Mathematics (MATH) 492

Special Study I (Revision 1)

Delivery mode:	Individualized study online 🗗
Credits:	3
Area of study:	Science
Prerequisites:	Dependent upon topic (see Prerequisites section) Before being allowed to register, the student must submit an acceptable **project proposal** 🗎 to the Course Coordinator. Review the **Special Study Proposal** 🗗 section and the **sample proposals** 🗎 for more information This course requires professor approval
Precluded:	None
Challenge:	MATH 492 is not available for challenge.
Faculty:	Faculty of Science and Technology 🗗
Status:	Replaced with new revision, see the **course listing** 🗗 for the current revision ⊗

Notes:	Any student enrolled in the BSc in Applied Mathematics program is eligible to register in up to two 3-credit Special Study courses. The first of these will be given the course number MATH 492, and the second will be given the course number MATH 493.
Coordinator:	Dr. Julie Peschke

Overview

The purpose of the Special Study courses is to provide a flexible means by which students enrolled in the Bachelor of Science in Applied Mathematics program can focus on, elaborate, or broaden their understanding in an area of interest in Mathematics or Applied Mathematics that is not provided for in the formal core curriculum or elective courses of the program. Each of these courses qualifies as an elective course in the curriculum of the BSc in Applied Mathematics.

Please note that a Special Study course cannot be approved as a substitute for existing curricular offerings, even when scheduling problems occur. Further, Special Study proposals that simply replicate knowledge and skills acquired in previous courses will not be approved. However, Special Study credits can be used to go beyond existing course content and extend the skills learned in courses that the student has already completed.

Prerequisites

The student must have appropriate prerequisites for the topic they would like to pursue in their Special Study course. These prerequisites will vary on a topic-by-topic basis, and are subject to the approval of the course coordinator in conjunction with the faculty member who has agreed to be the student's supervisor.

Before registering, students must submit an acceptable project proposal (see below) to the Course Coordinator.

Supervision

In order for the proposal to be approved and the course to proceed, a faculty member with relevant expertise in the Special Study topic must be available to act as a supervisor. Details of the academic background and interests of the faculty members may be helpful in planning Special Study activity and supervision. Students who are interested in pursuing a Special Study course are advised to check faculty profiles on the **Centre for Science** ↗ and **Faculty of Science and Technology** ↗ websites.

Special Study Proposal

A Special Study course is to be initiated by a student to address learning needs that are not filled by the current mathematics curriculum. In order to explain these needs and how the student expects them to be met, each student interested in enrolling in a Special Study course must submit a one- or two-page written proposal that includes the following:

- the proposed field of study and the student's rationale for the Special Study

- a detailed list of the topics to be covered in the study, with a list of learning outcomes for each topic

- course materials

- a study plan

- an evaluation scheme that includes at least two assignments

Proposal Submission and Approval Process

The proposal is to be submitted with a cover page that includes the student's name, email address, course number (either MATH 492 or MATH 493), and the title of the proposed course, as well as other administrative information. A list and transcripts of all prerequisite courses applicable to the subject discipline that the student has

completed successfully either at AU or at other institutions must accompany the proposal.

The student must submit a draft of the study proposal to the Course Coordinator a minimum of one month before the course registration deadline. The coordinator will then review the proposal and either approve it or advise the student to develop it further under the coordinator's guidance. At this time, the Course Coordinator can help identify a suitable faculty supervisor for the course if the student has not already identified one.

The final study proposal must be submitted to the Course Coordinator prior to the course registration deadline. Approval will be contingent on the suitability of the proposal to meet senior-level mathematics course learning outcomes and the availability of an appropriate supervisor. Proposals that do not contain all specified contents (field of study, topics, learning outcomes, proposed assignments, etc.) will not be considered.

In order for the course to qualify for Special Study credits, the proposal must meet the following minimum standards:

- The study undertaken must be relevant to the general discipline of Applied Mathematics or Pure Mathematics, it must have applications, and it must align with the learning outcomes of the BSc in Applied Mathematics program.

- The scope of the work must be equivalent to that required by core and elective courses at that same level.

- Appropriate supervision must be available.

Completing the Course

If the proposal is approved, the student will subsequently work with the identified faculty supervisor to meet the learning outcomes of the proposed course.

Learning outcomes

Upon completion of a MATH 492 or MATH 493 Special Study course, a successful student will be able to

- demonstrate an understanding of the topic domain through the statement, proof, and application of theorems, methods, procedures, and/or techniques to solve mathematical and/or scientific problems related to the topic domain.

- synthesize and connect concepts within the topic domain.

- effectively communicate mathematical concepts and analyses in a clear and organized manner.

Evaluation

The approved Special Study proposal becomes the contract for the Special Study credit.

The faculty supervisor will be responsible for providing a mark according to the BSc in Applied Mathematics program marking and grading scheme for work completed (or not completed) according to the contract.

Special Study credits will be recorded on the student's transcript using the appropriate course number, as indicated above, along with the number of credits (3) and a numeric and alpha grade (e.g., 95% A+).

The Special Study proposal must outline a proposed assessment structure that must include a minimum of two assignments. The assessment structure for each Special Study proposal must comply with the course learning outcomes of MATH 492 and MATH 493 that are stated above.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** ☑ .

Materials

This course either does not have a course package or the textbooks are open-source material and available to students at no cost. This course

has a **Course Administration and Technology Fee** ⬈ of **$146**, but students are not charged the Course Materials Fee.

There are no required textbooks for MATH 492 or MATH 493. It is expected that the student will consult reference materials—including textbooks, journals, and internet resources—as are appropriate for the topics indicated in their Special Study proposal.

Important links

> **Academic advising** ⬈

> **Program planning** ⬈

> **Request assistance** ⬈

> **Support services** ⬈

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 1, June 7, 2019

Updated October 31, 2022, by Student & Academic Services