

## Analysis I MATH 5210/6210

Instructor: Dr. Michel Smith  
Office hours: Via zoom immediately after class and by appointment  
Class Web Site: <http://webhome.auburn.edu/~smith01/math5210Sp21/>

Students will be expected to discuss their solutions to assigned homework exercises during Zoom sessions. An integral part of the learning process for mathematics is solving mathematics problems. You will be challenged to solve problems, develop techniques and prove theorems that are new to you; the purpose of this course is to develop analytical problem-solving techniques that can be applied to a broad range of problems. The techniques of mathematics are retained much more firmly if students can discover their own solutions to problems.

For information regarding getting ready for remote Zoom lectures go to the following site at the Biggio Center: <http://wp.auburn.edu/biggio/zoom/>. As much as possible, the zoom experience should model the classroom; so this means that you should have your video on so that we can see each other - but it would be polite to turn off your microphone unless you have a question or comment relevant to the discussion at hand.

Homework, Presentation and Participation counts as 25% of the grade; tests, quizzes, projects, etc... count 75% of the grade according to the point system listed below:

### Grade Calculation

Participation, etc. broken down as follows:	25%
Homework	10
Presentation	10
Participation	5

Tests, etc.: Item ( $N_i$ = number of each item)	Number of points each ( $p_i$ = points per item)
Quizzes	10
Projects	20
Tests (approx two or three tests)	20
Final	60
75%	Total Possible = $\sum N_i p_i$

Grade calculation = (number of points obtained  $\div$  total possible)  $\times$  100%.

The standard 10 point scale will be used:

90 to 100 =A; 80 to <90 = B; 70 to < 80 =C; 60 to <70 = D; <60=F.

### **Test, quizzes and projects.**

Quizzes and tests will be open notes; this includes my notes on the class website. You may not receive any other outside assistance and may not discuss quizzes and tests with anyone. You will be asked to affirm that you have abided by these conditions. Regarding projects, some of which may be group assignments, all outside resources must be credited. Fellow students must be credited if they helped with solutions to homework or project exercises.

### **Homework/Participation/Presentation.**

My daily virtual classroom process is the same as my daily on-campus classroom process. For fairness, I will create a pseudo-randomized list of students from which I will pick students to present proofs to theorems and solutions to assigned homework. I will start with the first name on the list and go in the listed order and cycle through the list during the semester. **Students are expected to attend zoom sessions held during the scheduled class meeting time.** Before each class, either by email or verbally at the end of the previous class, I will use my student list to assign student presentations for the next class. Once assigned, the student is responsible for preparing the homework assignment for the next class meeting. Typically this will be to prepare proofs to theorems under consideration or to prepare solutions to assigned exercises. **The student's work should be emailed to me before the due date/time in a single pdf document (jpeg's are also acceptable in the case when the student cannot provide a pdf document); the name of the file should begin with your last name plus whatever identifier suits you: e.g. smithOct20homework.pdf. A scan or photo of your handwritten work (converted into a pdf document) is fine - but it must be readable in order to receive full credit. Grades for assignments turned in late (or unreadable) will be prorated according to how late; zero credit will be assigned if the assignment is not received by the time it is reviewed in lecture.**

I will review the homework before class. Then during our class meeting I will go through the list of the students who are scheduled for presentation for that class and ask each to present a portion of their work through zoom. (My custom is to allow the student to dictate their work verbally while I write it on the clipboard/document camera setup.) Other students should be prepared to critique solutions and to ask questions if the presentation is not understood. Read my document *Participation/Presentation Component* which adds details to the process.

**Accommodations for Disabilities:** If you have accommodations, please request them online so that I can access them before we meet in my office. If you are seeking accommodations you should make an appointment with a member of the professional staff in the Office of Accessibility office, 1244 Haley Center (844-2096).

**In case of class disruption.** *If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation (such as a COVID-19 outbreak), the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials*

**Some comments about working on theorems for this course.**

The level of difficulty of the problems and exercises in this class range from easy to very hard. By “easy” I mean a problem that I would expect the majority of the class to be able to prove in a day or two; that is, by the next class after it was stated or considered. A medium problem may take two to three class meetings before a proof is produced and a “hard” problem even longer. There will be a range of difficulty among the problems assigned in class. For some of the harder problems I may state some hints. So, do not be surprised if you do not figure out the solution to a problem immediately.

I expect students, on their honor, not to present or submit work that is not entirely their own work. Please read my short essay *MyModifiedSocraticMethod* online about my teaching pedagogy where I discuss this in more detail.

I think of the class problems as interesting puzzles and I find an incredible joy in figuring them out. So, much like reading a murder mystery, it’s not as much fun hearing someone exclaim, “The butler did it!” than it is to figure out who-dun-it for yourself. Also, once you’ve figured out the solution to an exercise, I guarantee that you will not forget it! So I strongly urge each one of you to work on each theorem for some time (at least a number of hours and in some cases days) before you ask someone in your study or discussion group what they figured out about it. If you don’t figure it out for yourselves, this preparatory work will make it easier for you to understand the solutions once they are presented during our Zoom sessions because you will already have found out some of the “clues.”