APMTH 104: Series Expansions and Complex Analysis

When: T/Th 11:30am-1:00pm
Where: MD G125
WWW: https://my.harvard.edu/
Instructor: Yasmine Meroz, ymeroz@seas.harvard.edu, office hours TBD
TF: Aakash Ravi, aravi@physics.harvard.edu, office hours TBD

Description:
Complex analysis (2/3): complex numbers, functions, mappings, series, differentiation, integration, residue theory, conformal mappings.
Fourier analysis (1/3): orthogonality, Fourier Series, Fourier and Laplace transforms.
Elements of signal processing using discrete transforms, wavelets etc.

Textbook:
E.B. Saff and A.D. Snider. *Fundamentals of Complex Analysis, with Applications to Engineering and Science* (3rd Edition).

Additional recommended reading:
T. Needham, *Visual Complex Analysis*, Oxford
P. Nahin, *An Imaginary Tale: the Story of √-1*, Princeton
T. Korner, *Fourier Analysis*, Cambridge
R. Bracewell, *Fourier Transform and its Applications*, McGraw Hill.
Welch Labs, *Imaginary Numbers are Real* (short videos series), https://www.youtube.com/playlist?list=PLiaHhY2iBX9g6KIvZ_703G3KJXapKkNaF

Homework
There will be a weekly homework assignment which will be posted on the course website on Thursday night and will be due the following Thursday by the end of lecture (apart from quizz weeks). Solutions will be posted 24 hrs after due time. Late homework will not be accepted. Lowest homework grade will be dropped when computing final course grade. Working in groups is encouraged, however, each person must turn in their own work. Present your solutions in an organized manner that would allow to follow your thought process.

Exams
Two in-class quizzes (September 29 and October 27), and a final exam, TBD.

Grading
Your final grade will be determined based on a curve and the following break- down:

Component	Percentage
Homework	35
Quizz 1	15
Quizz 2	15
Final Exam	35

Course Percentile	Letter Grade
92-100	A
89-91	A-
86-88	B+
82-85	B
79-81	B-
76-78	C+
67-75	C
64-66	C-
61-63	D+
50-60	D
<50	F