



Nova Scotia
Agricultural
College

Course Number and Title		AGRI 5710/5705: Module Course Mass spectrometry: fundamentals and applications
Module Description This graduate module provides basic principles of mass spectrometry. The module also includes a laboratory exercise on tandem mass spectrometry coupled with liquid chromatography for quantitative analysis of selected compounds.		
Hours per week: 5 per week; 4 weeks		Lecture 1 Laboratory 3 Tutorial 1
Semester Offered: Summer		Offered every year: Yes If NO, date next offered:
Credits	NSAC:	ECTS:
Prerequisites	An undergraduate or graduate course in organic chemistry or analytical chemistry	
Instructor	Dr. Jeff Hoyle and Dr. Vasantha Rupasinghe	
Module Objectives <i>To give an introduction to liquid chromatography mass spectrometry and operating principles and selected applications of LC-MS/MS.</i>		
Evaluation Methods		
Phase 1: Class discussions and assignments		40%
Phase 2: Assignments		40%
Laboratory report		20%
Required Texts and/or Major References N/A		

Lecture and Laboratory Outline

This graduate module combines lectures/discussions on fundamentals in mass spectrometry, practical applications of mass spectrometry techniques for analysis of selected phytochemicals, and problem-solving assignments. The lectures/discussions will cover mass definitions, mass resolution, mass accuracy, introduction to fragmentation, operating principles of ionization sources, mass analyzers, and mass detectors, and principles of MS/MS scan modes. The hands-on laboratory exercise includes preparation of samples for liquid chromatography, application of multiple monitoring mode of triple quadrupole mass spectrometry for quantitative analysis of selected compounds.

Date prepared: _____ Submitted by: _____