

Welcome to Chem 5610A: Recent Advances in Analytical Biochemistry

Introduction: This is a survey course. Its purpose is to provide an overview of all of the shiny new tools available for the study of biological macromolecules and systems. We'll start with a quick review of exactly what it is we're analyzing. There'll be a heavy focus on proteins (towards which I am incredibly biased), but we will also touch briefly on nucleic acids. If you have a deep and abiding interest in lipids and/or carbohydrates that does not involve how they interact with proteins, believe me, this is *not* the course for you. The core of the course is an introduction to the predominant analytical tools of modern biochemistry. We'll go over these one by one; in the part of the lecture I'll talk at you about a particular technique until my voice gets hoarse (probably around the two-hour mark). In the second half of the lecture we'll discuss a paper, or set of papers, in which the technique in question played a major role.

Lectures: Thursdays, Farq045, 4:00 – 7:00. **My office:** CB318, no defined office hours, just drop by.

Jan 11th – Introduction: What we're studying and why we're studying it

Jan 18th – Introduction: Proteins in detail

Jan 26th – Optical Methods: UV/visible and CD

Feb 2nd – Optical Methods: Fluorescence

Feb 9th – Cellular Level Methods: Yeast 2 Hybrid, Complementation, Histology

Feb 23rd – Analytical Separations: Chromatographic, Electrophoretic, Ultracentrifugation

March 2nd – Mass Spectrometry I: Introduction

March 9th – Mass Spectrometry II: Applications

March 16th – Nuclear Magnetic Resonance I: Introduction

March 23rd - Nuclear Magnetic Resonance II: Applications

March 30th – Project Presentations I

April 6th – Project Presentations II

Assessment:

1. Participation (**10%**): Yes, you **have** to read the assigned papers. I'll be peppering you with questions about the papers we're reading, so be afraid. Be very afraid...

2. Four assignments (**12.5% each**) given on: **Jan 24th, Feb 7th, Feb 28th and March 20th**
due: **Feb 7th, Feb 21st, March 13th and April 10th**

3. Big huge project (**40%**): A review on an analytical technique or set of analytical techniques of your choice. You'll write a 7 page (single spaced w/figures) review and give a 15 minute talk. Yes, attending other people's talks is mandatory (and good form).

Don't Cheat!: http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm