

# M 472: Introduction to Complex Analysis (Spring 2021)

**Class Hours and Location:** MWF 12:00–12:50pm, Barnard Hall 108

**Instructor:** Lukas Geyer, 2-254 Wilson, (406) 994-5342, [geyer@montana.edu](mailto:geyer@montana.edu)

**Office Hours** MWF 1:10–2:00pm, or by appointment, via WebEx at  
<https://montana.webex.com/meet/q42n447>

**Course Website:** D2L / Brightspace

**Text:** Ruel Churchill and James Brown, *Complex Variables and Applications*, 9th ed., McGraw-Hill 2013

## Additional Texts:

- John Mathews and Russell Howell, *Complex Analysis for Mathematics and Engineering*, 6th ed., Jones & Bartlett, 2011
- Theodore W. Gamelin, *Complex Analysis*, Springer 2001
- Tristan Needham, *Visual Complex Analysis*, Oxford University Press 1999

**Prerequisites:** M 273 or M 283

**Exams:** Exams will have both in-class and take-home parts. In-class exams will be given during regular class hours in the regular classroom, Midterm TBD, Final on Monday, April 26.

If you have conflicts or Blue Card accommodations, please contact me as soon as possible.

This course will give an introduction to the theory of complex numbers and analytic functions in the plane. We will cover Chapters 1–7 of the textbook, plus additional topics if time allows.

The course grade will be comprised of the grades on weekly homework assignments (40%), a midterm exam (25%), a final exam (25%), and class participation and online quizzes (10%). Every student should write up their own homework solutions, but collaboration on solving the problems is encouraged.

## Learning Outcomes

Upon completion of this course, a student will be able to:

- explain the basics of complex analysis (definitions, terminology, concepts, techniques, methods);
- explain the different ways in which analyticity can be defined;
- explain Cauchy's theorem and integral formula and some of their applications;
- apply complex analytic methods to evaluate real integrals;
- write a clear proof involving above items;
- think independently and write clearly.