

Graduate Module Outline

Title: Chromatographic Analysis of Research Samples

Instructor: Dr N. Pitts

Timing (month/year module will be offered): May-June 2011

Module Description:

The applications of liquid (HPLC) and gas (GC) chromatography will be explored with specific application to the graduate students' research interests. Attention will be given to current state of instrument technology (column selection, detectors) as well as the proper handling of samples, maintenance and troubleshooting of the instrument and data interpretation. Individual students will have the option of concentrating on either HPLC or GC (gas chromatography).

Format:

Students will be provided with background reading that they are expected to do before the module starts. Please contact npitts@nsac.ca to request a copy of this.

The module will be both instructor-led classes (30% of the time) as well as hands-on learning with instrument components (20%). Students will be expected to select, read, and discuss peer-reviewed articles using one of these chromatographic techniques (25%) as well as show independent learning at the graduate level as they research and write their mini-review paper (25%).

Classes: (Not that there will be one initial day concentrated on foundational principles of chromatography followed by class meetings from 7:30 - 9 am to allow students to continue to conduct their normal research during the day.

Class Schedule:

Friday May 20 9-11:30 am; 1:30-3:30 pm (meet outside Cox 219)

[NB: Alternate date could be Saturday May 21st]

Thursday May 26 7:30 am - 9:00 am

Friday May 27 7:30 am- 9:00 am

Wednesday June 1 7:30 am- 9:00 am

Thursday June 2 7:30 am- 9:00 am

Wednesday June 8 7:30 am- 9:00 am

Thursday June 9 7:30 am- 9:00 am

NB: If other times are required that will be scheduled in consultation with the class members.

Method of Evaluation:

20% Participation in discussions of peer reviewed papers and methods

50% Paper- a mini-review of HPLC or GC as applied to their field of research (10-20 pp double spaced) (draft 10%; final 40%)

OR

50% Mini-experiment on HPLC or GC (conducted in their own research lab) and paper evaluating the results (draft 10%; final 40%)

30% Presentation - on a different, related topic of their choice
(Students may chose to substitute a poster in place of the presentation)

Resources: A variety of reference texts and peer-reviewed journals will be used. The usefulness of trade journals will be briefly mentioned.

Prerequisites (list undergraduate courses required as prerequisites):

Successful completion of CHEM1000 and CHEM1001 and CHEM2000 or equivalent.