

King Fahd University of Petroleum and Minerals

Department of Mathematics

Math 102 Lab Syllabus, Term 252 (2025-2026)

Coordinator: Dr. Slim Belhaiza

Course Code and Title: Math 102, Calculus II

Textbook: Larson, R. & Edwards, B., Calculus: Early Transcendental Functions, Metric Version, 7th edition, Cengage Learning, Inc., 2019.

Lab Manual: Math 102 Lab Manual for Python, Department of Mathematics, KFUPM, 2025.

Lab Objective:

1. Familiarize students with Python within the context of integral Calculus
2. Apply techniques of integral Calculus in real-life applications for problem-solving and analysis.

Grading Policy:

| | Date | Time and Place | Material | Points |
|------------|---------|--|-------------|----------------------------|
| Midterm | Week 8 | The same regularly scheduled lab section | Lab 1-Lab 7 | 10 points (7 Questions) |
| Final Exam | Week 15 | | Lab9-Lab14 | 20 points (8 Questions) |
| Total | | | | 30 points |

Other Exam Issues:

- No student will be allowed to take the exam if he/she does not bring his/her KFUPM ID, National/Iqama ID, or Driver's License with him/her to the exam hall.
- Students are not allowed to have their mobile phones, smartwatches, or any other electronic devices in the exam hall. A violation of this will be considered an attempt at cheating.

During lab examinations, students are permitted to use only the following:

- Blackboard (restricted to the exam page only), used to access and submit the exam, and
- Approved software required for the exam (e.g., MATLAB for MATH 101, Jupyter Notebook for MATH 102, RStudio for STAT 201 and STAT 214).

Opening any additional Blackboard pages, browser tabs, windows, AI tools, files, or software applications is strictly prohibited.

Any student found in violation of this policy will have their exam immediately terminated, and the incident will be treated as a case of cheating.

Missing an Exam: In case a student misses an exam (Midterm or the Final Exam) for a legitimate reason (such as medical emergencies), he/she must bring an official excuse from Students Affairs. Otherwise, he/she will get a score of zero in the missed exam.

Attendance: Students are expected to attend all lab classes.

If a student misses a lab, he/she is responsible for any announcement made in that lab.

The Usage of Mobiles in Lab: Students are not allowed to use mobiles for any purpose during lab time. Students who want to use electronic devices to take notes must take permission from their instructor. Violations of these rules will result in a penalty decided by the instructor.

Academic Integrity: All KFUPM policies regarding ethics apply to this course. See the Undergraduate Bulletin on the Registrar's website.

Coverage Plan

| Week | Lab# | Topics |
|------|--------------|---|
| 1 | Lab1 | Introduction To Python with Jupyter Notebook |
| 2 | Lab2 | Areas and Distances+ For-Loops |
| 3 | Lab3 | Antiderivatives and The Fundamental Theorem of Calculus |
| 4 | Lab4 | Practical Application I: Circle Area Formula |
| 5 | Lab5 | Practical Application II: Siding a Barn – Part 1 |
| 6 | Lab6 | Practical Application II: Siding a Barn – Part 2 |
| 7 | Lab7 | Volumes + Practical Application III: Embankments |
| 8 | Midterm Exam | |
| 9 | Lab9 | Arc Length and Surface of Revolution |
| 10 | Lab10 | Practical Application IV: Non-Traditional Rotation |
| 11 | Lab11 | Trigonometric Substitution, Partial Fractions, and Improper Integrals |
| 12 | Lab12 | Sequences + Practical Application V: Recursive Sequences |
| 13 | Lab13 | Series |
| 14 | Lab14 | Practical Application VI: Approximating Series |
| 15 | Final Exam | |