

**COURSE INFORMATION**

1 .	<b>Name of Course</b>	Organic Chemistry	
2 .	<b>Course Code</b>	POC0335	
3 .	<b>Type of Course</b> (e.g. : Core, major, elective etc.)	Core for Foundation in Life Sciences	
4 .	<b>Synopsis</b>	Organic chemistry involves the study of a large class of chemical compounds containing carbon. This course introduces naming conventions, organic reaction terminology and structures of organic molecules.	
5 .	<b>Version</b> (State the date of the Senate's approval - previous and the current approval date)	Current: August 2017 Previous: June 2014	
6 .	<b>Name(s) of Academic Staff</b>	Ho Sew Tiep Radziah Shaikh Abdullah Leonard Yew Chi Boon	
7 .	<b>Semester and Year Offered</b>	Trimester 3	
8 .	<b>Credit Value</b>	3	
9 .	<b>Pre-Requisite</b>	None	
10 .	<b>Objective of the course in the programme:</b>	To expose students to fundamental principles of organic chemistry with special emphasis on the properties and reactions of various classes of organic compounds.	
11 .	<b>Justification for including the course in the programme:</b>	To provide fundamental knowledge and skills required for further learning in the field of the Life Sciences.	
12 .	<b>Course Learning Outcomes (CLO)</b>	<b>Domain</b>	<b>Level</b>
	<b>CLO1:</b> Describe the structure and nomenclature of various organic compounds.	Cognitive	1
	<b>CLO2:</b> Define the physical properties of various organic compounds.	Cognitive	1
	<b>CLO3:</b> Apply various important reactions.	Cognitive	3
	<b>CLO4:</b> Comprehend the chemistry of carbohydrates, amino acids, proteins and lipids.	Cognitive	2

13 . Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment:															
Course Learning Outcomes (CLO) (Must tally with CLOs in item 12)	Programme Learning Outcomes (PLO)												Teaching Methods	Assessment Method	
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12			
CLO1 Describe the structure and nomenclature of various organic compounds.	√	√												Lecture, Tutorial, Lab	Quiz, Assignment, Lab Report, Test, Final Exam
CLO2 Define the physical properties of various organic compounds.	√													Lecture, Tutorial	Quiz, Test, Final Exam
CLO3 Apply various important reactions.	√	√												Lecture, Tutorial, Lab	Quiz, Assignment, Lab Report, Test, Final Exam
CLO4 Comprehend the chemistry of carbohydrates, amino acids, proteins and lipids.	√	√												Lecture, Tutorial	Quiz, Assignment, Final Exam
<b>Total</b>	<b>4</b>	<b>3</b>												<i>Indicate the relevancy between the CLO and PLO by ticking "√" the appropriate relevant box (This description must be read together with standards 2.1.2, 2.2.1, and 2.2.2 in Area 2 – pages 16 &amp; 18 of COPPA 2.0)</i>	
14 . <b>Transferable Skills:</b> Problem solving, Technical skills and Critical thinking.															
15 . <b>Distribution of Student Learning Time (SLT)</b>															
Course Content Outline	**CLO	Teaching and Learning Activities				Guided Learning (NF2F)*	Independent Learning (NF2F)*	Total SLT							
		Guided Learning (F2F)*													
		*L	*T	*P	*O										
<b>1 Introduction:</b> Bond Angles and Shape of Molecules, Polar and Nonpolar Molecules, Resonance, Functional Groups, Isomerism, Chirality	CLO1, CLO2 & CLO3	2	1			1	4	8							
<b>2 Alkanes and Cycloalkanes:</b> Introduction, Structure of Alkanes, Constitutional Isomerism in Alkanes, Nomenclature of Alkanes, Cycloalkanes, The IUPAC System of Naming, Cis-trans Isomerism in Cycloalkanes, Physical Properties of Alkanes and Cycloalkanes, Reactions of Alkanes	CLO1, CLO2 & CLO3	2	1	1		1	4.5	9.5							
<b>3 Alkenes and Alkynes:</b> Introduction, Structure, Nomenclature, Physical Properties, Reactions of Alkenes	CLO1, CLO2 & CLO3	2	1	1		1	4.5	9.5							
<b>4 Alcohols and Haloalkanes:</b> Structure, Nomenclature, Physical Properties of Alcohols, Reaction of Alcohols	CLO1, CLO2 & CLO3	2	1	2		1	5	11							
<b>5 Benzene and Its Derivatives:</b> The Structure of Benzene, The Concept of Aromaticity, Nomenclature, Reactions of Benzene : Substitution at benzylic Position, Reactions of Benzene : Electrophilic Aromatic Substitution, Aromatic Substitution, Disubstitution and Polysubstitution	CLO1, CLO2 & CLO3	3	1				4	8							

<b>6 Aldehydes, Ketones and Amines:</b> Structure, Nomenclature, Physical Properties, Reactions of Aldehydes and Ketones, Oxidation of Aldehydes and Ketones, Reduction of Aldehydes and Ketones, Reaction of Primary Aromatic Amines with Nitrous Acid	CLO1, CLO2 & CLO3	3	1	2			5	11
<b>7 Carboxylic Acids and Derivatives:</b> Structure, Nomenclature, Physical Properties, Acidity, Preparation of Carboxylic Acids, Reduction, Esterification, Conversion to Acid Chlorides, Hydrolysis of Carboxylic Acid Derivatives	CLO1, CLO2 & CLO3	3	1	2			5	11
<b>8 Carbohydrates:</b> Introduction, Monosaccharides, The Cyclic Structure of Monosaccharides, Reaction of Monosaccharides	CLO4	2	1				3	6
<b>9 Amino Acids, Proteins, and Lipids:</b> Introduction, Amino Acids, Reactions of Amino Acids, Isoelectric Point, Electrophoresis, Polypeptides and Proteins, Triglycerides, Soaps and Detergents, Phospholipids	CLO4	2	1				3	6
							<b>Total SLT</b>	<b>80</b>
<b>SUMMATIVE ASSESSMENT</b>								
<b>1. Continuous Assessment</b>			<b>Percentage %</b>				<b>Total SLT</b>	
Online/Written quizzes			10%				3	
Lab submissions			10%				0	
Assignments			10%				10	
Project								
Written test			20%				5	
<b>Total SLT for Continuous Assessment</b>							<b>18</b>	
<b>2. Final Assessment</b>			<b>Percentage %</b>				<b>Total SLT</b>	
Final Exam			50%				<b>F2F</b>	<b>ILT</b>
							2	20
<b>Total SLT for Final Assessment (F2F + NF2F)</b>							<b>22</b>	
<b>Grand Total</b>							<b>100%</b>	
							<b>120</b>	
<b>**Indicate the CLO based on the CLO's numbering in Item 12.</b>								
<b>*L= Lecture, *T= Tutorial, *P= Practical, *O= Others, F2F*= Face to Face, NF2F*= Non Face to Face</b>								
16 .	<b>Identify Special Requirement to Deliver the Course (e.g., software, nursery, computer lab, simulation room):</b> Not available							
17 .	<b>Main References:</b> Brown, W.H. (2014). Introduction to Organic Chemistry (5th Ed). New York: Wiley.							
18 .	<b>Additional References:</b> Wade, L. G. (2013). Organic Chemistry (8th Ed). Prentice Hall Karty, J. (2012). Get Ready for Organic Chemistry (2nd Ed.). Prentice Hall. McMurry, J.E. (2011). Fundamentals of Organic Chemistry. Belmont, CA: Brooks/Cole.							

**Note:**

Cells shaded light grey contain formulas / fixed values. Edit these formulas only if needed.
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