

**COURSE DESCRIPTION
CALCULUS II
MA 126, FALL 2021**

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Abinash Nayak, Ph.D.
Office: University Hall, Room TBA
Phone#:
E-mail: nash101@uab.edu
Office Hours: Mon, Wed 3-4 PM, or by appointment.
Private Zoom Number:
Classroom Meetings: UH 2011 (University Hall 2011)

Meeting times and location:

Prerequisite: Grade of C or better in MA 125 or equivalent.

Credits: 4 semester hours.

Class Lecture Notes: Download from Canvas; Chapters 2–7.

Reference Textbook: *Essential Calculus, Second Edition* by James Stewart, Thomson-Brooks/Cole, 2013, Chapters 4–8,10.

Important dates:

First day of classes: Monday August 23, 2021.

Last day to drop/add classes: Monday August 30, 2021.

Labor Day (UAB Holiday): Monday September 6, 2021.

Last day to withdraw with a “W”: Friday October 15, 2021.

Last day of classes: Friday December 3, 2021.

Major tests:
Test 1: Tuesday Sept. 21, 2021; Class notes 2.3-4; 3.1-4
Test 2: Tuesday Oct. 12, 2021; Class notes 4.1-4; 5.1-3
Test 3: Tuesday Nov. 2, 2021; Class notes 6.1-8
Test 4: Tuesday Nov. 30, 2021; Class notes 7.1-6.

The above dates and sections are tentative; precise dates and test section numbers will be announced in class a week or so before a test.

Exam Week: December 6 – December 10, 2021.

Final exam: 1:30–4:00pm Wednesday December 8, 2021.

Course policies.

- Please make sure that you are able to receive e-mail through your Blazer-ID account. Official course announcements may be sent to that address.

Date: August 20, 2021.

- If you are contacted by the Early Alert Program, consider taking advantage of their services; see *Student Resources* on the Blazernet website.
 - For disability accommodations contact DSS at 934-4205 or at dss@uab.edu.
 - The lowest weekly homework grade will be dropped to account for any missed assignments due to illness or any other circumstance.
 - If a test is missed due to a serious verifiable circumstance or official university business, the test grade will be replaced with the properly rescaled final exam score. You must advise the instructor of such circumstances at the earliest possibility **before** the exam takes place.
 - While calculators that do not have access to the internet are permitted, no books or notes will be allowed during the tests, except that one $8.5'' \times 11''$ sheet of your own construction may be used in each test/final.
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Methods of teaching and learning.

- 27 110-minute class meetings consisting of lectures and discussions of examples and homework problems. Time for four in-class tests is included.
 - Students are expected to undertake at least 10 hours of private study and homework per week during the term.
 - The second half of the Thursday class is devoted to a weekly tutorial designed to provide you with assistance in completing the homework assignment for the week. The assignments are always due on Friday of each week. Late submissions will be graded for correctness, but will not count toward the course score.
 - **Homework Due: By Friday 5 PM, unless otherwise notified.**
 - During test weeks, half of the test day class will be devoted for the test, also half of a previous week's class will be used in similar fashion as a tutorial for your test review problems, which I will distribute at least a week before each test.
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Aims of the course. Upon successful completion of the course a student

- understands the concept of definite integral;
- is able to apply the definite integral to find volumes, work, and arc length;
- knows the basic techniques of integration;
- is able to apply Calculus concepts to problems in Physics and Engineering;
- understands the concept of a vector, can perform basic vector calculations, and is able to use vectors to describe lines and planes in space;
- understands the concept of vector-valued functions, and is able to use vector functions to describe parametric curves, tangent vectors and velocity;
- is able to determine the convergence/divergence of improper integrals, sequences, and infinite series; and
- can find power series representations of functions and use them for approximation, evaluation of integrals, and limits.

The understanding of a concept is demonstrated by an ability to solve pertinent problems related to that concept.

Course content.

- Basic techniques of integration including substitution, integration by parts, partial fractions and the use of tables.
 - Applications of integration (area, volume, work).
 - Vectors in three dimensions, their geometric and algebraic representation, dot product and cross product.
 - Equations of lines and planes.
 - Vector functions and parametric curves, tangent vectors, arc length, velocity and speed.
 - Sequences and series, power series.
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Assessment procedures.

- Student achievement will be assessed by the following measures:
 - **Regular graded homework.** Written homework will be assigned on Monday of each week (except for weeks preceding a test week) and due on Friday of the same week. Homework contributes 40% to the course average. Problems on tests are modeled after homework problems. Staying on top of homework is therefore extremely important.
 - **Four 50-minute tests.** Each test contributes 9% to the course average and typically includes a mixture of shorter questions (or parts of questions) designed to test insight and manipulative skills, together with longer problems requiring in-depth understanding, including “word” problems.
 - **150-minute comprehensive final examination.** The final is comprehensive and contributes 24% to the course average.
 - Your course performance is your course average, which is a number between 0 and 100 obtained by adding the scores, weighted as above, from the homework, tests, and final.
 - Your final grade is determined according to the following table:

Course performance:	88-100	75-87	62-74	50-61	below 50
Final Grade:	A	B	C	D	F
 - After the final exam score and grades have been entered, grades may be checked via <https://www.uab.edu/cas/mathematics/resources> under the heading **Check Grades**.
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Tips.

- Help is available in the Math Learning Lab, if you can't find me.
 - Working steadily, regularly attending class, and asking lots of questions when you are stuck (a practice I strongly encourage !), all increase your chances of success.
 - Ultimately, you are in charge of your mathematics education, but I am more than willing to help you chart a effective path through the Calculus wilderness.
 - Remember, being a full-time student is a full-time job.
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UAB DSS Accessibility Statement. The University of Alabama at Birmingham is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) 934-4205, visit their website, or their office located in Hill Student Center Suite 409.

UAB Title IX Statement. The University of Alabama at Birmingham is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit UAB Title IX web page for UAB's Title IX, UAB's Equal Opportunity, Anti-Harassment, Duty to Report, and Non-Retaliation policies.

Note that, the above syllabus can be subjected to change and if so, then you be notified accordingly.