Math 1030Q: Elementary Discrete Mathematics

Spring 2017 Syllabus

Course Catalog Description and Prerequisites

Course Catalog Description: Topics chosen from discrete mathematics. May include counting and probability, sequences, graph theory, deductive reasoning, the axiomatic method and finite geometries, number systems, voting methods, apportionment methods, mathematics of finance, number theory.

Course Prerequisites: Recommended preparation: MATH 1010 or equivalent. Not open for credit to students who have passed any MATH course other than MATH 1010, 1011, 1020, 1040, 1050, 1060 or 1070.

Goals for Math 1030Q

One of the main points of this course is for us to see a new side of mathematics. Our focus will be on discovering and exploring ideas rather than following procedures. In this course, we will

- learn how to think and learn more effectively (in mathematics, in other academic areas, and in life outside academics).
- focus on clear communication (using numbers, pictures, symbols, and words).
- explore some great ideas in mathematics (just like people explore great works of art).
- see some ways that mathematics can be applied in the world.
- improve our quantitative reasoning skills.
- become more confident in our ability to do mathematics.
- gain an increased appreciation for mathematics (hopefully).

Good News: We will NOT focus on memorizing formulas, notation, and terminology. These are the things we forget soon after the end of the semester unless we continue to use them. Also, we will NOT focus on final answers. Instead, we will focus on developing strategies that can help lead to a solution and we will focus on explaining our solution once we find one.

Some Advice for How to Succeed in Math 1030Q

- ***Become an active participant in the class.*** Ask questions. Participate during class activities. Do your best to keep up with the material. Come to office hours. Work on assignments as soon as they are assigned instead of at the last minute. Do scratch work and/or write a rough draft in addition to writing up a final draft of your work.

- ***Spend some time reading and engaging with the online textbook.*** It was actually designed to be read by students (for a change)! Use a notebook to keep track of your progress. Write down questions that come up. Write down important concepts. Work through examples as you read. Explore without worrying about being correct all the time.

- ***Work with other students in this section of this class*** during in-class activities and on group assignments. Form exam and quiz study groups. Build a little math community.

Course Materials and Resources

Class Webpage: All course-related materials and assignments will be posted on the HuskyCT site for this course. Go to **https://lms.uconn.edu**. Click on "Login" and sign in using your UConn NetID and password. Click on "MATH-1030Q-Elementary Discrete Mathematics-SEC00#-1173". Please visit the HuskyCT site daily. I will regularly upload and update all course materials on this site.

WileyPLUS: We will be using the WileyPLUS online homework system. This will be integrated into our HuskyCT site. **An access code for WileyPLUS is required for this course.** You can sign up for a **free 14-day trial of WileyPLUS** at the beginning of the semester. All of your work will be saved and transferred over to your permanent WileyPLUS account once you purchase an access code.

Textbooks:

1. **Main Textbook:** ***The Heart of Mathematics: An Invitation to Effective Thinking (4th Edition)*** by Edward B. Burger and Michael Starbird
    - **An electronic textbook comes "free" with a WileyPLUS access code.**
    - You can get a WileyPLUS access code by
        - purchasing an access code online when you access WileyPLUS via HuskyCT ($92.50),
        - purchasing an access code from the **UConn Bookstore** (BUY NEW $112.65), or
        - purchasing the hardcopy textbook from the **UConn Bookstore** that is bundled with an access code (BUY USED $123.00, BUY NEW $164.00).
2. **Book for Most Reading/Writing Assignments:** ***The 5 Elements of Effective Thinking*** by Edward B. Burger and Michael Starbird

- ISBN-13: 978-0691156668
- BUY NEW $12.00-$16.00 (approx.) on **amazon.com**.
- **UConn Bookstore** prices:
  - RENT USED $9.00 (Return by 05/06/2017)
  - RENT NEW $12.95 (Return by 05/06/2017)
  - BUY USED $14.95
  - BUY NEW $19.95

Assessments

Online Homework: ***Online WileyPLUS homework assignments***, one for each section we discuss, will be assigned during the semester. **It is HIGHLY recommended that you keep a journal of all of your written WileyPLUS work. You will be able to drop your lowest online homework grade.** This is meant to reduce your stress about grades. This also allows you to miss an assignment due to travel, illness, etc. See the schedule below for tentative due dates.

Individual Written Homework Assignments: ***Three written homework assignments*** will be assigned during the semester. See the schedule below for tentative due dates. The assignments will be based on the WileyPLUS online homework. **The first written homework assignment (Written Homework Assignment 0) will be graded on effort/completion only.** This will give you a chance to receive constructive feedback on the assignment and use this feedback for future graded assignments.

In-Class Quizzes: ***Three in-class quizzes*** will be given during the semester. See the schedule below for tentative quiz dates. **You will be able to drop your lowest quiz grade.** This is meant to reduce your stress about grades. This also allows you to miss a quiz due to travel, illness, etc.

Individual Reading/Writing Assignments: ***Five reading/writing assignments*** will be assigned during the first part of the semester. Each assignment will be submitted online using our HuskyCT site. See the schedule below for tentative due dates.

Group Assignment: ***One group assignment***, mean to help review the course material, will be assigned during the second part of the semester. See the schedule below for the tentative due date.

Midterm Examinations: There will be ***two midterm examinations*** (Exam 1 and Exam 2). See the schedule below for the tentative exam dates. These may be in-class examinations or examinations with both in-class and take-home portions. **Note that Option 2 below allows you to drop your lowest midterm exam score and add the weight of this exam to the final exam.** This is meant to reward improvement as the semester progresses.

Final Examination: There will be a ***cumulative final examination*** at the end of the semester. The date, time, and location of the final examination is determined by the university and will be announced as soon as it becomes available.

Important Note: To highlight the fact that finding a solution to a problem and clearly communicating a solution to a problem are two separate activities, **scratch work and/or a rough draft of some or all of your solutions will be collected** in addition to a final draft of your solutions for both the Individual Written Homework Assignments and the Group Assignment.

Grading

Grading Schemes: Final course grades (as a percentage) will be determined by **Option 1** and **Option 2** below. **Everyone will automatically be given whichever option results in a higher grade.**

Option 1	**Weight**	**Option 2**	**Weight**
Online Homework (lowest score dropped)	10%	Online Homework (lowest score dropped)	10%
Written Homework	15%	Written Homework	15%
Quizzes (lowest score dropped)	5%	Quizzes (lowest score dropped)	5%
Reading/Writing Assignments	10%	Reading/Writing Assignments	10%
Group Assignment	10%	Group Assignment	10%
Exam 1	15%	Exam 1 or Exam 2 (lower score dropped)	15%
Exam 2	15%		
Final Exam	20%	Final Exam	35%

Final Grades: The following grading scale will be used to determine final course grades.

A	[92, 100]	**B**	[82,88)	**C**	[72, 78)	**D**	[62, 68)
A-	[90, 92)	**B-**	[80, 82)	**C-**	[70, 72)	**D-**	[60, 62)
B+	[88, 90)	**C+**	[78, 80)	**D+**	[68, 70)	**F**	[0,60)

Policies and Resources

Working with Other Students: This class will involve a mixture of ***individual assignments*** (to be completed by yourself) and ***group assignments*** (to be completed with one or more students in the class). Because of this, please **pay very close attention to the directions for each assignment**. Receiving any sort of outside help on a graded assignment—from the internet (unless told otherwise), from other people in this class (except for members of your group for group assignments), from other people not in this class, or from any other source—is academic dishonesty and will be taken seriously.

Attendance: You should attend all class meetings and are responsible for what we discuss. If you miss a class meeting, you should talk with a classmate to figure out what you missed, get any handouts/materials you missed from the HuskyCT site, and get caught up as soon as possible.

Make-Up/Late Policy: In fairness to everyone, there are generally NO make-ups and NO extensions for any form of assessment (online homework assignments, written homework assignments, quizzes, reading/writing assignments, group assignments, and exams). Only extreme situations with an officially documented excuse will allow you to make up an assessment. Whenever possible, these excuses must be presented before the assessment is due or is supposed to take place in class.

Grading Policy: If you have any questions about the grading of any assessment, please ask as soon as possible (usually by the end of the day the assessment is returned). If too much time has passed, then grading changes may not be made.

Calculator Policy: Unless stated otherwise during the semester, calculators will NOT be allowed (or needed) on any in-class assessments (quizzes, midterm exams, or the final exam).

Academic Integrity: It is in everyone's best interest to maintain his or her academic integrity. Any form of academic dishonesty undermines the goals of our course and devalues the learning process. Academic dishonesty is a serious offense at UConn and can result in a zero grade on an assessment and/or failure in the course. For more information, see the **Student Code**. For strategies to minimize academic misconduct, follow **this link**.

The Quantitative Learning Center: The **Quantitative Learning Center** (Q Center) at UConn provides free drop-in tutoring. The Q Center is located on Level 1 of the **Homer Babbidge Library**.

Accommodations for Students with Disabilities: Students who think that they may need accommodations because of a disability are encouraged to meet with me privately early in the semester. Students should also contact the Center for Students with Disabilities as soon as possible to verify their eligibility for reasonable accommodations. For more information, please go to the website **http://www.csd.uconn.edu/**.

Tentative Schedule for Math 1030Q

Chapters/Sections Covered: Chapter 1 and Sections 2.1, 2.4, 4.1, 4.2, 4.7, 6.1, 6.4, 10.4, and 10.5

Day	Date	Sections Discussed, Assignment Due Dates, Quiz/Exam Dates, Etc.
		Introductions
		Ch. 1
Wednesday	01/18/17	**Written Homework Assignment 0 Assigned**
		Reading Writing Assignment 1 Assigned
		Syllabus
Friday	01/20/17	Ch. 1
		RWA 1 Discussion
		Ch. 1
Monday	01/23/17	**Written Homework Assignment 0 Due**
		Reading/Writing Assignment 1 Due in HuskyCT
		Reading Writing Assignment 2 Assigned
		2.1
Wednesday	01/25/17	**WileyPLUS Ch. 1 Assignment Due at 11 p.m.**
Friday	01/27/17	2.1
		RWA 2 Discussion
		2.1
Monday	01/30/17	**Reading/Writing Assignment 2 Due in HuskyCT**
		Reading Writing Assignment 3 Assigned
		2.4
Wednesday	02/01/17	**WileyPLUS Sec. 2.1 Assignment Due at 11 p.m.**
		2.4
Friday	02/03/17	**Written Homework Assignment 1 Assigned (Ch. 1, 2.1, 2.4)**

		RWA 3 Discussion
Monday	02/06/17	2.4 **Reading/Writing Assignment 3 Due in HuskyCT**
Wednesday	02/08/17	**Reading Writing Assignment 4 Assigned** 4.1 **WileyPLUS Sec. 2.4 Assignment Due at 11 p.m.**
Friday	02/10/17	4.1 **Quiz 1 (Ch. 1, 2.1, 2.4)**
		Written Homework Assignment 1 Due RWA 4 Discussion
Monday	02/13/17	4.1 **Reading/Writing Assignment 4 Due in HuskyCT**
Wednesday	02/15/17	4.2 **WileyPLUS Sec. 4.1 Assignment Due at 11 p.m.**
Friday	02/17/17	Exam 1 Review (Ch. 1, 2.1, 2.4, 4.1)
Monday	02/20/17	**Exam 1 In-Class Part (Ch. 1, 2.1, 2.4, 4.1)** **Exam 1 Take-Home Part Assigned**
Wednesday	02/22/17	4.2
Friday	02/24/17	4.2 **Exam 1 Take-Home Part Due**
Monday	02/27/17	4.7 **Reading Writing Assignment 5 Assigned**
Wednesday	03/01/17	4.7 **WileyPLUS Sec. 4.2 Assignment Due at 11 p.m.**
Friday	03/03/17	4.7 RWA 5 Discussion
Monday	03/06/17	6.1 **Reading/Writing Assignment 5 Due in HuskyCT**

		6.1
Wednesday	03/08/17	
		WileyPLUS Sec. 4.7 Assignment Due at 11 p.m.
		6.1
Friday	03/10/17	
		Written Homework Assignment 2 Assigned (4.2, 4.7, 6.1)
Monday	03/13/17	**NO CLASS (Spring Break!!!)**
Wednesday	03/15/17	**NO CLASS (Spring Break!!!)**
Friday	03/17/17	**NO CLASS (Spring Break!!!)**
		6.4
Monday	03/20/17	
		Group Assignment Assigned
		6.4
Wednesday	03/22/17	
		WileyPLUS Sec. 6.1 Assignment Due at 11 p.m.
		6.4
Friday	03/24/17	**Quiz 2 (4.2, 4.7, 6.1)**
		Written Homework Assignment 2 Due
Monday	03/27/17	10.4
		10.4
Wednesday	03/29/17	
		WileyPLUS Sec. 6.4 Assignment Due at 11 p.m.
Friday	03/31/17	Exam 2 Review (4.2, 4.7, 6.1, 6.4)
		Exam 2 In-Class Part (4.2, 4.7, 6.1, 6.4)
Monday	04/03/17	
		Exam 2 Take-Home Part Assigned
Wednesday	04/05/17	10.4
		Class Time for Group Assignment
Friday	04/07/17	
		Exam 2 Take-Home Part Due
Monday	04/10/17	10.5
		10.5
Wednesday	04/12/17	
		WileyPLUS Sec. 10.4 Assignment Due at 11 p.m.
		10.5
Friday	04/14/17	
		Group Assignment Due
Monday	04/17/17	Möbius Band and DNA Splitting Activities (5.2 and 5.3)
Wednesday	04/19/17	Euler's Formula for Planar Graphs (6.2)

		WileyPLUS Sec. 10.5 Assignment Due at 11 p.m.
		Understanding Why Division by Zero is Undefined
Friday	04/21/17	
		Quiz 3 (10.4, 10.5)
Monday	04/24/17	Final Exam Review (Everything)
Wednesday	04/26/17	Final Exam Review (Everything)
Friday	04/28/17	Final Exam Review (Everything)
???day	05/??/17	**Final Exam (Date, Time, and Location TBA)**