

Instructor: **Dr. Art Duval**

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Office hours: **Mon, Wed 2–3; Tue, Thu 11:30–12:30**. Please feel free to come by any time during scheduled office hours. You are welcome to come at other times, but in that case, you might want to make an appointment, just to make sure that I will be there then. You can make an appointment simply by talking to me before or after class, or by calling me at my office or at home.

Textbook: **CALCULUS, Deborah Hughes-Hallet, Andrew M. Gleason, et. al., Chs. 7–10**. A few sections will be skipped, as announced in class, and we will cover Chapter 10 before Chapter 9. The textbook is required at all class meetings. A **Student Solution Manual**, consisting of solutions to approximately every other odd problem, is on reserve at the library, and possibly for sale at the bookstore.

Calculators: Each student must have a graphing calculator with capabilities equivalent to the **TI-85**. The calculator is required at all class meetings and exams.

Some programs for the TI-85 will be made available in class. You may have any programs you wish in your calculators during exams and you may bring your calculator manual to exams. Failure to have certain programs in your calculator may put you at a distinct disadvantage on an exam. If using the TI-85, you should be familiar with the **GRAPH, CALC, LIST, PRGM, and SOLVER** keys.

GRADES:

Homework (15%) Homework will be assigned most class days and will be due at the *beginning* of the next class meeting (with exceptions as announced in class). One or two problems from each homework set will be selected for grading and the score on the selected problem(s) will determine the grade for that homework set. Some homework may take the form of group projects and require a single item, written or orally presented. In this case, every group member will receive the same score. Late homeworks will NOT be accepted, but the lowest three scores will be dropped.

Tests (15% each) There will be three in-class tests on the following days:
(Material covered on each test is subject to change, as announced in class.)

Ch. 7	Fri 29 Sep.
Ch. 8, 10.1–10.3	Fri 27 Oct.
10.5–6, 9.1–9.5	Fri 17 Nov.

NO MAKE-UP TESTS (except in **EXTRAORDINARY** circumstances and with advance notice), but see “Exception” below.

Final (40%) comprehensive

Fri 8 Dec., 1:00–3:45 p.m.

Exception The final exam score will be used in place of the lowest in-class test score, if this increases the overall class average.

Attendance Policy: On-time attendance at all classes is required. If you have more than three unexcused absences, your overall course grade will be reduced by seven points; more than six, and you will be dropped with an F. Unexcused late arrivals or early departures will count as half an unexcused absence.

Drop policy: The deadline for student initiated drops with an automatic W is Fri. Oct. 6. From then until Fri. Nov. 17, you can drop the course by consulting me. To drop with a W requires a D average on the tests taken to that point, but I will also drop you with a W, even if your average is below a D, if you discuss your situation with me immediately after the test that brings your average below a D.

GOAL OF THE COURSE: The goal of the calculus sequence is to obtain a solid understanding of the concepts of function, derivative, and integral equally well from numerical, graphical, and symbolic points of view, and to be able to express your understanding in written or spoken form, using correct language and grammar. In dealing with a problem to which calculus is applicable, you should be able to use whichever point of view is most effective. You will also understand when it is appropriate to use technology, when a purely symbolic approach is more effective, and how to mix the two.

There are four major themes to this course. We begin with a systematic discovery of antiderivatives using substitution, integration by parts and tables of integrals, followed by exact computation of definite integrals using the Fundamental Theorem of Calculus, and numerical recipes for integrals which cannot be found exactly. We will use Riemann sums to lead into a variety of applied problems which can be solved using definite integrals. Next we consider how functions can be approximated locally by Taylor series, or globally by Fourier series. Finally we combine derivatives and integrals in an introduction to differential equations.

In all chapters, you will experience open-ended problems, problems which require written commentary rather than a string of symbols or numbers, and problems for which different answers may be equally correct.

Required Reading: Preface: pages vii, xiii, xiv. The textbook is intended to be read. *In full.* Pay particular attention to the third bullet on page xiii. Read each section that we cover in class, both before and after class.

Fair Warning: The approach of this course to calculus is intended to be different. *If you have had a calculus course already, you will probably find much that is unfamiliar and a very different emphasis on things you may think you know already.* Be alert to this and remember that previous experience is unlikely to be enough to coast on. Treat each topic as if you were meeting it for the first time, and be alert to make sure you understand each day's material before the next class meeting.

HELP: Since this is only the second semester that Calculus II has been taught this way (including the use of a graphing calculator), it is likely to be more difficult than usual to obtain help with the course material from sources outside the department of mathematical sciences. There is plenty of help available to you provided you are willing to take advantage of it.

my office: I will be glad to meet with you, in addition to office hours, at any time that I do not have to be somewhere else. You may wish to make an appointment to be sure that I will be in my office when you are coming, but you do not need to. My entire schedule is on my office door.

Drs. Liguori and Hall are teaching similar sections of Calculus II (same text, use of calculators, etc.), and will be available to help during their office hours.

each other! It is the intent of the course to require some group activities, which will enable you to get to know each other and form study groups on your own.

(See also the list of office hours for the people mentioned above.)

Calculator: Some training on the TI-85 will be given in class, and some help with the TI-82 or HP48G may be available, but we will spend as little time as possible in class on formal calculator training. I will be glad to help you with the calculator outside of class.

I am not an expert on the calculator, and I hope and expect that soon many of you will know more about it than I do. Please let me know if you figure out anything interesting!