

Title	Structure Determination		
Credits	2.5		
Semester	2		
Level	4		
Coordinator	Dr. Jimmy Muldoon		
Indicative Module Descriptor:			
<p>The module aims to give students the opportunity to develop a theoretical, analytical and practical approach to the use of modern spectroscopic techniques for structure determination. It includes content related to: physical principles underlying the spectroscopic methods, hands-on operation of instruments and application to the determination of chemical structures. The techniques covered include Mass Spectrometry and Nuclear Magnetic Resonance (NMR) Spectroscopy. The theoretical background and the interpretation of the information obtained will be discussed for each method, although <i>emphasis will be placed on the latter</i> since correlations between spectra and structure can successfully be made without detailed theoretical knowledge. The manner in which the spectroscopic methods can be brought together to solve structural problems will be presented and given as problem sets.</p>			
Indicative Learning Outcomes			
On successful completion of this module, students should:			
<ul style="list-style-type: none"> • Have a knowledge and understanding of the theoretical principles underpinning mass spectrometry and NMR spectroscopy, techniques used routinely in chemistry research; • Be familiar with the operational constraints of each technique; • Be aware of sampling preparation; • Be able to analyse and interpret data and have an appreciation of the limitations of the each spectroscopic technique; • Be able to identify the most suitable spectroscopic techniques for the structure determination of a given sample. 			
Workload:	50		
Class Contact: Lectures	12		
Specified Assignments	20		
Autonomous Student learning	18		
Assessment	type	%	timing
Assignments		100	End Yr 1
<ol style="list-style-type: none"> 1. Students will carry out a series of problem sets related to lecture material on mass spectrometry (4 h) 2. Students will carry out a series of problem sets related to lecture material on NMR spectroscopy (16 h) <p>Students will either pass or fail the module on basis of satisfactory or unsatisfactory completion of the assigned tasks.</p>			