Physical Chemistry is the application of physical principles and measurements to understand the properties of matter, as well as for the development of new technologies for the environment, energy and medicine. Advanced Physical Chemistry topics include different spectroscopic methods (Raman, ultrafast and mass spectroscopy, nuclear magnetic and electron paramagnetic resonance, x-ray absorption and atomic force microscopy) as well as theoretical and computational tools to provide atomic-level understanding for applications such as: nanodevices for bio-detection and receptors, interfacial chemistry of catalysis and implants, electron and proton transfer, protein function, photosynthesis and airborne particles in the atmosphere. There are additional quantum mechanics resources in Physics Library.

• Supplemental Modules (Physical and Theoretical Chemistry)

• Exercises: Physical and Theoretical Chemistry

• Physical Chemistry (LibreTexts)
Map: Physical Chemistry for the Biosciences (Chang)

• Map: Physical Chemistry (Atkins et al.)

• Quantum Chemistry (Blinder)

• Book: Quantum States of Atoms and Molecules (Zielinski et al.)
Book: Quantum Mechanics in Chemistry (Simons and Nichols)

Advanced Theoretical Chemistry (Simons)

Book: An Introduction to the Electronic Structure of Atoms and Molecules (Bader)

Time Dependent Quantum Mechanics and Spectroscopy (Tokmakoff)
• Book: Nonlinear and Two-Dimensional Spectroscopy (Tokmakoff)

• Quantitative NMR (Larive and Korir)

• Book: Thermodynamics and Chemistry (DeVoe)

• Book: Thermodynamics and Chemical Equilibrium (Ellgen)

• Physical Chemistry (Fleming)
Book: Statistical Thermodynamics (Jeschke)

Book: Surface Science (Nix)

Book: Mathematical Methods in Chemistry (Levitus)