

USE OF STUDENT-SPECIFIC MOLECULES AND THEIR SPECTROSCOPIC PROPERTIES IN PHYSICAL CHEMISTRY COURSES

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Spectroscopy is a fundamental component of physical chemistry courses. To encourage students to take more interest in the critical contributions of spectroscopic properties to the subject, I assign different molecules to the students. In the second semester of a two-semester course that covers statistical and classical thermodynamics, the students draw molecules from a hat on the first day of class. They look up spectroscopic properties for their molecules on the web and use the values in various homework, quiz, and exam problems. In a one semester "principles" course, they build a closed-shell molecule from a limited set of atoms. I then provide the students with calculated values of spectroscopic properties, which they use in a term project about their molecules that covers structure, spectra, partition functions, and properties derived from partition functions.