

CHM 521/600A

First course handout-2021

Mainak Sadhukhan

Indian Institute of Technology Kanpur

Topics to be covered

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

Grading policy

- ▶ Three quizzes and an end-semester examination will be conducted
- ▶ Each quiz will carry 20% marks
- ▶ End semester examination will carry 40% marks
- ▶ Assignments will be given for practice.
- ▶ No pro-rating is admissible unless met with compelling reasons
- ▶ End-sem make-up can only be admissible for medical emergency, properly approved by authorities (SPGC/SUGC)

References

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. I. M. Gelfand and S. V. Fomin, *Calculus of variations*, Dover
5. T. W. Gamelin, *Complex analysis*, Springer

Online resources

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

Useful advice: You are encouraged to seek helps from me in understanding a topic. Just ask!!!

Contact informations

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