Lamar University
Department of Mathematics

MATH 2305-OX (3 hour course) Discrete Mathematics

Term: Syllabus
Days and Times

Instructor: Instructor
Office: Office number
Phone: 409-880-XXXX
Office Hours: Days and Times
Other times are available by appointment?
Text: Currently under review for Fall 2013
Prerequisites: Prerequisites: Students should be currently enrolled in or have received a grade of C or better in MATH 1325, 2376, 2413, 2460, or 3316

Catalog Description: An introduction to combinatorial mathematics and finite mathematics required in the study of computer science. Topics include elementary set theory, relations and function, combinatorics, and introduction to graph theory with special emphasis on trees and search algorithms, an introduction to recurrence relations and generating functions, and finite state machines. Prepares for: MATH 3321 Offered: Fall, Spring
3.000 Credit hours

MATH 1314 Learning Outcomes: Upon successful completion of this course, students will:
1. Construct valid arguments, using both direct and indirect arguments in constructing proofs, and verify generalizations by mathematical induction.
2. Employ recursive thinking.
3. Recognize, verify, and apply various properties of sets, functions, and relations.
4. Recognize, verify, and apply various properties of graphs and trees.
5. Employ a variety of representations for functions, relations, graphs, and trees.
6. Understand what an algorithm is and how to determine worst-case complexity of simple algorithms.
7. Enumerate using permutations, combinations and other techniques, and to use these concepts to solve applications in mathematics and computer science.
8. Compute probability and expected value.
9. Acquire knowledge of mathematical concepts and techniques which should serve as a preparation for more advanced quantitative courses.

* 1-7 directly correspond to ABET objectives for this course.

Lectures/Discussions/Classwork/Homework Topics:
Currently under review for Fall 2013

Core Curriculum Outcomes: Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:
1. **Critical Thinking:** Develop a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.

2. **Communication Skills:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.

3. **Empirical and Quantitative:** Construct and present a detailed problem statement with evidence of relevant contextual factors and possible approaches for solving the problem, then implement a solution and review the results.

**Major Course Components:** The course will consist of lectures, discussions, classwork, and homework. There will be four exams and a final exam.

**Grading Policies:** There is no specific attendance requirement, however, students are warned that excessive absences are not conducive to achievement. The final grade will be computed by total points earned on four exams (80%) and percentage of points earned on homework (20%). Late work will not be accepted. Makeup tests are allowed, but must be scheduled in advance. The final grade will be based on the following scale: 90% A, 80% B, 70% C, 60% D, below 60% F.

**Final Exam:** Date, Day, Time Is the exam optional for any students?

**General Information:**

Lamar University expressly prohibits intimidation and harassment of students, faculty, staff, or applicants.  [http://dept.lamar.edu/studentaffairs/handbook.htm](http://dept.lamar.edu/studentaffairs/handbook.htm)

Lamar University expects all students to engage in academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action.  [http://dept.lamar.edu/studentaffairs/handbook.htm](http://dept.lamar.edu/studentaffairs/handbook.htm)

Any student with disabilities, who needs reasonable modifications to complete assignments successfully, is encouraged to meet with me as early in the term as possible to identify and plan specific accommodations. The student will be asked to provide an accommodation memorandum from the Office of Services for Students with Disabilities.  Web: [http://dept.lamar.edu/sfswd/](http://dept.lamar.edu/sfswd/) Telephone: 409-880-8026 Location: Communication Building, Rm.105, P.O. Box 10087, Beaumont, TX 77710 Director: Callie Trahan

You will have an opportunity to evaluate all aspect of this course in a formal process to be completed online near the end of the term.

While I have made a sincere effort to ensure that this syllabus is correct, changes may be required. I will announce any substantive changes during a regularly scheduled class. If you find an error or omission, please advise me at once so that the other members of the class may be advised.

Student planning to seek certification to teach grades EC-4 or 4-8: Content standard skills covered in this course are: 1.6, 1.7, 1.13, 1.15, 1.18, 1.19, 1.23, 1.21, 2.2, 2.3, 2.4, 2.5, 2.6, 2.9, 2.10, 2.11, 2.12, 2.13, 2.14, 3.3, 3.5, 3.6, 3.7, 3.14, 5.7, 5.8, 5.9, 5.11, 5.12, 5.14, 5.15, 5.16, 5.17, 5.18

**NOTE:** The sections in red are completed or corrected by individual instructors.