Primary material

There are 11 full weeks in the semester and an additional three half-weeks. With this way of counting, the midterm takes place after Week 5.

Wk 1–4	$\mathbb{C}$, $\bar{z}$, z^2, $\sqrt{z}$, argument(s), branches	§1–11	Ch 1
	intro to exp, limits and continuity	§12–18	Ch 2
	$1/z$, FLTs/Möbius transformations, $\hat{\mathbb{C}}$	§90–93	Ch 8
	Cauchy–Riemann, analyticity, harmonicity	§19–26	Ch 2
	analytic continuation, reflection principle	§27–28	Ch 2
Wk 5–6	$\exp, \log, \sin, \cos, \sinh, \cosh$ as functions	§29–36	Ch 3
	viewed as transformations; conformality	§95–97, 101–103	Ch 8,9
Wk 7–9	integration, contour integrals	§37–41	Ch 4
	branch cuts, Cauchy–Goursat Theorem	§42–47	Ch 4
	Cauchy Integral Formula, Liouville's Theorem	§48–53	Ch 4
	Maximum Modulus Principle	§54	Ch 4
Wk 10	residues and poles, Cauchy's Residue Theorem	§68–71	Ch 6
	classification of singularities, behavior at zeros	§72–77	Ch 6
Wk 11	Riemann surfaces	§99-100	Ch 8

Projects

There will be optional projects available: preparing lectures on material from the text not covered in class, especially from Chapters 5 and 7 if the above schedule holds. Graduate students are strongly encouraged to take on projects.

Possible supplementary topics.

- Taylor and Laurent series
- Absolute and uniform convergence
- Argument Principle and Rouché's Theorem
- Schwarz-Christoffel Transformation
- Dirichlet Problem
- Gamma function, Riemann zeta function (not in book)
- Quasi-conformal functions and Grötzsch's Theorem (not in book)