

Subject Description Form

Subject Code	ABCT3742
Subject Title	Organic Chemistry II
Credit Value	3
Level	3
Pre-requisite	Organic Chemistry I
Objectives	The aim of this subject is to enable students to understand organic chemistry through a study of the basic reaction types, the basic principles and the uses of common spectroscopic techniques available for functional group identification. Illustration will be emphasized on reactions and compounds with structural interest or industrial importance.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the properties and reactivity of important functional groups including aromatic compounds, alcohols, amines, and carbonyl compounds; b. be able to recognize important spectroscopic signatures of aromatic compounds, alcohols, amines, and carbonyl compounds; c. be able to write detailed mechanisms for important reaction classes, such as electrophilic aromatic substitution and carbonyl nucleophilic addition reactions; d. predict reactivity of various basic reactions in different conditions, know about related application of these organic reactions e. be able to plan multi-step syntheses of targeted organic molecule; f. know basic structures of important biomolecules such as carbohydrates, amino acids, and peptides
Subject Synopsis/ Indicative Syllabus	15. Benzene and Aromaticity. 16. Chemistry of Benzene: Electrophilic Aromatic Substitution. 17. Alcohols and Phenols. 18. Ethers and Epoxides; Thiols and Sulfides. A Preview of Carbonyl Compounds. 19. Aldehydes and Ketones: Nucleophilic Addition Reactions. 20. Carboxylic Acids and Nitriles. 21. Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions. 22. Carbonyl Alpha-Substitution Reactions. 23. Carbonyl Condensation Reactions. 24. Amines and Heterocycles. 25. Biomolecules: Carbohydrates. 26. Biomolecules: Amino Acids, Peptides, and Proteins.

Teaching/Learning Methodology	<p>To enhance students' learning and knowledge, problem-based learning approach will be adopted. The basic reaction mechanism and applications of reactions in synthesis will be delivered by lectures. Examples will be used to illustrate the concepts and ideas in the lecture. Lecture notes will be given to students one week ahead and the students can participate in the discussion of lecture materials. The students are encouraged to develop an independent approach of learning the subject matters. Take-home problem sets will be given, and the students are encouraged to solve the problems before seeking assistance. These problem sets provide students opportunities to apply the knowledge gained from the lecture, and also help the students to consolidate and familiarize with what they have learned. Furthermore, students can develop a deeper understanding of the subject through group discussion and self-study.</p>																																												
Assessment Methods in Alignment with Intended Learning Outcomes	<table border="1" data-bbox="477 667 1409 1108"> <thead> <tr> <th data-bbox="477 667 776 869" rowspan="2">Specific assessment methods/tasks</th> <th data-bbox="776 667 932 869" rowspan="2">% weighting</th> <th colspan="6" data-bbox="932 667 1409 806">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th data-bbox="932 806 1010 869">a</th> <th data-bbox="1010 806 1088 869">b</th> <th data-bbox="1088 806 1166 869">c</th> <th data-bbox="1166 806 1243 869">d</th> <th data-bbox="1243 806 1321 869">e</th> <th data-bbox="1321 806 1409 869">f</th> </tr> </thead> <tbody> <tr> <td data-bbox="477 869 776 940">1. examination</td> <td data-bbox="776 869 932 940">60</td> <td data-bbox="932 869 1010 940">√</td> <td data-bbox="1010 869 1088 940">√</td> <td data-bbox="1088 869 1166 940">√</td> <td data-bbox="1166 869 1243 940">√</td> <td data-bbox="1243 869 1321 940">√</td> <td data-bbox="1321 869 1409 940">√</td> </tr> <tr> <td data-bbox="477 940 776 1041">2. continuous assessment</td> <td data-bbox="776 940 932 1041">40</td> <td data-bbox="932 940 1010 1041">√</td> <td data-bbox="1010 940 1088 1041">√</td> <td data-bbox="1088 940 1166 1041">√</td> <td data-bbox="1166 940 1243 1041">√</td> <td data-bbox="1243 940 1321 1041">√</td> <td data-bbox="1321 940 1409 1041">√</td> </tr> <tr> <td data-bbox="477 1041 776 1108">Total</td> <td data-bbox="776 1041 932 1108">100 %</td> <td colspan="6" data-bbox="932 1041 1409 1108"></td> </tr> </tbody> </table> <p>Assignments, tests and examination are used to gauge how much students have learned in this subject. Writing skills will be assessed in home work and tests. Both continuous assessment and examination demand students to demonstrate their competence in understanding the basic concept, reactions and the corresponding mechanism and application in organic synthesis.</p>							Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e	f	1. examination	60	√	√	√	√	√	√	2. continuous assessment	40	√	√	√	√	√	√	Total	100 %						
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Student Study Effort Expected	<p>Class contact:</p> <ul style="list-style-type: none"> ▪ Lectures ▪ Tutorials <p>Other student study effort:</p> <ul style="list-style-type: none"> ▪ Self-study ▪ Homework / assignments <p>Total student study effort</p>						<p>26Hrs.</p> <p>13 Hrs.</p> <p>52Hrs.</p> <p>26Hrs.</p> <p>117Hrs.</p>																																						
Reading List and References	<p>Textbook:</p> <p>Bruice, P. Organic Chemistry, 8th ed. Pearson, 2016</p>																																												

	<p>All students are encouraged to buy their own copy of the textbook, which will be used as texts for the duration of level 2 and level 3 studies in organic chemistry courses.</p>
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