Syllabus

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MAA 4102/5104 – Introduction to Advanced Calculus I

Time and Location: M-W-F, Period 3 (9:35 AM – 10:25 AM), LIT 127
Instructor: Arnaud Marsiglietti
Office: 411 Little Hall
E-mail: a.marsiglietti@ufl.edu
Course Website: https://people.clas.ufl.edu/amarsiglietti/courses/course-spring19-2/

Office Hours
Monday 3pm – 3:50pm, Wednesday 3pm – 3:50pm, Friday 12:45pm – 1:30pm,
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 the 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 (dates are tentative)
→ Wednesday, January 23
→ Wednesday, February 6
→ Wednesday, April 17

∘ 1 Take Home Exam (date is tentative)
→ Wednesday, March 13 (Due On Wednesday, March 20)

∘ 2 Midterm Exams (dates are tentative)
→ Monday, February 25
→ Wednesday, April 3

∘ **Final Exam Date**
→ Thursday, May 2 (5/2/2019) at 3:00 PM – 5:00 PM in LIT 127

Grading (105 points)		**Scale**	
Attendance/Participation	**5pts**	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 requesting accommodations should first register with the Disability Resource Center:

352-392-8565, https://disability.ufl.edu/

by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Students' Evaluation
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at:

https://evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at:

https://evaluations.ufl.edu/results/