Course Syllabus
Calculus and Analytic Geometry II

Course Instructors:

Andy Miller,   e-mail: amiller@ou.edu
Dustin Gaskins,   e-mail: Dustin.A.Gaskins-1@ou.edu
Ryan Reynolds,   e-mail: rnreynolds@ou.edu
Noah Torgerson,   e-mail: nmtorger@ou.edu

Course Meeting Times: The class will meet via zoom from 2:00-2:50 pm on Monday, Wednesday and Friday each week. In addition each student is enrolled in, and required to attend, a weekly in-person discussion section.

Technology Requirements: As this course will be delivered largely through zoom class meetings, each student is expected to have, and to maintain, access to appropriate devices as follows:

• A computer, smartphone and/or tablet will be needed to connect to the course technologies. Devices should be fully charged before every class period. If a battery dies during an exam or on-line quiz, students will not receive extra time to complete their work.

• Written exam work will need to be completed on paper, scanned to PDF, and then submitted through Canvas within specified time frames. Each student is responsible for ensuring that their submitted PDF's are complete and readable.

• A functioning web camera with audio capabilities will be required for exam proctoring.

Students that do not have access to the needed equipment should contact the course instructor immediately. (In some cases university assistance may be possible.) The College of Arts and Sciences has an informative guide to help students prepare for classes in an online environment: "www.ou.edu/cas/online/student-online-orientation".

Text: The course textbook is *Calculus (8th Edition)* by James Stewart (Cengage, 2016). Most of chapters 4 through 8 will be covered over the semester. The textbook is an essential resource for this class. Reading and studying it as the semester progresses will be critically important for success in the class. The book is an excellent source of worked examples that will complement and enrich class discussions.

Course Web Site and Canvas: A course web site "*www.math.ou.edu/∼amiller/2423*" will provide a central means for disseminating information and posting course materials. A course calendar will be maintained on Canvas, and WebWork assignments will be accessed through Canvas.

Office Hours/ Problem Sessions: Special reviews, problem sessions, and regular office hours will be available over the semester, primarily via zoom. Times will be posted at the course web site. Assistance is also available through the Math Center "*www.ou.edu/cas/mathcenter*".

Class Attendance: The day-to-day class lectures and discussions form the backbone of this course. Routine attendance at class is essential and expected of students. Class attendance will be tracked but will not directly contribute to course grades.

Assistance on homework and related problems will be available during weekly office hours and problem sessions for this course. Students are also always welcome to e-mail any of the course instructors with questions that might arise in their work.

Course Grading: Grades will be determined according to the breakdown:

Classwork:	*15%*
WebWork Assignments:	*15%*
Midterms:	*52.5%*
Final Exam:	*17.5%*

and final course grades will be based on the scale:

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

Please note that assignments and classwork comprise a significant portion of the course grade.

Classwork: This portion of the grade will be determined by:

- written quizzes given each week in the course discussion sections
- on-line quizzes given during lectures hours (which may or may not be announced in advance).
- written homework as deemed appropriate.

Each classwork assignment will be graded out of 20 points. In calculating this portion of the total semester grade, the lowest 25% (roughly) of grades will be dropped at the end of the semester. Classwork must be completed when scheduled and late work will not be accepted.

WebWork: The WebWork assignments will be given periodically over the semester, roughly one per week. These on-line assignments are to be accessed through the Math 2423-010 Canvas page, and due dates will be published on the Canvas course calendar. In calculating this portion of the total semester grade, the lowest 25% (roughly) of grades will be dropped at the end of the semester. Instructions and suggestions for using WebWork are posted at the course web site.

Exams: Each of the exams will have both a written component and an on-line component. The precise arrangements will vary from exam to exam but will be announced in class at least one week in advance. Make-up midterms will be allowed for students that have a time conflict with a university-sanctioned extracurricular activity, and alternate time arrangements will need to be agreed to in advance of the exam. There will be three midterm tests and a final exam scheduled as follows:

Exam 1:	*Friday, February 19*
Exam 2:	*Monday, March 22*
Exam 3:	*Monday, April 19*
Final Exam:	*Wednesday, May 12, 1:30–3:30 PM*

Please be aware that dates for the midterms should be considered to be tentative, but any changes will be announced in class at least one week in advance.

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

> 2423 Calculus and Analytic Geometry II. *Prerequisite: MATH 1823 or MATH 1914. Integration and its applications; the calculus of transcendental functions; techniques of integration; and the introduction to differential equations. A student may not receive credit for this course and 2123. (F, Sp, Su)*

This course continues the study of calculus properties of functions of one real variable started in Calculus and Analytic Geometry I. The first semester course was centered around developing principles of differential calculus for functions of one variable. In this course we will primarily focus on studying the integral calculus for these functions. Important applications of integrals arise in calculating: area, average value, volume, mass and center of mass, work and numerous other topics.

Math 2423 is the second course in the four semester calculus sequence 1823/2423/2433/2443. The sequence relates to a wide range of additional offerings in the mathematics department. Among them are: 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 behind 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 1823) prerequisite for this course is extremely important and we will frequently refer to basic topics developed in that course and its precursors. Paramount among these topics are: basic principles for working with functions and their graphs; rules of differentiation; understanding the chain rule; calculus properties of basic functions including power functions, polynomial and rational functions, and trig functions; procedures to determine intervals on which a function is increasing/decreasing and concave up/down; solving optimization problems. Deficiencies in understanding with any of these topics may make it difficult to perform well in this course.

Math Center: Math 2423 is one of the courses for which the OU Math Center provides tutoring assistance for students six days per week. This semester the Math Center services are primarily available on-line via Zoom, although there are in-person activities on some days. Details can be found at "*www.ou.edu/cas/mathcenter*". A good strategy for taking advantage of this valuable resource is to try working with a few different tutors to find one whose explanations resonate well with you.

Recommendations: The main objective for the course is to acquaint you with the fundamental concepts of integral calculus, and to help you to understand these concepts deeply, and to see how they may be applied in a variety of different settings. The best approach to success is to focus on studying and learning about course concepts as they are discussed in class. 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. Having questions and then getting them resolved is one of the best ways to advance an understanding of the subject. Plan on using the weekly office hours and the Math Center as part of your process for this. Discussing assignments and preparing for midterms with classmates can be a very effective approach to mastering course material. Through the weekly discussion sessions we hope to encourage students to form study groups to discuss problems among themselves outside of class. Questions and comments are always welcome in this class. The only "bad" questions are questions you might have that you 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 me as soon as convenient so that we can take steps to ensure your full participation in the course and to 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.