Course Syllabus
MTH 320-003 Analysis I, Fall 2022

Instructor:	Konstantin Matetski
Lectures:	MWF 1:50 p.m. - 2:40 p.m. in A232 WH
Instructor's Office:	D-315 WH
Instructor's Office Hours:	Mon 3:30pm-4:30pm, Tue 11am - 12pm, Wed 3:30pm-4:30pm, and by appointment
Instructor's e-mail:	matetski@msu.edu
Course Web Page:	d2l.msu.edu, Course: FS22-MTH-320-003 - Analysis I
Piazza Web Page:	`https://piazza.com/msu/fall2022/mth320003`

Required Course Materials

Elementary Analysis, The Theory of Calculus (2nd Edition), K. Ross. ISBN : 9781461462712
The book can be download through the MSU Libraries:
`https://link-springer-com.proxy2.cl.msu.edu/book/10.1007/978-1-4614-6271-2`

Suggested extra reading:

- *Understanding Analysis*, S. Abbott
- *Analysis I*, T. Tao
- *The Fundamentals of Mathematical Analysis*, G. Fikhtengol'ts, I. Sneddon
- *Principles of Mathematical Analysis*, W. Rudin

Prerequisites

The prerequisites for the class are (MTH 133 or MTH 153H, or LB 119) and (MTH 299 or MTH 317H, or approval of department). I suggest to revise the course `https://apps.d2l.msu.edu/selfenroll/course/1766822` on introduction to proofs.

Objectives and Topics

The main objective of the course is threefold: to get a deep understanding of real analysis (in particular of the techniques learned in calculus), to learn how to solve problems on the main topics of analysis, and to improve the skills of reading and writing mathematical proofs.

The course will cover most of Chapters 1-5 of the textbook, including properties of the real numbers, limits of sequences, series, limits and continuity of functions, properties of continuous functions, derivatives in one variable, sequences and series of functions, power series.

How to succeed in the class?

In order to get a high grade for the class, students should attend all lectures, make notes during the lectures, revise the notes regularly and read the textbook if something is unclear. Any questions can be asked during office hours and after each lecture. It is important to know how to solve all problems in the assignments and answer all questions in the quizzes.

Attendance

Students are expected to attend all class meetings and to know all of the material covered in class and in the assignments.

Class Expectations

1. Students are expected to come to every class.
2. Students are expected to own the book.
3. Students are expected to check the class website on a regular basis. This is where homework assignments, supplementary reading materials and class announcements will be posted.
4. Students are expected to pay attention and participate in class.

5. Students are expected to spend at least 3 hours between each lecture working on your homework, reading the book, lecture notes and supplementary materials.
6. All quiz, homework, and exam scores will be posted on D2L as soon as they are graded. Make sure to check your recorded score on D2L and alert your instructor of any discrepancies within 2 days of receiving your graded assignment.

Exams and Other Important Dates

Midterm Exam I	October 7
Midterm Exam II	November 11
Final Exam	12/14/2022, 5:45PM-7:45PM, Wells Hall A232

Evaluation

There will be two in-class exams (20% each), graded assignments (20%), weekly quizzes (15%), and a final exam (25%). Two lowest grades for the assignments will be dropped. The lowest quiz grades will be dropped. The lowest midterm exam percentage will be replaced with the final exam percentage if doing so raises your grade.

The grading scale will be:

Graded Components	
Assignments	20%
Quizzes	15%
Midterm Exams	$2 \times 20\%$
Final Exam	25%
Total grade out of	100%

	Grading Scale (x is your percent score)
4.0	$90 \leq x$
3.5	$85 \leq x < 90$
3.0	$80 \leq x < 85$
2.5	$75 \leq x < 80$
2.0	$70 \leq x < 75$
1.5	$65 \leq x < 70$
1.0	$60 \leq x < 65$
0.0	$x < 60$

Grading Criteria

All of your work in the course will be graded according to three criteria.

1. Does your work **effectively communicate** your reasoning and methods?
2. Does your work **completely answer** the question posed?
3. Does your work **correctly answer** the question posed?

Solutions which ineffectively communicate your ideas, which omit or incompletely address the questions posed, or which include inaccuracies or errors will be penalized.

Exams

Your lowest midterm exam percentage will be replaced with your final exam percentage if doing so raises your grade. There are NO make-up exams, and a missed exam will be counted as your lowest. You should not miss more than one exam. The university does not permit early final exams for any reason. The final is cumulative. No student should miss the final.

Assignments

Homework assignments will be posted each Friday and submitted on Friday at `www.gradescope.com` (**Entry code: K3N547**). Your lowest two assignments will be dropped. No late homework is accepted. Each homework assignment is worth 20 points. Not every assignments problem will be graded; but using those which are graded a score from 0 to 20 will be determined. If a grader cannot easily follow your work, you will lose points. You are free to discuss homework problems with peers and use additional resources, but your submitted homework should be your own work, written in your own words and you need to cite all used resources. If you have any questions regarding assignments, be sure to come to office hours or use the Piazza forum.

Quizzes

There will be weekly quizzes, each lasting about 10 minutes. Each 10 minute quiz is worth 15 points. There are no make-up quizzes. The lowest quiz score will be dropped.

Students with Disabilities

MSU has a Resource Center For Persons with Disabilities (RCPD): `http://www.rcpd.msu.edu/` Please contact the RCPD if you require special accommodations, and then schedule an appointment to meet with your instructor and accommodations can be provided.

Academic Honesty

Cheating in any form will not be tolerated and will be reported. You will receive a zero on any assignment in which there is a case of cheating. This includes, but is not limited to, plagiarism, failure to give proper citations, and copying another's work.

If you are preparing an assignment and have a question about whether you are adhering to this policy, please ask your instructor. If you work on an assignment with other students, you must give credit to your collaborators. MSU's policy on academic integrity can be found at the following URL: `https://www.msu.edu/~ombud/academic-integrity/index.html`.

Student Responsibilities

Attend class & arrive prepared. Regular attendance is required. Before attending the lecture, read the current textbook section. At minimum, attempt to work through the first several examples in each current section, and write down any questions you have. Work through the textbook exercises for the current sections and keep a notebook to record your progress.

Read outside of class. You should always have paper and pencil readily available when reading a mathematical text. Work through the examples by writing the steps out yourself until it is clear to you that the solution in the textbook is correct. Once a topic has been introduced in lecture, you should re-read the corresponding sections from the text. You should work on the exercises at the end of these sections until you are proficient. I encourage you to work with other students and to help one another succeed in the course. However, when you turn in your work, **your solution should be your own**, written independently in your own words.

Participate in class. Be attentive and stay alert. Work with your classmates, especially those adjacent to your seat. Take careful notes on those topics which are unfamiliar. Ask questions.

Complete the homework assignments. Start homework assignments early and discuss these with your classmates. Write your attempts to solve the homework on scratch paper. You must re-write – carefully and neatly – your solutions according to the requested format. When your homework is returned with a grade, if points were deducted, make sure you understand why.

Work through the textbook exercises. Attempt these problems and test your understanding. Ask questions about these exercises. Ask your classmates, your instructor, your roommate, etc.

Utilize office hours. Please consider bringing your questions to office hours. Office hours are times set aside specifically as an opportunity for you to get additional help. If your schedule conflicts with the scheduled office hours, please make an appointment by sending a request by e-mail.

Please do not think of this as an inconvenience to your instructor; additional help is available if you seek it out. However, it is your responsibility to come to office hours only after first making a sincere effort to answer questions on your own. Learning is difficult: work hard, try new ideas, and ask questions. If you do this, you will see definite progress.

Use Piazza to post questions. When posting questions or answers, be sure to express yourself clearly and in a mathematically rigorous way. If you are asking about a specific exercise or example in the text, be sure to restate the problem in its entirety. The Pizza website for our class is `https://piazza.com/msu/fall2022/mth320003`