

LOGIC

Preliminary course outline, subject to change Course Description

This course is designed to develop the student's ability to analyze and critically evaluate arguments from a logical point of view. It will provide students with a basic understanding of such concepts as reasons, implication, validity, and fallacies. Students will learn the logical principles of deductive and inductive inferences and the techniques of applying them for determining the validity of arguments. Elements of good reasoning from an informal perspective will also be covered.

Learning Outcomes

1. Acquire analytic skills and a critical disposition.
2. Describe the essential elements of good reasoning and argumentation.
3. Demonstrate familiarity with major proof methods in propositional and predicate logic.
4. Translate arguments in ordinary language into symbolic argument forms.
5. Recognize common valid argument forms.
6. Identify, classify, and assess arguments in various contexts.
7. Identify and analyze informal fallacies.

Medium of Instruction

Lecture in Cantonese; reading materials mostly English; notes in Chinese and English; exam partly in Chinese

Assessment

Mid-term 50% (true-or-false, short questions and proof)

Final exam 50% (true-or-false, short questions and natural deduction)

Instructor

Name: Dr. Lie Nga Sze

Email: nslie@alumni.cuhk.net

Reference

- Salmon, W. *Logic*. Upper Saddle River, N. J.: Prentice Hall, 1973.
- Copi, I. M. *Introduction to Logic*, 10th ed., Upper Saddle River, N. J.: Prentice-Hall, 1998.
- Quine, W. V. *Methods of Logic*, 4th ed., Cambridge, Mass.: Harvard,, 1982.
- Smullyan, R. M. *The Gödelian Puzzle Book*, New York: Dover, 2013.
- McCawley, J. D. *Everything that Linguists have Always Wanted to Know about Logic but were Ashamed to ask*, Chicago: University of Chicago, 1981.
- Kleene, S. C. *Mathematical Logic*, New York: Dover, 1967.
- 李天命，《哲道行者》，香港：明報出版社，2009年。

SCHEDULE

Date	Topic	Sub-topics	Exercise/Reading
2/9/2014	Introduction	Fields in logic, induction and deduction, logic games	Salmon Ch.1, Smullyan Ch.1
16/9/2014	Logic and Language I	Vagueness, ambiguity; language abuse; information	Salmon Ch.4
23/9/2014	Logic and Language II	Validity, soundness; translation	Salmon Ch.2
30/9/2014	Propositional logic I	Connectives: not, and, or, if-then, equivalence; truth-tables	
7/10/2014	Propositional logic II	Decision and decidability, RAA, CNF	
14/10/2014	Propositional logic III	Axiomatic method	
21/10/2014	Mid-term	True-or-false, short questions and proof	
28/10/2014	Natural deduction I	Rules: introduction and elimination of and , or , if-then , and equivalence ; double negation, reductio ad absurdum	
4/11/2014	Natural deduction II	Examples and practice	
11/11/2014	Natural deduction III	Examples and practice	
18/11/2014	Predicate logic	Existential quantifier, universal quantifier	
25/11/2014	Logic systems	Completeness, soundness, consistency	

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at <http://www.cuhk.edu.hk/policy/academichonesty/>. With each assignment, students will be required to submit a signed declaration that they are aware of these policies, regulations, guidelines and procedures. In the case of group projects, all students of the same group should be asked to sign the declaration, each of whom is responsible should there be any plagiarized contents in the group project, irrespective of whether he/she has signed the declaration.

For assignments in the form of a computer-generated document that is principally text-based and submitted via VeriGuide, the statement, in the form of a receipt, will be issued by the system upon students' uploading of the soft copy of the assignment. Assignments without the properly signed declaration will not be graded by teachers. Only the final version of the assignment should be submitted via VeriGuide.