

MATH 1332.01 Fall 2017

Contemporary Mathematics

Department of Mathematics, Lamar University

Class time TR 9:35-10:55

Instructor Jeremy Alm

Office Lucas 200B

Office hours M 1-2, F 10-11, and other times by appointment. The best way to see me outside of these hours is to call the mathematics office (409.880.8792); one of the administrative associates can schedule an appointment for you.

Office Phone 409.880.7989

Email address jalm@lamar.edu

Textbook Burger and Starbird, *The Heart of Mathematics*, 4th edition.

Learning outcomes

Upon completion of the course, students will:

- Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.
- 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.
- Develop a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.
- Apply the strategies for problem solving method to problems using both inductive and deductive reasoning.
- Develop procedures for using sets and visualizing relations among sets with Venn diagrams, and apply them to solve problems that are modeled with sets.
- Develop logical arguments and determine validity of arguments using truth tables or Euler diagrams.
- Identify patterns in numbers and prove or disprove the patterns.
- Find unique prime factorizations of composite numbers.
- Describe the fundamental counting principle to solve counting problems.
- Solve counting problems involving permutations, combinations, or Pascal's triangle.
- Find probabilities with theoretical, empirical probability formulas.
- Find probabilities with addition rules.
- Apply the conditional probability formula and determine whether the two events are independent.
- Determine the annual percentage rate for different types of loans.
- Compute monthly mortgage payments of fixed-rate mortgages and adjustable-rate mortgages.
- Determine returns on stock investments.

Attendance

Attendance will be very important for this class, since it will be as much about having an experience as it will be about acquiring certain skills. As you can see in the next section, your attendance will count as much toward your final grade as the final exam. In order to receive full credit for attendance on a given day, you must be present for the entire class and attentive to the goings-on, i.e. not sleeping, checking phones, etc. Since there will be 26 class meetings, each day that you miss will reduce your final grade by about one percentage point.

Grades

Your grade will be computed as follows:

Attendance:	25%
Quizzes:	25%
Other assignments and in-class activities:	25%
Final exam:	25%

We will use the following grading scale to assign final grades:

A :	90% and above
B :	80% and above
C :	70% and above
D :	60% and above

Pluses and minuses will be assigned in the extremes of these ranges.

Schedule

Week of Mon 4 Sept thru week of Mon 25 Sept	Unit 1: Logic, Language, and Paradox Quiz 1 on Thurs 28 Sept
Week of Mon 2 Oct thru week of Mon 16 Oct	Unit 2: Numbers, Patterns, and Secrets Quiz 2 on Thurs 19 Oct
Week of Mon 23 Oct thru week of Mon 6 Nov	Unit 3: Diagonalization: a revolutionary idea Quiz 3 on Thurs 9 Nov
Week of Mon 13 Nov thru week of Mon 4 Dec	Unit 4: Probability and Risk Quiz 4 on Thurs 7 Dec
Tues 12 Dec 8:00-10:30	Final Exam

I will provide a more detailed schedule once the chaos from the hurricane settles down a little bit.

Important Information for Students

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

Drop Policy: Please make note of the three dates indicated in this drop policy. Any drop will be your responsibility; I will not drop a student from the course.

September 13, 2017: (Census Date-Six Drop Rule does not apply) A student may drop or withdraw without consulting with the instructor. The Six Drop Rule does not apply to a drop before 5:00 PM. **September 29, 2017:** (Six Drop Rule applies) A student may drop or withdraw from the course without academic penalty and receive a Q, however, the Six Drop Rule applies. The student will consult with the instructor and the Records Office to initiate a drop. **November 3, 2017:** (Six Drop Rule applies) Last day to drop or withdraw with academic penalty; the student must be passing the course at the time of the requested drop in order to receive a Q. The drop form, including all required signatures, must arrive in the Records Office by no later than 4:00 PM. No drop is allowed after this date except in extreme extenuating circumstances. Any "late drop" must be approved by the instructor, department chair, college dean, and provost.

Academic Integrity: 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. Students are specifically warned against all forms of cheating and plagiarism. The *Lamar University Student Handbook* clearly reads: "Any student found guilty of academic dishonesty in any phase of academic work will be subjected to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of source materials." One aspect of the Handbook's definition of cheating includes "purchasing or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm." Plagiarism is defined as "the appropriation and the unacknowledged incorporation of another's work or ideas into one's own and submitted for credit." Faculty members in the College of arts and Sciences investigate all cases of suspected plagiarism. Any student who is found cheating in this course will receive a course grade of F. <http://students.lamar.edu/student-handbook.html>

Accommodations: Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at 409-880-8347 or drc@lamar.edu to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable accommodations. If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course. <http://www.lamar.edu/disability-resource-center/>

Incomplete Grades: The grade of "I" may be given when any requirement of the course, including the final examination, is not completed. Arrangements to complete deficiencies in a course should be made with the instructor prior to the end of the semester or term. Incomplete work must be finished during the next long semester or the Records Office will change the "I" to the grade of "F" While the extension may be granted by the instructor with the approval of his/her Department Chair and Academic Dean, once the "I" is changed to an "F" it cannot be changed back to an "I." In this case, either a "change of grade" procedure must be initiated or the course must then be repeated if credit is desired. The instructor may record the grade of "F" for a student who is absent from the final examinations and is not passing the course.

Campus Closure: In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to login to Lamar University's website's homepage for instructions about continuing courses remotely. <http://lamar.edu>

Emergency Procedures: Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at: <http://www.lamar.edu/about-lu/administration/risk-management/index.html>

Following are procedures for the first two:

- Severe Weather:
 - Follow the directions of the instructor or emergency personnel.
 - Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
 - If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
 - Stay in the center of the room, away from exterior walls, windows, and doors.
- Violence/Active Shooter:
 - CALL - 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
 - AVOID- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
 - DENY- Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.

- DEFEND- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Course Evaluations: You will have an opportunity to evaluate all aspects of this course in a formal process to be completed online near the end of the term. You will receive an email reminder through your LU account.