

Analysis I

Fall 2015

Professor: Dr. Heather A Moon

email: hamoon@smcm.edu **phone:** 240.895.2197 (not the best way to contact me)

website: faculty.smcm.edu/hamoon

TA: Yingyi

Book: *Understanding Analysis* Abbot.

What is Analysis?

Many people enter an Analysis course thinking that they are going to learn to “prove Calculus.” Some people believe this course is all theoretical. Some people think this class is way too hard. Some people have lots of ideas about what this class is, but let me tell you what I think Analysis is.

I think Analysis is awesome. Ok, so that told you nothing... Well, we will prove things. We will prove things from Calculus, but, more accurately, we will prove things about the Real Numbers. We will understand more deeply things about Real Numbers, functions, and other mathematical entities. We will look at how to measure things like sets and differences (not subtraction) between objects. We will do some theoretical things, but we will also see how Analysis is really applicable to some cutting-edge research. I wouldn't call Analysis hard, I would call it fun, interesting, exciting. I now want to invite you to join me in this semester of learning things that I think are pretty awesome!

What do I expect from you?

I expect you to want to learn. I expect you to keep an open mind about what we talk about. I expect you to do your own work. I expect you to collaborate with your classmates. I expect you to participate in class. I expect you to ask questions and to answer questions. I expect you to talk to the TA and to me about issues and class struggles. Really I expect you to learn.

What can you expect me to do?

You can expect me to be enthusiastic about this subject. You can expect me to ask you questions. You can expect me to answer your questions by asking more questions. You can expect me to help you become a lifelong learner. That's really what I want to do for you in this class.

What are the traits of a lifelong learner?

Here's what I think about this question. I think a person who wants to be a lifelong learner should get used to answering questions even if they aren't sure if it is a correct answer. Lifelong learners ask questions that go beyond looking to get homework done or exam prepped. Lifelong learners seek understanding not answers. Lifelong learners try to find applications (theoretical or real-life) to the topic they are learning. My goal is to get you there.

Classroom Expectations

Respect is important in a classroom to facilitate discussions. I expect that some of you will answer wrong at times. That's awesome and I welcome wrong answers. We can learn from them. I don't want people answering quickly. Give your classmates a chance to think about my questions. If you know the answer right away and you know it is correct, wait. Respect your classmates by letting them think. If you think you know the answer, but are not sure, feel free to try sharing it. If it is wrong, we will use it to learn. Wrong answers are the best way to clear up misunderstandings and everyone can learn from them. Quick correct answers help nobody.

How will I measure my expectations?

I will give you a take-home exam (midterm) (25%) and a final (30%). I will also give you homework and labs (40%). Finally, I will expect you to participate in class (5%). There will also be 5-6 "Must Get Correct" problems that you must pass in order to pass this class (no matter the rest of your grade).

What are "Must Get Correct" problems?

There will also be 5-6 "Must Get Correct" problems that you must pass in order to pass this class (no matter the rest of your grade). These problems are verify to me that you are making progress in this class by learning accurate, clear, and logical steps for Analysis proof writing. These problems do not receive a letter grade. Rather, these problems are either correct or in correct. You have until the last day of class to get all of these correct. You may turn them in repeatedly, but if you turn one in twice and do not pass by the second time, I will not look at any more attempts without you talking to me or Yingyi about the issues and how to correct them.

Academic Dishonesty

Plagiarism and cheating are not tolerated in this class. I will ask you to do things that have already been done. Using someone else's work is considered both plagiarism and cheating. Do not look up answers online. Do not use the solutions you may find online. Do not copy your classmates' work. If you get help from me, you are not allowed to copy my work either—you have to reformulate what you learned in your own words. Receiving or giving help on an exam in any way is cheating. In our department we don't take lightly academic dishonesty. Our goal is to help you learn and academic dishonesty goes against our goal for you. If you are ever in doubt as to whether your actions may be violating the academic dishonesty policy, please ask me before submitting your work.

Accommodations

Any student with a disability requiring accommodations in this class is encouraged to contact me after class or during my office hours. Students with a disability may also wish to contact William Howard in the Office of Academic Services, Glendening Hall, suite 230, x4388.