

School of Chemistry
BSc Honours & Postgraduate Diploma in Science
Chemistry subject modules – Mid Year 2009/10

610-681 Advanced Spectroscopy: (2 modules to be selected)

Will be taught in 2010 – Details of modules being offered in 2010 will be available in December 2009.

610-682 Chemistry 4A: (2 modules to be selected)

Will be taught in 2010 – Details of modules being offered in 2010 will be available in December 2009.

610-683 Chemistry 4B: (2 modules to be selected)

Module 1: Automatic Chemical Analysis – Spas Kolev

This course will outline advanced methods in the automation of chemical analysis based on the use of batch, robotic and flow analysers. There will be a particular emphasis on flow injection and sequential injection analysis, focussing on clinical, industrial and environmental applications.

Module 2: Interfacial Chemistry and Sonochemistry – Muthupandian Ashokkumar and Franz Grieser

This module will study the production of nanometer-size colloids of metals, polymers and semiconductor particles using ultrasound, and how surface-active solutes affect the yield of the particles produced. The use of sonochemistry to decompose organic pollutants such as PCBs will also be discussed.

Module 3: Advanced Physical Organic Chemistry – Jonathan White

This module will explore the interrelationships between structure and reactivity in organic molecules. Topics such as substituent effects, linear free energy relationships and the Hammett equation will be applied to the determination of organic reaction mechanisms.

Module 4: Photochemistry and Electrochemistry in Synthesis – Uta Wille

This module will explore the application of photochemistry and electrochemistry in synthesis, focussing on reactive intermediates (e.g. radicals and ions) which are accessible only with difficulty using standard methods. Applications of these techniques in chemical synthesis will be presented.

Module 5: Biological and Medicinal Chemistry – Craig Hutton and Spencer Williams

This module will explore modern drug design principles, as well as the molecular basis of therapeutic activity and methods of synthesis of various drugs. Case studies will be used to highlight the discovery and development of important drug classes.