MATH 1020Q Problem Solving: Fall 2024 Syllabus

Excluding materials for purchase, syllabus information may be subject to change.

Always refer to the syllabus linked in HuskyCT for the most up-to-date information.

Course and Instructor Information

Prerequisites: Recommended preparation: MATH 1010 or the equivalent. Not eligible for course credit by examination. Not open for credit to students who have passed any mathematics course other than MATH 1010, 1011, 1030, 1060 or 1070.

Instructor: Erika Fiore, Ph.D. (please call me Professor Fiore or Dr. Fiore)

Pronouns: she/her/hers

Email: erika.fiore@uconn.edu (make sure to include course section number in emails)

Office Hours:

Mondays 3:30pm-4:30pm on WebEx: https://uconn-cmr.webex.com/meet/erf22002

Thursdays 3:30pm-4:30pm in my office MONT 304 or by appointment

Course Description

An introduction to the techniques used by mathematicians to solve problems. Skills such as Externalization (pictures and charts), Visualization (associated mental images), Simplification, Trial and Error, and Lateral Thinking learned through the study of mathematical problems. Problems will be drawn from combinatorics, probability, optimization, cryptology, graph theory, and fractals. Students will be encouraged to work cooperatively and to think independently.

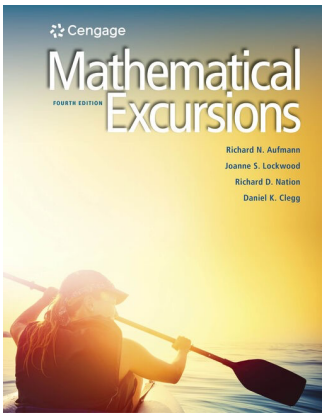
Course Objectives

1. Learn strategies for solving challenging problems.
2. Use inductive and deductive reasoning to solve problems.
3. Use definitions, formulas, properties, theorems, and basic algebra skills to solve problems from a variety of mathematical subjects including, but not limited to, combinatorics, graph theory, set theory, geometry, finance, and probability.
4. Apply mathematics to real world problems.

Course Materials

E-Textbook: Mathematical Excursions, 4th edition, by Aufmann, Lockwood, Nation and Clegg

Options for purchase:



1. Husky Book Bundle https://bookbundle.program.uconn.edu/ costs $285 for the semester. This option will give you access to the e-book and WebAssign you need for this class, in addition to your course materials for all your other UConn classes.

2. Digital textbook rental cost about $134 for the semester through UConn's bookstore https://uconn.bncollege.com/ or $103 direct from Cengage. This option will give you access to the e-book and WebAssign for this class only.

3. Cengage Unlimited https://www.cengage.com/unlimited/ costs about $125 for the semester. This option will give you access to the e-book and WebAssign for this class, and any of your other classes using Cengage course materials.

To register and access WebAssign, simply log into your HuskyCT account (lms.uconn.edu), navigate to the page for MATH 1020Q, then follow the link on the left-hand side for WebAssign. Visit https://www.cengage.com/coursepages/UConn_MATH1020 if you need additional assistance.

Course Expectations

1. You are expected to come to **every class.** When you skip class, you have to spend more time outside of class trying to catch up, so you should not be skipping class unless you are sick! If you are sick, make sure to get the notes from a classmate and/or HuskyCT. If you need to miss multiple classes in a row because you are sick, please email your instructor to let them know.
2. You are expected to **participate** in class. During class, you should be focusing on the classroom activity. You should not be on your phone or on your computer working on other things.
3. You are expected to take all course components (quizzes, projects, homework, exams) **seriously**. Don't wait until the last minute to start the homework or projects, they take time to complete!
4. You are expected to put your **best effort** forward and **ask for help** when needed. You can ask for help during office hours or you can send me an email with questions. Keep in mind that I teach other classes and have many students, so it may take me up to 72 hours to respond to an email (but I usually respond sooner). I typically do not check my email after 5pm or on the weekend.

Course Grade Breakdown:

12 WebAssign Assignments (equally weighted)	18%
9 Quizzes and Projects (equally weighted)	45%
1 Midterm Exam	17%
1 Final Exam/Project	20%

Course Grade Scale:

Final Percentage	Letter Grade
93 -100	A
90.00-92.99	A-
87.00-89.99	B+
83.00-86.99	B
80.00-82.99	B-
77.00-79.99	C+
73.00-76.99	C
70.00-72.99	C-
67.00-69.99	D+
63.00-66.99	D
60.00-62.99	D-
<60	F

WebAssign:

WebAssign homework will be assigned weekly (normally due on Mondays) and will be based on the sections taught in the previous week. You are expected to begin assignments the week before they are due, so you have plenty of time to ask for help if necessary. Homework must be done outside of class. We will not devote class time to the discussion of homework problems.

You will get a limited number of attempts for each question so choose carefully! After each attempt, you will be told whether your answer is correct or not. If you are not able to get the correct answer after your initial attempts, we recommend that before your final attempt, you seek help from your instructor, the Q-Center, a tutor, or another student.

Late homework will be accepted with a 20% deduction to your score. To access late homework in WebAssign, you need to click on "Past Assignments" to request an automatic extension.

Quizzes:

Quizzes will be given in class **roughly** every other week on Thursdays (see course schedule on HuskyCT for dates and topics). Throughout the semester you will take 3-6 quizzes (more information below).

Quiz Makeup Policy: If you **miss a quiz** because you are ill or due to some other extenuating circumstance, you must contact your instructor before the original quiz time, or within 24 after the original quiz time. If your instructor approves you for a makeup quiz, then you must take the quiz within 1 week of the original quiz time. If you do not follow these procedures, then you will receive a score of zero on the missed quiz unless you have proper documentation of an extenuating circumstance.

Projects:

Projects will be due **roughly** every other week on Sundays (see course schedule for dates). These projects were designed to help you think critically about problem solving and to introduce to you how the math we learn about in class can be applied in real world settings. Throughout the semester, you will complete 3-6 projects (more information below).

Late Project Policy: Projects are graded out of 20 points. For every day you submit a project late, you will lose 1 point. If you need an extension on a project due to extenuating circumstances, you must contact your instructor to make arrangements **BEFORE** the project due date. **NO SUBMISSIONS ALLOWED AFTER THE LAST DAY OF CLASSES (12/6/2024).**

Skipping Quizzes and/or Projects:

Throughout the semester, 6 quizzes will be given, and 6 projects will be assigned. You will "skip" any 3 of these of your choosing (**except for** the first quiz and the first project). You can use all your skips on projects, all your skips on quizzes, or some combination of both. For example, a student who has test anxiety may decide to use all 3 skips on quizzes, which means that student would complete 3 quizzes and 6 projects throughout the course of the semester. **Once a quiz or project has been submitted, you are not allowed to skip it!**

Midterm Exam:

We will have one midterm exam in this class (see course schedule on HuskyCT for dates and exam information tab on HuskyCT for topics).

Exam Makeup Policy: If you **miss the midterm exam** because you are ill or due to some other extenuating circumstance, you must contact your instructor before the original exam time, or within 24 after the original exam time. If your instructor approves you for a makeup midterm, then you must take the midterm within 1 week of the original midterm time. If you do not follow these procedures, then you will receive a score of zero on the midterm unless you have proper documentation of an extenuating circumstance.

Final Exam/Project:

You will have a choice to take a final exam or complete a final project. If you choose to take the final exam, the final exam will only cover topics introduced **after** the midterm. If you choose to do the final project, you will need to choose a topic and fill out the final project topic proposal form at least one week before the due date. If you do not turn in the final project proposal form in time, you will have to take the final exam instead.

The date of our final exam remains to be determined by the university. If you choose to do a final project instead, the due date will be on the same day as the final exam. UConn's Fall 2024 final exam week takes place from Monday December 9th to Sunday December 15th. Students are required to be available for their exam/project during the stated time. If you have a conflict with this time, you must contact the Dean of Students Office to discuss the possibility of rescheduling this exam. Please note that vacations, previously purchased tickets or reservations, social events, misreading the exam schedule and over-sleeping are not acceptable excuses for missing a final exam. If you think that your situation warrants permission to reschedule, please contact the Dean of Students Office with any questions.

Students with Disabilities

The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.

To provide students with disabilities the appropriate accommodations, CSD must send an official letter to your instructor. If your accommodations require you to take quizzes and/or exams in a separate space, it is your responsibility to schedule an appointment with CSD's testing center through MyAccess at least one week before each quiz/exam date.

Academic Honesty Policy

This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. UConn defines academic misconduct as “dishonest or unethical academic behavior that includes, but is not limited to, misrepresenting mastery in an academic area (e.g., cheating), failing to properly credit information, research, or ideas to their rightful originators or representing such information, research, or ideas as your own (e.g., plagiarism).” Visit this site for more information: https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/.

Below is a list of examples of academic misconduct in this course:

1. **Cheating or helping others cheat on a quiz or an exam.** Using unauthorized materials on quizzes or exams including looking at your neighbors’ papers, your notes, books, or electronic devices is cheating. Communicating with any other human being (besides the instructor) during a quiz or an exam is cheating.
2. **Cheating or helping others cheat on a project or homework.** Turning in work on a project that was not written up independently by you and your partners is cheating. All work submitted should represent you and your partners’ honest understanding of the material.
3. **Distributing your instructor’s materials to students’ outside of this course, including posting materials on the internet.** You are forbidden from sharing or posting projects, exams, quizzes, and homework problems created by your instructor. You are also forbidden from sharing or posting your solutions to projects, exams, quizzes, and homework.

Any student who commits an act of misconduct will be reported to the university. Violations of this policy may range from a zero on the assignment to a grade of F in the course. If you have questions about academic integrity or intellectual property, please consult with your instructor.

Resources for Students Experiencing Distress

The University of Connecticut is committed to supporting students in their mental health, their psychological and social well-being, and their connection to their academic experience and overall wellness. The university believes that academic, personal, and professional development can flourish only when each member of our community is assured equitable access to mental health services. The university aims to make access to mental health attainable while fostering a community reflecting equity and diversity and understands that good mental health may lead to personal and professional growth, greater self-awareness, increased social engagement, enhanced academic success, and campus and community involvement.

Students who feel they may benefit from speaking with a mental health professional can find support and resources through the **Student Health and Wellness-Mental Health (SHaW-MH) office** located in Storrs on the main campus in the Arjona Building, 4th Floor. Through SHaW-MH, students can make an appointment with a mental health professional and engage in confidential conversations or seek recommendations or referrals for any mental health or psychological concern. Mental health services are included as part of the university’s student health insurance plan and partially funded through university fees. If you do not have UConn’s student health insurance plan, most major insurance plans are also accepted. Please visit https://studenthealth.uconn.edu/ or call (860) 486-4705 if you have questions.

Course Schedule

Class Dates	New Sections Covered	Assignments/Quizzes/Exams
Week 1: August 27 & 29	1.1 Inductive and Deductive Reasoning 9.1 First Degree Equations and Formulas	**Monday September 2nd:** Homework 1 on 1.1 and 9.1
Week 2: September 3 & 5	1.2 Problem Solving with Patterns 1.3 Problem-Solving Strategies	**Thursday September 5th:** Quiz 1 on 1.1 & 9.1 **Monday September 9th:** Homework 2 on 1.2
Week 3: September 10 & 12	1.3 Problem-Solving Strategies Continued	**Sunday September 15th:** Project 1 Due **Monday September 16th:** Homework 3 on 1.3
Week 4: September 17 & 19	7.3 Perimeter and Area of Plane Figures 7.5 Volume and Surface Area	**Thursday September 19th:** Quiz 2 on 1.2 & 1.3 **Monday September 23rd:** Homework 4 on 7.3 and 7.5
Week 5: September 24 & 26	6.1 Early Numeration Systems 6.3 Different Base Systems	**Sunday September 29th:** Project 2 Due **Monday September 30th:** Homework 5 on 6.3
Week 6: October 1 & 3	5.1 Graphs and Euler Circuits 5.4 Graph Coloring	**Thursday October 3rd:** Quiz 3 on 6.1 & 6.3 **Monday October 7th:** Homework 6 on 5.1 and 5.4

Week 7: October 8 & 10	Midterm Exam Review	**Thursday October 10th:** **MIDTERM EXAM**
Week 8: October 15 & 17	9.2 Rate, Ratio, and Proportion 9.3 Percent	**Sunday October 20th:** Project 3 Due **Monday October 21st:** Homework 7 on 9.2 and 9.3
Week 9: October 22 & 24	11.1 Simple Interest 11.2 Compound Interest	**Sunday October 27th:** Project 4 Due **Monday October 28th:** Homework 8 on 11.1 and 11.2
Week 10: October 29 & 31	11.3 Credit Cards and Consumer Loans	**Thursday October 31st:** Quiz 4 on 11.1 and 11.2 **Monday November 4th:** Homework 9 on 11.3
Week 11: November 5 & 7	2.4 Applications of Sets	**Sunday November 10th:** Project 5 Due **Monday November 11th:** Homework 10 on 2.4
Week 12: November 12 & 14	12.1 Counting Principle 12.2 Permutations and Combinations	**Thursday November 14th:** Quiz 5 on 2.4 **Monday November 18th:** Homework 11 on 12.1 and 12.2
Week 13: November 19 & 21	12.3 Probability and Odds 12.6 Expectation	**Thursday November 21st:** Quiz 6 on 12.1 and 12.2 **Monday December 2nd :**

		Homework 12 on 12.3 and 12.6
THANKSGIVING BREAK	None	None
Week 14: December 3 & 5	Final Exam Review / Time for Projects	***Friday* December 6th:** Project 6 Due
Week 15: December 9-15	None	**Date TBA:** **FINAL EXAM / FINAL PROJECT DUE**