The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ABCT 4779
Subject Title	Natural Products Chemistry
Credit Value	3
Level	4
Pre-requisite / ~~Co-requisite~~/ ~~Exclusion~~	ABCT2423 Organic Chemistry (Grade: B+ or above) or ABCT2742 Organic Chemistry I
Objectives	1. Present natural products sources and various metabolites found in nature 2. Present examples of natural products and some simple biosynthetic pathways showing how metabolites are formed in nature 3. Describe approaches to isolating natural products from natural sources 4. Present an overview of key spectroscopic techniques used to elucidate structures 5. Present examples drawn from botanical and drug research and applications to foods, dietary supplement and nutritional products.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Identify key classes of natural products and the building blocks used in Nature b. Use approaches to isolate natural products from various sources c. Use basic knowledge of spectroscopic and analytical techniques to determine chemical structures d. Understand difference between primary and secondary metabolites
Subject Synopsis/ Indicative Syllabus	**Course outline**:

<table>
<tr><td></td><td>1) Natural Products and sources in Nature
2) Primary and Secondary Metabolites
3) Properties and Purpose of Secondary Metabolites
4) Review of various classes of natural products
5) Fatty acids
plant and fish oils
6) Polyketides
7) Polyphenols
8) Shikimic Acid Pathway
9) Terpenes
10) Natural Products from Amino Acids
11) Toxins in Nature
12) Nitrogen containing Natural Products</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Lectures and Tutorials
This is an elective subject offered by ABCT for undergraduate students.
Lectures,tutorials and group assignments will be used. There will be a recommended course book.
Some assignments will require study of natural products taken from original journal articles. Students are expected to read these articles and participate in the discussion on these articles during class and tutorial.
The final assignment will be a written project assigned by the course instructor
The course will be graded by continuous assessment of work on problem sets during the lecture series as "homework", group presentation and the final project assignment</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>1. Individual written essay</td><td>50</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. problem sets during the lecture series as assignments</td><td>30</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>3.presentations</td><td>20</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
</td></tr>
</table>

	Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:		
Student Study Effort Required	Class contact:		
	▪ Lecture	26	Hrs.
	▪ Tutorial	13	Hrs.
	Other student study effort:		
	▪ Reading of textbooks and assignments	71	Hrs.
	▪		Hrs.
	Total student study effort	110	Hrs.
Reading List and References	MANDATORY course book: Chemistry of Natural Products Cooper and Nicola Taylor & Francis Publishers 2014 (Further reading list/references are given out during the course on specific topics.)		