

Math 201, Lecture 8, Sections 26–28 — Calculus and Analytic Geometry III, Fall 2019

Course website: <https://sites.aub.edu.lb/kmakdisi/>

Professor: Kamal Khuri-Makdisi, Bliss 311, phone 4234. E-mail to kmakdisi@aub.edu.lb is usually the easiest way to contact me. My **office hours** are M 2–4 and F 2–4, or by appointment.

Instructors:

Ms. Rana Nassif, e-mail rn40@aub.edu.lb

Mr. Hagop Karakazian, e-mail hk93@aub.edu.lb

Office hours for Ms. Nassif and Mr. Karakazian will be announced in recitation section.

Lecture: MWF 11–11:50, in Nicely 415 (Prof. Khuri-Makdisi)

Mandatory recitation sections:

Section 26, Th 11, Nicely 318 (Ms. Nassif)

Section 27, Th 12:30, Bliss 205 (Ms. Nassif)

Section 28, Th 5, Nicely 211 (Mr. Karakazian)

Make sure you know which section you are registered in.

Textbook: Hass, Heil, and Weir, *Thomas' Calculus*, 14th edition.

Prerequisites: Math 102 or its equivalent, such as a good **scientific** Baccalaureate in school. If you did the Economics and Sociology Baccalaureate, you should start with Math 102.

Be sure to **CAREFULLY REVIEW** the following sections from the textbook: **1.3, 3.5, 3.6, 5.5, 5.6, 7.1–7.3, 7.6, 7.7, 8.1–8.5, 11.1–11.5**, during the first two weeks of the semester. If you lack a small part of this background, learn it **NOW** from the book and come to us with questions in office hours. In addition, we expect you to be **already very familiar** with the following sections from the textbook (look at them quickly to make sure you know the material): 2.1, 2.2, 3.1, 3.3, 4.1, 4.3, 4.7, 5.1, 5.3, 5.4, 7.5.

If you do not know most of the above material, then you should start with Math 102.

Course requirements: Your grade will be determined as follows:

Quiz 1, 25% of course grade, Saturday, September 28, 3:30–4:30, location TBA (to be announced)

Quiz 2, 25% of course grade, Saturday, November 2, 3:30–4:30, location TBA

Comprehensive final exam, 50% of course grade, date and time TBA by the Registrar's Office

Make sure to RESERVE FROM NOW the date and time of Quiz 1 and Quiz 2 for Math 201. We will announce the locations of the quizzes and final exam later.

Some advice for university education: University courses are different from school: for each hour you spend in class, you need to spend **THREE hours** on average studying at home or in the library. This is especially true for Math 201!!

Before a lecture, read the section of the book that will be covered, and try to understand as much as you can. This will help you follow the next lecture.

During lectures, take careful notes of the main topics, but please remember that lectures are not dictation.

Shortly after lectures, you should then rework out the rough notes you took in class, filling in any missing details.

Before the next lecture, carefully read and review the book and your notes, and work through all the assigned exercises in this syllabus **as a minimum**. If you need extra work to understand a section, do even more problems. Then go back to the top of this list.

AUB Policies: AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you must in addition register as soon as possible with the Accessible Education Office, West Hall 314, phone 3246, e-mail accessibility@aub.edu.lb

You are also required to be familiar with, and abide by, AUB's policies on **Academic Integrity** and **Non-Discrimination**.

See page 2 of the syllabus on the back of this page for homework problems.

Sections covered and assigned exercises: Reminder of the advice on page 1: University courses are different from school: for each hour you spend in class, you need to spend **THREE hours** on average studying at home or in the library. Carefully read and review the book and your notes **before each class**, and work through all the assigned exercises **as a minimum**. If you need extra work to understand a section, do even more problems.

Topic	Section	Assigned homework exercises
Sequences	9.1	1, 5, 7, 10, 13, 16, 20, 21, 24, 28, 31, 32, 41–55, 65, 67, 78–82, 87, 88–91, 97, 98.
Infinite series	9.2	9, 11, 13, 16, 19, 23, 25, 28, 34, 36–40, 43, 44, 47–70, 79.
The integral test	9.3	6, 9, 10, 11, 16, 21, 22, 25–28, 32–38, 43, 55, 56, 61, 62.
Comparison tests	9.4	6–14, 18, 25–32, 34, 42, 43, 47, 55, 56, 58, 60, 63, 65, 67.
Abs. convergence, ratio & root tests	9.5	8, 11, 12, 14, 18, 20, 22, 23, 25, 27–40.
Alternating series, conditional convg.	9.6	8–14, 18, 21–23, 26, 29, 30, 34, 36, 40, 44, 49–51, 53, 66, 71, 79.
Power series	9.7	4, 8, 10, 14, 18, 20, 22, 25, 29, 31, 33, 34, 36, 39, 41, 42, 53–60.
Taylor and Maclaurin series	9.8	3, 5, 11, 21, 23, 26, 29.
Convergence of Taylor series	9.9	1, 5, 8–13, 15, 18–20, 22, 23, 25, 28, 35–50.
Applications of Taylor series	9.10	2, 3, 5, 12, 15–24, 53–55.

QUIZ 1, 25% of course grade, Saturday, September 28, 3:30pm–4:30pm

Polar coordinates	10.3	1, 3, 6, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 28, 33–38, 63, 68.
Graphing in polar coordinates	10.4	1, 3, 5, 6, 25–28.
Cylinders and quadric surfaces	11.6	1–12.
Functions of several variables	13.1	2, 6–8, 13–15, 22–30, 49, 51, 62, 63.
Limits and continuity in higher dim.	13.2	3, 6, 17, 18, 27, 35, 36, 39, 41–48, 50, 58–62, 64.
Partial derivatives	13.3	1, 7, 12, 17, 19, 21, 22, 25, 26, 30, 43, 49, 51, 55.
The chain rule	13.4	1, 3, 4, 7–9, 25–27, 30–33, 35, 37, 43.
Directional derivatives and gradients	13.5	5, 7, 12, 16, 17, 20, 23, 26, 29, 31–33, 35, 36.
Tangent planes and differentials	13.6	1, 3, 8, 9, 12, 13, 17, 19–22.
Extreme values and saddle points	13.7	1, 3, 7, 9, 12, 30, 31, 41, 49.

QUIZ 2, 25% of course grade, Saturday, November 2, 3:30pm–4:30pm

Lagrange multipliers	13.8	1, 9, 11, 12, 17, 21, 23, 25, 27, 29.
Double integrals over rectangles	14.1	6, 7, 10–12, 15, 16, 21, 22.
Double integrals over general regions	14.2	9–25, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 83.
Area by double integration	14.3	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21.
Double integrals in polar coordinates	14.4	3, 5, 7, 13, 15, 17, 19, 20, 22, 28, 31, 32, 41.
Triple integrals in rectangular coords.	14.5	3, 5, 8–10, 13, 15, 17, 21, 22, 25, 31, 33, 34, 41, 43.
Applications of integrals	14.6	1, 3, 5, 13.
Cylindrical and spherical coordinates	14.7	3, 5, 7, 9, 11, 15, 17, 21, 23, 27, 29, 31, 33, 34, 37, 43, 50, 61.
Substitutions in multiple integrals	14.8	1, 3, 5, 7, 9, 13, 18–24.
Line integrals of scalar functions	15.1	1–9, 11, 13, 15–17, 19, 21, 23, 25, 26–28, 33.

COMPREHENSIVE FINAL EXAM, 50% of course grade, date and time to be announced