Mathematics 1020Q - Problem Solving – Spring 2013

Tuesday and Thursday, 8:00 – 9:15 AM Credits: 3

Text: Pproblem SSSolving, Thomas DeFranco and Charles Vinsonhaler

Instructor: Edward H. Freeman Email: edfreeman@hotmail.com

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 drawn from combinatorics, probability, optimization, cryptology, graph theory, and fractals. Students will be encouraged to work cooperatively and to think independently.

Prerequisites: Recommended preparation: MATH 1010(101) 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(101), 1030(103), 1070(105), 1040(107), 1050(108) or 1060(109).

The basic goal of this class is to foster problem solving skills that can be applied throughout the college experience and afterwards. There are five major parts to this effort:

1. Learn and discuss methods of PProblem SSSolving.
2. Use these methods to solve logic problems, including puzzles and mathematical problems. Many of these problems will be taken from LSAT Logic Games, and Dell Puzzle Magazines (If you don't know what these are, don't worry, you will). The textbook contains numerous puzzles and I will be handing out others.
3. Extend these techniques to our personal and professional lives.
4. The ability to express your ideas and solutions to problems in orally and in writing.
5. Work together and think independently.

Calendar (Highly subject to change):

Week 1 Course Introduction Problem-Solving Techniques Chapter 1	Week 2 Chapter 2 and 3 Methods of Persuasion Introduction to Logic and Logical Fallacies	Week 3 Chapter 4 Dell Logic Problems	Week 4 Kakuro Oral Presentation Techniques How to Avoid a Rotten PowerPoint Presentation	Week 5 Chapter 5
Week 6 Chapter 6 and 7 Exam1	Week 7 Chapter 8 Memorization Techniques	Week 8 Chapter 9 and 10	Week 9 LSAT Problems	Week 10 Exam 2
Week 11 How to Lie With Statistics	Week 12 Paths and Networks	Week 13 Paths and Networks	Week 14 Exam3 Summary	

- We will have four exams (dates to be announced). The last exam will be during the week before the final exam. Each exam will count for 15% of your grade.
- We will have a final exam that will count for 40% of your grade. **There will be no makeups of any exams under any circumstances.** If you miss an exam, I will count the final exam at a higher percentage. All students must take the final exam. **Your final grade will be calculated from your exam grades.**

WHAT ABOUT ATTENDANCE? - Especially with this type of class, I expect you to be at every class. Before every class, I ask if anybody has any questions and review of what we covered last time.

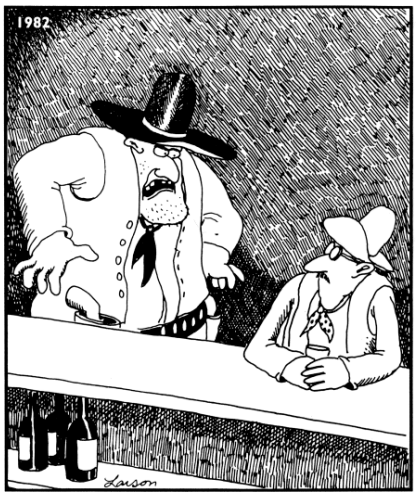
WHAT ABOUT HOMEWORK? - Unless I tell you differently, I do not collect homework. This is because I have found that the only people who hand them in are the ones who got them right. If you can't figure something out and want me to review an assignment in class or look at your answers, please just ask me. I'll be happy to oblige. But, please do the assignments.

Other Points:

1. If at any point, you are thinking of dropping the course, please let me know before you do so. I will, of course, try to talk you out of it, as I take such matters personally. As a part-time faculty member, I make it a point not to know what the rules are for such things, so check with the registrar's office before you do anything.
2. Every class builds upon what we learned last time, so it is imperative that you keep up with the class. If you get behind early in the semester, it is almost impossible to catch up later on. If problems do develop, let me know as soon as you find yourself in trouble.
3. If you are not in class for any reason, it is your responsibility to get the notes from another student. Please do not expect me to give a lecture again because you are not in class.
4. If anybody has some type of learning or physical disability, please let me know after class. I will do whatever I can to expedite matters for you.
5. I will regularly be sending worksheets to you through your UConn email box so I expect you to check it regularly. If you prefer that I send emails to you at another address, please send me an email from that address and I will add your name to my list.
6. The goal of this class is to learn how to solve various types of mathematical and logical problems. Your grade will be based on your ability to solve these problems. If you are having trouble, please let me know, but do not ask if you can do an extra credit project. It simply is not relevant in this class.
7. Math 1020 is an introductory course, designed to teach you how to solve problems. You do not need any mathematical background beyond simple algebra but DON'T BE FOOLED BY THE 1000 NUMBER! This course is challenging and will take you a lot of time and effort. It introduces logical methodology and I expect you to master this.
8. You are expected to:
    - Come to class on time. I know how traffic (and parking) can be but if you come late, I either have to review what I have said or you have to disturb another student to catch up. So please plan on showing up on time.
    - **Refrain from texting during class.**
    - Take notes on the lectures. I will test you on the material that I cover when I lecture.
    - Remain quiet and courteous at all times.

I am looking forward to a great semester with all of you, so let's get to it.

Grading Policy - NUMERICAL AVERAGE	LETTER GRADE
90.00-100	A
87.00-89.99	A-
83.00-86.99	B+
80.00-82.99	B
77.00-79.99	B-
73.00-76.99	C+
70.00-72.99	C
67.00-69.99	C-
63.00-66.99	D+
57.50-62.99	D
55.00-57.49	D-
0-54.99	F



"I asked you a question, buddy. … What's the square root of 5,248?"