

CHM676 Schedule

Mike Reppert

08/19/19

1 Electrodynamics

W1 Introduction to Electrodynamics

- 08/19/19: Maxwell's Equations and the Lorentz Force Law
- 08/21/19: Electromagnetic Waves in Vacuum
- 08/23/19: [Intro to Python and MD](#)

W2 Field-Particle Interactions

- 08/26/19: Energy Content in EM Waves
- 08/28/19: Microscopic Electrodynamics: The Wave Equation
- 08/30/19: [MD in an EM Field](#)

W3 Macroscopic Electrodynamics

- 09/02/19: [Labor Day](#)
- 09/04/19: Ensemble-averaged Fields
- 09/06/19: [Langevin Dynamics and Absorption Spectroscopy I](#)

2 Spectroscopy and Material Response

W4 Linear Response

- 09/09/19: Response Theory
- 09/11/19: Linear Response: Absorption Spectroscopy
- 09/13/19: [Langevin Dynamics and Absorption Spectroscopy II](#)

W5 Nonlinear Response

- 09/16/19: n -Wave Mixing
- 09/18/19: Nonlinear Spectroscopy
- 09/20/19: [Morse Oscillator Pump-Probe I](#)

3 Methods in Molecular Spectroscopy

W6 Linear Methods

- 09/23/19: Schedule + Intro to Methods
- 09/25/19: FTIR and UV/Vis
- 09/27/19: [Morse Oscillator Pump-Probe II](#)

W7 Incoherent Methods

- 09/30/19: [Shalini Low-Nam: Fluorescence Imaging](#)
- 10/02/19: Site-Selective Methods and Inhomogeneous Broadening
- 10/04/19: [Raman Scattering](#)

W8 Ultrafast Methods

- 10/07/19: [October Break](#)
- 10/09/19: Pump-Probe Spectroscopy
- 10/11/19: [2D Spectroscopy](#)

4 Quantum Models for Molecular Systems

W9 Introduction to Quantum Mechanics

- 10/14/19: [Mid-term Exam](#)
- 10/16/19: Intro to Quantum Mechanics
- 10/18/19: Quantum Statistical Dynamics

W10 Response Theory Revisited

- 10/21/19: Kubo Expansion
- 10/23/19: Ladder Diagrams
- 10/25/19: [Diagrammatic 2D Spectroscopy](#)

W11 Model Hamiltonians

- 10/28/19: Vibrational Excitons
- 10/30/19: Frenkel Excitons
- 11/01/19: [Amide I Spectroscopy](#)

W12 Open System Models

- 11/04/19: Pure Dephasing: TLS with harmonic bath
- 11/06/19: Dissipation: Redfield and Förster regimes
- 11/08/19: [FRET](#)

W13 Final Projects

- 11/11/19: TBD
- 11/13/19: TBD
- 11/15/19: Presentations & Discussion

W14 Final Projects

- 11/18/19: Presentations & Discussion
- 11/20/19: Presentations & Discussion
- 11/22/19: Presentations & Discussion

W15 Final Projects

- 11/25/19: Presentations & Discussion
- 11/27/19: [Thanksgiving](#)
- 11/29/19: [Thanksgiving](#)

W16 Final Projects

- 12/02/19: Presentations & Discussion
- 12/04/19: Presentations & Discussion
- 12/06/19: Presentations & Discussion