**FACULTY OF ARTS**
**DEPARTMENT OF PHILOSOPHY**

**PHIL 379 Lec 01 – "Logic II"**
**Fall Term 2010**

<u>**Course Outline**</u>

**Lectures:  1:00-1:50pm MWF in Social Sciences 541**

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| **Instructor:** | Dr. Nicole Wyatt |
| **Office**: | Social Sciences 1214 |
| **Phone**: | 403-220-3166 |
| **Email:** | nicole.wyatt@ucalgary.ca |
| **Office Hours:** | Monday and Wednesday 2:30-3:30pm, and by appointment |

## *Course Description*

A formal logic consists of a symbolic language together with a semantics, which captures the possible meanings or truth-conditions of the sentences of the language, and a deductive system, which aims to capture which inferences are correct. In this course we study the scope and limits of formal logic by examining the relationship between these three parts of a logic. The major results to be presented include soundness ("the deductive system captures only truths") completeness ("the deductive system captures all the truths") undecidability ("there is no mechanical procedure for establishing whether or not an argument is valid"), and the Löwenheim-Skolem theorems (which concern some of the limits on the expressive power of first-order logic). Along the way we will study some set theory, recursive functions, Turing-machines, and the limits of computation. The course is fast paced and students are expected to supplement lectures with significant independent study. This course is primarily intended for honours students in Philosophy and Computer Science.

This is a course in metalogic. It builds upon the material in Logic I (Phil 279 or Phil 377), but is very different in character. In Logic II, we prove theorems about logical systems (and not in logical systems, i.e., there will be almost no formal proofs). Doing well in Logic I is no guarantee that this will come easy to you. Some of the material we will be covering is discussed in your 279/377 text—if you used the *Logic Book*, review chapters 8 and 11; in Chellas' *Elementary Formal Logic*, review chapters 7 and 9 and the appendices; in *Language, Proof and Logic*, review chapters 15, 16, 18.1-18.3; in *Formal Logic: Its Scope and Limits*, sections 2.7-2.10, 313-3.15, 4.13-4.15.

### *Required Text*

Boolos, G.S., J.P. Burgess, and R.C. Jeffery. *Computability and Logic*. 5th edition. Cambridge University Press. (BBJ)

## *Evaluation*

Grades in this class will be based on homework, four assignments, a take home midterm test, and a take home final examination.

### *Due Dates*
Homework questions will be due on Mondays, with the first due Sept 20th. There will be no homework due on Oct 11th or Dec 6th.

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| Assignment 1 | Friday October 1st |
| Assignment 2 | Friday October 15th |
| Take Home Test | Friday October 29nd |
| Assignment 3 | Friday November 19th |
| Assignment 4 | Friday December 3rd |
| Take Home Exam | Monday December 13th |

### *Grading*
- *Ceteris paribus*, the homework will collectively be worth 10%, the assignments will be collectively worth 40%, the test will be worth 25%, and the final exam will be worth 25%.
- Students must receive a passing grade (D or better) on the final exam in order to pass the course.
- Homework will not be individually graded, but sample answers will be given and discussed in class. Grades for the homework as a whole will be assigned as follows: 10 weeks submitted=A, 9=A-, 8=B+, 7=B, 6=B-, 5=C+, 4=C, 3=C-, 2=D+, 1=D, 0 = F.
- Later virtue will be allowed to redeem earlier sin.
- Tests and assignments will be graded on both technical accuracy *and* quality of presentation, including spelling and grammar. As noted below in the grading rubric, an A answer must be correct but also reasonably direct and elegant.

### *Grading rubric*
On each assignment and test question you will receive a letter grade reflecting the level of mastery of the material shown by the work you submit. According to the *Calendar* letter grades are defined as follows:

A    Excellent—superior performance, showing comprehensive understanding of subject matter. (A solution to an assigned problem shows that you understand the problem, is complete and rigorously correct, and is reasonably direct and elegant.)

B    Good—clearly above average performance with knowledge of subject matter generally complete. (You understand the problem and give a complete solution, although there may be minor gaps in the proof, or the solution is correct but circuitous.)

C    Satisfactory—basic understanding of the subject matter. (You understand what the question is asking but your solution contains significant errors or gaps.)

D    Minimal pass—marginal performance. (It is not clear that you understand what the question is asking, or your proposed solution goes completely in the wrong direction.)

F    Fail—Unsatisfactory performance.

In computing your assignment or exam grade, your marks on individual questions will be converted to grade points as defined in the calendar (A = 4, B = 3, C = 2, D = 1, F = 0). "Slash"

grades are possible and have grade point values 0.5 below the higher grade (e.g. A/B = 3.5). Each assignment or exam grade will be equal to the average of the grade point value of the questions (e.g. a 3 question assignment with grades A B B would receive a grade point score of 3.33). Your course gpa will be calculated according to the weights given above. *Ceteris paribus,* the final mark is the letter grade corresponding to the course gpa plus a margin of 0.1. For the final grade, +'s and –'s are possible too; as defined in the *Calendar*, +/– adds/subtracts 0.3 grade points. In other words, a course gpa of 3.9 or higher receives an final grade of A, at least 3.6 and less than 3.9 an A–, and so on. There is no D– grade. A+ is reserved for truly exceptional performance.

### Late policy

Assignments will not normally be accepted after the deadlines unless special permission has been given by the instructor. Failure to submit an assignment or test on time will normally result in a mark of zero. Students who cannot submit an assignment or a test due to medical reasons or other reasonable grounds should contact the instructor as soon as possible.

### Collaboration

Collaboration on homework and assignments is encouraged. However, you must write up your own solutions, and obviously you must not simply copy someone else's solutions. You are also required to list the names of the students with whom you've collaborated on the homework or assignment. ***If you collaborate without following these instructions, it constitutes cheating.***

### Plagiarism

You might think that it's only plagiarism if you copy a term paper off the Internet. However, you can also plagiarize in a logic course, e.g., by copying a proof verbatim from the textbook or lecture notes (and only making the necessary changes to apply it to the assigned problem.) The point of logic problems which are similar to the proofs in the text or notes is to make you work through those proofs, understand them, and then prove a similar result on the homework or an assignment. Hence, all homework and assignment solutions must be in your own words; copying or paraphrasing closely from the text will be treated as plagiarism.

## Course website

A course website on U of C's BlackBoard server has been set up. You will be automatically registered if you're registered in the class. To access the BlackBoard site, you can either go directly to blackboard.ucalgary.ca and log in with your UCIT account name and password, or you can access it through the myUofC portal (my.ucalgary.ca; log in with your eID). If you don't have an eID or UCIT account, see elearn.ucalgary.ca/help.html.

The website will house lecture notes (no warranties express or implied, these are genuinely my lecture notes and are not a replacement for attending lectures or the textbook), links to supplemental reading materials, and model answers for homework and some assignment questions. You may submit homework and assignments online using the Assignment link on the left hand menu. There will also be a forum area for student collaboration.

The lecture notes and other materials may also be accessed at logic2.ucalgaryblogs.ca.

***Twitter:***      @nwyatt      Class hashtag: #uclogic2

# INTELLECTUAL HONESTY

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged.  As a result, cheating or plagiarism on any assignment or examination is regarded as **an extremely serious academic offence**, the penalty for which may be an F on the assignment and possibly also an F in the course, academic probation, or requirement to withdraw. The University Calendar states that plagiarism exists when:

- *the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test;*
- *parts of the work are taken from another source without reference to the original  author;*
- *the whole work (e.g., an essay) is copied from another source; and/or*
- *a student submits or presents work in one course which has also been submitted in another course (although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved.*

While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism occurs not only when direct quotations are taken from a source without specific acknowledgement, but also when original ideas or data from the source are not acknowledged.  A bibliography is insufficient to establish which portions of the student's work are taken from external sources; footnotes or other recognized forms of citation must be used for this purpose.


# ACADEMIC ACCOMMODATION

It is the student's responsibility to request academic accommodation.  If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, contact their office at 220-8237.  Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation.  You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.


# STUDENTS' UNION REPRESENTATIVES

The Faculty of Arts Representatives are Laura Golebiowski (arts1@su.ucalgary.ca), Bhuvana Sankaranarayanan (arts2@su.ucalgary.ca), Lara Schmitz (arts3@su.ucalgary.ca), and Vincent St. Pierre (arts4@su.ucalgary.ca) .


# FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY (FOIP) ACT

The University of Calgary is under the jurisdiction of the provincial FOIP Act in all aspects of its operations as a publicly funded institution.  The Department of Philosophy ensures the student's right to privacy by requiring all graded assignments be returned to the student directly from the instructor unless other arrangements have been made in writing and filed with the Department Administrator.


# SAFEWALK: PROMOTING CAMPUS SAFETY AND AWARENESS

Twenty four hours a day, seven days a week, Safewalk volunteers walk people safely to their **d**estination on campus. This service is free and available to students, staff, and campus visitors.  Safewalks are done in male/female pairs. The volunteers walk anywhere on campus (including McMahon Stadium, Health Sciences, Student Family Housing, the Alberta Children's Hospital and the University LRT station). To request a Safewalk volunteer to walk with you, call 403-220-5333 (24 hours a day/7 days a week/365 days a year) or use one of the Help Phones located across campus (they are not just for emergencies).