

## MAD 4212 (3009) Advanced Calculus

Spring 2018

<https://people.clas.ufl.edu/kees/files/MAA4212Spring2018.jpg>

**Instructor:** James Keesling (352)294-2312  
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**Office Hours:** M 8-Period W 5-Period

**Meeting Time and Place:** MWF 7th Period, 1:55-2:45 pm  
LIT 201

**Textbook:** *Understanding Analysis* by Stephen Abbott (2nd Ed, Springer, 2015). The **TI-Nspire CX CAS** calculator is required. A manual is found at <http://education.ti.com/en/us/guidebook/search/ti-nspire>.

**Goal:** The student will become familiar with the techniques of advanced analysis, proofs of the main results, and some applications.

**Syllabus:** This course is a two-semester introduction to the basic techniques of analysis. The material to be covered in the two semesters follows: set theory, the real number system, metric spaces, continuous functions, differentiation, Riemann integration, interchange of limit operations, the fixed point theory, implicit function theorem, solutions of differential equations, partial differentiation, multiple integrals.

In addition to covering the principles of analysis and the main proofs, the course will also introduce some applications and methods of calculating using the theory. For this purpose the students are required to have a **TI-Nspire CX CAS** calculator. No other calculator is acceptable. Programs will be available online to download. The calculator will be used for examples in class and needs to be available for class exams.

The material to be covered this semester is the following.

Week 1	Differentiation
Week 3-4	Riemann integration
Week 5-6	Function spaces
Week 7-8	Power Series
Week 9-10	Differential equations
Week 12-14	Higher dimensional calculus
Week 15-16	Review

**Tests and Grading:** There will be two in-class tests and a final exam. The grades will be determined by averaging the tests and final exam scores: 95-100 = A, 90-94 = A-, 87-89 = B+, 83-86 = B, 80-82 = B-, 76-79 = C+, 70-75 = C, 65-69 = D+, 60-64 = D, 0-59 = E.

**Final Exam:** Monday, April 30, 7:30-9:30 am, LIT 201

**Policy for Make-Up Exams:** If a student has a known conflict for an exam, the student has the responsibility to make arrangements for a make-up before the exam is given. If a student misses an exam due to an emergency, arrangements must be made as soon as possible for a make-up.

**Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) 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.

**Student Complaints:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).