

## Course Outline

**Course:** CHMB16 Techniques in Analytical Chemistry

**Prerequisites:** CHMA10H and CHMA11H

**Term:** Fall 2009

### Lectures:

Monday 9:00 am -11:00 am (SW128)

Thursday 8:00 am – 9:00 am (SW128)

### Labs:

Tuesday: 9:00 am – 1:00 pm (SW 159) (PRA0001/PRA0002)

Wednesday: 1:00 pm – 5:00 pm (SW159) (PRA0003/PRA0004)

Thursday: 9:00 am – 1:00 pm (SW159) (PRA0005/PRA0006)

**Instructors:** Dr. Andrew Baer (Lectures), Dr. Effiete Sauer (Labs)

### Contact Information:

Dr. Andrew Baer:

Office: PO103-room 103

Office hours: Monday 11:00 am – 12:30 am

Thursday 9:00 am – 10:30 am

Email: [abaer@utsc.utoronto.ca](mailto:abaer@utsc.utoronto.ca)

Dr. Effiete Sauer:

Office: SW-506E

Office hours: Tuesday 2:00 pm – 3:00 pm (SW-506E)

Wednesday 2:30 pm – 3:30 pm (S155B)

Thursday 10:30 am – 11:30 am (S155B)

Email: [esauer@utsc.utoronto.ca](mailto:esauer@utsc.utoronto.ca)

### Course Overview:

Analytical chemistry is a sub-discipline of chemistry focused on the identification and accurate determination of the components contained within a sample. In this course we will introduce classical methods of analytical chemistry including volumetric analysis, sampling techniques, statistical handling of data, chemical equilibria, electrochemistry and an introduction to basic Spectrophotometry. The course contains a weekly four hour lab where students will obtain practical experience in these and other basic analytical laboratory techniques.

### Required Texts:

Daniel C. Harris, Quantitative Chemical Analysis 7<sup>th</sup> Edition, W.H. Freeman and Company, 2007

2009 Laboratory Manual

**Evaluation:**

Laboratory Mark: 35%

Midterm Test: 25%

Final Exam: 40%

**Schedule:**

<b>Week</b>	<b>Topic</b>	<b>Notes</b>	<b>Room</b>
Sept 7th	Introduction to Analytical Chemistry		SW 128
Sept 14th	Experimental Error and Statistics		SW 128
Sept 21st	Quality Assurance and Calibration Methods		SW 128
Sept 28th	Fundamentals of Spectrophotometry		SW 128
Oct 5th	Fundamentals of Spectrophotometry/Chemical Equilibrium		SW 128
Oct 12th	Chemical Equilibrium	No class on Monday Oct 12th (Thanksgiving)	SW 128
Oct 19th	Titrations		SW 128
TBA	<b>Mid-Term Quiz</b>		TBA
Oct 26th	Activity and Equilibrium		SW 128
Nov 2nd	EDTA Titrations		SW 128
Nov 9th	Acid-Base Equilibria		SW 128
Nov 16th	Redox Titrations		SW 128
Nov 23rd	Electrochemistry		SW 128
Nov 30th	Electrochemistry		SW 128
TBA	<b>Final Exam</b>		TBA