

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 polyphenolic 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:						
edits	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>								
<p>Evaluation Methods</p> <table> <tr> <td>Class discussions and laboratory exercise</td> <td>30%</td> </tr> <tr> <td>Assignments</td> <td>40%</td> </tr> <tr> <td>Laboratory report</td> <td>30%</td> </tr> </table> <p>Lecture and Laboratory Outline</p> <p>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 phytochemicals.</p>			Class discussions and laboratory exercise	30%	Assignments	40%	Laboratory report	30%
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