

# MATH 245: MATHEMATICS OF PHYSICS AND ENGINEERING I (SECTION 39605R)

Spring 2020

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<b>Instructor:</b>	Nathaniel Bottman	<b>Lecture:</b>	MWF 10–10:50 AM
<b>Email:</b>	bottman@usc.edu	<b>Place:</b>	SOS B44
<b>TA:</b>	Gin Park	<b>Discussion:</b>	TTh 8 or 9 AM
<b>Email:</b>	ginpark@usc.edu	<b>Place:</b>	KAP 159

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**Official course description:** First-order differential equations; second-order linear differential equations; determinants and matrices; systems of linear differential equations; Laplace transforms.

**Office hours:** I will hold office hours in my office, KAP 400C, on Monday from 3:30–5 PM, on Wednesday from 1:30–3 PM, and on Friday from noon–1 PM. Gin will hold consulting hours, at times that he will announce in discussion.

**Math Center:** The Math Center is located in KAP 263, and is open 8 AM–7 PM M–Th and 8 AM–5 PM F starting the second week of classes. The TAs for MATH 245 (including Gin) hold office hours in the Math Center. The point of the Math Center is that students can get help from TAs other than their own TA.

**Blackboard:** All relevant course information, including homework assignments and grades, will be posted on Blackboard.

**Textbook:** *Differential Equations* (classic version), by J. Polking, A. Boggess, and D. Arnold. During the first week of class I will decide on the coverage and a tentative calendar.

**Grades:** Your grade will be computed using the following weights: homework (10%), quizzes (15%), midterm 1 (20%), midterm 2 (20%), final (35%). I will likely apply a curve to the midterms and the final; these curves will only help your grade. I do not plan to curve the homework and quiz grades; I will tell you if I change this policy.

## Exam dates:

- Midterm 1: during class on February 26.
- Midterm 2: during class on March 27.
- Final: 8–10 AM on Monday, May 11; location TBA.

## Other important dates:

- Last day to drop without a “W”: February 28.
- Last day to drop with a “W”: April 3.

**Quizzes:** There will be a 15-minute quiz during discussion every Thursday, except for the first week and the two midterm weeks. Each week’s quiz will cover the material from the homework that was due the previous day. Your lowest three quiz scores will be dropped.

**Homework:** Homework will be assigned every Wednesday and will be due at the beginning of class the following Wednesday. Approximately two problems will be graded carefully, and you will receive a completion grade. No late homework or electronic submissions will be accepted. Your lowest two homework scores will be dropped.

**Calculators and note sheets:** You are not permitted to use any calculators or cell phones during any quiz or midterm. During each midterm, you may use a one-sided 8.5" × 11" sheet of notes.

**Regrading policy:** If you believe that your work has been misgraded, you must submit a written regrading request directly to me within one week of receiving the graded work.

**Academic honesty:** See §B.11 in the USC Student Handbook for a list of situations to avoid and §B.A for a list of consequences. Lack of knowledge of the academic honesty policy is not an adequate defense for a violation.

**Disability accommodations:** If you require accommodations for a disability, you are required to register with Disability Services and Programs (DSP) each semester. You must obtain a letter of verification for approved accommodations from DSP. Please make sure that this letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 AM–5:00 PM, M–F. Their phone is (213) 740-8216, and their email is [ability@usc.edu](mailto:ability@usc.edu).

**Disclaimer:** This syllabus is not a contract, and I reserve the right to modify it.

### Schedule (tentative)

	Monday	Wednesday	Friday
Week 1, Jan. 13–17	§§1.1–1.3	§2.1	§2.2
Week 2, Jan. 20–24	<b>MLK Day</b>	§2.3	§2.4
Week 3, Jan. 27–31	§2.5	§2.6	§2.7
Week 4, Feb. 3–7	§§2.8–2.9	§§3.1–3.2	§3.3
Week 5, Feb. 10–14	§4.1	§4.2	§4.3
Week 6, Feb. 17–21	<b>Presidents' Day</b>	§4.4	<b>Midterm 1</b>
Week 7, Feb. 24–28	§§4.5, 4.7	§4.6	§§5.1–5.2
Week 8, Mar. 2–6	§5.3	§§5.4–5.5	§§5.6–5.7
Week 9, Mar. 9–13	§7.1	§7.2	§7.3
Spring Recess, Mar. 16–20			
Week 10, Mar. 23–27	§§7.4–7.5	§§7.6–7.7	<b>Midterm 2</b>
Week 11, Mar. 30–Apr. 3	§8.1	§§8.2–8.3	§§8.4–8.5
Week 12, Apr. 6–10	§9.1	§9.2	§§9.3–9.4
Week 13, Apr. 20–24	§§9.5, 9.7	§9.6	§§9.8–9.9
Week 14, Apr. 27–May 1	§§10.1–10.2	§10.6	§10.8