

MAA-6407-Spring-2023

MAA6407 SYLLABUS

Complex Analysis II

Course number 21441 Section 3168 Spring 2022

Instructor

Scott McCullough

Course Description

This year long course treats the fundamentals of the theory of functions, including complex integration, Cauchy integral formula, singularities and the argument principle, maximum modulus, convergence in spaces of holomorphic function, Runge's Theorem, Schwarz reflection, harmonic functions, entire functions and the Picard theorems. Depending on student interest, potential additional topics for the second semester include (but are not limited to) multiply connected domains, Riemann surfaces, distinguished varieties, boundary values of bounded analytic functions, the Hardy spaces on the disc, and more on harmonic functions.

Course Learning Goals.

Mastery of the course content and basic techniques and ideas from complex analysis and their applications to other areas of mathematics.

Recommended text

Functions of one complex variable, by John Conway.

References

Real and Complex Analysis, by Walter Rudin.

Conformal mapping, by Zeev Nerahi.

Functions of One Complex Variable II John Conway.

Suggested Problems

Selected problems from the text will be assigned on a daily basis.

Homework

Homework problems, selected to complement each students interests and course of study, will be assigned, collected, and graded.

Grading

Course grades will be based on participation and homework. See the current UF policy on assigning grade points.

Attendance

Attendance is recommended.

Communication

In accordance with University policy, all written communication should be through canvas messaging.

Additional Information:

Grades.

Grading will be in accord with the UF policy stated at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Academic Honesty.

The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found in the [student guide](#)

Accommodations for Students with Disabilities.

“Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://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.”

Online Evaluations.

“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/>.”

Contact information for the Counseling and Wellness Center.

<https://www.counseling.ufl.edu/>; 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

- [Homework Assignments](#)
- [Suggested Problems](#)

Tentative weekly schedule

Week 1: complex numbers.

Week 2: review of metric spaces.

Week 3: analytic functions.

Weeks 4-6. complex integration.

Week 7. Singularities.

Week 8. maximum modulus.

Weeks 9-10. sequence of analytic functions, normal families.

Week 11. Runge's Theorem.

Week 12. Schwarz reflection.

Week 13. harmonic functions.

Week 14-16. Holidays, Entire functions, Picard Theorems.



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