Syllabus, Spring 2026

MA 126-8A-Calculus-II
(Location: UH 2013, Time: 11:00 am-12:50 pm TR)

Instructor Information:

Name: Dr. Muhammad "Jaman" Mohebujjaman

Email: mmohebuj@uab.edu **Office:** UH 4045 **Office Phone:** 205-934-2195
Office Hours: Monday: 12:20 pm-1:20 pm, Tuesdays and Thursdays: 1:00 pm-2:00 pm or by appointment.

Preferred Methods of Contact: Email is the preferred method of contact if you have questions. Please expect a response within 24 hours on weekdays and a slower response on weekends (emails received after 5:00 pm on Friday will be returned on Monday morning). For a faster response, please include the course name and number in the subject line of your email.

Course Material:

Text: OpenStax Calculus Volume 2, OpenStax
WebAssign (`https://www.webassign.net/index.html`) Class Key: uab 6491 0258

Course Description, Objectives and Prerequisite:

Techniques of integration; applications in integration such as volume, arc length and work; infinite series, Taylor series; polar coordinates; parametric equations; plane and space vectors; lines and planes in space.

The objective is to develop students' understanding of integral calculus, including techniques of integration, applications of integrals, sequences and series, and their use in solving scientific and engineering problems.

Prerequisites: MA 125 [Min Grade: C] or MA 225 [Min Grade: C]

Grading:

The final grade will be a weighted average and will be calculated as below:

Class Participation (CP): 10%; **HomeWork (HW):** 10%; **WebAssign (WA) Homework:** 10%; **In-class Quiz (QZ):** 10%; **Exam I:** 20%; **Exam II:** 20%; **Final Exam (comprehensive):** 20%

Grading Scale:

A: [90, 100]; B: [80, 90); C:[70, 80); D:[60, 70), F:[0, 60)

Tentative Exam Dates:

Exam 1: Thursday, 02/12/2026, **Exam 2:** Tuesday, 03/17/2026, **Final Exam:** Tuesday, 04/29/2026 from 1:30 PM – 4:00 PM.

Make-Up Quizzes/Exams:

If you miss a quiz, you may take it before publishing the key with a 10% deduction. There will be no make-up exams except in cases of religious observance, official university absences, or substantiated medical reasons.

General Course Policies

- No cell phones or other electronic devices will be allowed on your person during quizzes or exams.
- Be respectful of yourself, and others in the course.
- While explaining, you should not talk to anyone in class except me.
- Feel free to ask me any questions in class or outside of class.

Classroom Attendance Rule

Students are expected to attend all the classes unless they have a valid acceptable excuse.

Student Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. Apply U-substitution
2. Find areas between Curves
3. Determine Volumes by Slicing
4. Find Volumes of Revolution: Cylindrical Shells
5. Use integration to compute work done on one-dimensional motion
6. Apply Integration by Parts
7. Perform Trigonometric Integrals
8. Trigonometric Substitution
9. Perform Integration by partial fraction decomposition
10. Know the strategy for Integration
11. Know the Improper Integrals
12. Know sequences
13. Know Infinite Series
14. Know Divergence and Integral Test

15. Apply the Comparison Tests
16. Apply the Alternating Series
17. Apply the Absolute Convergence, Ratio and Root Test
18. Know Power Series
19. Know Taylor & Maclaurin Series
20. Use Known Taylor & Maclaurin Series
21. Know Parametric Equations
22. Know Polar coordinates
23. Know 3-D Coordinate System
24. Know Vectors
25. Know Dot Products
26. Determinants & Cross Products
27. Know Lines and Planes in Space
28. Know Vector Functions
29. Integrate Vector Functions
30. Find Arc Length (2 & 3-Dimensional)