Mathematics (MATH) 496

Mathematics Projects II (Revision 2)

Delivery mode:	Individualized study online ⬀
Credits:	3
Area of study:	Science
Prerequisites:	Permission from the course professor and at least 12 credits (at least 3 at the senior level) in the topic area.undefinedundefinedBefore registering, students must submit an acceptable **project proposal** 📝 to the course coordinator, **Dr. Junye Wang**.
Precluded:	None
Challenge:	MATH 496 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 who has met the overall

core program requirements is eligible to register in a Mathematics Projects course. The proposed project must include a research component. A student may be allowed to take MATH 495 followed by MATH 496 only if the proposed project for MATH 495 is too large for a single 3-credit course, in which case the project must be clearly divided into two separate projects, one for each course.

Coordinator:	Dr. Junye Wang

Overview

The purpose of the MATH 495 and MATH 496 Mathematics Projects courses is to provide a means by which students enrolled in the Bachelor of Science in Applied Mathematics program can demonstrate the knowledge and skills they have learned. Students will demonstrate their knowledge and skills by producing a research project in an area of mathematics of their own choosing.

Structure

A Mathematics Projects course is to be initiated by a student as a capstone course for their completion of the BSc in Applied Mathematics program. The project must consist of two major components:

- a literature review on the project topic

- original research into the project topic

Before registering, the student 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 project topic must be available to act as a supervisor. Details of the academic backgrounds and interests of the faculty members may be helpful in planning project activity and supervision. Students who are interested in pursuing a Mathematics Projects course are advised to check faculty profiles on the **Faculty of Science and Technology website** ☐ .

Mathematics Projects Proposal

Before final registration in the course can be approved, the student must present a one- or two-page written project proposal to the Course Coordinator that includes the following:

> a well written description of the project, including an explanation of the rationale, objectives, and importance of the project.

> the proposed field of study and the student's rationale for the project

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

> reference materials that the student will consult

> a research plan

> descriptions of specific deliverables that fulfill the structure requirements and the evaluation scheme (**see below** ☐)

Proposal Submission and Approval Process

The proposal is to be submitted with an **application form** 📄 that includes the student's name, email address, course number (either MATH 495 or MATH 496), and title of the proposed project, as well as other administrative information. A list and transcripts of all successfully completed prerequisite courses applicable to the subject discipline that the student has completed either at AU or at other institutions must accompany the proposal.

In order for the course to qualify for Mathematics Projects 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.

The student must submit a draft of the project proposal to the Course Coordinator a minimum of one month before the course registration deadline. The Course Coordinator will then review the project 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 project 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 will not be considered.

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 495 or MATH 496 Mathematics Projects course, a successful student will be able to

- synthesize the knowledge and skills they have acquired throughout the Applied Mathematics program to solve mathematical and/or scientific problems related to the topic domain.

- demonstrate their skills in the design and implementation of research in applied mathematics.

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

Evaluation

The approved project proposal becomes the contract for the MATH 495 or MATH 496 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.

Mathematics Projects 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 student may determine the specific deliverables they will submit to fulfill the assessment requirements of the course, which are identified in the table below.

For instance, the student may plan to write a written report that encompasses both the literature review and the research component, or to complete the literature review on its own and then present the research component in a different format, such as in a slide presentation or video. The proposal must specify which deliverables the student plans to submit.

Activity	Weight
Communication of mathematical concepts and analyses	15%
Literature review	35%

Activity	Weight
Research component	50%
Total	**100%**

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 495 or MATH 496. It is expected that the student will consult reference materials—including textbooks, journals, and Internet resources—as are appropriate for the information directly related to their project 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.

View **previous revision** ⬈