Electroanalytical Chemistry 549

Syllabus: Spring 2017

Lecture: Mondays, 6:00 – 8: 50 pm, Smith Hall 240

Prof. Huixin He
Office: Olson Hall 234
Phone: 973-353-1254
Email: huixinhe@rutgers.edu
Office Hours: By appointment

Grading

Quizzes (30%)
Final project presentation: (30%)
The Final Exam: (40%)

The course Synopsis

This one-semester course introduces the fundamentals of electrochemistry and commonly used electro-analytical methods, such as cyclic voltammetry, liner sweeping voltammetry with rotating disk-ring electrodes, stripping voltammetry, and AC impedance spectroscopy. Experimental demonstrations will be designed to improve the basic understanding these techniques. Frontiers research in various fields using these electrochemical techniques will be discussed. Finally, the course will introduce the role of and state-of-the art nanoscience and nanotechnology in electrochemistry and electro-analytical chemistry.

Learning objective of this course

After taking this course, the students should be able to

- Understand the basic concepts of electrochemistry
- Understand what physical chemical properties of a material can be studied with the commonly used electrochemical techniques.
- Design experiments so that a physical chemical property of a material can be determined by one or two electrochemical techniques.

Recommended textbooks and references

- Electrochemical Methods: Fundamentals and applications by Allen J. Bard, Larry R. Faulkner, second edition
- Understanding Voltammetry: Problems and solutions by Richard G Compton, Christopher Batchelor-McAuley, and Edmund J F Dickinson
- Some literatures will be provided during the class.