Instructor: Martin King
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Office Hours: W, Th 10:00 – 11:00
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TA: Rachel Elliott
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Office: MACK 367
Office Hours: T 1:00 – 2:00

SLG Leader : Michel Clark
Hours: T, Th 11:30 – 1:00
LIB 359

Course Description:
This course covers the basic principles of elementary logic and explores the logical structures of sentences both formal and informal. We will be learning a new language that lays bare the structure of human reasoning. By learning this language, called first order logic (or FOL), we can construct and assess arguments. This language focuses on the structure of arguments rather than their content, which allows for formal proofs, clarity, and precision.

Course Objectives:
By the end of the course you should be equipped with the tools necessary to distinguish good deductive reasoning from bad. This good reasoning applies not only to the toy world in the exercises, but equally applies to any reasoning or arguments we make in ordinary language. You should have the ability to translate ordinary language sentences into FOL, and vice versa. This course will give you a solid grasp of logical operators, prepare you to construct and assess formal proofs, and for those of you who will encounter formal logic in the future, it will give you a solid foundation of symbolic logic in general. I hope to end the course with a small section on set theory and explore the earthshaking discovery of Russell's paradox. If we find time for this, you may feel a certain completeness of FOL in seeing its necessary limitations.

Required Text:

Available in the bookstore
Language, Proof, and Logic 2nd edition. Dave Barker-Plummer, John Barwise, and Jon Etchemendy (eds.) CSLI Publications, 2011. ISBN 978-1-57586-632-1

The textbook makes use of an integrated software package and the software on the CD will be necessary for the course. Each textbook has to be registered to a particular student, so DO NOT buy this used. There are three programs that come with the textbook: *Taski's World*, used for translation, counterexample construction, and semantic evaluation; *Boole*, used for truth table construction; and *Fitch*, used for proof construction. There is another piece of software called *Submit* through which you will be submitting most of your assignments. It uses an online grading server known as *Grade Grinder*, which allows you to check your exercises as many times as you like before you finally submit them to your TA.

Evaluation: Portion of Final Grade

Homework Assignments (8 x 5%)   40%

Almost every week there will be a homework assignment to be handed in online, unless otherwise stated. Assignments that are not handed in online can be hand written, **neatly**, and are due at the beginning of class. Which exercises will be included in each problem set will be given at least a week in advance in order to accommodate the pace of the class. They will be announced in class and posted on Courselink. The assignments will be due on **Tuesdays before class time**. The assignments submitted using Submit will be sent to your TA at her email address. The best 8 of 9 will be taken towards the calculation of the final grade.

Exams

Midterms (2 x 15%)	30%	In class, February 4th, March 4th
Final Exam	30%	Friday April 11th, 7:00 – 9:00pm Room TBA

The exams will identical in structure. They will be hand-written and involve filling in the blank, true or false, multiple choice, or proof construction. The two midterms will not be cumulative, but the final exam will cover material from the entire course.

Tentative Course Schedule:
There will be three main topics to be covered in this course, each will be covered in approximately four weeks.

Topic	Textbook Sections
Introduction to Logical Thinking	
Jan 7 Introduction to the Course and Logic Jan 9 Atomic Sentences, Tarski's World	Introduction , 1.1 – 1.4
Jan 14 Soundness, Validity, and Truthiness	2.1, 2.2
Jan 16 Assessing Arguments, Proofs in Fitch	2.3 – 2.5
Jan 21 Boolean Connectives	3.1 – 3.3
Jan 23 Boolean Logic, Complexity	3.4 – 3.7
Jan 28 Truth Tables, Tautologies	4.1 – 4.4
Proofs and Conditionals	
Jan 30 Informal Proof Rules	5.1, 5.2

Feb 4 Midterm 1 (Chapters 1 – 4)	No Assignment
Feb 6 Contradiction and Inconsistency	5.3, 5.4
Feb 11 Formal Proof Rules	6.1 – 6.5
Feb 13 Conditionals	7.1 – 7.3
Reading Week	
Feb 25 Rules for Conditionals	8.1, 8.2, 8.4
Quantifiers	
Feb 27 Introduction to Quantifiers	9.1 – 9.4
Mar 4 Midterm 2 (Chapters 5 – 8)	No Assignment
Mar 6 Aristotelian Forms, Translation	9.5, 9.6
Mar 11 Tautologies and Quantifiers, First-Order Validity	10.1, 10.2
Mar 13 De Morgan's Laws	10.3
Mar 18 Multiple Quantifiers	11.1, 11.2
Mar 20 Translating	11.3 – 11.5
Mar 25 Quantifier Proof Rules	12.1 – 12.4
Mar 27 Formal Proofs and Quantifiers	13.1 – 13.3
Apr 1 (Time Permitting) Set Theory and Russell's Paradox Apr 3 Review Session	15.1 – 15.4, 15.8 -15.9

Late Policy:

- Because you have one week for each homework assignment, late assignments will <u>not</u> be accepted.

Email and Contact:

- You are welcome to email me with questions about the course and visit me in my office hours, but your TA is your first contact for most of your questions and problems.

- When you email me (mking04@uoguelph.ca) please put '2110' somewhere in the subject line.

- If you cannot make it to my office hours because of conflict, you can email me and we can set up a time.

Tips for success in this course:

- Logic is difficult – it is foreign and abstract. But yet you are surrounded by arguments. Everywhere you look there are people and messages trying to convince of something. So I will be trying to relate the

course material to everyday situations, arguments in politics, advertising, and the media, and you should do the same. Try to apply what you learn in class to cases you deal with every day.

- Practice is crucial. Try to play with the software and get used to how it works and how you can manipulate it. The more you do this early on, the easier the rest of the course will be. There are many examples in the book label "You try it", they are not necessary to complete, but they will help immensely.
- In order to help yourself understand the lectures, I urge you to come to class having gone over the material prior to class and come prepared to ask questions.
- Attend the Supportive Learning Group. You will get to participate, ask questions, and discuss the exercises and any problems you might have. They are optional, but very helpful.

College of Arts Statement:
E-mail Communication
As per University regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the university and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Drop Date
The last date to drop one-semester Winter 2014 courses, without academic penalty, is **Friday, March 7, 2014**. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Student Rights and Responsibilities
Each student at the University of Guelph has rights which carry commensurate responsibilities that involve, broadly, being a civil and respectful member of the University community. The Rights and Responsibilities are detailed in the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c14/c14-strightsrespon.shtml

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and enjoins all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

Resources

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate programs. It can be found at:
 http://www.uoguelph.ca/registrar/calendars/undergraduate/current/

If you find yourself in difficulty, contact the undergraduate advisor in your program, or the BA Counseling Office: http://www.uoguelph.ca/baco/contact.shtml