

S.87-62

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Senate

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

Subject: Faculty of Science
Department of Chemistry
Reference SCUS 87-16, SCAP 87-26

Date: November 19, 1987

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

Motion: that Senate approve and recommend approval to the Board of Governors as set forth in S.87-62

New courses	CHEM 450-3 CHEM 459-3	Mechanistic Organic Chemistry Special Topics in Organic Chemistry
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Deletion of	CHEM 453-3 CHEM 458-3	Stereochemistry Physical Organic Chemistry
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FOR INFORMATION

Acting under delegated authority, SCUS approved the following calendar changes as set out in S.87-62:

- change of description and prerequisite for CHEM 251-3
- change of description for CHEM 252-3
- change of prerequisite for CHEM 256-2 and CHEM 455-3

SIMON FRASER UNIVERSITY

MEMORANDUM

To.....	Department Undergraduate Studies Committee	from.....	The Organic Chemists
.....	Department of Chemistry	Department of Chemistry
.....	Proposed Changes in Chemistry
Subject.....	Organic Undergraduate Courses	Date.....	September 25, 1986 WP File: c5968a; dc04

We suggest changes to the Chemistry undergraduate courses, in the area of organic chemistry, as detailed below.

<u>Delete</u>	CHEM 453-3	(Stereochemistry)
	CHEM 458-3	(Physical Organic Chemistry)
<u>Add</u>	CHEM 450-3	(Mechanistic Organic Chemistry)
	CHEM 459-3	(Special Topics in Organic Chemistry)

It is proposed that the organic undergraduate courses consist of 251, 252, 256, 356, 357, 450, 455, and 459. Special Topics courses are to include Theoretical Organic Chemistry, Carbohydrate Chemistry, Photo-Organic Chemistry and Bio-Organic Chemistry.

Note: Minor changes to calendar descriptions for other courses.

Scheduling

CHEM 450-3 and 455-3 will be offered regularly in the Fall or Spring. They will serve as advanced foundation courses for students in organic chemistry. CHEM 459 will be offered regularly, in organized fashion to suit demand.

Rationale for the Change

1. The new course, 450, fulfills the need for a foundation course in which the principles of structure, mechanism, and chemical reactivity in organic chemistry can be presented in a cohesive manner. Developments in the fields of Stereochemistry and Physical Organic Chemistry have led to much overlap in the two areas.
2. The deletion of the old courses, 453 and 458, would avoid duplication of material presented in the new course 450. In addition, much of the material presented in CHEM 458 (Physical Organic Chemistry) will now be covered in the new course, CHEM 363. (Kinetics and Mechanism).
3. The Special Topics Course, 459, will permit a student to expand his knowledge in specialized areas of organic chemistry and will lead to a richer program in this field of chemistry. This course also allows flexibility in the organic teaching.
4. CHEM 455-3 fulfills the need for a foundation course in which the principles of organic synthesis can be discussed, and will be retained.


B.M. Pinto

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Chemistry

Abbreviation Code: CHEM Course Number: 450 Credit Hours: 3 Vector: 3-1-0

Title of Course: Mechanistic Organic Chemistry

Calendar Desc.: A study of the structure, stereochemistry and conformation of molecules and their effect on the reactivity of organic molecules. The physical basis of organic chemistry.

Nature of Course: Lecture

Prerequisites/Special Instructions: CHEM 261, 357

Recommended: CHEM 363

What course (courses), if any, is being dropped from the calendar if this course is approved: CHEM 453-3, 458-3

2. Scheduling

How frequently will the course be offered: Each Fall or Spring Semester

Semester in which the course will first be offered: 88-1

Which of your present faculty would be available to make the proposed offering possible? Drs. Pinto or Chow

3. Objectives of the Course

This course will provide a broad base in organic chemistry. In particular, the physical basis of organic chemistry and the relationship between chemical reactivity and structure, stereochemistry and conformation of molecules will be emphasized.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

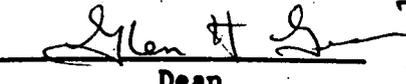
Faculty - None
Staff - None
Library - None
Audio Visual - None
Space - None
Equipment - None

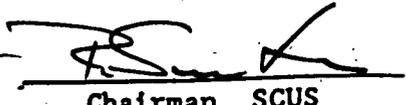
5. Approval

Date: November 7, 1985

MAR 17 1987


Acting Department Chairman


Dean


Chairman, SCUS

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

Chemistry 450-3

Mechanistic Organic Chemistry

Instructor: Drs. Pinto or Chow

Course Description: A study of the structure, stereochemistry and conformation of molecules and their effect on the reactivity of organic molecules. The physical basis of organic chemistry.

Topics included:

1. Molecular Properties
2. Stereochemistry and Conformation
3. Experimental and Theoretical Approaches to Conformational Analysis
4. Energetics and Kinetics of Reactions
5. Use and Misuse of Energy Profiles
6. Investigation of Reaction Mechanisms
7. Structure - Reactivity Relationships
8. Conformation - Reactivity Relationships
9. Solvent Effects and Isotope Effects
10. Catalysis

Text: "Advanced Organic Chemistry" Pf. A. Carey and Sundberg, Plenum Press, 1984.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Chemistry

Abbreviation Code: CHEM Course Number: 459 Credit Hours: 3 Vector: 3-1-0

Title of Course: Special Topics in Organic Chemistry

Calendar Desc.: An advanced, in-depth treatment of a specialized area of organic chemistry.

Nature of Course: Lecture

Prerequisites/Special Instructions: CHEM 357 or permission of the instructor.

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

2. Scheduling

How frequently will the course be offered: Once a year

Semester in which the course will first be offered: 88-1

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

Drs. Chow, Oehlschlager,
Pinto, Kiehlmann or
Slessor

3. Objectives of the Course

This course will allow the student who wishes to specialize in organic chemistry to develop an in-depth knowledge of a specialized area of organic chemistry.

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: November 7, 1986

MAR 17 1987

R. Korteberg
Acting Department Chairman

Alan H. [Signature]
Dean

[Signature]
Chairman, SCUS

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

FOR INFORMATION

CURRENT AND PROPOSED CALENDAR ENTRIES

Current	Proposed
<p>CHEM 251-3 Organic Chemistry I</p> <p>General physical and chemical properties of simple aliphatic and aromatic compounds, including hydrocarbons, alkyl halides, alcohols, ethers, carboxylic acids, aldehydes and ketones. Consideration of free radical and ionic reaction mechanisms; simple spectroscopy. <u>Prerequisite: CHEM 105</u>; CHEM 256 should be taken concurrently. (3-1-0)</p>	<p>CHEM 251-3 Organic Chemistry I</p> <p>General physical and chemical properties of simple aliphatic and aromatic compounds, including hydrocarbons, alkyl halides, alcohols, ethers, carboxylic acids, aldehydes and ketones. Consideration of free radical and ionic reaction mechanisms. <u>Prerequisite: CHEM 103 or 105</u>; CHEM 256 should be taken concurrently. (3-1-0)</p>
<p>CHEM 252-3 Organic Chemistry II</p> <p>Discussion of polyfunctional organic compounds and complex organic reactions. <u>Prerequisite: CHEM 251</u> (3-1-0)</p>	<p>CHEM 252-3 Organic Chemistry II</p> <p>Discussion of polyfunctional organic compounds and complex organic reactions; simple spectroscopy. <u>Prerequisite: CHEM 251</u> (3-1-0)</p>
<p>CHEM 256-2 Organic Chemistry Lab I</p> <p>Laboratory preparation and characterization of simple organic compounds. <u>Prerequisite: CHEM 115</u>; CHEM 118 is recommended. Corequisite: CHEM 251 (0-0-4)</p>	<p>CHEM 256-2 Organic Chemistry Lab I</p> <p>Laboratory preparation and characterization of simple organic compounds. <u>Prerequisite: CHEM 115</u>. Recommended: CHEM 118 or 119; Corequisite: CHEM 251 (0-0-4)</p>
<p>CHEM 356-2 Organic Chemistry Lab II</p> <p>The use of modern techniques in organic chemistry. <u>Prerequisite: CHEM 256</u>; CHEM 252 should precede or be taken concurrently. (0-0-4)</p>	<p>CHEM 356-2 Organic Chemistry Lab II</p> <p>The use of modern techniques in organic chemistry. <u>Prerequisite: CHEM 256</u>; CHEM 252 must precede or be taken concurrently. (0-0-4)</p>
<p>CHEM 357-3 Chemical and Instrumental Methods of Identification of Organic Compounds</p> <p>Basic principles of infrared, ultraviolet, nuclear magnetic resonance and mass spectroscopy as applied to the identification of organic compounds. <u>Prerequisites: CHEM 252, 356</u> (2-0-4)</p>	<p>CHEM 357-3 Chemical and Instrumental Methods of Identification of Organic Compounds</p> <p>Basic principles of infrared, ultraviolet, nuclear magnetic resonance and mass spectroscopy as applied to the identification of organic compounds. <u>Prerequisites: CHEM 252, 356</u> (2-0-4)</p>
<p>CHEM 453-3 Stereochemistry</p> <p>A study of the structure and shape of organic molecules with special reference to the spectral and kinetic methods applied in such studies. <u>Prerequisite: CHEM 357</u> (3-1-0)</p>	<p>CHEM 450-3 Mechanistic Organic Chemistry</p> <p>A study of the structure, stereochemistry, and conformation of molecules and their effect on reactivity. The physical basis of organic chemistry. <u>Prerequisites: CHEM 261, 357</u>; Recommended: CHEM 363 (3-1-0)</p>

FOR INFORMATION

CHEM 455-3 Organic Synthesis

This course teaches the principles involved in the planning and execution of the synthesis of organic molecules. Emphasis is on synthesis of naturally occurring compounds of biological importance.

Prerequisites: CHEM 252, 356 (3-1-0)

CHEM 458-3 Physical Organic Chemistry

This course teaches the principles involved in the determination of the mechanisms of reaction of organic molecules.

Prerequisites: CHEM 261, 356 (3-1-0)

CHEM 455-3 Organic Synthesis

This course teaches the principles involved in the planning and execution of the synthesis of organic molecules. Emphasis is on synthesis of naturally occurring compounds of biological importance.

Prerequisites: CHEM 357 or permission of the instructor. (3-1-0)

CHEM 459-3 Special Topics in Organic Chemistry

An advanced, in-depth treatment of specialized area of organic chemistry.

Prerequisites: CHEM 357 or permission of the instructor. (3-1-0)