Course Code: PHIL 2202

Course Title: Symbolic Logic (符號邏輯)

2015-16 Term 1

Instructor: Cheung, Kam Ching Leo (張錦青) (email: leokccheung@cuhk.edu.hk)

Tutor: TBA

Time / Venue : Monday 10:30-12:15 / T.C. Cheng Building C2

BLACKBOARD LEARN will be used for this course.

Course Description:

This course aims to provide an intermediate introduction to symbolic logic. In this course, the formal languages for truth-functors and quantifiers will be constructed. Four formal systems of proofs, namely, 'Semantic Tableaux', 'Axiomatic Proofs', 'Natural Deduction' and 'Sequent Calculi', will be presented. Various soundness and completeness proofs will also be demonstrated.

Learning outcomes:

After taking this course, students should be able to:

- grasp the basic concepts in intermediate symbolic logic.

- demonstrate familiarity with the major methods in intermediate symbolic logic.

- construct formal languages for truth-functors and quantifiers.

- understand the four formal systems of proof: 'Semantic Tableaux', 'Axiomatic Proofs', 'Natural Deduction' and 'Sequent Calculi'.

- compare and evaluate the four formal systems of proof.

- acquire skills in logical reasoning.

- appreciate the philosophical significance of symbolic logic.

Learning activities:

Learning activities of this course include lectures, tutorials and final examination.

1.   Lecture: 2 hours a week (mandatory).

2.   Tutorial class: one two-hour session every two weeks (mandatory).

3.   Mid-term examination.

4.   Final examination.

In this course, students are required to attend all the lectures and tutorials. Students are expected to read assigned essays before the lectures and study tutorial materials, including exercises from the textbook, before the tutorial classes.

Students should be able to develop and enhance their analytical and argumentative skills through discussion in tutorials and classroom and in the preparation for the mid-term and final examinations.

Assessment:

Tutorial performance	(25%)
Mid-term examination	(25%)
Final examination	(50%)

Outline Content:

0.   Preliminaries: Some basics of the naïve set theory

1.   Truth, validity and entailment

2.   Languages for truth-functors (Propositional calculus)

3.   Languages for quantifiers (Predicate logic)

4.   Semantic tableaux

5.   Axiomatic proofs

6.   Natural deduction

7.   Sequent calculi

Textbook:

Bostock, D. *Intermediate Logic*. Oxford: OUP 1997.

References:

Enderton, H. *A Mathematical Introduction to Logic*. 2nd edition, San Diego: Harcourt 2001.

Hurley, P. *A Concise Introduction to Logic*. 10th edition, Boston: Wadsworth 2008.

Jago, M. *Formal Logic*. Tirril: Humanities-Ebooks 2007.

Jeffrey, R., *Formal Logic*, edited with a new supplement by John Burgess, Indianapolis: Hackett 2004.

Klenk, V. *Understanding Symbolic Logic*. 5th edition. NJ: Pearson Prentice Hall 2008

Quine, W. V. *Methods of Logic*. 4th edition, Cambridge: Harvard U. Press 1982.

Suppes, P. *Introduction to Logic*. NY: van Nostrand 1968.

Tarski, A. *Introduction to Logic*. NY: Dover 1995.