

MATH 149-01: EXPLORATIONS IN MODERN MATHEMATICS (3 cr.)

SYLLABUS & COURSE POLICIES

DORDT UNIVERSITY

SPRING 2026

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Instructor:	Dr. Mike Janssen, Professor of Mathematics
Email:	Mike.Janssen@dordt.edu; I will endeavor to reply to every email within one school day.
Classroom:	CL 2248
Class time:	12:25–1:40 PM TTh
Office:	SB 1612
Office Phone:	(712) 722-6398
Student Hours:	By appointment. See Canvas for details.
Required Resources:	<i>Mathematics for Human Flourishing</i> by F.E. Su Access to a Rubik's cube Access to our online text, <i>Explorations in Modern Mathematics</i>
Required for:	Core QR, middle school math endorsement
Prerequisite:	an ACT mathematics score of 22 or higher or satisfactory completion of one course from Mathematics 100, 108, 115.

Catalog course description: This course is focused on exploring college-level mathematics relevant for all students, regardless of discipline. We will investigate modern mathematical topics including number theory, modeling, fractals, infinity, probability, making meaning from data, and decision-making. Mathematical thinking, reasoning, and pattern discovery will be particularly emphasized. A guided discovery approach will be utilized, and we will discuss how a Reformed perspective impacts our view of the quantitative world.

COURSE OVERVIEW

LEARNING OBJECTIVES

In this course, students will meet Core Program Goal 3a: *Demonstrate college level competency in quantitative reasoning.* (CS) More specifically, students will:

be *communicators* by working together in groups on mathematical puzzles and sharing their thinking with the class. (CD)

be *explorers* by *playing* with God's mathematical creation, explicitly with the Rubik's cube, and implicitly with other puzzles and questions. (CS)

be *connectors* by exploring the power and limitations of mathematics for modeling the physical creation, and applying mathematical thinking to articulate a vision for a more just society. Students will also explore the notion of mathematical truth, and assess its place in understanding God's creation. (RO, CS, CR)

be *ambassadors* by identifying, analyzing, and presenting on an aspect of beauty in mathematics. (RO, CS)

COURSE LITURGIES

In this section, we briefly describe the basic rhythms of the course. Mathematics is not a spectator sport, and this course is designed with this axiom in mind.

CLASS EXPLORATIONS

The heart of this course is the in-class work. Our class meetings will typically start with a short (5–10 minutes) introduction to the main questions under consideration. You'll then work informally in groups of approximately 3 to explore mathematical questions and activities. We'll wrap up with discussions of whatever you found the most interesting, as well as some big-picture takeaways.

This mode of instruction is **highly interactive; it is therefore essential that you participate in class each day**. Group participation will be monitored, and groups will regularly and informally share their thinking with the class. The in-class work will also prepare you for the weekly work, described below.

WEEKLY WORK

On most Thursdays, a **Weekly Work** assignment will be due on Canvas. Specifics will vary from week to week, but they will typically include (but are not limited to) some of: exercises from the textbook; a short essay/reflection question on the next chapter of Su's book; a class activity to which you'll write up clean, clear solutions. These will be submitted on Canvas in PDF form, which may include smartphone scans of handwritten work (though unreadable work may result in your work being assessed a penalty). Each Weekly Work assignment will be worth 40 points: 20 points for your mathematical work, and 20 for your thoughtful responses to the reading.

QUIZZES

During the semester, we'll have four **Quizzes**, each of which will assess your proficiency with the mathematical content covered since the last quiz. They will be worth 40 points each, and given on the following dates:

Quiz 1: February 5

Quiz 3: March 26

Quiz 2: February 26

Quiz 4: May 6 (Final Exam block: 1:10–2:50)

FINAL PROJECT

Your final project will consider the aesthetic qualities of mathematics. You'll explore a particularly beautiful mathematical idea or application and present during the last week of class. Details will be available on Canvas by spring break.

OTHER POLICIES AND ADVICE

I am generally fairly accepting of late work, with a built-in 24-hour grace period for any non-classroom activities. Additional time beyond the 24-hour grace period must be approved ahead of time.

Student hours are your time to ask questions about all aspects of the class and college life. Please check online for an appointment. If you can't find one, send me an email! I will do my very best to accommodate your you.

Email Policy: I check my email twice per school day: once in the morning, where I'll deal with any emergencies, and once in the afternoon, when I'll respond to other emails (including any that have come in since the morning). If you require a more immediate response, you're welcome to come find me in my office.

Policy on Generative AI: Unless specifically permitted by Dr. Janssen in advance of student submission of work, any use of AI will be considered a breach of academic integrity. Suspected cases of misuse of AI tools will be treated as plagiarism and submitted to the Student Life Committee.

GRADING POLICY

Your final grade percentage G will be calculated using the weighted categories below.

Category	Weight
Attendance and Participation	10%
Weekly Work	30%
Checkpoints	40%
Final Project	20%

Your final grade will be assigned based on the range in which G falls:

Grade	Range	Grade	Range
A	$92\% \leq G \leq 100\%$	C	$73\% \leq G < 77\%$
A-	$90\% \leq G < 92\%$	C-	$70\% \leq G < 73\%$
B+	$87\% \leq G < 90\%$	D+	$67\% \leq G < 70\%$
B	$83\% \leq G < 87\%$	D	$63\% \leq G < 67\%$
B-	$80\% \leq G < 83\%$	D-	$60\% \leq G < 63\%$
C+	$77\% \leq G < 80\%$		

TENTATIVE SCHEDULE

The Cube: January 8–February 3

Reasoning and logic: February 5–26

Graph Theory: March 12–26

Modular Arithmetic: March 31–April 7

Fractals and dynamics: April 9–16

Understanding data: April 21–30

INSTITUTIONAL POLICIES

DORDT UNIVERSITY STUDENT’S RIGHT TO ACCOMODATIONS POLICY

Dordt University is committed to providing reasonable accommodations for students with documented qualifying disabilities in accordance with federal laws and university policy. Any student who needs access to accommodations based on the impact of a documented disability should contact the Coordinator for Service for Students with Disabilities, Academic Enrichment Center, 712-722-6490, Email: CSSD@dordt.edu.

DORDT UNIVERSITY ACADEMIC INTEGRITY POLICY

Dordt University is committed to developing a community of Christian scholars where all members accept the responsibility of practicing personal and academic integrity in obedience to biblical teaching. For students, this means not lying, cheating, or stealing others’ work to gain academic advantage; it also means opposing academic dishonesty.

Students found to be academically dishonest will receive academic sanctions from their professor (from a failing grade on the particular academic task to a failing grade in the course) and will be reported to the Student Life Committee for possible institutional sanctions (from a warning to dismissal from the university). Appeals in such matters will be handled by the student disciplinary process. For more information, see the Student Handbook section concerning Academic Integrity.

DORDT UNIVERSITY ATTENDANCE POLICY

Class attendance policies and procedures as outlined in the Student Handbook are in place. To paraphrase the Student Handbook, you are expected to be present for every class and laboratory period. Penalties for absence from class are left to the instructor. No designated number of skips is permitted. Students are responsible for notifying each professor concerning the reason for all absences, whether unexcused or excused. Students are responsible for contacting instructors to make arrangements for missed work.

I reserve the right to make changes to this document as the need arises.
