232

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

2. Scheduling

How frequently will the course be offered? Once a year

Semester in which the course will first be offered? Fall 1993

Which of your present faculty would be available to make the proposed offering possible: L. Berggren, H. Gerber, L. Goddyn, N. Reilly.

3. Objectives of the Course To help students develop a feeling for the strong relationship between groups and symmetries as well as to give them a good introduction to algebraic systems.

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

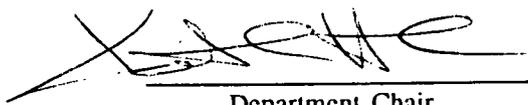
Equipment - None

5. Approval

Date:

26 Nov, 92

8 April 93



Department Chair



Dean

Chair, SCUS

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

New Course Proposal

MATH 339-3

GROUPS AND SYMMETRY

Course Description:

The theme of the course is that groups measure symmetry. The course is concerned with introducing the students to the elementary properties of groups with an emphasis on examples and the symmetry groups of solids and patterns. Topics include the symmetries of geometric figures and solids such as the regular polygons and the regular tetrahedrons, dihedral groups, subgroups, generators, matrix groups, symmetry groups, Cayley's theorem, isomorphisms, products of groups, Lagrange's theorem, partitions, and Cauchy's theorem.

Rationale for offering the course

Many students over the years have found it difficult to bridge the gap between MATH 232-3 Elementary Linear Algebra and the senior level courses MATH 438-3 Linear Algebra and MATH 439-3 Introduction to Algebraic Systems. The new MATH 339-3 would ease the student's passage to these senior level courses. MATH 339-3 will not be listed as a prerequisite to either MATH 438-3 or MATH 439-3, since there are students who can successfully take these courses with just MATH 232-3 as a prerequisite.

The new MATH 339-3 serves other purposes as well. The course is attractive to chemistry and physics students since it introduces the concepts of symmetries and groups without all the formal structure given in MATH 439-3. Furthermore, the course is useful for students who intend to become teachers of mathematics. In fact, there were two chemistry majors, one physics major and three students intending to become teachers in the experimental offering of this course as MATH 398-3 in 92-3.

SIMON FRASER UNIVERSITY
W.A.C. BENNETT LIBRARY
MEMORANDUM

To: **Harvey Gerber**
Mathematics & Statistics

From: Sharon Thomas
Head, Collections

Subject: MATH 339-3

Date: Jan 26 1994

cc: Judith Osborne, Chair, SCUS

The proposed new course:

MATH 339-3 Groups and Symmetry

has already been offered twice as a special topics course and the anticipated enrolment is 15-25 students. In addition, I understand that the course is taught entirely from a textbook which each student will be required to buy.

Since the Library already owns two copies of the text, **no additional resources are required.**

Sharon Thomas