May 2025

Hong Kong Community College

Subject Description Form

Subject Code	SHDH2024
Subject Title	Logic and Reasoning
Credit Value	3
Level	2
Medium of Instruction	English and Chinese (Cantonese)
Pre-requisite / Co-requisite/ Exclusion	**Pre-requisite** SHDH1004 Creative and Critical Thinking *or* SHDH1035 The Art of Reasoning *or* SHDH1036 Creative and Design Thinking *or* SHDH1072 Critical and Ethical Thinking *or* SHDH1119 Creative and Critical Thinking *or* SHDH1120 Critical and Ethical Thinking *or* equivalent
Prior Knowledge	Nil
Objectives	This subject introduces students to the vocabulary and grammar of logic, and enables them to master the basic techniques to determine the validity of arguments. It equips students with the ability of logical reasoning and makes them critically aware of fallacies in everyday reasoning. It also cultivates students' appreciation of logic and reasoning.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) recognise arguments presented in natural language; (b) apply logical techniques in assessing reasoning both in everyday life and in academic pursuits; (c) recognise fallacies critically in everyday reasoning.
Subject Synopsis/ Indicative Syllabus	**Logic and Reasoning** The nature and uses of logic; Logic and arguments; Arguments and reasoning; Distinction between deductive logic and inductive logic. **Syllogistic Logic** The Square of Opposition; Methods based on rules and/or Venn diagram for determining the validity of categorical syllogisms. **Propositional Logic** The concept of proposition; Logical connectives and truth functions; Analysis of arguments by means of logical symbols;

<table>
<tr><td></td><td>Rules of natural deduction; The truth-table method and the short-cut method.

Predicate Logic
Predicates and quantifiers; Translating a sentence into predicate symbols; The use of natural deduction to prove the validity of an argument.

Applications of Logic and Reasoning
Analysis and evaluation of logical reasoning in philosophy; Analysis and evaluation of logical reasoning in logic puzzles.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Lectures will focus on the introduction and explanation of concepts and rules of logic and reasoning illustrated with examples. Students will be required to do exercises after the lectures, so as to ensure that they can apply the concepts and the rules.

Tutorials will provide students with the opportunity to deepen their understanding and to explore further the applications of logical techniques. Activities in tutorials will normally include student presentations, discussions of problems, and doing exercises.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>A variety of assessment tools will be used to develop and assess students' achievement of the subject intended learning outcomes.

<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</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>Continuous Assessment</td><td>50</td><td colspan="3"></td></tr>
<tr><td>▪ Test</td><td>15</td><td></td><td>✓</td><td>✓</td></tr>
<tr><td>▪ In-class Exercises</td><td>15</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>▪ Group Project</td><td>20</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Examination</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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To pass this subject, students are required to obtain Grade D or above in <u>both</u> the Continuous Assessment and Examination.

Test is used to test students' understanding of Sentential Logic and ability to determine the validity of arguments in our SL system.

In-class exercises are used to assess students' understanding of Categorical Logic and/or Predicate Logic as well as the ability to</td></tr>
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<tr><td></td><td colspan="2">determine the validity of Categorical Syllogisms and/or arguments in our PL system.

Group project is used to assess students' understanding of and ability to determine the validity of arguments in Categorical Logic, Sentential Logic and Predicate Logic.

Examination is used to test students' understanding of and ability to determine the validity of arguments in Categorical Logic, Sentential Logic and Predicate Logic.</td></tr>
<tr><td rowspan="5">Student Study Effort Expected</td><td>Class contact</td><td>Hours</td></tr>
<tr><td>▪ Lecture</td><td>26</td></tr>
<tr><td>▪ Tutorial</td><td>13</td></tr>
<tr><td>Other student study effort</td><td></td></tr>
<tr><td>▪ Self-study</td><td>91</td></tr>
<tr><td>Total student study effort</td><td>130</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Recommended Textbook

Hausman, A., Boardman, F., & Kahane, H. (2021). Logic and philosophy: A modern introduction. (13th ed.). Thomson / Wadsworth.

References

Bennett, D. J. (2004). Logic made easy: How to know when language deceives you. (1st ed.). W.W. Norton & Co.

Boutelle, A. & Gibilisco, S. (2011). Logic demystified. (1st ed.). McGraw-Hill.

Carroll, L. (2015). Alice's adventure in wonderland. (150th anniversary ed.). Princeton University Press.

Clark, Michael. (2012). Paradoxes from a to z. (3rd ed.). Routledge.

Copi, I. M., Cohen, C., & Rodvch, V. (2019). Introduction to logic. (15th ed.). Prentice Hall.

Curvebreakers. (2019). McGraw-Hill's conquering LSAT logic games. (4th ed.). McGraw-Hill.

Howard-Snyder, F., Howard-Snyder, D., & Wasserman, R. (2019). The power of logic. (6th ed.). McGraw-Hill.</td></tr>
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	Hurley, P. J. & Watson, L. (2018). *A concise introduction to logic.* (13th ed.). Wadsworth. Nolt, J. E., Rohatyn, D. A., & Varzi, A. (2011). *Schaum's outline of theory and problems of logic.* (2nd ed.). McGraw-Hill. Pospesel, H. (1978). *Arguments: Deductive logic exercises.* (2nd ed.). Prentice-Hall. Smullyan, R. M. (2011). *What is the name of this book?: The riddle of Dracula and other logical puzzles.* Simon & Schuster (Unabridged ed.). Dover. Smullyan, R. M. (2013). *The Gödelian puzzle book: Puzzles, paradoxes and proofs.* (1st ed.). Dover. *The Reading List and References are indicative. Relevant reading materials will be suggested and assigned from time-to-time when they are deemed appropriate.*