
Syllabus

MAA 4102/5104 – Introduction to Advanced Calculus I

Time and Location: M-W-F, Period 3 (9:35 AM – 10:25 AM), MAT 005

Instructor: Arnaud Marsiglietti

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Course Website: <https://people.clas.ufl.edu/amarsiglietti/courses/spring20-2/>

→ The course is on **Canvas**

Office Hours

Monday 1:55 PM – 2:45 PM, Wednesday 1:55 PM – 2:45 PM, Friday 1:55 PM – 2:45 PM,
or by appointment

Textbook

The following textbook is recommended:

- Witold A. J. Kosmala, A friendly introduction to analysis, 2nd Edition

Prerequisites

MAC 2313 or MAC 3474, and MAS 4105 or MAS 3114

Scope of the Course

Intended for students who have completed the calculus sequence and linear algebra, the course helps in the pursuit of career in sciences, statistics, engineering, computer science, Economics, and business. A large portion of the material covered should sound familiar to students from their study of elementary calculus (such as real numbers, sequences, functions, limits, continuity, differentiation and integration, etc). However, the emphasis of the course is on **Theory** and deeper understanding. Students will develop skills with **Proofs**, will learn to interrelate ideas, and will improve their ability to reason carefully and creatively when dealing with mathematical ideas. An important goal of the course is to be able to express mathematical ideas in precise terms and communicate them clearly.

Who Should Take this Course

The fundamental ideas of calculus play an important role in sciences and engineering. For this reason, students in these areas may choose to take this course, even though no particular applications are discussed in the course. Students in mathematics, education, and other areas may also choose to take this course. However, the course is **Not Recommended** for students who plan to pursue graduate studies in mathematics; these students should take **MAA 4211** instead.

Topics Covered

We will cover much of Chapters 1 to 5 of the textbook. Topics include sequences, functions, limits, continuity and differentiation. Below is the tentative weekly schedule:

- W1: Algebra of sets, mathematical induction, proof techniques.
- W2: Ordered fields and a real number system.
- W3: Some properties of real numbers.
- W4: Convergence of sequences, finite limits, monotone sequences.
- W5: Cauchy sequences, subsequences.
- W6: Applications of limits, the transcendental number e .
- W7: Limits of functions, sided limits.
- W8: Continuity of a function, properties of continuous functions.
- W9: Uniform continuity.
- W10: Applications of continuity, compact sets.
- W11: Derivatives of a function, properties of differentiable functions.
- W12: Mean value theorems.
- W13: Higher-order derivatives, L'Hopital's rule.
- W14: Approximation of derivatives, convex functions.

Homework

Homework will be assigned weekly, but will not be graded.

Grading System

- 3 Quizzes
 - Wednesday, January 22
 - Wednesday, February 26
 - Wednesday, April 15

- 1 Take Home Exam
 - Wednesday, March 18 (Due On Wednesday, March 25)

- 2 Midterm Exams
 - Wednesday, February 12
 - Wednesday, April 1

- **Final Exam Date**
 - Tuesday, April 28 (4/28/2020) at 7:30 AM – 9:30 AM in MAT 005

Grading (103 points)		Scale	
Attendance/Participation	3pts	A = 90+	B- = 77-79
Quizzes	10pts each (total = 30pts)	A- = 87-89	C+ = 73-76
Take Home Exam	15pts	B+ = 83-86	C = 70-72
Midterm Exam	15pts each (total = 30pts)	B = 80-82	C- = 67-69
Final Exam	25pts		

Course Policies:

Absence from Exams

Missing an exam is permitted **ONLY** for the most compelling reasons. Please notify me **IN ADVANCE**, if possible, if an exam is to be missed. Otherwise you will be given a 0.

Class Attendance

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Honor Code

UF students are bound by The Honor Pledge which states: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code”. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code, which can be found at:

<https://sccr.dso.ufl.edu/process/student-conduct-code/>

specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center (DRC) by visiting

<https://disability.ufl.edu/students/get-started/>

It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Students' Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at

<https://gatorevals.aa.ufl.edu/students/>

Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via

<https://ufl.bluera.com/ufl/>

Summaries of course evaluation results are available to students at

<https://gatorevals.aa.ufl.edu/public-results/>