Ohio State University - Columbus
MATH 2177: Mathematical Topics for Engineers
Autumn 2018
Syllabus

CATALOG DESCRIPTION: Multiple integrals, line integrals; matrix algebra; linear (ordinary and partial) differential equations.

CLASS TIME AND LOCATION: MWF 8:00am-8:55am in Scott Lab E040.

LECTURER: Alena Erchenko

CONTACT INFORMATION:
E-mail: erchenko.1@osu.edu
Personal website: u.osu.edu/erchenko.1
Office: Mathematics Building (MA) 414

OFFICE HOURS: M 10:30am – 12:30pm, 2pm - 3pm in MA 414

TA: Yu Zhang (e-mail: zhang.4841@osu.edu)

TEXT: Math 2177, Custom Edition for OSU, Pearson, ISBN-13 978-1-256-82676-7 or ISBN-10 1-256- 82676-6

COURSE FORMAT: There are three 55-minute lectures and one 55-minute recitation each week. The sections covered in lectures are listed at the end of this syllabus.

CALCULATORS: A graphic calculator is useful as a study and learning tool when used appropriately, but it is not essential. No calculators are allowed on the midterms and the final exam.

TUTORING: Free mathematics tutoring is available at Math and Statistics Learning Center (MSLC) (http://mslc.osu.edu/). Tutoring takes place at 10:20am – 7:30 pm on Monday through Wednesday, at 10:20am – 5:10pm on Thursday in Cockins Hall (CH) 131 and at 3:00pm – 7:00 pm on Sunday in Mathematics Building (MA) 010 starting Sunday, August 26, 2018. For more help, a private tutor list is available at https://mslc.osu.edu/resources/tutors.

ATTENDANCE: Attendance is strongly encouraged but not required. If you miss a class, you are still responsible for the material due, for learning all concepts covered, and turning in assignments given. Class participation (answering and asking questions during class) is encouraged.

EXAMINATIONS: Three 55-minute examinations will be given during the semester and a 1 hour and 45 minute comprehensive final examination will be given during the final examination period. No books, notes, calculators, or other electronic devices may be used on the

examinations. You must bring your University ID card to all exams. We have the following schedule for the exams:

Exam	Date	Time	Location
Midterm 1	September 28 (Friday)	8:00am-8:55am	Scott Lab E040
Midterm 2	October 24 (Wednesday)	8:00am-8:55am	Scott Lab E040
Midterm 3	November 19 (Monday)	8:00am-8:55am	Scott Lab E040
Final Exam	December 10 (Monday)	8:00am-9:45am	Scott Lab E040

Students should not make plans to leave Columbus before Monday, December 10, 2018.

MAKEUP EXAMINATIONS: No alternative date will be given for the midterms or the final exam. If a student has a valid documented reason, such as a class conflict or illness, during examination times and informs the lecturer Alena Erchenko beforehand, then he/she is permitted to schedule a makeup examination with no penalty. A missed midterm must be made up within 7 days of the midterm. Students must be prepared to verify the reason for requesting the makeup by providing the proper document(s) upon request. Personal business such as travel, employment, weddings, graduations, or attendance at public events such as concerts and sporting events are not valid excuses. Transportation trouble – missing a bus or having a car breakdown on the way to exam is not a valid excuse either. Nor is forgetting the date, time or room of an examination a valid excuse. If a student misses an exam, does not have a valid documented excuse, and does not inform the lecturer, Alena Erchenko, then he/she gets 0 points for the exam.

HOMEWORK: You will have regularly assigned homework which will be collected weekly in your recitation class starting August 28. Homework will be posted on Canvas. By the choice of the lecturer/TA some homework problems will be graded and some not. It is in your best interest to complete all assigned problems since you will not know which problems will be graded in advance. No late homework will be accepted. If you cannot make it to class, then make sure to send an email to your TA, Yu Zhang, with scans/photos of your homework and discuss with him if you need to submit the original copy of your homework. Two lowest scores for homework will be dropped.

GRADING

Homework	10%
Midterm I	20%
Midterm II	20%
Midterm III	20%
Final exam	30%

Grades will be posted on Canvas.

FINAL GRADES WILL BE ASSIGNED AS FOLLOWS:

A	A-	B+	B	B-	C+	C	C-	D+	D	E
93-100%	90-92%	87-89%	83-86%	80-82%	77-79%	73-76%	70-72%	67-69%	60-66%	0-59%

This course will not be curved.

LATE-DROP DEADLINES:
The last day to drop a course without receiving a "W" on record is Friday, September 14, 2018. The last day to drop a course without petitioning is Friday, October 26, 2018.

QUESTIONS, PROBLEMS, or COMMENTS: If you have questions or concerns about the course, please consult either your lecturer, Alena Erchenko, or your TA, Yu Zhang.

ACADEMIC MISCONDUCT STATEMENT:
It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-48.7). For additional information, see the Code of Student Conduct at http://studentlife.osu.edu/csc/.

DISABILITY SERVICES STATEMENT:

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

TENTATIVE COURSE OUTLINE:

Week	Day	Date	Textbook Section	Topic
			PART ONE: Multivariable Integral Calculus	
1	Tuesday	Aug 21		Recitation
	Wednesday	Aug 22	1.8	Introduction. Maximum/Minimum problems
	Friday	Aug 24	1.8	Maximum/Minimum problems
2	Monday	Aug 27	1.9	Lagrange multipliers
	Tuesday	Aug 28		Recitation
	Wednesday	Aug 29	2.1-2.2	Double integrals
	Friday	Aug 31	2.1-2.3	Double integrals
3	Monday	Sep 3	NO CLASS	LABOR DAY
	Tuesday	Sep 4		Recitation
	Wednesday	Sep 5	2.1-2.3	Double integrals
	Friday	Sep 7	2.7	Change of variables in double integrals
4	Monday	Sep 10	2.4-2.5	Triple integrals
	Tuesday	Sep 11		Recitation
	Wednesday	Sep 12	2.4-2.5	Triple integrals
	Friday	Sep 14	2.5	Triple integrals in spherical coordinates
5	Monday	Sep 17	3.1-3.2	Vector Fields. Line integrals.
	Tuesday	Sep 18		Recitation
	Wednesday	Sep 19	3.2	Line integrals
	Friday	Sep 21	3.3	Conservative vector fields
6	Monday	Sep 24		Review
	Tuesday	Sep 25		Recitation
	Wednesday	Sep 26		Review
	Friday	Sep 28		MIDTERM I
			PART TWO: Matrices and Systems of Linear Equations	
7	Monday	Oct 1	4.1	Introduction to matrices and systems of linear equations
	Tuesday	Oct 2		Recitation
	Wednesday	Oct 3	4.2	Echelon form and Gauss-Jordan elimination
	Friday	Oct 5	4.3	Consistent systems of linear equations
8	Monday	Oct 8	4.5-4.6	Matrix operations
	Tuesday	Oct 9		Recitation
	Wednesday	Oct 10	4.5-4.6	Matrix operations
	Friday	Oct 12	NO CLASS	AUTUMN BREAK
9	Monday	Oct 15	4.7	Linear independence and nonsingular matrices

	Tuesday	Oct 16		Recitation
	Wednesday	Oct 17	4.8	Data fitting, numerical integration, and numerical differentiation
	Friday	Oct 19		Review
10	Monday	Oct 22		Review
	Tuesday	Oct 23		Recitation
	Wednesday	Oct 24		MIDTERM II

PART THREE: Second-Order Constant Coefficient O.D.E.

	Friday	Oct 26	5.1	Basic ideas. Terminology.
11	Monday	Oct 29	5.2	Linear homogeneous equations (real roots of the characteristic polynomial)
	Tuesday	Oct 30		Recitation
	Wednesday	Oct 31	Appendix C	Complex numbers
	Friday	Nov 2	5.2	Linear homogeneous equations (complex roots of the characteristic polynomial)
12	Monday	Nov 5	5.3	Linear nonhomogeneous equations
	Tuesday	Nov 6		Recitation
	Wednesday	Nov 7	5.3	Linear nonhomogeneous equations
	Friday	Nov 9	5.4	Applications
13	Monday	Nov 12	NO CLASS	VETERANS DAY
	Tuesday	Nov 13		Recitation
	Wednesday	Nov 14	5.4	Applications
	Friday	Nov 16		Review
14	Monday	Nov 19		MIDTERM III

PART FOUR: Fourier Series & Partial Differential Equations

	Tuesday	Nov 20		Recitation
	Wednesday	Nov 21	NO CLASS	THANKSGIVING BREAK
	Friday	Nov 23	NO CLASS	INDIGENOUS PEOPLE'S DAY / COLUMBUS DAY
15	Monday	Nov 26	6.1	Boundary value problem
	Tuesday	Nov 27		Recitation
	Wednesday	Nov 28	6.3-6.4	Fourier series
	Friday	Nov 30	6.5	Heat equations
16	Monday	Dec 3	6.6	Wave equations
	Tuesday	Dec 4		Recitation
	Wednesday	Dec 5		Review
17	Monday	Dec 10		FINAL EXAM