

# King Fahd University of Petroleum and Minerals

## Department of Mathematics

### Math 102 Lab Syllabus, Term 251 (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, 7<sup>th</sup> 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	Place	Material	Percentage
<b>Midterm ( MCQ)</b>	TBA	TBA	TBA	Lab1-Lab7	7 points
<b>Final Exam ( MCQ)</b>	TBA	TBA	TBA	Lab8-Lab13	8 points
					15 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
6	Lab6	The Substitution Rule
7	Lab7	Volumes + Practical Application III: Embankments
8	Midterm Exam	
9	Lab8	Arc Length and Surface of Revolution + Practical Application IV: Non-Traditional Rotation
10	Lab9	Trigonometric Substitution, Partial Fractions and Improper Integrals
11	Lab10	Sequences + Practical Application V: Recursive Sequences
12	Lab11	Series
13	Lab12	Practical Application VI: Pot of Gold
14	Lab13	Taylor and Maclaurin Series + Practical Application VII: Approximating $\pi$ Using Series Expansions
15	Final Exam	