PHIL5090 / 7090
Seminar on Western Philosophy: Higher-Order Logic & its Philosophical Applications

Course Outline

Time：Tue 16:30-19:15	**Location：LSK 203**

Course overview (as shown on CUSIS) (revise if necessary)

This is a postgraduate seminar course aiming to familiarize the students with the tools of higher-order logics in the hope of helping them gain the ability to understand/conduct contemporary philosophical discussions done in a formal setting, e.g. the debate on modal metaphysics. Students (i) should be already familiar with first-order logic (though background in non-classical logics or modal logics is helpful but not required) and (b) are expected to spend 5-10 hours per week on required reading and weekly assignment.

Learning outcomes (as shown on CUSIS) (revise if necessary)

1. Grasp concepts and methods in higher-order logic.
2. Understand the philosophical significance of higher-order logic.
3. Ability to do formal proofs for theorems of higher-order logic(s) as well as proofs for metatheorems *about* higher-order logics.
4. Ability to analyze and evaluate philosophical arguments in the higher-order formalism.

Topics

1. Higher-order languages
2. Higher-order logics
3. Applications

Learning activities

1. **Seminar discussion: 3 hours per week**
2. **Reading: 3-5 hours per week**
3. **Written Assignments: 2-5 hours per week**

Assessment scheme (as shown on CUSIS) (revise if necessary)

Task nature	***Description***	***Weight***
Weekly Assignments		25%
Seminar Participation		25%
Final Essay	4000-6000 words in English	50%

Remarks on Assessment Scheme (if any)

Grade Descriptor

Please refer to: http://phil.arts.cuhk.edu.hk/~phidept/UG/Grade_descriptors.pdf

Recommended learning resources

Bacon, Andrew, 2023, A Philosophical Introduction to Higher-order Logics, London: Routledge. (Primary textbook)

Course schedule

Week	***Topics***	***Required reading***	***Remarks***
2 Sep	Introduction and Induction	Chapter 0 of the textbook	
9 Sep	Typed Language	§1.1-§1.3	
16 Sep	λ abstraction	§2.1-§2.4	
23 Sep	λ languages: part one	§3.1-§3.2	
30 Sep	λ languages: part two	§3.3-§3.4	
7 Oct (No class)	Public Holiday		
14 Oct	Higher-order languages	§4.1-§4.2	
21 Oct	Higher-order logics	§5.1-§5.2	
28 Oct	Inductive definitions	§5.3	
4 Nov	Classicism	§6.1-§6.4	
11 Nov	Selected reading	We'll choose, subject to participants' interests, articles that adopt the higher-order logical approach to philosophical issues. Potential topics include (a) modal metaphysics, (b) grounding, (c) propositional attitudes, and (d) ontology.	
18 Nov	Selected reading		
25 Nov	Selected reading		
2 Dec	Selected reading		

Details of course website

Contact details for teacher(s) or TA(s)

Teacher	
Name:	LO, Tien-chun
Office location:	Room 428, Fung King Hey Building
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TA	
Name:	
Office location:	
Telephone:	
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Academic honesty and plagiarism

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. For group projects, all students of the same group should be asked to sign 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 receipt will not be graded by teachers. Only the final version of the assignment should be submitted via VeriGuide.

Use of Generative Artificial Intelligence (AI) Tools in Teaching, Learning and Assessment

Use of generative AI tools
Approach 2 - Use of some AI tools is allowed

*Students can use proof assistants, e.g. Isabelle and Lean, to help them come up with proofs and/or check their validity. No AI tool is allowed in the writing process of the final essay.