Subject Description Form

Subject Code	ABCT5106
Subject Title	Technology Platforms in Drug Discovery
Credit Value	3
Level	5
Pre-requisite	N/A
Co-requisite	Nil
Exclusion	Nil
Objectives	1) To learn the principles and mechanisms of different drug discovery platforms. 2) To explore different techniques related to drug and biologics development. 3) To learn the principles and applications of cell therapies. 4) To visit state-of-the-art technology platforms for drug discovery in PolyU
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Appreciate the principles of cutting-edge technology platforms in the drug discovery process. b) Understand how drug discovery and development process is facilitated by different technology platforms c) Develop analytical skills, critical thinking and improve communication skills.
Subject Synopsis/ Indicative Syllabus	The working principles, utility, and operation of equipment and technology platforms will be taught. Students will learn to access the equipment concerned under the guidance from technicians. Sample equipment to be discussed include 1) Bacterial fermentation – principle, usage, and operation of fermenters. 2) Eukaryotic cell suspension culture - principle, usage, and operation of bioreactors. 3) Protein structure elucidation – principle and application of Cryo-EM 4) DNA sequence analysis – principle and applications of parallel sequencer 5) High content imaging analysis – principle, operation and application of high content imaging in drug discovery

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6) Drug formulation – significance of drug formulation in drug development, operation of drug formulation device.
7) Analysis of drug metabolites – principle and application of mass spectrometry.
8) Virtual screening – principle of virtual screening, latest development in AI-assisted virtual screening, use of virtual screening software package.
9) Cell therapy in the treatment of diseases.
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<tr><td>Teaching/Learning Methodology</td><td>
Practical and lab report.

a. In-class participation – Students are expected to attend the classes and participate in the in-class activities including discussion and quizzes.

b. Essay writings – Students are required to submit a group essay demonstrating their understanding of the course.

c. Quiz – A final quiz including multiple-choice questions covering all topics will be used to access the understanding of students on the course.
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<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="3">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>1. In-class participation</td><td>10</td><td>√</td><td></td><td></td></tr>
<tr><td>`2. Essay</td><td>40</td><td></td><td>√</td><td>√</td></tr>
<tr><td>3. Quiz</td><td>50</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="3"></td></tr>
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Students are allowed to use GenAI tools to support their writing of and essays. If GenAI tools are used to support their essay writings, students must declare the use of such tools and how they have been used in the assessments. It should be noted that submitting a work generated by GenAI, in part or in whole, as your own (even in paraphrased form) constitutes an act of academic dishonesty; it is no different from asking another person to write your assignment or claiming others' ideas as yours.
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<tr><td>Student Study Effort Expected</td><td>
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<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture + Laboratory visit</td><td>36 Hrs.</td></tr>
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	Other student study effort:	
	▪ Essay	30 Hrs.
	▪ Self-study	30 Hrs.
	Total student study effort	96 Hrs
Reading List and References		