

S.73-152

SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject FACULTY OF SCIENCE - DEPARTMENT OF  
MATHEMATICS - CHANGES IN PREREQUISITES,  
COURSE DESCRIPTIONS

Date NOVEMBER 15, 1973

MOTION 1: "That Senate approve, as set forth in S.73-152, for MATH 101-3  
the change in prerequisite

From: 'Students who have obtained credit for Economics 332-3 (formerly  
235-3) cannot receive credit for Mathematics 101-3. Students who  
have credit for Mathematics 371-3 may not take Mathematics 101-3  
for credit.'

To: 'Students should have a reasonable degree of facility with the  
algebraic techniques covered up to and including B.C. High School  
grade 11. Students who have obtained credit for Economics 332-3  
(formerly 235-3) cannot receive credit for Mathematics 101-3.  
Students who have credit for Mathematics 371-3 may not take  
Mathematics 101-3 for credit.'"

MOTION 2: "That Senate approve, as set forth in S.73-152, for MATH 142-2  
the change in prerequisite

From: 'Mathematics 141-2 or 151-3'

To: 'Mathematics 141-2 or 151-3. Students who have obtained credit  
for Mathematics 241-2 cannot subsequently receive credit for  
Mathematics 142-2.'"

MOTION 3: "That Senate approve, as set forth in S.73-152, for MATH 151-3  
the change in description

From: 'Real numbers, relations, functions and graphs. Limits and

continuity. The derivative and techniques of differentiation. The trigonometric functions. Extrema, the mean value theorem and applications.'

To: 'Real numbers, functions and graphs, conic sections, limits and continuity, derivatives, techniques and applications of differentiation, trigonometric functions, logarithms and exponentials, extrema, the mean value theorem.'"

MOTION 4: "That Senate approve, as set forth in S.73-152, for MATH 152-3 the change in description

From: 'Conic sections. Definite and indefinite integrals. Techniques and applications of integration. Polar coordinates."

To: 'Integrals, techniques and applications of integration, approximations, sequences and series.'"

MOTION 5: "That Senate approve, as set forth in S.73-152, for MATH 190-3 the addition of the statement,

'Those students who have received credit for MATH 150-3 or MATH 151-3 and those who are Mathematics majors or honors cannot take this course for credit.'"

MOTION 6: "That Senate approve, as set forth in S.73-152, for MATH 253-4 the change in description

From: 'Sequences and series. Conditional, absolute and uniform convergence. Differentiation and integration of series. Vector calculus. Analytic geometry in three dimensions. Functions of several variables, multiple and line integrals, partial derivatives.'

- To: 'Vectors, solid analytic geometry, polar coordinates, curves in space, differentiation of functions of two variables, multiple integrals, line integrals, functions of several variables.'
- MOTION 7: "That Senate approve, as set forth in S.73-152, for MATH 311-4 the change in prerequisite
- From: 'Mathematics 253-4 (formerly 251-3). Students who have obtained credit for Mathematics 411-4 cannot obtain credit for Mathematics 311-4.'
- To: 'Mathematics 253-4. Mathematics 241-2 is highly recommended. Students who have obtained credit for Mathematics 411-4 cannot receive credit for Mathematics 311-4.'
- MOTION 8: "That Senate approve, as set forth in S.73-152, for MATH 412-4 the change in prerequisite
- From: 'Mathematics 232-3 and 253-4 (formerly 251-3) and 352-2.'
- To: 'Mathematics 232-2 and 253-4 and 352-2. Mathematics 311-4 is highly recommended.'
- MOTION 9: "That Senate approve, as set forth in S.73-152, for MATH 413-4 the change in prerequisite
- From: 'Mathematics 352-2.'
- To: 'Mathematics 352-2. Mathematics 311-4 is highly recommended.'
- MOTION 10: "That Senate approve, as set forth in S.73-152, for MATH 421-4 the change in prerequisite
- From: 'Mathematics 241-2 (with special permission 241-2 and 421-4 can be taken concurrently by persons who have at least fifth level

standing).'

To: 'Mathematics 241-2. Mathematics 311-4 is highly recommended.'"

MOTION 11: "That Senate approve, as set forth in S.73-152, for MATH 441-4  
the change in prerequisite

From: 'Mathematics 152-3 and 241-2.'

To: Mathematics 241-2. Mathematics 421-4 is highly recommended.'"

MOTION 12: "That Senate approve, as set forth in S.73-152, for MATH 467-3  
the change in prerequisite

From: 'Mathematics 161-3 and 352-2, and preferably Mathematics 361-3.'

To: 'Mathematics 161-3 and 352-2. Mathematics 311-4 and 361-3 are  
highly recommended.'"

S.73-152

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**MEMORANDUM**

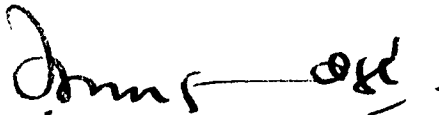
To SENATE

From SENATE COMMITTEE ON  
UNDERGRADUATE STUDIES

Subject FACULTY OF SCIENCE - DEPARTMENT OF  
MATHEMATICS - CHANGES IN PREREQUISITES,  
COURSE DESCRIPTIONS

Date NOVEMBER 14, 1973.

On the recommendation of the Faculty of Science, the Senate Committee on Undergraduate Studies has approved changes, - as set forth in SCUS 73-45III - for the Department of Mathematics in prerequisites and course descriptions, and recommends approval to Senate.



I. Mugridge

HME:jb

# DEPARTMENT OF MATHEMATICS

SCUS 73-45

1973-74 CALENDAR

PROPOSED CHANGES 1974-75

REMARKS

Page 273

101-3 Introduction to Statistics,

An introductory course in random variables and their distribution, estimating and hypothesis testing. (3-0-1)

Students who have obtained credit for Economics 332-3 (formerly 235-3) cannot receive credit for Mathematics 101-3. Students who have credit for Mathematics 371-3 may not take Mathematics 101-3 for credit.

ADD: the following to the prerequisite statement:

"Students should have a reasonable degree of facility with the algebraic techniques covered up to and including B.C. High School grade 11. Students who have obtained credit for ... take Mathematics 101-3 for credit."

The fact that the calendar indicates no prerequisite for Math 101-3 has been found to be misleading for some students. The inclusion of this statement will hopefully provide more information to students who wish to take this course.

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142-2 Pure Mathematics II

An elementary axiomatic treatment of the real number system as a complete ordered field. Limits of real sequences and real functions. (2-1-0)

Prerequisite: Mathematics 141-2 or 151-3

ADD the following to the prerequisite statement:

"Students who have obtained credit for Mathematics 141-2 cannot receive credit for Mathematics 142-2."

Last year the textbooks and syllabuses were changed for this course and for Math 241-2. As a result of these changes some of the material in 241-2 is introduced in more basic manner in 142-2. Therefore, students who have successfully completed the higher level course should not be able to receive credit for the lower level one.

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151-3 Calculus I

Real numbers, relations, functions and graphs. Limits and continuity. The derivative and techniques of differentiation. The trigonometric functions. Extrema, the mean value theorem and applications. (3-1-0)

CHANGE the course description for Math 151-3 to read as follows:

"Real numbers, functions and graphs, conic sections, limits and continuity, derivatives, techniques and applications of differentiation, trigonometric functions, logarithms and exponentials, extrema, the mean value theorem"

The new edition of the textbook previously used for the calculus course proved to be unsatisfactory. (The first edition was out of print. As a result, the adoption of a new textbook necessitated slight changes in the syllabuses and calendar descriptions for Math 151-3, 152-3, and 253-4.

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152-3 Calculus II

Conic sections. Definite and indefinite integrals. Techniques and applications of integration. Polar co-ordinates. (3-1-0)

CHANGE the course description for Math 152-3 to read as follows:

"Integrals, techniques and applications of integration, approximations, sequences and series."

As for Math 151 above

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190-3 Principles of Mathematics for Teachers

An examination of mathematical concepts taught in schools in British Columbia. Emphasis will be on the topics taught in grades 1-8. (3-1-0)

Immediately following the entry for Math 190-3, ADD:

"Those students who have received credit for Math 150-3 or Math 151-3 and those who are Mathematics majors or honors cannot take this course for credit."

Since Math 190-3 is a "content" course rather than a methods course, it is necessary to place this restriction on it so that it can be more useful as a service course for Education students.

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253-4 Calculus III

Sequences and series. Conditional, absolute and uniform convergence. Differentiation and integration of series. Vector calculus. Analytic geometry in three dimensions. Functions of several variables, multiple and line integrals, partial derivatives. (4-1-0)

CHANGE the description for Math 253-4 to read as follows:

"Vectors, solid analytic geometry, polar coordinates, curves in space, differentiation of functions of two variables, multiple integrals, line integrals, functions of several variables."

As for Math 151 above.

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311-4 Methods I

Topics in advanced calculus including further study of functions of several variables, multiple integrals, infinite series, improper integrals, vector field theory.

Prerequisites: Mathematics 253-4 (formerly 251-3). Students who have obtained credit for Mathematics 411-4 cannot obtain credit for Mathematics 311-4.

CHANGE prerequisite to:

Prerequisites: Mathematics 253-4.

Mathematics 241-2 is highly recommended. Students who have obtained credit for Mathematics 411-4 cannot receive credit for Mathematics 311-4.

Editorial changed to delete reference to an old course number. Senate approval being sought for the reference Math 241-2.

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412-4 Methods II

Series, harmonic analysis, matrices and eigenvalue problems. Some special functions.

Prerequisites: Mathematics 232-3 and 253-4 (formerly 251-3) and 352-2

CHANGE prerequisite statement for Math 412-4 to:

Prerequisites: Mathematics 232-2 and 253-4 and 352-2. Mathematics 311-4 is highly recommended.

Editorial change to delete reference to an old course no. Although Math 311-4 is not a strict prerequisite for this course, it would be beneficial for students to have a knowledge of the material in 311-4 before attempting 412-4. For this reason 311-4 is being highly recommended as a prerequisite.

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413-4 Ordinary Differential Equations

A study of ordinary differential equations in the real domain.

Prerequisites: Mathematics 352-2

CHANGE prerequisite statement for Math 413-4 to:

Prerequisites: Mathematics 352-2. Mathematics 311-4 is highly recommended.

Although Math 311-4 is not a strict prerequisite for this course it would be useful for students to have a knowledge of the material in 311-4 before attempting 413-4. For this reason it is being highly recommended.



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421-4 Real Variable I

Sequences and series. Elementary theory of functions of a real variable. Introduction to metric spaces.

Prerequisite: Mathematics 241-2 (with special permission 241-2 and 421-4 can be taken concurrently by persons who have at least fifth level standing.)

CHANGE: prerequisite statement for Math 421-4 to:

Prerequisites: Mathematics 241-2. Mathematics 311-4 is highly recommended.

The reference to the possibility of students being able to take Math 241-2 and 421-4 concurrently, is being deleted since students are insufficiently prepared for 421-4 unless they have completed 241-2. Although 311-4 is not a strict prerequisite for 421, it is beneficial for students to have a knowledge of the material in 311-4 before attempting 421-4.

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441-4 Topology

Development of elementary theory of topological spaces.

Prerequisites: Mathematics 152-3 and 241-2.

CHANGE prerequisite statement for Math 441-4 to:

Prerequisites: Mathematics 241-2. Mathematics 421-4 is highly recommended.

The reference to Math 152-3 is being deleted since it is already a prerequisite for Math 241-2. Even though Math 421 is not a strict prerequisite for 441-4, it is beneficial for students to have knowledge of the material in 421-4 before attempting 441-4.

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467-3 Vibrations

Damped, free and forced vibrations. Systems with several degrees of freedom, linearized Lagrange's equations; normal modes. Vibrations of elastic bodies including beams, strings and membranes.

Prerequisites: Mathematics 161-3 and 352-2, and preferably Mathematics 361-3.

CHANGE prerequisite statement for Math 467-3 to:

Prerequisites: Mathematics 161-3 and 352-2. Mathematics 311-4 and 361-3 are highly recommended.

Although 311-4 is not a strict prerequisite for this course, it is useful for students to have a knowledge of the material in 311-4 before attempting 467-3.