Syllabus – Winter 2027 INT

Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in HuskyCT.

Course and Instructor Information

Course Title: Problem Solving

Credits: 3

Format: Online Instruction Asynchronous

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: Dr. Nuwanthi Samarawickrama (feel free to call me Dr.Nuwanthi, Dr.Samarawickrama)

Pronouns: she/her/hers

Email: nuwanthi.samarawickrama@uconn.edu

Office Hours/Availability: I'll be holding office hours online via Blackboard Collaborate Monday through Friday from 2:00 pm to 3:00 pm (except on January 1). The link for the Collaborate room will be provided in HuskyCT.

During office hours, you are welcome to ask questions about the problems discussed in the video recordings. I can provide hints and guidance to help you work through the solutions.

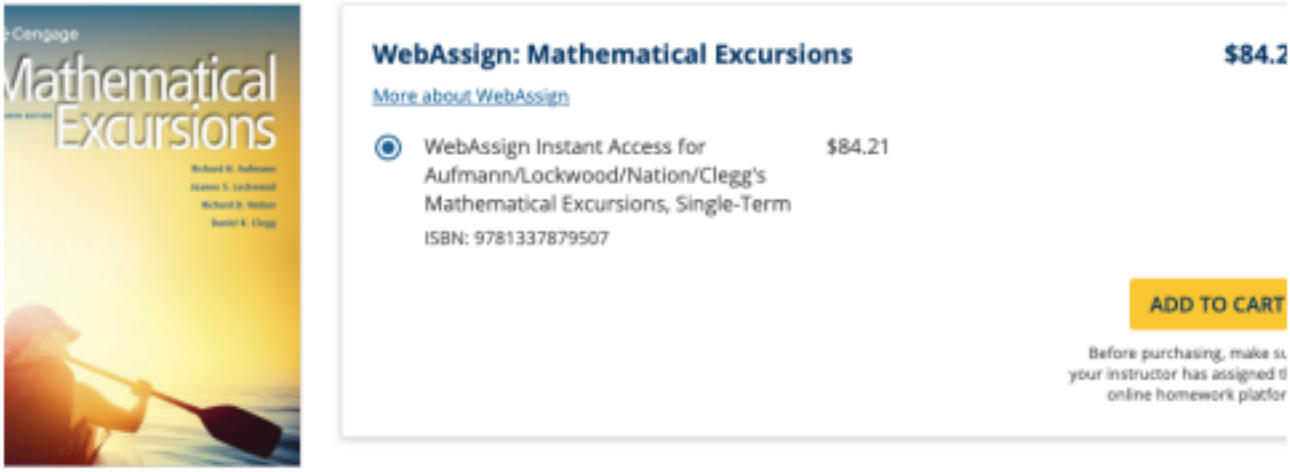
Course Materials

For this class you need to buy the bundle E-book - WebAssign code. You will need to create a Cengage account, if you don't have one already. The platform will be accessible through your class in HuskyCT. The first three days you have free access to the e-book and the homework platform, after that, if you decide to stay in Math1020Q you will need to buy the access code in order to complete your homework and access the textbook. This code can be bought directly from your Cengage account.

Textbook(electronic format): Mathematical Excursions, 4th edition, by Aufmann, Lockwood, Nation and

Clegg

Actual price might be different than the one in the picture below.



HuskyCT:
All course materials, as well as the link to our online course room, can be found at http://www.huskyct.uconn.edu

Software/Technical Requirements (with Accessibility and Privacy Information):
The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement , HuskyCT/Blackboard Privacy Policy)
  - WebAssign(accessible through HuskyCT)
  - Webcam and microphone
  - Ability to scan handwritten work in as a single PDF (apps like CamScanner, AdobeScan, or GeniusScan are fine)
  - Webex (for class and in case you'd like to meet by appointment privately I will send you an invitation with a link)
  - Respondus Lockdown App download - see Course Content in HuskyCT.

For information on managing your privacy at the University of Connecticut, visit the University's Privacy page .

NOTE: This course has NOT been designed for use with mobile devices.

Assignments, course readings and media are available within HuskyCT, in the Course Content link.

Course Description

This course introduces students to the techniques and strategies mathematicians use to solve problems. Students will develop problem-solving skills through the study and application of methods such as externalization (using pictures, diagrams, and charts), visualization (creating mental images), simplification, trial and error, and lateral thinking. Problems will be drawn from a variety of mathematical areas, including combinatorics, probability, optimization, cryptology, graph theory, and fractals. Throughout the course, students will be encouraged to work cooperatively, exchange ideas, explore different approaches, and develop their ability to think independently.

Course Expectations

The main goal of this course is not simply to find the correct answer, but to learn how to think mathematically, approach challenging problems creatively, and understand the process of problem-solving. .

Course Objectives

This course will introduce students to a variety of strategies and techniques for solving challenging problems in mathematics and other areas of life. Students will learn how to approach unfamiliar problems, identify possible starting points, explore different solution methods, and develop confidence in tackling difficult tasks. Particular emphasis will be placed on developing problem-solving skills that help students overcome the challenge of not knowing where or how to begin.

Summary of Course Grading

Course Components	Weight
WebAssign Homework	25%
Problem-Solving Worksheets (4)	20% (5% each)
Projects (3)	30% (10% each)
Online Participation and Discussion	5%
Final Project	20%
Total	100%

14-Day Course Schedule

Days	Topics and Activities	Assignments
Days 1–2	Introduction to problem-solving strategies, visualization, and externalization	Homework 1
Days 3–4	Simplification, trial and error, and logical reasoning	Worksheet 1; Project 1

Days 5–6	Combinatorics and probability	Homework 2; Worksheet 2
Days 7–8	Optimization and graph theory	Homework 3; Project 2
Days 9–10	Cryptology and secret codes	Homework 4; Worksheet 3
Days 11–12	Fractals, patterns, and lateral thinking	Project 3; Worksheet 4
Days 13–14	Review and application of problem-solving strategies	Final Project

Project Grading Rubric

Evaluation Criteria	Point
Understanding of the Problem	20
Problem-Solving Strategies	25
Mathematical Reasoning and Explanation	25
Creativity and Originality	15
Organization and Presentation	15
Total	**100**

1. WebAssign Homework (25%)

Homework assignments will be completed through WebAssign and will be based on the material covered in the video lectures. These assignments will help students practice mathematical concepts and strengthen their problem-solving skills.

2. Problem-Solving Worksheets (20%)

Students will complete four worksheets designed to develop their mathematical reasoning and problem-solving abilities. Worksheets will include puzzles, mathematical problems, and activities related to the topics covered in the course.

3. Projects (30%)

Students will complete three projects that apply mathematical problem-solving techniques to real-world situations and mathematical challenges. Projects will encourage creativity, critical thinking, and the exploration of different approaches to solving problems.

4. Online Participation and Discussion (5%)

Students are encouraged to actively engage with the course by asking questions, participating in online discussions, and communicating with the instructor and classmates. Participation includes meaningful contributions to mathematical discussions and problem-solving activities.

5. Final Project (20%)

The final project will allow students to demonstrate the problem-solving strategies and mathematical concepts learned throughout the course. Students will analyze a problem, explore possible solutions, and clearly explain their reasoning and approach.

Course Requirements and Grading

For additional information on undergraduate grading policies see here:

https://registrar.uconn.edu/grades/ **Grading Scale:**

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0

60-62	D-	0.7
<60	F	0.0

How to Succeed in This Course

MATH 1020Q is a fast-paced, fully online course that requires consistent effort, active participation, and good time management. To succeed in this course, I encourage you to follow these recommendations:

1. **Watch the Video Lectures:** Keep up with the assigned video lectures. They introduce important concepts and problem-solving strategies that will help you complete homework, worksheets, and projects.
2. **Practice Regularly:** Mathematics is best learned through practice. Work through the assigned problems and try different approaches before looking for solutions.
3. **Manage Your Time:** Since this is a 14-day accelerated course, it is important to stay organized and complete assignments by their deadlines. Avoid waiting until the last minute.
4. **Think Independently:** This course emphasizes critical thinking and creativity. Do not be afraid to make mistakes, experiment with different strategies, and explore alternative solutions.
5. **Ask Questions:** If you have difficulty understanding a concept or solving a problem, please ask for help. You are welcome to attend my online office hours or contact me by email.
6. **Collaborate with Others:** Discussing mathematical ideas and problem-solving strategies with classmates can help you understand problems from different perspectives. However, make sure you complete and submit your own work unless a group assignment is specified.
7. **Stay Engaged:** Check the course website and WebAssign regularly for announcements, assignments, and important deadlines.

Most importantly, remember that this course is about learning how to think, not just finding the correct answer. Be curious, be persistent, and do not give up when a problem seems challenging. The ability to approach unfamiliar problems and develop strategies to solve them is one of the most valuable skills you will gain from this course.

Student Authentication and Verification

The University of Connecticut is required to verify the identity of students who participate in online and distance learning courses and to establish that students who register in an online or distance learning course are the same students who participate in and complete the course activities and assessments and receive academic credit. Verification and authentication of student identity in this course will include:

1. Secure access to the learning management system using your unique UConn NetID and password.

Students who do not complete the above required authentication steps may be denied access to the course and given an incomplete. Students could lose credit if the identity of the enrolled student competing course activities and assessments cannot be confirmed.

Copyright

My lectures, notes, handouts, and displays are protected by state common law and federal copyright law. They are my own original expression and I've recorded them prior or during my lecture in order to ensure that I obtain copyright protection. Students are authorized to take notes in my class; however, this authorization extends only to making one set of notes for your own personal use and no other use. I will inform you as to whether you are authorized to record my lectures at the beginning of each semester. If you are so authorized to record my lectures, you may not copy this recording or any other material, provide copies of either to anyone else, or make a commercial use of them without prior permission from me.

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/.

Blackboard measures and evaluates accessibility using two sets of standards: the WCAG 2.0 standards issued by the World Wide Web Consortium (W3C) and Section 508 of the Rehabilitation Act issued in the United States federal government." (Retrieved March 24, 2013 from Blackboard's website)

Academic Honesty

This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. Because questions of intellectual property are important to the field of this course, we will discuss academic honesty as a topic and not just a policy. If you have questions about academic integrity or intellectual property, you should consult with your instructor. Additionally, consult UConn's guidelines for academic integrity. Note that cheating or plagiarizing on an assignment may result in a zero for that assignment and/or failure in the course.

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code
    - Academic Integrity
    - Resources on Avoiding Cheating and Plagiarism
- Academic, Scholarly, and Professional Integrity and Misconduct (ASPIM)
- Copyrighted Materials
- Credit Hours and Workload
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

Help

This course is facilitated online using the learning management platform, HuskyCT. The IT Knowledge Base provides students with support, troubleshooting, and how-to information about HuskyCT. The IT Knowledge Base includes a video tour of HuskyCT.

For technical help with HuskyCT, you have access to the in-person/live person support options available during regular business hours through the Technology Support Center. You also have 24x7 Course Support outside of business hours, including access to live chat, phone, and support documents.

Technical and Academic Help provides a guide to frequently asked questions for online students.

Student Technology Training

Student technology training is now available in a new HuskyCT short course created by students for students. It will prepare you to use the IT systems and services that you will use throughout your time at UConn, whether learning online or on-campus. It is available at https://lms.uconn.edu/ultra/courses/_80016_1/cl/outline

Evaluation of Course Experience

Students will be given an opportunity to provide feedback on their course experience and instruction using the University's standard procedures, which are administered by the Office of Institutional Research and Effectiveness (OIRE).

The University of Connecticut is dedicated to supporting and enhancing teaching effectiveness and student learning using a variety of methods. The Student Evaluation of Teaching (SET) is just one tool used to help faculty enhance their teaching. The SET is used for both formative (self-improvement) and summative (evaluation) purposes.

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