GUIDED-INQUIRY SPECTROSCOPIC PROJECTS IN THE PHYSICAL CHEMISTRY LAB

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Based on discussions and suggestions received during the ”Spectroscopy in the Classroom” 2015 ISMS mini-symposium, I have implemented guided-inquiry based spectroscopic projects in the upper-level undergraduate physical chemistry lab course. In this course, the first half of the semester is now primarily devoted to gaining familiarity with spectrometers and computational chemistry, and the second half is devoted towards students projects, with 3-4 weeks devoted to characterization of a student-chosen compound and 3-4 weeks to student-designed experiments on that compound. Time is built into the schedule for student experiments to fail, be revised, and be attempted again with the revised procedure. This talk will describe how this approach works in practice in our local context, where both chemistry and biochemistry majors take the course but biochemistry majors do not generally take quantum mechanics. Examples of student feedback will be provided as well as reflection about the strengths and weaknesses of this approach.