Logic 邏輯 (UGED 1111B) Draft Course Outline for Summer Term, 2016/17

Lecture Hours	: Thursday 13:30 - 15:15 and 14:30 - 16:15
Meeting Date	: May 18 - June 29 (seven weeks, including exam sessions)
Classroom	: LSK LT1
Language Used	: Cantonese and English
Lecturer	: Dr. Wan Shun Chuen 溫信傳博士 (Philosophy Department)
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	(NOTE: this is the only working email for students to contact me)
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A Few Important Preliminary Remarks

- 1. This course will be taught in Cantonese but the lecture material and the examination will be all in English. Technical terms will be accompanied by Chinese translations and there are also a few Chinese reference works.
- 2. Since logical sentences are symbolisations of natural language and logic operations (object language 對像語言) per se is similar to some mathematical operations, therefore if you are good at English (the meta-language 後設語言 we use) and mathematics, you will have a big chance of enjoyin this subject.
- 3. My course on logic will focus on formal logic 形式邏輯. Students who look forward to topics like linguistic analysis 語理分析, informal fallacies 非形式謬誤 and scientific method should enroll a critical thinking course, not logic.
- 4. Registered students must visit *Blackboard* regularly for updated information and announcements of the course. All material—course outline, handouts, readings, announcements, etc.—will be kept in just one folder, namely the "Course Content" folder.
- 5. For students with special education needs, please notify me in person when term begins. As it usually takes considerable time to book a room, arrange an extra helper, etc.

COURSE DESCRIPTION AND OBJECTIVES

This course is to develop the students' 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 inferences and techniques of applying them for determining the validity of arguments.

LEARNING ACTIVITIES include mainly lectures, in-class exercises/discussions (with the help of Ureply), test and exam.

LEARNING OUTCOMES

By attending the course, students are expected

- 1. to identify and explain the basic concepts, principles and other essential elements in logic—truth analysis, argument identification and classification;
- to identify and explain the basic concepts, principles and other essential elements in deductive argument examination—basic deductive forms, argument assessment (validity and soundness);
- 3. to analyze how an argument goes wrong—formal fallacy analysis.

COURSE SYLLABUS

1. Introduction

* two different forms of reasoning: formal logic and informal logic note: informal logic (its reasoning process and related fallacies) will **not** be taught in this course

- 2. some basic techniques in formal logic
 - this section relates chiefly to Learning Outcomes 1 and 3
 - * symbolisation of sentences
 - * truth-functional operators 真值函數運算符號
 - * truth tables 真值表
 - * necessity 必然 and contingency 適然
- 3. arguments 論證 and proofs

this section relates chiefly to Learning Outcomes 1, 2 and 3

- * to assess the goodness of deduction: validity 有效 (and soundness 對確)
- * the following methods will be introduced to assess validity and/or invalidity
 - 1. truth table method 真值表法
 - 2. natural deduction 自然演繹法 (method of proof), also formal fallacies 形式謬誤
 - 3. truth tree method 真值樹圖
- * examples from a variety of disciplines will be used in demonstration

* problems in the form of logic puzzles (for instance the puzzles on truth-tellers and liars) will be used commonly in teaching and assessments (see last section for assessment related issues)

* predicate logic 謂詞邏輯 [definitely out of exam syllabus, even if time allows for teaching]

GENERAL REFERENCES

The following is a PRELIMINARY listing of books you may wish to consult throughout the course. And all of them are available in our library. I must emphasize that they are NOT textbooks for this course.

Hurley, J. P. (2012) *A Concise Introduction to Logic*, 11th edition, Boston, MA: Wadsworth.

This is the edition I use commonly. It is a standard textbook covering both formal and informal logic and the material is rich enough for a 2-term course. It contains detailed explanation of technical terms and rules, and many examples, exercises and suggested answers for selection questions. But you should beware that some logic notations and formats of rule applications differ from what I am going to teach. And in test and exam, you are required to follow the system I teach.

You may not be able to get the most updated edition and earlier editions are perfectly acceptable. Some copies, probably older editions, are already reserved in our various libraries. As a general reference, Hurley (2012) is resourceful certainly. Yet it is over 700 pages and covers much more than we will discuss. The following is much shorter, thus more easily accessible.

Weston, A. (2009) *Rulebook for Arguments*, 4th/edn, Hackett Publishing Company. (early editions are also acceptable)

This one is non-technical and short (under 100 pages). Although its content suits more for critical thinking, I still highly recommend it as a reader friendly introduction for the first week of our lecture.

You may also consult the followings for more detailed explanations, examples and exercises. When I don't specify the year of publication, it means that any edition will be all right.

- Copi, I. and Cohen, C. *Introduction to Logic*, Prentice Hall. (with various editions, like Hurley (2012) also with lots of examples, exercises and suggested answers for selected questions) (中譯本:柯比:《邏輯導論》修訂本,香港:香港公開大學出版社,2000。根據 1968 年第三版譯,同時略去練習。)
- Salmon, W. C. *Logic*, N.J.: Englewood Cliffs. (the digital version of the 1984 edition is available here: http://www.ditext.com/salmon/logic.html)(中譯本:《邏輯》何秀煌譯,臺北:三民書局。) (This one is shorter than Hurley and Copi, but without exercises.)

For Chinese references, I recommend the following two.

• 陳波(2002)《邏輯學是什麼》,北京:北京大學出版社。

• 香港中文大學哲學系編譯(1982)《中譯邏輯學詞彙》,香港:香港中文大學出版社。

SUGGESTED REFERENCES FOR SPECIFIC TOPICS

The following readings are optional. They are useful in the sense that they provide more detailed explanations, examples and exercises related to the lecture topics.

A. Basic Techniques

- 陳波(2002)《邏輯學是什麼》,第二章(.....-邏輯是關於推理和論證的科學),頁 37-67。
- Weston, A. (2009) A Rulebook for Arguments, 4th edition, Chs. I "Short Arguments: Some General Rules," pp. 1-7, and VI "Deductive Arguments," topics #22-25 and #28, pp. 37-47.
- Hurley (2012) A Concise Introduction to Logic Part 1 Informal Logic—>Basic Concepts
 —>1.1 Arguments, Premises, and Conclusions, 1.2 Recognizing Arguments, 1.3
 Deduction and Induction, and 1.4 Validity, Truth, Soundness, Strength, Cogency
- 4. Salmon (1984) *Logic*, Chapters 1 "Argument", 2 "Inference" and 5 "Validity" (NOTE: This work is available on the Internet, see above.)

B. Deductive Arguments

- 1. 陳波(2002)《邏輯學是什麼》,第三章〈命題邏輯〉,頁 68-102。
- 2. Hurley (2012) 6.1 Propositional Logic: Symbols and Translation, 6.2 Propositional Logic: Truth Functions, and 6.3 Propositional Logical: Truth Tables for Propositions.
- 3. Salmon (1984) *Logic* Chapters 4 "Deductive and Inductive Arguments," (NOTE: You could skip the part on Induction.)

C. Syllogism 三段論

This topic will not be taught and only for those are interested in it.

- 1. 陳波(2002)《邏輯學是什麼》,第四章〈詞項邏輯〉,頁 103-136。
- Hurley (2012) A Concise Introduction to Logic Chapters 4 "Categorical Propositions" and 5 "Categorical Syllogism"
- Salmon (1984) Logic Ch. 13 "Categorical statements," Ch. 14 "Categorical Syllogisms" and Ch. 15 "Venn Diagrams and Class Logic"

I will also assign more references and internet resources upon specific topics and such instructions will be available on *Blackboard*. Moreover, you are most welcome to have a word with me anytime if you want to explore further than what I suggest. And you could contact me via email (see above) or in person (preferably with an appointment first).

TENTATIVE ASSESSMENT METHODS AND EXPLANATION (may revise later)AssessmentTotal scoresTest50(to be held in class on June 15, starts by 13:30)Final Exam50(to be held in class on June 29, starts by 13:30)total100

Note: There will be no make-up assessment for students who miss the test or the final exam.

Some explanation on the assessment methods:

- The test may consist of any of the following: multiple choice, true/false and problem solving short questions (not essay type). While the final exam will consist mainly of problem solving short questions (not essay type).
- Short questions in the test and final exam range from symbolisation of sentences, problems of truth-tellers and liars, natural deduction, tree method, truth table (long and short form) and others.
- In the test and final exam, for some questions, only a correct answer is needed and it is not necessary to write down the steps of reasoning. However, for some other questions, the answer as well as the steps of reasoning are required (for instance in natural deduction and tree method), and in such cases only the logic notation and the logic operation system I teach will be accepted.
- The test (lasts about 50 minutes) and final exam (lasts slightly over an hour) are conducted in English and closed-books, except that in both the test and final exam, a printed list of "Valid Forms for Sentential Logic" and "Truth Tree Rules" will be provided.

ACADEMIC HONESTY AND PLAGIARISM

Although no assignment in essay form is required in this course, I would still like to draw your attention to the 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/