MTH 320-001 Analysis I, Fall 2016 Course Syllabus

Instructor:	Tsvetanka Sendova
Lectures:	MWF 10:20 a.m. - 11:10 a.m. in A222 WH
Instructor's Office:	C-137 WH
Instructor's Office Hours:	Monday: 11:30 am - 12:30 pm, Tuesday and Thursday: 1:30 pm - 2:30 pm, and by appointment
Instructor's e-mail:	tsendova@math.msu.edu
Course Web Page:	http://math.msu.edu/~tsendova/MTH320_F16/MTH320_F16.html
Piazza Web Page:	https://piazza.com/msu/fall2016/mth320001/home

Required Course Materials

- Textbook: *Elementary Analysis, The Theory of Calculus* (2nd Edition), Kenneth Ross, Springer, ISBN: 978-1-4614-6270-5

Prerequisites and Topics

The prerequisites for the class are (MTH 133 or MTH 153H or LB 119) and (MTH 299 or MTH 317H or approval of department).

The course will cover most of Chapters 1-5 of the text, including properties of the real numbers, limits of sequences and series, limits and continuity, properties of continuous functions, derivatives in one variable, sequences and series of functions, power series and uniform convergence. The main objective of the course is to obtain a deep understanding of the theory that underlies single-variable calculus. By the end of this course, students should be able to demonstrate the ability to read and write mathematical proofs for real analysis.

Attendance

Students are expected to attend all class meetings and are responsible for all of the material covered in class and in the homework. Any changes in this syllabus or in the scheduling of exams, quizzes, etc. will be announced during class meetings (usually at the beginning of class so please don't be tardy).

Class Expectations

1. You are expected to come to every class.

2. You are expected to own the book.

3. You 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. You are expected to pay attention and participate in class.

5. You are expected to spend at least 3 hours between each lecture working on your homework, reading the book, lecture notes and supplementary materials.

Exams and Other Important Dates

Last day to drop the class with tuition refund	Monday, September 26
Midterm Exam I	Friday, October 7
Last day to drop the class with no grade reported	Wednesday, October 19
Midterm Exam II	Friday, November 18
Final Exam	Wednesday, December 14, 12:45 p.m. - 2:45 p.m.

Evaluation

There will be two in-class exams (20% each), graded homework (15%), a number of "short" quizzes, in-class presentations (part of the quiz grade) and more traditional weekly quizzes (20%), and a final exam (25%). The grading scale will be no worse than what is shown below:

Graded Components		Grading Scale (x is your percent score)	
Homework	15%	4.0	$90 \leq x$
Quizzes + in-class work	20%	3.5	$85 \leq x < 90$
Midterm Exams	$2 \times 20\%$	3.0	$80 \leq x < 85$
Final Exam	25%	2.5	$75 \leq x < 80$
		2.0	$70 \leq x < 75$
Total grade out of	100%	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, a missed exam, for any reason, 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.

Homework

Homework will be assigned daily and collected each Wednesday in class, unless stated otherwise. Your lowest two homeworks will be dropped. No late homework is accepted. Each homework assignment is worth 20 points. Not every homework problem will be graded; but using those which are graded a score from 0 to 20 will be determined. The homework must be written in a clear manner, with sufficient English prose to make the argument readily understandable. If a grader cannot easily follow your work, you will lose points.

Short and Traditional Quizzes

There will be weekly traditional quizzes, each lasting about 10 minutes. Each 10 minute quiz is worth 15 points. There are no make-up quizzes except in the case of a medical emergency; you must provide documentation. The lowest quiz score will be dropped.

There will also be a number of short quizzes, each worth 5 points, that will be unannounced. There will be no make-up for these quizzes. The lowest 2 scores for short quizzes will be dropped.

You may be asked to give a short in-class presentation, which will be equivalent to a quiz grade.

Ungraded Work

You will not be successful in this course if you only complete the graded assignments. You must, in addition, regularly test your understanding by attempting exercises in the textbook and by attempting problems which we work on as a class during lecture and recitation. If you have not mastered the material, then you should not expect to achieve a high exam score. Moreover, if you are unable to solve at least half of the recommended textbook exercises without making multiple or serious errors, then you should not expect to receive a passing grade on exams.

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! Don't be shy: we all are here to learn!

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. Part of the fun of mathematics is that you can discus mathematical problems with others and together you can discover a solution.

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/fall2016/mth320001/home`

Final Thoughts

The best way to learn mathematics is to write down solutions to specific mathematical problems. If you are able to solve most of the assigned problems, then I am confident that you will do very well in the course. But don't limit yourself to the assigned problems; the textbook offers a variety of interesting problems. Challenge yourself! Try working out problems that sound interesting to you. If you want more practice or want more challenging problems, please drop by my office during office hours or make an appointment to meet with me.

If you are falling behind in the course, please seek help ASAP. There is help available during office hours, Piazza, and from your classmates (just ask them!).

I want you to succeed in this course, and I'm here to facilitate this goal. But the burden is upon you to work hard, to set aside realistic amounts of time for study, and to seek out help when you need it.

Some final advice: read the textbook. Then work some problems and read the textbook again. I cannot emphasize this enough. Learn to read the textbook. It is the key to being able to learn and apply mathematical techniques to problems you encounter outside of this class and down the road.