

## Chem 447: Advanced Molecular Spectroscopy

*Course description:* Application of quantum chemistry to molecular spectroscopy. Laser spectroscopic methods and their applications.

### Course Goals

Develop an understanding of quantization of molecular states and its implication to spectroscopy.

Develop an understanding of quantum models applied to spectroscopy.

Develop an understanding of selection rules in molecular spectroscopy.

Develop an understanding of experimental and computational methods in modern molecular spectroscopy.

Develop an understanding of dynamics and time-resolved methods in molecular spectroscopy.

Explore modern applications of molecular spectroscopy in environmental, health and surface sciences.

### Program Goals

Develop the ability to apply mathematics to chemistry.

Develop an understanding of the use of models, their premises, advantages and limitations.

Develop competence in problem solving.