

MATH 101: Quantitative Reasoning

Introduction

In Fall 2020, the College of Arts & Science introduced a [quantitative reasoning requirement](#) in all of its programs. MATH 101 is a course in practical quantitative reasoning designed specifically to help non-STEM majors satisfy this requirement. It is founded upon the precept that everyone is capable of employing quantitative reasoning skills to better understand the increasingly data-driven world around them.

Calendar Description

"This course will expose students to various aspects of quantitative reasoning, including the use of quantitative arguments to analyze problems, critique arguments, and draw and justify conclusions; the recognition and evaluation of quantitative assumptions; and the detection and interpretation of trends and patterns in quantitative data drawn from real-world sources and case studies. The course will nurture basic skills in numeracy, arithmetic, and estimation. In the process, students will learn to use algebraic and statistical methods to solve problems and understand changing quantities. They will also use visual and technological tools to assist with calculations and analysis. The format of the course involves 1 hour of lecture and 3 hours of lab-based active learning activity per week, emphasizing inquiry and practice."

Note: This course may not be taken for credit concurrently with or after any other 100-level MATH or STAT course or any course included in the College of Arts and Science [Statistics Course Regulations](#) lists. Students may only have credit for one of MATH 101 and MATH 150. In Arts & Science programs, this course may be used only in the Quantitative Requirement (if listed for that program) or the Electives Requirement.

Who is MATH 101 for?

- ◆ Arts & Science students whose program of study allows them to choose any MATH course to satisfy their quantitative reasoning requirement – humanities and fine arts students typically fall into this category. See <https://programs.usask.ca/programs/list-of-programs.php> for course requirements of specific programs.
- ◆ Students who have not thrived in previous math classes and are interested in developing a better personal relationship with mathematics.
- ◆ Students who like the idea of trying a different approach to learning mathematics than they have experienced in the past.
- ◆ Students who are very anxious about satisfying their quantitative reasoning requirement.
- ◆ Students who do not have a solid appreciation of the value of mathematical study to their lives.

Who is MATH 101 **not** for?

- ◆ Students from colleges other than Arts & Science.
- ◆ Students whose program of study requires some MATH or STAT course other than MATH 101 – MATH 102 is a better option for those looking to review and prepare for another course.
- ◆ Students who already have credit for any other MATH or STAT course(s) (including transfer credit).
- ◆ Students seeking a course that will challenge them with advanced abstract mathematics.
- ◆ Students who strongly prefer to work on their own and are unwilling to engage in group activities.
- ◆ Students seeking a course where success is possible with a minimal investment of time and effort.
- ◆ Students who strongly prefer the familiar traditional mathematics experience.
- ◆ Students who are closed-minded to the possibility that there are legitimate correct ways of reasoning mathematically that could differ dramatically from their own.

Noteworthy Features of MATH 101

- ◆ **Non-traditional** – not a typical math class in teaching style or content. Expect a learning experience significantly different from what you experienced in high school!
- ◆ **Personal perspective** - aims to help students make personal connections to mathematics and discover their own mathematical voice and problem-solving style.
- ◆ **Practical focus** – course activities are designed to get students to use basic but powerful mathematical ideas and skills to reason effectively about complicated and challenging real-world problems that affect us all. A wide range of important contemporary issues are considered, ranging from ecological to medical to financial topics.
- ◆ **Implements active and collaborative learning** – class time is devoted to students working together on activities in small groups to reach a collective mathematical understanding.
- ◆ **Emphasizes mathematical communication** – students will be required to provide coherent explanations of their reasoning in full sentences, both in writing and orally.
- ◆ **Steady, scaffolded workload** – students complete several low-stakes assignments for credit each week rather than having their grade based on a few high-stakes exams. This provides students with regular formative feedback and hopefully reduces performance anxiety. While there is a low-weight cumulative assessment at the end of the course, **MATH 101 does not have a traditional final exam!**
- ◆ **Flexible delivery options** – to meet the varied scheduling demands and learning preferences of students, both on-campus and fully remote synchronous lab sections are offered each year. All offerings study the same material and provide a similar student experience, regardless of delivery modality. All lectures in MATH 101 are delivered as recordings that students can view at their convenience.
- ◆ **Technology enhanced** - a basic scientific calculator and spreadsheet software are not only permitted but required. Learning how to use these tools effectively is part of MATH 101.
- ◆ **Demanding but supportive, achievable, and rewarding** – like all university math classes, success in MATH 101 requires many hours per week of determined effort and dedicated engagement. However, MATH 101 has been explicitly designed to support and acknowledge your efforts and ensure that they actively contribute towards improving your understanding and appreciation of mathematics.

Reasons to take MATH 101 in first year

- 1) Integrated student-skill training establishes good habits that are valuable in other courses.
- 2) Delaying provides a greater chance to forget mathematical knowledge from high school.
- 3) Allows the opportunity to enroll in further math courses if a new interest is awakened within you.
- 4) Helps ensure that you can complete your degree requirements on schedule – don't have your quantitative reasoning course be the last thing standing between you and your degree!

Supplementary Video: [MATH 101 – Year One \(7 min\)](https://youtu.be/-6_im9VAykc) (https://youtu.be/-6_im9VAykc)

Useful MATH and STAT advising resources

<https://artsandscience.usask.ca/math/undergraduates/recommended-first-year-mathematics-course-selections.php>
<https://artsandscience.usask.ca/math/undergraduates/introductory-courses-in-mathematics-and-statistics.php>

Questions?

Contact Derek Postnikoff (derek.postnikoff@usask.ca) at the Department of Mathematics and Statistics.