MTH 141 Finite Mathematics
Syllabus
Summer Session II 2006
MTWR 9:15am - 10:50am Franz 206

INSTRUCTOR INFORMATION

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- **Office Hrs**: MTWR 3-4pm, F 9-10am and by appointment
- **Course Webpage**: [http://faculty.up.edu/wootton/](http://faculty.up.edu/wootton/)

TEXT AND READINGS


TECHNOLOGY

- The course requires the use of a graphing calculator. The TI-83 is highly recommended.

COURSE/BULLETIN DESCRIPTION

Functions, matrices, systems of linear equations, linear programming. Sets and counting, probability, game theory.

Prequisite: MTH 111 or equivalent

UNIVERSITY CORE

The university core question addressed is: How does the world work? How could the world work better?

The university core outcomes to be achieved are the following: to develop the foundational knowledge and skills necessary for informed inquiry, decision making and communication, and to learn to use the lenses of different disciplines, and seek the connections among them.

COURSE PERFORMANCE OBJECTIVES

Almost all the mathematics learned in high school comes to bear in finite mathematics. Students finally see what it is good for and learn to appreciate the power of continuous and discrete mathematical models.

In MTH 141 Finite Mathematics students:

- Are exposed to matrix methods for solving systems of equations and linear programming.
- Are exposed to the pervasive use of mathematics in other disciplines, with emphasis on its applications in business and economics.
• Are introduced to problem solving using systems of equations or systems of inequalities to model phenomena.
• Are introduced to fundamental concepts in set theory, combinatorics, and probability.
• Develop skills in using computer software or calculators to solve problems.

Upon completion of the course we expect students to be conversant in the rudiments of matrix methods, linear programming, and discrete probability models. They should be able to:
• Develop models and solve real world problems using matrix methods or probability, especially in business and economics.
• Apply the simplex method to solve linear programming models.
• Articulate the characteristics of problems that lend themselves to solutions via linear programming.
• Articulate the fundamental concepts of discrete probability models.

This course also addresses two University Core Embedded Elements: Analytical and Logical Reasoning, and Technology Literacy.

Students in Analytical and Logical Reasoning enhanced courses will develop the ability to:
• Recognize and follow logical argument and presentations.
• Construct valid arguments.
• Use specific disciplinary frameworks to solve problems.

Students in Technology Literacy enhanced courses will develop the ability to:
• Understand the use of technological tools in a disciplinary field
• Identify and select the appropriate technological tools to facilitate learning, computing, and creating.
• Use technological tools effectively and responsibly.

METHODS OF ASSESSMENT

Course performance objectives are assessed by traditional means: graded homework assignments, examinations, and other graded work that may include written and oral presentations. The development of analytical and logical reasoning skills are inherent in the nature of mathematics and assessed in conjunction with the course performance objectives. Computational technology use is required for successful completion of assignments and examinations.

Higher order reasoning skills are learned by doing; you must become an active participant in the learning process. I will facilitate your path to meeting the course objectives with:

(1) Lectures to introduce new concepts.
   You are expected to attend all lectures. My lecture style is very informal. In order to generate some class discussion I will often throw out non-rhetorical questions. And you are encouraged to interrupt me with questions.

(2) Homework assignments.
   The real learning will come from working homework assignments - homework will be assigned every class period on the board and will be posted on the webpage. It is due the day after it is assigned. You are encouraged to
work in groups, but you are on your honor not to turn in work you don’t understand. Also, professional courtesy dictates that one acknowledges significant contributions of others.

BE WARNED: The collected homework is for my benefit so I can monitor your progress and assign grades - it is NOT the only homework you should complete. As a general case, when studying, you should complete as many problems as necessary until you feel comfortable with the material you are working on.

No late assignments will be accepted. Arithmetic and analytic work may be given partial credit when you have shown some aptitude. However, no credit will be given on problems for which an answer is given with insufficient work displaying the steps and reasoning for a solution.

Homework assignments, as with all work, must be done neatly - if I can’t read it, you get 0 points! Please write the problems in numerical order and when using more than one page, staple the pages together.

(3) Quizzes and Examinations
There will be two midterm examinations and one final examination. The midterms are scheduled to cover the following material:
Midterm 1: Chapters 4 & 5
Midterm 2: Chapters 6, 7 & 8

The exact dates of the midterms will depend upon the speed the relevant material is covered and will be announced in class and on the website at least two days beforehand. The final exam is cumulative and is scheduled for the last day of classes. There will be regular quizzes which are generally unscheduled.

I do not give make up exams. There are only two exceptions - an absence due to extreme hardship or a University sponsored event. In either case, proof is required and I must know within 24 hours of the test.

GRADING STANDARDS
Final grades will be based on assignments and examinations.

- Homework: 200 points
- Quizzes: 100 points
- Midterms (2): 100 points each
- Final Exam: 200 points

The total number of points available is 700. Final grades will be determined at the end of the semester, though will be no lower than those set forth in the following table.

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<tr>
<th>Points</th>
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<td>616 – 629.5</td>
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<tr>
<td>595 – 615.5</td>
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<td>560 – 594.5</td>
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<td>D-</td>
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GETTING HELP:

Do not wait until the last minute to get help. Mathematics is a culmulative subject with later material building upon earlier stuff. This means if you do not understand something, it will continue to haunt you for the rest of the course. In addition to office hours, I usually allow students to drop by as they please so there is no excuse for you not to be able to see me when you need help. If need be, I can even come early in the morning or some time in the evening. I am here to help you, but it is your responsibility to ask me for the help before things get on top of you.

UNIVERSITY OF PORTLANDS CODE OF ACADEMIC INTEGRITY

Academic integrity is openness and honesty in all scholarly endeavors. The University of Portland is a scholarly community dedicated to the discovery, investigation, and dissemination of truth, and to the development of the whole person. Membership in this community is a privilege, requiring each person to practice academic integrity at its highest level, while expecting and promoting the same in others. Breaches of academic integrity will not be tolerated and will be addressed by the community with all due gravity (taken from the University of Portlands Code of Academic Integrity).

The complete Code may be found in the 2004-05 University of Portland Student Handbook and as well the Guidelines for Implementation. It is each students responsibility to inform himself or herself of the Code and Guidelines

ACCOMODATION FOR DISABILITY

If you have a disability and require an accommodation to fully participate in this class, contact the Office for Students with Disabilities (OSWD), located in the University Health Center (503-943-7134), as soon as possible.

MINIMAL SYLLABUS

We will cover at least the following sections (more may be added depending upon progress):

- Chapter 4, Systems of linear equations: 4.1-4.3
- Chapter 5, Linear Inequalities and Linear Programming: 5.1-5.5
- Chapter 6, Logic, Sets, and Counting: 6.1-6.4
- Chapter 7, Probability: 7.1-7.5
- Chapter 8, Data Description and Probability Distributions: 8.1-8.5

I will expect you to have read each section before it is covered in class. You will be asked questions about each section before I teach it to make sure you are doing this!

CALCULATOR USAGE

Students will be allowed to use graphing calculators (including calculators with computer algebra systems like DERIVE) on all Midterms and the Final Exam. Calculators will not be allowed for some quizzes.