

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ABCT613
Subject Title	Advanced Interdisciplinary Research in Biological and Chemical Sciences
Credit Value	3
Level	6
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This course aims to provide new techniques, concepts and innovations in applied biology, chemical technology and medical biotechnology.
Intended Learning Outcomes <i>(Note 1)</i>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> Understand the nature of biological structures, from macromolecules to cells, the design of pharmaceutical materials in the laboratory and their function in clinical settings. Equip new techniques and innovations in the recent developments in medical biotechnology. Design and plan an experiment by applying theoretical techniques, concepts or tools. Understand the principles of drug discovery and medicinal chemistry.
Subject Synopsis/ Indicative Syllabus <i>(Note 2)</i>	<p><u>Recent update in applied biology and medical biotechnology</u></p> <ul style="list-style-type: none"> Chemical modification on cell surface for biological applications Smart food technology Therapeutic interventions of metabolic disorders Omics approaches to study food related research Pathogenic mechanism studies of age-related diseases Mechanistic study of exosomes in cancers Innovation concepts in Traditional Chinese Medicine <p><u>Recent update in chemical technology and biological chemistry</u></p> <ul style="list-style-type: none"> Targeting at the unique nucleic acid structures by inhibitor approach Design, synthesis and application of carbon-rich materials Systematic synthesis of active pharmaceutical ingredients Development of various inorganic materials in biomass-related catalysis Design and synthesis of metalated photovoltaic materials Development of healthcare textile

<p>Teaching/Learning Methodology (Note 3)</p>	<p><u>Lectures</u> To acquire general and basic concepts and understandings of the subjects using an interactive approach.</p> <p><u>Tutorials</u> To review the literatures, discuss the research questions and design experiments.</p> <p><u>Assignments</u> To understand the basic and theories</p> <p><u>Self-study</u> Students will be given a reading list of research papers.</p>																																																				
<p>Assessment Methods in Alignment with Intended Learning Outcomes (Note 4)</p>	<table border="1" data-bbox="536 651 1382 1160"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1.Attendance</td> <td>10</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>2. Written assignment</td> <td>90</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Attendance: Students’ active participation and engagement with the learning activities will be part of the assessment of the subject.</p> <p>Written assignment: Students will evaluate, discuss, and present the research findings of research articles on a selected research topic in the form of written reports. Their ability to present ideas and arguments coherently and persuasively using appropriate academic English will also be assessed.</p>							Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d			1.Attendance	10	√	√	√	√			2. Written assignment	90	√	√	√	√											Total	100 %						
Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)																																																			
		a	b	c	d																																																
1.Attendance	10	√	√	√	√																																																
2. Written assignment	90	√	√	√	√																																																
Total	100 %																																																				
<p>Student Study Effort Expected</p>	<p>Class contact:</p> <ul style="list-style-type: none"> ▪ Lecture/Tutorial <p>Other student study effort:</p> <ul style="list-style-type: none"> ▪ Self study (literature search and reading) ▪ Assignment writing 						<p>39Hrs.</p> <p>69Hrs.</p> <p>12Hrs.</p>																																														