

OUTLINE, 01/17/02

Text: *Calculus*, 4th edition, by James Stewart, Brooks/Cole

Prerequisite: Math 115 or 120, or Advanced Placement credit for Calculus AB.

Limitation: Not open to students who have passed Math 116 or 121.

Note on calendar: Spring semester classes begin Wednesday 23 January and end Tuesday 7 May. There are no classes Monday 18 March through Friday 22 March.

Evaluation: This paragraph and the proposed outline and exercises to follow apply to participating Storrs sections. Changes will be communicated to students in a timely manner. There will be two one-hour evening mid-term exams, each at 6:00 p.m., the first currently scheduled for Thursday 7 March and the second for Tuesday 23 April; there will be a common final exam 10:30 a.m.–12:30 p.m. on Monday 13 May. There will be no make-up mid-term exams; an unexcused absence will result in a grade of 0; for an excused absence, the test grade will come from the corresponding part of the final exam. The weighting for semester grades is: 20% Exam 1, 20% Exam 2, 35% Final Exam, 25% other activities: homework, quizzes, projects, etc. Graphing calculators are welcome, and they or software (such as from MSB 203, the Department's Computer Laboratory) will be very helpful for some work.

Coverage: In the proposed coverage for Exam I listed below, each section will cover *either* 7.2, 7.3, 7.4 or 7.2*, 7.3*, 7.4*. **The instructor will choose which block of these sections to discuss, and it is the responsibility of students to do the homework from the chosen sections.** Do *not* submit homework from both sets of sections!

Background/review: 5.2, 5.3, 5.4, 5.5, 6.1.

Coverage: definite integrals and area.

Tentative Coverage for Exam I: 6.2, 7.1, 7.2 or 7.2*, 7.3 or 7.3*, 7.4 or 7.4*, 10.4, 7.5, 7.7, 8.1, 8.2, 8.4, (8.3 optional, 8.5 and 8.6 omitted), 8.7, 8.8.

Topics: volume; inverse functions; exponential, logarithmic and inverse trigonometric functions; l'Hôpital's rule; integration by parts; trigonometric integrals; integration by partial fractions; approximate integration; and improper integrals.

Tentative Coverage for Exam II: in addition, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, (12.7 optional), 12.8, 12.9, 12.10, 11.1, 11.2, 9.1, 11.3, 11.4, 11.5.

Topics: sequences and series; integral, comparison, alternating series and ratio tests (root test optional); power series and Taylor series; parametric curves; tangent lines (area optional); arc length; polar coordinates.

Additional material for Final Exam: 13.1, 13.2, 13.3, 13.4, 13.5.

Topics: coordinates, vectors, dot and cross products, equations of lines and planes.

A note on the exercises: On the other side of this sheet is a list of proposed exercises for each section. Most of them are odd-numbered, so the answer appears in the back of the book. **Do not look at the answer** until you have given the problem your "best shot." In many cases, the book offers an adjacent, parallel exercise, which you should also do if you have any difficulty with the assigned one.

Most students should expect to spend *at least eight hours per week* on the course outside class. Many should spend considerably more than that; only a *very* few can spend less and succeed in the course.

Try to *understand* what you are doing, rather than merely going through rote motions. To apply calculus successfully later, you need to have an overview of its methods and be able to apply them in appropriate circumstances. That process *never* is feasible for those who have only memorized sequences of steps for solving individual problems.