

Department of Chemistry
Indian Institute of Technology Kanpur
Session 2017-2018, Semester – I

CHM 321A/421A
Physical Chemistry – I

Lectures: MWF 10:00 – 11:00 am L14

Instructor: Dr. Pratik Sen
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Course Details:

- Introduction: importance, historic background, quantum mechanics vs classical mechanics, wave particle duality, uncertainty principle
- Schrödinger equation: wave function and interpretation, time dependent and time independent Schrödinger equation, eigen value problem
- Quantum mechanics of some simple systems: free particle, particle in a box, harmonic oscillator
- Angular Momentum: rigid rotor, orbital and spin angular momentum
- Hydrogen and hydrogen like atoms
- Approximate methods: perturbation theory, variation method, some simple examples.
- Many electron atom: Pauli anti symmetry principle, Slater determinant, He atom, Li atom.

Text Book:

- N. Levine, Quantum Chemistry

Grading System:

- Quiz: 10% + 10%
- MSE: 30%
- ESE: 50%

Letter Grade:

- Awarded based on the total marks out of 100.