



MATH 201-03

Department of Mathematics & Natural Sciences

Calculus I

Fall 2018

1. Instructor Information

Faculty: Dr. Samer Assaf

Motto: Never underestimate the power of a question.

Email: Sassaf@auk.edu.kw

Office: A327 **Classroom:** B209

Lecture:

Sunday	17:00 → 17:50
Tuesday	17:00 → 17:50
Thursday	17:00 → 17:50

Office Hours:

Sunday	09:45 → 11:45
Tuesday	09:45 → 11:45
Thursday	09:45 → 11:45

2. Course Description

This course includes a review of polynomials and transcendental functions of one variable. It is followed by in depth covering of the differential calculus topics. These topics include limits, derivatives, and applications of differential calculus to real world problem areas.

Credits: 3

Prerequisites: MATH 101, MATH 110 or equivalent * (With a minimum grade of C)

ENGL 101, ENGL 108 or equivalent * (With a minimum grade of C)

* For a full list of equivalences, please check the online **Course Description**.

3. Learning Outcomes

Upon completion of the course, students should be able to:

- 3.1 Describe the concept of limit of a function at a point and at infinity and the concept of continuity at a point and over an interval.
- 3.2 Compute limits of sums, products, differences, and quotients of functions.
- 3.3 Describe the relationship between line slope, rate change, and derivative and apply the definition of derivative to compute the derivative of a function.
- 3.4 Compute derivatives of functions using the product, quotient, power and chain rules explicitly and implicitly.
- 3.5 Use first and second derivative tests to graph functions.

1. Instructor Information

2. Course Description

3. Learning Outcomes

4. Textbook

5. Note to Students

6. Assessments

7. Classroom Guidelines

8. Course Outline and Objectives

9. Final Note

- 1. Instructor Information
- 2. Course Description
- 3. Learning Outcomes
- 4. Textbook
- 5. Note to Students
- 6. Assessments
- 7. Classroom Guidelines
- 8. Course Outline and Objectives
- 9. Final Note

4. Textbook

Calculus A Complete Course, 9th Edition, Robert A. Adams and Christopher Essex.

5. Note to Students

- 5.1. By enrolling in this course, you have agreed to adhere to the **Classroom Guidelines** found within this syllabus. You are additionally expected to observe the *University Code of Conduct*, the *Student Code of Conduct* as well as the *Code Academic Honesty & Integrity* found on the **AUK** website.
- 5.2. Due to the abstract nature of this course, the notions may seem bewildering at first but, don't worry; this is normal. The course is designed to start slowly and, then, over time, the pace will escalate, so that, with concerted time and perseverance on your part, you will adapt, appreciate, and benefit from it.
- 5.3. If you are unable to make it to the office hours above, email me your available schedule at least 24 hours in advance. My schedule permitting, I will endeavor to meet with you at a time suitable to us both. Remember, asking questions is one of the most valuable tools at your disposal.
- 5.4. Please refer to Moodle for a copy of the syllabus, grades, attendance and other course materials. <https://lms.auk.edu.kw>

6. Assessments

Weekly Quizzes	10 %	Every Sunday
Test 1	20 %	07 October 2018
Test 2	20 %	11 November 2018
Test 3	20 %	16 December 2018
Final	30 %	To be determined

- 6.1. Ensure that you arrive at least 5 minutes in advance for the assessment to be distributed.
- 6.2. Weekly Quizzes are 5 to 10 minutes assessments administered every Sunday at the start of the class. Its scope comprises of material covered during the previous week. You will be informed in advance of other assessment times once they are decided.
- 6.3. Unless proper documentation is provided, any missed assessment will result in a zero mark (0). A missed Final Exam will result in a fail for not attending (FN).
- 6.4. It is your responsibility to ensure that you have all the necessary materials and equipment required to complete the assessment successfully. Include a supply of extra pens and pencils as borrowing during the exam will NOT be permitted.
- 6.5. Snacks and beverages will be allowed during the Tests and Final Exam ONLY. Please ensure that they present minimal smells and sounds so as not to disturb other students. The instructor reserves the right to suspend this privilege should it be abused.

7. Classroom Guidelines

1. Instructor Information
2. Course Description
3. Learning Outcomes
4. Textbook
5. Note to Students
6. Assessments
7. Classroom Guidelines
8. Course Outline and Objectives
9. Final Note

- 7.1. We will treat each other with respect. We will address others in the manner they prefer to be addressed.
- 7.2. We will adhere to the university's dress code guidelines. We will sit up straight and shoes are to remain on at all times.
- 7.3. Class will begin promptly at the start of the period and will end when the instructor dismisses the class. Make every effort to ensure that you are seated and ready for the class to begin when the instructor arrives as random arrivals and exits are distracting and hinder the learning process.
- 7.4. The ONLY Beverage and Snack permitted in class is WATER in a see-through container.
- 7.5. You are encouraged to raise your hand if there is something you do not understand. Questions are an invaluable learning tool, therefore; strive to ask when you encounter a challenging concept. Restricting your questions to the material at hand is expected and appreciated.
- 7.6. Unless instructed otherwise, all electronic devices will be on silent or turned off completely and stowed away. Any non-sanctioned use of an electronic device in class may result in the student being marked absent for the day.
- 7.7. Be sure to email your instructor if you experience any doubt in understanding a concept. Mathematics is layered like a cake. Let's make sure you understand the bottom layers in order to feel comfortable with the top ones later on.
- 7.8. The classroom is to be left at least as tidy as when we arrived. Showing consideration to the class that follows ours reflects on the kind of people we choose to be.
- 7.9. As per the Attendance Policy, any student who is absent for more than 15% (7 times during this semester) will be given a choice to withdraw or to fail for not attending (FN).
- 7.10. A student not present for the whole span of the period may be marked as absent. An absent student has the responsibility of acquiring missed material and information.
- 7.11. The instructor reserves the right to mark a student absent and not allowed in class in case of extreme and/or repeated lateness.
- 7.12. This class is a learning-conducive, student-centered environment. Be sure to participate even if you are uncertain of your answer. Enjoy the class, while allowing others to enjoy it too. Refrain from ridiculing answers or engaging in any distributive behaviour. Learning is a journey of beautiful adventure and exploration.
- 7.13. Students behaving in a manner that threatens the environment mentioned above will receive a warning, asked to change their place, or in extreme cases; be removed from class, marked as absent and the Student Code of Conduct policy enforced.

8. Course Outline and Objectives

Chapter 1: Limits and Continuity

Objective: In this chapter we will introduce the limit concept and develop some of its properties.

Sections:

- 1.2 Limits of Functions
- 1.3 Limits at Infinity and Infinite Limits
- 1.4 Continuity

Chapter 2: Differentiation

Objective: In this chapter we investigate the special type of limit that is used to find tangents and velocities, gives rise to the central idea in differential calculus, the derivative.

Sections:

- 2.1 Tangent Lines and Their Slopes
- 2.2 The Derivative
- 2.3 Differentiation Rules
- 2.4 The Chain Rule
- 2.5 Derivative of Trigonometric Functions
- 2.6 Higher Order Derivatives
- 2.7 Using Differentials and Derivatives
- 2.8 The Mean value Theorem
- 2.9 Implicit Differentiation
- 2.10 Antiderivatives and the Initial-Value Problems

Chapter 3: Transcendental Functions

Objective: This chapter is devoted to developing some transcendental functions including exponential and logarithmic functions and the inverse trigonometric functions.

Sections:

- 3.1 Inverse Functions
- 3.2 Exponential and Logarithmic Functions
- 3.3 The natural Logarithm and Exponential
- 3.4 The Inverse Trigonometric Functions

1. Instructor Information

2. Course Description

3. Learning Outcomes

4. Textbook

5. Note to Students

6. Assessments

7. Classroom Guidelines

8. Course Outline and Objectives

9. Final Note

Chapter 4: More Applications on Differentiation

Objective: In this chapter we examine several kinds of problems to which we use differentiation techniques to solve them.

Sections:

- 4.3 Intermediate Forms
- 4.4 Extreme Values
- 4.5 Concavity and Inflections (Time Permitting)
- 4.6 Sketching the Graph of a Function (Time Permitting)

9. Final Note

The instructor reserves the right to amend this syllabus in any way deemed necessary. However, should that happen, students will be given due and proper notice.

“May the odds be ever in your favour”- Suzanne Collins

1. Instructor
Information

2. Course
Description

3. Learning
Outcomes

4. Textbook

5. Note to
Students

6. Assessments

7. Classroom
Guidelines

8. Course
Outline and
Objectives

9. Final Note

