

Math 130 Course Syllabus

Finite Mathematics (5 credits)

Spring 2003

Instructor: Dr. Mark Oursland

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Office Hours: 10:00 am to 11:00 am daily -- other times by appointment

Course Description: The course is essentially self-contained, and is accessible to students who read and use ordinary arithmetic proficiently. Students will become acquainted with the descriptive and decision-making applications of probability and statistics.

Course Rationale: This course will furnish the students with the reasoning, analytical and computational skills for quantitative studies in many academic areas. Math 130.1 (or Philosophy 201) *meets Reasoning Requirement* for students enrolled prior to Fall '97. Math 130.1 (or Philosophy 201), or Computer Science 105) *meets Basic Skills Requirement (d)* for students whose first enrollment in a State-of-Washington community college or 4-year institution in Fall 1997 or later.

Text: Finite Mathematics: Introductory Probability and Statistics (paperbound) Authors: Owen & Cutlip

Learner Outcomes: Students will use the assignments, quizzes, project papers, and exams to insure that they have demonstrated the following performance objectives.

Concepts and Procedures

- Use notations and apply concepts of set theory: (elements, unions, intersections, complementation, and Venn Diagrams);
- Describe populations using tables and Venn diagrams;
- Apply the following counting techniques and principles: tree diagrams, permutations and combinations, novel techniques, complementation and union, and the Fundamental Counting Principle.
- Use and apply concepts of discrete probability (sample space, sample point, event):
 - by assigning probabilities to simple events;
 - by assigning probabilities with equal probable sample spaces;
 - by assigning conditional probabilities and determining whether events are independent;
 - by using the Multiplicative Rule and Baye's Theorem;
- Test and explain the reliability of systems;
- Use and apply concepts of discrete random variables:
 - by describing random variable- mean, median, mode, variance, and standard deviation;
 - by using the binomial distribution equation;
 - by applying the concept of the normal distribution to real-world applications;
 - by reading and creating graphical summaries of data.
 - by calculating, explaining, and applying measures of central tendency and dispersion;
 - by creating and testing confidence intervals of the population mean;
- Make and explain decisions made:
 - using expected values;
 - applying basic game theory and marginal analysis;

Performance Skills

Problem-solving

- Working on extended problems
- Drawing on diverse knowledge and methods to solve problems
- Posing questions related to a problem
- Modeling real-world phenomena mathematically

Group Work

- Working cooperatively with others
- Sharing ideas
- Subdividing a task so that group members can work independently on the different parts

Writing and Communication

- Reading and understanding complex problems
- Summarizing the essential ideas of a problem
- Describing methods used to approach a problem
- Expressing solutions and solution paths in written and verbal form
- Evaluating and improving the quality of written work

Assessment and Evaluation Guidelines: In this course the distinction between learning activities and assessment activities is blurred. I present a sequence of problems (combined with motivation, discussion of contexts, and connections with other areas of mathematics and life) designed to equip you with the concepts and processes of probability and statistics. The assessment procedures are chosen to provide information about your progress in achieving the performances objectives and eventually revealing your achievement of these objectives. Through completing the following course work you will demonstrate your ability to perform the above course objectives.

Daily Assignments: Daily assignments of problems to be worked on either individually or in small groups will be given daily. Some times the feedback will come from the textbook, your peers, and the instructor..

Projects: Two class projects (25 points) will be assigned and collected. The projects will be open-ended problems that will require investigation and a formal or intuitive discourse explaining your solution and process.

Quizzes: Quizzes (usually take-home) worth 25 points will be given periodically to give both the student and instructor feedback concerning mastery of the course concepts and skills. Students can then use these quizzes to determine the remedial work they need in preparing for the next exam.

Examinations: Four examinations worth 100 point and a comprehensive exam final exam worth 200 points will be given throughout the quarter. Students can use the exams to determine the remedial work they need in preparing for the final exam.

Grading: Grades will be determined by the following percents:
 93-100% = A, 90-93% = A-, 87-90% = B+, 83-87% = B, 80-83% = B- , 77-80% = C+,
 73-77% = C, 70-73% = C-, 67-70% = D+, 63-67% = D, 60-63%, 0-60% = F.

Schedule/Rules: The instructor has a class schedule for the quarter but it is subject to change depending on the needs of the students. Attendance is not taken but class participation is essential for learning the course objectives. If a student misses class, it is their responsibility to find out what was covered announced or assigned. In case of emergencies, it is their responsibility to contact the instructor as soon as possible. If a course deadline, quiz, or exam was missed assessment alternatives are left up to the discretion of the instructor.

How to succeed: Take the responsibility for your own achievement of these performance objectives. Use the activities, assignments, assessments and people such as the instructor to insure that you understand the mathematical concepts and can demonstrated this understanding in the form of the performance objectives. Previous Math 130.1 students stress “Keep up! Study consistently, not just before tests. Get into a study group; it’s the only thing that saved me.” Help is available on a drop-in basis on weekdays from 1 pm to 4 pm in the Academic Skills Center, Bouillon 101. We will organize study sessions within the first two weeks.

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact the office of student assistance on campus 963-2171.