Course Syllabus
Differential and Integral Calculus II

Course Instructors: Andy Miller and Ling Jin
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Office Hours: Weekly office hours will be posted at the course web site and on CANVAS.

Text: The course textbook will be *Calculus (Eighth Edition)* by James Stewart (Cengage, 2016). Most of chapters 6 through 8 and 10 through 12.5 will be covered. Reading and studying the textbook as the semester progresses is expected and will be important for success in the class.

Course Web Site: A course web site at *www.math.ou.edu/∼amiller/2924* will be used as a central means for disseminating information. Written assignments, links to on-line assignments, review materials and other basic information relevant to the course will be posted there. A course calendar will be maintained on CANVAS, and assignments will be posted there as well.

Brief Description: The course description which appears in the OU General Catalog gives a condensed outline of the topics to be covered:

> 2924 Differential and Integral Calculus II. *Prerequisite: 1914. Further applications of integration, the natural logarithmic and exponential functions, indeterminate forms, techniques of integration, improper integrals, parametric curves and polar coordinates, infinite sequences and series. (Duplicates two hours of 2423 and two hours of 2433.)*

The functions introduced in Chapter 6 of Stewart's textbook form an essential portion of the overall collection of elementary calculus functions, and they will referred to frequently in later chapters of the book. Other than this, the topics in each of the different chapters that are examined in this course are more or less independent of each other. Nevertheless, they are all fundamentally important in understanding calculus in its full breadth. The topics discussed in Chapters 7, 10 and 12 will be particularly important in the subsequent course Math 2934.

This is the second course in the three semester calculus sequence 1914/2924/2934 which comprises prerequisites for numerous courses throughout the university. The sequence also sets the stage for a wide range of additional offerings in the math department itself, including: Introduction to Ordinary Differential Equations (Math 3113) and Physical Math (Math 3413), which are continuations of calculus focusing on differential equations; and Linear Algebra (Math 3333) which moves toward developing important non-calculus viewpoints of mathematics. Both differential equations and linear algebra provide major interfaces of mathematics with all of the science, geo-science, computer and engineering disciplines. Students who would like to develop a more thorough formal background in mathematics can take the Discrete Mathematical Structures course (Math 2513). The mathematical principles underlying calculus are more completely developed in the analysis courses (Math 4433 and 4443) which require Math 2513 as a prerequisite.

Course Prerequisites: The Calculus I (Math 1914) prerequisite for this course is extremely important as we shall frequently rely on your command of basic topics from that course. Paramount among these are: basic definitions of derivatives and integrals; the fundamental theorem of calculus; rules of differentiation; the substitution method for calculating integrals; basic calculus properties of polynomial, rational and trigonometric functions; and basic principles regarding functions of a real variable and their graphs. Deficiencies in your understanding of any of these topics may make it difficult for you to perform well in this course.

Mathematica and the use of Calculators: In this course, students will be expected to become conversant in the use of the computer algebra system 'Mathematica'. The university has a site license for this software, and each student will need access to it (preferably have it installed on a laptop or pc). The program can be downloaded from the online OU IT store. Mathematica demonstrations will be given periodically in class, and over the semester there will be some special assignments centered on its use.

You are encouraged to use Mathematica and/or calculators in working on assignments for the course. However the use of calculators or computers on exams will not be permitted.

Exams: There will be four midterms and a final exam scheduled as follows:

Exam 1:	*Wednesday, September 4*
Exam 2:	*Wednesday, September 25*
Exam 3:	*Wednesday, October 23*
Exam 4:	*Monday, November 25*
Final Exam:	*Friday, December 13, 8:00–10:00 AM*

Grading: Course grades will be determined according to the percentages:

In-class and written assignments:	*20%*
WeBWorK assignments:	*10%*
Mathematica:	*5%*
Four Midterms:	*35% total*
Final Exam:	*30%*

and course grades will be based on the scale:

A: 90%, B: 80%, C: 70%, D: 60%, F: below 60%

Class Attendance: The day-to-day class lectures and discussions form the backbone of this course. Routine attendance at class is absolutely essential and expected of students.

Homework and On-Line Assignments: Each in-class and written assignment will be graded out of 20 points. In calculating the in-class and assignment portions of the total course grade, the lowest 20% (roughly) of grades will be dropped at the end of the semester. Please note that late assignments will not be accepted under any circumstances. Make-up quizzes will only be allowed for students that have a time conflict with a university-sanctioned extracurricular activity, and alternate time arrangements should be agreed to in advance of the quiz. A similar policy holds for midterm exams (but not for the final exam which is subject to strict university guidelines).

There will also be assignments using the open source on-line homework system WeBWork given regularly throughout the semester. Instructions on the use of this sofware will be posted at the course web site.

Assistance on homework and related problems will be available during weekly problem review sessions and office hours, and you are also welcome to e-mail the instructors with any questions that might arise. Discussing assignments and preparing for midterms in cohort with classmates can be a very effective approach to mastering course material.

Because our class meeting time is limited, it is to be expected that there will occasionally be assignment problems involving concepts which have not been discussed in class—in this case a perusal of the textbook should easily locate any needed information. Please note especially that there are almost always worked out examples in the text that can give you excellent ideas on how to approach the assigned problems.

The Math Center: The Math Center in PHSC 209 is open for walk-in students Monday through Friday, and it is also operational on the south campus on Sunday afternoons. The center provides an excellent study environment for math students to congregate and work on math problems. It is staffed with tutors who can provide explanations and assist with questions about topics from this course. The weekly schedule and more information can be found online at "http://www.ou.edu/cas/mathcenter". A good strategy for taking advantage of this valuable resource is to work with a few different tutors to find one whose explanations resonate well with you. As a general rule the Math Center tends to be less busy later in the days and on Sundays.

Recommendations: The main objectives for the course are to acquaint you with a variety of fundamental calculus concepts, and to help you to understand these concepts deeply with different perspectives, and to see how they may be applied in specific settings. As the course material is sophisticated, much thought and persistent work on your part will be necessary in order for you to achieve these goals. The best approach to success is to focus on learning about the new concepts that we will discuss. Developing a genuine interest in the subject and a general inquisitiveness about its concepts can really help to motivate your work as you progress through the semester. Throughout the semester new material will be developed rapidly, and so keeping up with the course on a day-to-day basis, and not allowing yourself to fall behind, is extremely important.

To prepare for exams, it is recommended that you try working as many problems from the book as possible—this certainly includes going beyond the assigned homework assignments. Condensed answers to the odd numbered problems can be found in the back of the book to assist in determining whether your approach is correct. If questions arise or if you get stuck working on a problem, it is important that you try to isolate your confusion and ask about it, either during class lectures, office hours or the Math Center. **Questions, comments and discussions are always welcome during class periods.** I hope you will understand the only "bad" questions are questions you might have but don't ask about!

Student Disabilities: The University of Oklahoma is committed to providing reasonable accommodations for all students with disabilities. If you require special accommodation in the course please discuss this with the instructor as soon as convenient so that steps to ensure your full participation in the course and facilitate your academic opportunities.

Academic Misconduct: Students should be familiar with the Academic Misconduct Code which may be found at *www.ou.edu/studentcode*. The rules governing cases of academic misconduct may be found at *www.ou.edu/provost/integrity*. Any violations of these rules will be duly reported.