

ACM 95a/100a

Topics

Introduction to complex numbers, the complex exponential, deMoivre's formula, trigonometric functions, the complex logarithm, multiple-valuedness, Riemann surfaces, inverse trigonometric functions, the point at infinity, the stereographic projection, branch points and branch cuts, the complex derivative, analyticity, the Cauchy-Riemann equations, harmonic functions, harmonic conjugates, potential flow applications, complex integration, contours, relationship between derivatives and integrals, the Cauchy theorem and consequences, Morera's theorem, Liouville's theorem, Power series, uniform convergence, absolute convergence, Weierstrass M-test, radius of convergence, the ratio test, Laurent series, isolated singularities, removable singularities, poles, essential singularities, Picard's theorem, non-isolated essential singularities, Cauchy's residue theorem and applications, Jordan's lemma, winding number, the argument principle, analytic continuation, conformal mapping, solution of the Laplace equation by conformal mapping.

Instructor

[Oscar P. Bruno](#)

211 Firestone

Lectures MWF 11-11:55 a.m. in 119 Kerckhoff

Teaching Assistants

(PLEASE NOTE: Recitations start on Friday 10/2. There will be no recitations on Wed 9/30 or Th 10/1.)

Head TA:

[Faisal Amlani](#)

226 Guggenheim

Section TA's:

(Note that the final schedule will be posted by week's end)

	Teaching Assistant	Recitation Hour	Office Hour
1	Hyoung Jun Ahn	Thurs 9 a.m. 11 DWN	Mon 3 p.m. 212 FIR
2	Maolin Ci	Wed 2 p.m. 119 DWN	Tues 3 p.m. 210 GUG
3	Max Cubillos	Mon 2 p.m.	Thurs 2 p.m. 214 FIR

		119 DWN	
4	Tim Elling	Thurs 11 a.m. 11 DWN	Wed 3 p.m. 209 FIR
5	Gemma Mason	Thurs 4 p.m. 119 DWN	Tues 4 p.m. 210 FIR
6	Andrew Nelson	Tues 11 a.m. 11 DWN	Wed 9 a.m. 214 FIR
7	Thomas Rose	Tues 1 p.m. 11 DWN	Mon 8 p.m. Flemming Lounge
8	Peter Stobbe	Tues 2 p.m. 119 DWN	Wed 10 a.m. 338 Annenburg

The section numbers above DO NOT correspond to the section numbers assigned by the Registrar's office: they are Grading Sections assigned by Moodle and correspond to the T.A. that will grade your work.

You may attend any tutorial section, but your Grading Section will be assigned randomly by Moodle and your official section is the one assigned by the Registrar. You do not need to apply for a change of section to attend any recitation or office hour.

Required Textbook

"Fundamentals of Complex Analysis with Applications to Engineering, Science, and Mathematics (3rd Edition)," Saff and Snider, Prentice Hall

Optional Textbook

"Complex Variables and Applications," Churchill and Brown, McGraw-Hill

Homeworks, Exams and Grades

Homework sets will be assigned weekly. Each weekly homework set will be available by 5 p.m. on Wednesday at the course webpage, and will be due on Wednesday of the following week at 5 p.m.

Work on every aspect of the weekly assigned homework sets is required. Questions relating to homework sets or any other issues arising in the class should be directed

to the teaching assistants. Collaboration concerning the weekly homework problems is permitted, but each solution set should be primarily the result of the individual work of each student.

There will be two (take-home) exams, in which collaboration will not be permitted. Both the midterm and final exams will feature problems of a level of difficulty similar to that of the homework set.

The relative weight of the grades in homework, the midterm exam and the final exam toward the final course grade will be of 30%, 30% and 40%, respectively. The lowest homework grade will be dropped from the final course grade.

Graded Problem Sets

(Please indicate your Grading Section number--listed in your profile--at the top of your submitted work. This is not the same as your Registrar Section.)

Homeworks are due every Wednesday at 5 p.m. Please deposit your HW set by the due-time in the Firestone 303 door-slot.

Homeworks will be returned by 5pm each Wednesday in the boxes across Firestone 303.

We encourage everyone to make photocopies of their completed sets in case those are lost. The impact of such losses, which have occurred repeatedly in previous years, will be minimized if copies of the completed sets exist.

The dates listed below will become active links when the sets and solutions are posted.

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	Available	Due
Problem Set 1	Wed. September 30	Wed. October 7
Problem Set 2	Wed. October 7	Wed. October 14
Problem Set 3	Wed. October 14	Wed. October 21
Problem Set 4	Wed. October 21	Wed. October 28
Problem Set 5	Wed. November 4	Wed. November 11
Problem Set 6	Wed. November 11	Wed. November 18
Problem Set 7	Wed. November 18	Wed. November 25
Problem Set 8	Wed. November 25	Wed. December 2

Late homeworks will be accepted only under exceptional circumstances; please contact the Head TA in these regards. In all cases this will require either a note from your doctor, the Dean of Students, or other similarly admissible document.

Exams

There will be two (take-home) exams, in which collaboration will not be permitted.
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	Available	Due
Midterm	Wed. October 28	Wed. November 4th at 5pm
Final	TBD	TBD