

CHM 521/600A

First course handout

Mainak Sadhukhan

Indian Institute of Technology Kanpur

- Sequence, infinite series, power series and related concepts
- Vector algebra and Linear vector space
- Vector analysis
- Linear transformation, matrices and matrix algebra
- Selected topics on Complex analysis
- Integral transforms: Fourier and Laplace transforms
- Curvilinear coordinates and Jacobian
- Ordinary differential equations
- Partial differential equations
- Basics of statistics and probability
- Basics of Functional analysis
- Some special integrals

- Only 2 examinations: Mid-sem and End-sem
- 10 marks for attendance
- 50 marks for mid-sem
- 40 marks for end-sem
- Assignments will be given for practice
- Mid-sem make-up can only be admissible for medical emergency, properly approved by authorities (SPGC/SUGC)
- No pro-rating is admissible

Books

- ① G.B. Arfken and H.J. Weber, *Mathematical Methods for Physicists*, Academic Press (2001).
- ② M.L. Boas, *Mathematical Methods in the Physical Sciences*, John Wiley, India (2007).
- ③ E. Kreyszig, *Advanced Engineering Mathematics*, John Wiley, New York (1999).
- ④ D. McQuarrie, *Mathematical methods for scientists and engineers*, University Science Books (2003)

Online resources

Anything - but with an implied caution for authenticity and correctness!

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