

Mathematics 2000: Algebraic Reasoning

Spring 2019. LCB 323, MWF 10:45-12:05 pm

Credit Hours: 4.0

Prerequisites: "C" or better in MATH 1010 OR Accuplacer CLM score of 60 or better OR ACT Math score of 23 or better OR SAT Math score of 570 or better.

Instructor: Michael van Opstall

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Office Hours: MW 12:15-1:15

Textbook: The textbook is available online at: <https://www.mathedpage.org/attc/attc.html>

We will focus on chapters 1-8 and 13, but there is no need to print these chapters out.

Course Description: This course is a course in basic algebra that emphasizes depth, rather than breadth. We will investigate how algebraic concepts connect with the elementary school curriculum, and how algebra generalizes elementary arithmetic. The use of manipulatives and alternate representations will pervade the course. Students will be encouraged to make use of argumentation based on these representations to explain solutions to problems encountered in algebra.

Expected Learning Outcomes: By the end of the course, students will be expected to:

1. Understand the difference between algebraic expressions and equations.
2. Represent algebraic expressions and equations up to second degree using algebra tiles.
3. Simplify expressions and solve equations, using argumentation based on manipulatives.
4. Represent functions and move between representations using words, expressions, tables, Cartesian graphs, and function diagrams.
5. Connect polynomial algebra to elementary arithmetic.
6. Solve problems by observing patterns, especially those in arithmetic and geometric sequences.
7. Apply the Fundamental Counting Principle to solve basic probability and combinatorial problems.

Assessment:

- **Homework (15%):** Short homework assignments will be due daily.
- **Quizzes (7 total, 15%, lowest dropped):** Every other Friday, beginning in the first week, there will be a roughly 40 minute quiz on the week's material. See the schedule on Canvas.
- **Midterms (3 - 15% each):** There will be three midterm exams, on February 1, March 1, and April 5.
- **Final Exam (25%):** The final exam will be in the usual classroom on April 29, 10:30-12:30.

Grades will be calculated using the standard scale:

93-100%: A

90-93%: A-

87-90%: B+

83-87%: B

80-83%: B-

77-80%: C+

73-77%: C

70-73%: C-

67-70%: D+

63-67%: D

60-63%: D-

0-60%: E

ADA Statement:

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability and Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability and Access.

Addressing Sexual Misconduct:

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Policies and expectations:

In order to ensure a vibrant learning environment in which we may discuss coursework, no late assignments or labs will be accepted. Similarly, quizzes and exams may not be made up in advance or after the fact without serious extenuating circumstances. The University of Utah student code allows for making up quizzes or exams *in advance* for "officially sanctioned University Activities ..., or government obligations, or religious obligations". Please contact me at least one week in advance of any such obligations to arrange accommodation.

In general, keep your devices put away during class. Take active part in class discussions and activities. Calculators, but not smart devices are allowed on quizzes and exams.

Academic misconduct will not be tolerated. The Student Code for the University of Utah can be found at: <http://regulations.utah.edu/academics/6-400.php>

Official Dates:

The last day to drop classes is January 18; the last day to withdraw from this class is March 8. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

Wellness Statement:

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.