

<b>Module code</b>	SC-4326		
<b>Module Title</b>	Carbocyclic Rings and Multistep Syntheses		
<b>Degree/Diploma</b>	Bachelor of Science (Chemistry)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	2	<b>Total student Workload</b>	4 hours / week
		<b>Contact hours</b>	2 hours/ week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
<p>The module is designed for students to understand the chemistry of ring systems and use Baldwin's rule; syntheses of small and medium-sized rings; the strategies for multistep syntheses of organic compounds using the disconnection approach and how to solve problems related to syntheses of organic compounds using the concepts learned.</p>			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	40%	- understand the disconnection approach and how to solve problems related to syntheses of organic compounds using the concepts learned	
Middle order:	40%	- gain knowledge on the chemistry and the synthesis of cyclic ring systems and understand Baldwin's Rule	
Higher order:	20%	- work independently and collaboratively in a team	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>-Ring system: General principles and sources of ring strain.</li> <li>-Carbocyclic Rings: Properties of cyclohexane derivatives, decalines, cyclopropanes, epoxides, cyclohexanone and cyclohexene, cyclobutanes, cyclopentanes and some examples of carbocyclic products in nature.</li> <li>-Synthesis of Cyclic Molecules: Factors affecting the ease of ring closure.</li> <li>-Baldwin's Rule: Tetrahedral systems, Trigonal systems and Digonal systems; modified Baldwin's rule for enolate nucleophiles.</li> <li>-Small and medium rings: Synthesis including some named reactions and properties of three to six-membered rings, including some non-aromatic heterocycles.</li> <li>-Multistep syntheses: Strategies for multistep syntheses of organic compounds using the disconnection approach which includes detailed analysis of the structures of chosen target molecules- the choice of starting reagents to be used and discussion on disfavoured approaches; 1,2- and 1,3-disconnection, 1,3-diO-disconnection and 1,4 and 1,5-diCO-disconnections.</li> </ul>			
<b>Assessment</b>	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 1 written assignment (10%) - 1 oral presentation (10%) - 2 class tests (20%)	