

## The Hong Kong Polytechnic University

### Subject Description Form

*Please read the notes at the end of the table carefully before completing the form.*

<b>Subject Code</b>	ABCT/AP/FSN5R07
<b>Subject Title</b>	Academic Integrity and Ethics in Science
<b>Credit Value</b>	1
<b>Level</b>	5
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	None
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. Raise students' awareness of the importance of adhering high standards of academic integrity.</li> <li>2. Enhance students' ability to critically analyse ethical issues and make appropriate ethical decisions.</li> <li>3. Equip students in science with a deep understanding and respect of academic integrity and ethics that they can apply in their scientific research and use of generative artificial intelligence (AI) at PolyU as well as in their future professional endeavours.</li> </ol>
<b>Intended Learning Outcomes</b> <i>(Note 1)</i>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>a. Demonstrate knowledge and understanding of the concepts and principles of academic integrity and ethics.</li> <li>b. Demonstrate awareness and ability to analyse academic integrity and ethical issues, such as copyright and plagiarism, and act properly to avoid academic and ethical misbehaviours.</li> <li>c. Recognise important ethical issues and practices in a university context.</li> <li>d. Understand the implications and concerns on academic integrity raised by the latest technology, such as ChatGPT and other Generative Artificial Intelligence (GenAI) tools.</li> <li>e. Identify and deal with complex ethical and professional issues in discipline-specific settings, and be able to communicate effectively the issues to the stakeholders and the public.</li> <li>f. Develop a consciousness of prevailing ethical issues and dilemmas in relation to their specific scientific research area and generative AI.</li> </ol>

	<p>g. Critically analyse and debate scenarios of potential or actual ethical misconduct within the scope of their scientific discipline and generative AI.</p> <p>h. Discuss the extension and application of research ethics principles to professional and personal codes of conduct in the context of scientific integrity and societal wellbeing.</p>																												
<p><b>Subject Synopsis/ Indicative Syllabus</b> <i>(Note 2)</i></p>	<ul style="list-style-type: none"> <li>• The Necessity for Ethics Training: Understanding ethical behaviour in scientific research and generative AI through case studies and learning from past errors.</li> <li>• Philosophy and Ethics Codes: Origins and applications of ethical guidelines.</li> <li>• The Intersection of Culture, Religion, and Law: Understanding the connection between these and ethical codes of conduct.</li> <li>• Research Project Ethical Clearance: Procedures, methodologies, and considerations for obtaining ethical approval.</li> <li>• Discipline-Specific Ethics: Common problems, guiding principles, and discipline-specific scenarios in science, including use of animals and human beings in scientific research, gene editing, societal impact, environmental and security issues, etc.</li> <li>• Ethics and Human Behaviour: Individual, professional, and societal responsibilities in the context of the ethical use of generative AI.</li> <li>• Ethical Information Use: Comprehension of copyright, plagiarism, and appropriate citation, particularly for research and scientific writing that involve the use of generative AI.</li> </ul>																												
<p><b>Teaching/Learning Methodology</b> <i>(Note 3)</i></p>	<p><b>Lectures:</b> Related knowledge and background will be introduced. Case studies will be employed to illustrate the relevant issues. Guest speakers will be invited to deliver guest lectures on selected topics if deemed necessary. Interactive discussions will be fostered to stimulate critical thinking and propose ethical solutions and decision-making strategies.</p> <p><b>Group presentations:</b> Groups of students will deliver presentations on selected topics and answer questions from the lecturer and other students. This will reinforce their teamwork, enable them to have a better understanding on ethnics in science, and promote collaborative learning and the application of ethical principles.</p>																												
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b> <i>(Note 4)</i></p>	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="8">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>e</th> <th>f</th> <th>g</th> <th>h</th> </tr> </thead> <tbody> <tr> <td>1. Individual assignment on</td> <td>50%</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> </tbody> </table>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)								a	b	c	d	e	f	g	h	1. Individual assignment on	50%	√	√	√	√	√	√	√	√
Specific assessment methods/tasks	% weighting			Intended subject learning outcomes to be assessed (Please tick as appropriate)																									
		a	b	c	d	e	f	g	h																				
1. Individual assignment on	50%	√	√	√	√	√	√	√	√																				

	discipline-related scenario/case analysis									
	2. Group presentation	50%	√	√	√	√	√	√	√	√
	Total	100 %								
	<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>1. Each student will be required to submit an assignment on discipline-related scenario/case analysis, which will assess the student’s ability to identify and analyse ethical issues in related fields and figure out how these could be avoided or resolved.</p> <p>2. Students will be grouped to deliver presentations on selected topics, which will assess their ability to present and argue points in support of their rationale.</p> <p>The subject will be assessed on a Pass/Fail grading mechanism.</p>									
<b>Student Study Effort Expected</b>	Class contact:									
	▪ Lecture/seminar/workshop/presentation	13 Hrs.								
	Other student study effort:									
	▪ Self study and group work	13 Hrs.								
	▪ Assignment preparation	13 Hrs.								
	Total student study effort		39 Hrs.							
<b>Reading List and References</b>	<ul style="list-style-type: none"> <li>• Saxena, A., (2019). <i>Ethics in Science: Pedagogic Issues and Concerns</i>. Springer.</li> <li>• Rollin, B. E., (2006). <i>Science and ethics</i>. Cambridge University Press.</li> <li>• Bretag, T. (2016). <i>Handbook of academic integrity</i>. Springer Singapore.</li> <li>• Rettinger, D. A., &amp; Gallant, T. B. (2022). <i>Cheating Academic Integrity: Lessons from 30 Years of Research</i>. Wiley.</li> <li>• Holbrook, J. B., &amp; Mitcham, C., (2015). <i>Ethics, science, technology, and engineering: a global resource (2nd edition)</i>. Gale, Cengage Learning.</li> <li>• Comstock, G., (2010). <i>Life science ethics (2nd edition)</i>. Springer.</li> <li>• von Braun, J., S. Archer, M., Reichberg, G. M. &amp; Sánchez Sorondo, M., (2021). <i>Robotics, AI, and Humanity: Science, Ethics, and Policy</i>. Springer Nature.</li> </ul>									

	<ul style="list-style-type: none"> <li>• Loukides, M., Mason, H. &amp; Patil, D. J., (2018). <i>Ethics and Data Science</i>. O'Reilly Media, Inc.</li> <li>• Cotton, D. R., Cotton, P. A., &amp; Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. <i>Innovations in Education and Teaching International</i>, 1-12. <a href="https://doi.org/10.1080/14703297.2023.2190148">https://doi.org/10.1080/14703297.2023.2190148</a></li> </ul>
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Note 1: Intended Learning Outcomes

Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus

The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology

This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method

This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.

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