SPRING 2016: MATH 463 COMPLEX VARIABLES FOR SCIENTISTS AND ENGINEERS

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Lectures: MWF 2:00pm - 2:50pm MATH 0403.

Prerequisites: MATH 241


(1) January 25–29: Addition and multiplication; the complex field; Modulus, Conjugate, Exponential Form; Sections 1-6.

(2) February 1–5: Products, Arguments, Roots, Examples, Topology on C; Sections 7–11.
   February 5: Quiz 1

(3) February 8–12: Functions, Mappings, Exponential, Limits; Sections 12–17.
   February 12: Quiz 2

(4) February 15–19: Continuity, Derivatives, Equations, Polar Coordinates; Sections 18–23.
   February 19: Quiz 3

   February 28: Quiz 4

(6) February 29–March 4: Elementary Functions: Expo, Log, Branches, Trigonometric and Hyperbolic Functions; Sections 29–36.

(7) March 7–9: Inverse Trigonometric, Integrals, Contours, Contour integrals, examples; Sections 36–44.

(8) Review Session, March 10, Thursday 1pm-2pm (TBA)
(9) March 11, Midterm, Chapters 1–3.

(10) March 21–25: Antiderivatives and Cauchy-Goursat Theorem, Cauchy Theorem on simple and multiple connected domains; Sections 44–49.

(11) March 28–April 1: Cauchy Integral Formula, Consequences: Liouville's theorem, maximum modulus theorem; Sections 50–54.

(12) April 4–8: Series (Chapter 5), Singular points, residues, Cauchy's residues theorem, Singularities, Residues; Sections 68–73.
    April 6: Quiz 7.

(13) April 11–15: Zeros, Poles, Improper Integrals; Sections 74–79.
    April 15: Quiz 8.

(14) April 18–22: Special Integrals, Branch Cuts, Indented Paths; Sections 80–84.
    April 22: Quiz 9.

(15) April 25–29: Trigonometric Integrals, Inverse Laplace Transform, Rouche’s Theorem, Argument Principle; Sections 85–89.
    April 29: Quiz 10.

(16) May 2–6: Mapping by elementary functions; Sections 96–99.

(17) May 9, Review Session.

Quiz is usually about 15 minutes long at the end of a class.

Grading:
    100 points: HWs
    100 points: quizzes
    100 points: midterm exam
    200 points: final exam

Total: 500 points.