

MATH 1400: Precalculus Mathematics

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1. TEXT

Precalculus (5th edition), by James Stewart, Lothar Redlin, & Saleem Watson

2. COURSE CONTENT

“Precalculus” is a sort of catch-all term, which may be loosely translated as “all the background mathematics essential for studying calculus that you may not have learned or understood thoroughly enough from your previous courses in algebra.” Except the term is misleading here at EIU, because trigonometric functions are not covered in this course, although they are also essential prerequisites for studying calculus. Trigonometry is covered in a separate course, MAT 1330.

The topics to be covered are: a rigorous review of algebra and the translation of applied problems into algebraic form, in order to solve them; the real number system, including the essential property of continuity it adds to the rational number system; polynomial, rational, algebraic, and transcendental functions, including detailed discussion of exponential and logarithmic functions; coordinate and vector geometry, including polar coordinates; systems of equations and their applications; analytic geometry; sequences and series; a preview of calculus (if time permits).

3. OBJECTIVES

It is fashionable, unfortunately, to list so-called *measurable objectives*, but I will refrain from doing so, because the most important things to gain from the study of any subject, such as depth of understanding and the ability to think in a way that is natural for the discipline, are not particularly definable or quantifiable. My object is to expose you to a rich set of concepts and exercises in the various topics of this course, presented in a discursive manner that highlights the relationships among them, with the objective that you will make these ideas your own and develop facility in working with them.

4. REQUIREMENTS

4.1. Quizzes: There will frequent short, unannounced quizzes, about one two weeks. Although homework exercises from the text will not be collected, the quizzes will be based on the homework assignments as well as class discussions.

4.2. Exams. There will be *two exams during the term, in addition to the final exam*, one near the middle of the term (the *mid-term exam*) and one near the end of the term (the *end-of-term exam*). The mid-term exam will cover all of the material since the beginning of the course; the end-of-term exam will cover all material since the midterm exam.

There will be a *comprehensive final exam*, covering all the material of the course, at the scheduled time during exam period.

Make-up exams will be given only under extraordinary circumstances or in case of serious emergency; prior permission to miss an exam must be obtained from the professor if at all possible.

I expect answers to quiz and exam questions to be well-organized and justified in order to receive credit. I am VERY STINGY with partial credit; however, I am forgiving about minor careless errors.

5. GRADING

I do not grade on a “curve”; a score of at least 90% is required for an A, at least 80% for a B, and so on. The only exception to this is that occasionally I will decide, upon examining a particular test question, that it was ambiguous or unreasonably hard, in which case I will make a small adjustment in the scoring to account for this. I also sometimes apportion extra points on exams to compensate for hard questions.

Under no circumstances will your grade directly depend on how how your fellow students do. If you do a good job of learning the material, you will receive a good grade, regardless of how well the other

members of the class perform. Don't forget that the reverse is also true: if you do a poor job of learning the material, you will receive a poor grade, regardless of how poorly everyone else does.

Each requirement will count toward your final grade as follows:

Quizzes: 35% Exams (mid-term & end-of-term) : $2 \times 20\% = 40\%$ Final Exam: 25%

To make it easy for you to keep track of how you are doing, I will make quizzes worth 50 points each and count the best seven, for a total of 350 points. I will make each in-class exam worth 200 points and the final worth 250, so the total of possible points is 1000.

The instructor reserves the right to make changes in course policy.

6. HOW TO PARTICIPATE IN CLASS: SOME SUGGESTIONS

Class time will involve a combination of lecture, discussion, examples, and opportunities to ask questions and to work on problems in small groups. Come to class prepared to concentrate and work hard! *Read any relevant material in advance. And, if I may restate the obvious, in order to get something out of class participation, you have to come to class.*

Do not let note-taking distract you from also *thinking* about the material being presented. If you have read the relevant material in advance, you will know what to emphasize in your notes, freeing up your mind to think. In taking down an example, do not struggle to write down every algebraic step: at this point, you should know how to do algebra, so just leave room to fill in any missed steps later.

Always go over your notes as soon after class as possible, before the following class, filling in any missing details, adding marginal notes, and making sure you understand what you have written. If you have questions, come to office hours or ask them at the beginning of the following class. Be neat, organized, and thorough - it really helps a lot!

Finally, never hesitate to ask a question in class. Every question is important, no matter how elementary you may think it is!

7. DISABILITY SERVICES

If you have a documented disability and are in need of accommodation, please contact the Office of Student Disability Services (OSDS), Ninth Street Hall, Room 2006, (217) 581-6583. All accommodations must be approved through OSDS.

8. STUDENT SUCCESS CENTER

Students who are having difficulty achieving their academic goals are encouraged to contact the Student Success Center, Ninth Street Hall, Room 1302, (217) 581-6696, for assistance with time management, test-taking, note-taking, avoiding procrastination, setting goals, and other skills to support academic achievement. The Student Success Center provides individual consultations.