

Logic and Critical Thinking

Fall 2012

Course Instructor: Jennifer Nado

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Office Hours: W 14:30-16:30/F 11:30-13:30

Course Number: CCC 8001

Time: W 11:30-13:00/F 17:00-18:30

Location: W LKK 303/F MB G09

Course Description: Critical thinking is the study of reasoning and argumentation. It includes evaluation of the methods by which we form beliefs, weigh evidence, assess hypotheses and arguments, and critique reasoning. An understanding of these methods will help you rationally evaluate the credibility of claims and arguments you encounter in media, in everyday conversation, and in the classroom. You will also learn to become aware of errors in reasoning and judgment which we all occasionally commit. Finally, you'll learn to develop your own arguments with clarity and precision.

Required Readings: Most of the readings will come from Joe Lau's "critical thinking web" courseware – these can be found at <http://philosophy.hku.hk/think/>. Other relevant readings will be posted in PDF form on the course's Moodle website. All readings are listed below in the course schedule section.

Learning Outcomes:

Students will learn to:

- 1) Recognize premises and conclusions of arguments
- 2) Detect fallacies and rhetoric in reasoning
- 3) Understand the basics of deductive and inductive reasoning
- 4) Become aware of common cognitive biases and errors

Measurement of Learning Outcomes: Student progress will be measured by performance on in-class exercises, homework, and exams.

Assessment:

Your grade will be based on the number of points you receive during the semester, with 100 points being the maximum (excepting extra credit).

- In-class work and homework: 30 points
- Mid-term exam: 30 points
- Final examination: 40 points

In-Class exercises and Homework:

There will be a total of 6 in-class exercises during the term, given unannounced, and a total of 6 short homeworks, due on the days listed below on the schedule. Each of these will be worth 3 points. You will receive at least 1 point for any reasonable attempt to complete the exercise/homework. A score of 2 or 2.5 will be given if your responses show only small to moderate amounts of error or lack of clarity. A score of three indicates that you made only minor errors at most.

Homeworks will be posted online a week before they are due. I plan to make them very painless – they shouldn't take more than 20-30 minutes if you've understood the material well.

Makeups will not be given for in-class exercises unless the student provides proof of excused absence (Dr's note, etc). However, since there are a total of 12 exercises/homeworks worth 3 points each, it is possible to reach the full 30 points without being present for every in-class exercise. Points earned above 30 in this section each count for half a point extra credit in the course.

Midterm Exam:

The midterm exam will take place on Friday, 2 November. The midterm will consist of 25 questions – 20 of these will be worth 1 point each, and 5 will be worth 2 points, for a total of 30 points. You will have 80 minutes to complete the test.

Final Exam:

The final exam will take place during exam week. The exam will be comprehensive – you will be tested on material from the entire semester. It will consist of 40 questions, worth 1 point each. You will have 2 hours to complete the test.

Schedule:

1. Wednesday, 12 Sept – Course Introduction	No Reading
2. Friday, 14 Sept – Argument Analysis I	Lau Modules A01, A02, A03, A04
3. Wednesday, 19 Sept - Argument Analysis II	Lau Modules A06, A07, A09 Lau Module F06 – read definitions of “Straw man fallacy” and “Begging the question”
4. Friday, 21 Sept - Rhetoric and Persuasion	Lau Module A08 Lau Module F06 – definitions of “ad populum”, “ad misericordiam”, “ad hominem”, “red herring” HOMEWORK 1 DUE
5. Wednesday, 26 Sept - Definitions I	Lau Modules M08, M09 Lau Module F06 – definition of “Equivocation”
6. Friday, 28 Sept - Definitions II	Lau Modules M01, M02, M03, M05, M06
7. Wednesday, 3 Oct - Inductive Arguments I	Inductive Arguments (PDF on Moodle)
8. Friday, 5 Oct - Inductive Arguments II	Lau Module A08

	Lau Module F06 – definition of “Slippery Slope”
9. Wednesday, 10 Oct - Causal Arguments I	Lau Modules S04, S05 HOMEWORK 2 DUE
10. Friday, 12 Oct - Causal Arguments II	Lau Modules S06, S08
11. Wednesday, 17 Oct - Scientific Reasoning I	Lau Modules S01, S02, S03
12. Friday, 19 Oct – Scientific Reasoning II	Scientific Method (PDF on Moodle)
13. Wednesday, 24 Oct - Probability and Statistics	Lau Modules T01, T02, T07 HOMEWORK 3 DUE
14. Friday, 26 Oct – Cognitive Biases	Lau Module F08
15. Wednesday, 31 Oct – Review for Midterm	No Reading
16. Friday, 2 Nov – MIDTERM EXAM	EXAM – No reading
17. Wednesday, 7 Nov – Intro to Formal Logic	Lau Module L01, L02, L03, L04, SL01
18. Friday, 9 Nov - Truth-functional connectives & Translation	Lau Module SL02, SL03, SL06
19. Wednesday, 14 Nov - Truth Tables I	Lau Module SL04, SL05
20. Friday, 16 Nov – Truth Tables II	Lau Module SL07 HOMEWORK 4 DUE
21. Wednesday, 21 Nov - Natural Deduction I	Natural Deduction (PDF on Moodle) – read sections on Simplification, Conjunction, Modus Ponens, Addition
22. Friday, 23 Nov – Natural Deduction II	Natural Deduction (PDF on Moodle) – Reiteration, Conditional Proof, Constructive Dilemma
23. Wednesday, 28 Nov – Natural Deduction III	Natural Deduction (PDF on Moodle) - Negation Elimination, Negation Introduction, Double Negation (under “replacement rules”) HOMEWORK 5 DUE
24. Friday, 30 Nov - Intro to Predicate Calculus I	Lau Module SL 10, PL 01, PL02
25. Wednesday, Dec 5 – Intro to Predicate Calculus II	Predicate Logic (PDF on Moodle)
26. Friday, Dec 7 – Review for Final	No reading HOMEWORK 6 DUE

IMPORTANT NOTE: “Students shall be aware of the University regulations about dishonest practice in course work and the possible consequences as stipulated in the Regulations Governing University Examinations.”