A. Briefly describe overall research program at your laboratory.

The focus of my research is on the development of analytical tools for the quantification of analytes of interest within complex mixtures. Of late this has focused on two major areas of research: 1) the development of Prussian Blue modified electrodes combined with xerogels encapsulated with enzymes for the detection of biologically important molecules. Similar electrode systems have been developed using metal electrodes but suffer from high operating potentials and therefore, significant potential of interferences. These Prussian Blue electrochemical systems have significantly lower operating potential and high sensitivity therefore the operational performance should be improved over the metal electrochemical systems. And 2) the analysis of food stuffs the transfer of allergens into local honey. Common advice is to combat the development of seasonal allergies after moving to a new location is the consumption of local honey. That many of the triggers of these allergies are transferred to the honey and that by regular exposure to these your body will develop a familiarization with these compounds and with therefore reduce the intensity or even eliminate these new seasonal allegories. However, limited research has been done into this phenomenon, therefore the focus of our research is the development of analysis methods for honey in order to characterize the chemical composition of local honeys.

B. Briefly describe specific project(s) for your teacher:

Teacher will start the project by familiarizing himself or herself with some of the current literature in the area of study; either Prussian Blue electrochemical systems or xerogel based electrochemical systems or honey and its analysis. In addition, the teacher will become proficient at making solutions at the trace level and learn to operate the necessary instrumentation. The teacher will then select a subproject within the later research area and work toward accomplishing the goals outlined in consultation with the supervisor. We will have progress report/journal club weekly as a lab, and everyone takes turn to present a research article and their progress on their project. Lastly, during the process of conducting experiments, he/she will learn how to do literature search, interpret data, formulate hypothesis and write a manuscript in a scientific format.

C. Will any other people (post docs, grad students, undergraduate students, colleagues, etc.) be involved directly with your teacher?

The teacher would work with myself and two other undergraduate research students.
D. Will you require any advanced reading/preparation for the teacher? If yes, please briefly describe.

In advance, the teacher will need to attend lab safety training through Coastal Carolina University. And background information/literature will be posted prior to start of the project on my website.