FACULTY OF ARTS
DEPARTMENT OF PHILOSOPHY

PHIL 279 Lec 02
"Logic I"
Winter Term 2017

Course Outline

Lectures: MWF 13:00 – 13:50, TI Forum

Instructor: Aaron Thomas-Bolduc
Office: SS 1229
Office Phone: 403-220-7518
Email: *athomasb@ucalgary.ca*
Office Hours: Tues. 14:00-15:00, Thurs. 14:00-15:00 or by appointment.

TA: Christina Stiso
Office: SS 1215
Office Phone: 403-220-6524
Email: *christina.stiso@ucalgary.ca*
Office Hours: Wed. and Fri. 11:45-12:45 or by appointment.

Course Description
This course covers the syntax and semantics of first-order formal languages, including the relationship of such languages to natural languages such as English, special properties of such languages, and natural deduction.

Prerequisites
There are no prerequisites for this course.

Course Learning Outcomes
By the end of the course, you should…

1. Be comfortable working with formal languages such as those of truth-functional and first-order logic, including being able to identify syntactic correctness, recognize instances of schemas and rules, and apply transformation rules;
2. Understand the semantics of truth-functional and first-order languages, use sentences of these languages to precisely express the conditions under which English sentences are true or false, and be able to determine when formal sentences are true or false under valuations or interpretations.
3. Understand the notions of logical validity of arguments, entailment, consistency, equivalence, and logical truth/tautology, be able to use these definitions and the associated semantics to determine when they apply and do not apply, and to articulate and explain the relationships between these notions.
4. Verify and construct correct formal proofs to show the validity of arguments, equivalence of sentences, and that sentences are logical truths in a system of natural deduction.
5. Appreciate the basic metalogical properties of the model theory and proof theory of truth-functional and first-order logic, such as truth-functional expressive adequacy, and soundness and completeness of the proof system studied.

Required/Recommended Texts (including electronic resources):
Forallx -Calgary Remix: An Introduction to Formal Logic

Available for download for free, or in hard copy from the bookstore.

Note: *Students will be responsible for watching content (videos/screencasts) made available on D2L. This material will often cover important concepts not dealt with in detail in class.*

Course Assessment
- **Test #1 20%** (Feb. 8)
- **Test #2 20%** (March 15)
- **Test #3 10%** (April 12)
- **6x homework assignments 25%** (5% each, lowest mark dropped)
- **7x group-work assignments 20%**
- **Participation 5%** (Based primarily on engagement in in-class and in-tutorial group-work participation)

Note: Test dates are tentative.

There will be no Registrar scheduled final exam.

Homework is to be handed in to the course dropbox in the Philosophy department by **4pm on the due date**.

Group-work will normally be handed in in tutorials.

Late homework assignments will be marked down by one-half letter grade per day. Exceptions to this policy must be requested by email to the instructor **before the due date**, and will only be made in with very good reason.

Late group-work will not be accepted except in special circumstances under the discretion of the instructor or TA.

A passing grade on any particular component is *not* required to pass the course.

Students' writing and the grading thereof will be a factor in the evaluation of their work.

Grade Conversion scheme:

0-45% F	56-60% C-	71–75% B-	86-90% A-
46-50% D	61–65% C	76-80% B	91-95% A
51-55% D+	66-70% C+	81-85% B+	96-100% A+

Approximate Course Schedule

Week 1: Introduction; why study logic; sentences; soundness/validity; deductive/inductive arguments; kinds of validity/analyticity; atomic sentences. Chapters 1—4. No homework or group-work.

Week 2: Connectives, inclusive vs. exclusive "or", recursive syntax rules, symbolizations. Chapters 5–6. First homework.

Week 3: Object- vs metalanguage, metavariables, truth-functionality, characteristic truth tables (TTs), indicative vs subjunctive conditionals, complete TTs. Chapters 7-10. First marked group-work.

Week 4: Semantic concepts, begin natural deduction for TFL, Chapters 11, 14--15. No homework.

Week 5: TEST #1. More natural deduction; proof-theoretic concepts. Chapters 15–18/19. No homework or group-work.

Week 6: Introduction to soundness and completeness; basics of first-order logic (FOL), single quantifiers, domains, basic symbolizations. Chapters 20--22.

Week 7: Multiple generality, complex symbolizations, identity, at least/at most. Chapters 23–24.

Week 8: Definite descriptions, syntax of FOL. Chapters 25--26. No Homework.

Week 9: TEST #2. Extensionality, many-place predicates, introduction to first-order structures, truth conditions for sentences of FOL. Chapters 27--28. No homework or group-work.

Week 10: Semantic concepts, working with interpretations. Chapters 29–30/31.

Week 11: More semantics, introduction to natural deduction for FOL. Chapter 31--33. Last Homework.

Week 12: More natural deduction, some more metalogic. Chapters 34--35. Last group-work.

Week 13: Review, carrying on in logic. TEST #3.

IMPORTANT DEPARTMENTAL, FACULTY AND UNIVERSITY INFORMATION

Academic Honesty
Cheating or plagiarism on any assignment or examination is regarded as an extremely serious academic office, the penalty for which may be an F on the assignment, an F in the course, academic probation, or requirement to withdraw from the University. See the relevant sections on 'Academic Misconduct' in the current University Calendar. Intellectual honesty requires that your work include adequate referencing to sources. Plagiarism occurs when you do not acknowledge or correctly reference your sources. If you have questions about correct referencing, consult your instructor.

Academic Accommodation
Student's seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services. SAS will process the request and issue letters of accommodation to instructors. For more information on support services and accommodations for students with disabilities, visit http://www.ucalgary.ca/access/ Students who require accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their instructor. The full policy on student accommodations is available at http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy_0.pdf

D2L Help
Desire2Learn is UCalgary's online learning management system. Important information and communications about this course may be posted on D2L. Go to http://www.ucalgary.ca/it/services/d2l for help.

General Academic Concerns and Program Planning
Have a question but not sure where to start? The Arts Students Centre is your information resource for everything in the Faculty of Arts. Drop in at SS102, call 403-220-3580, or email ascarts@ucalgary.ca . Advisors in the ASC can also provide assistance and advice in planning your program through to graduation. Visit the Faculty of Arts website at https://arts.ucalgary.ca/undergraduate for detailed information on common academic concerns

Advice on Philosophy Courses
You may find answers to your more specific questions about a philosophy degree on the Department of Philosophy's website http://phil.ucalgary.ca , or contact one of Philosophy's Undergraduate Advisors. Jeremy Fantl (jfantl@ucalgary.ca), Reid Buchanan (buchanar@ucalgary.ca), Megan Delehanty (mdelehan@ucalgary.ca).

Registration Overload/Prereq Waivers

If you are seeking to register in a Philosophy course that is full or to get permission to waive the prereqs for a course, email the Department Manager, Merlette Schnell (schnell@ucalgary.ca). Include the specific course information and your UCID number in your request.

Writing

This course will include written assignments. Faculty policy directs that all written assignments (including, although to a lesser extent, written exam responses) will be assessed at least partly on writing skills. Writing skills include not only surface correctness (grammar, punctuation, sentence structure, etc.) but also general clarity and organization. Research papers must be properly documented. Students are also encouraged to use Writing Support Services and other Student Success Centre Services, located on the 3rd floor of the Taylor Family Digital Library. Writing Support Services assist with a variety of assignments, from essays to lab reports. Students can book 30-minute one-on-one appointments online, sign up for 15- minute drop-in appointments, and register for a variety of writing workshops. For more information on this and other Student Success Centre services, please visit www.ucalgary.ca/ssc .

Protection of Privacy

The University of Calgary is under the jurisdiction of the provincial Freedom of Information and Protection of Privacy (FOIP) Act. 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 or teaching assistant.

Internet and Electronic Communication Devices

The instructor reserves the right to establish course policies regarding the use of devices such as laptops, tablets, and smartbooks. If allowed, these devices must be used exclusively for instructional purposes and must not cause disruption to the instructor or to fellow students. Cell phones and paging devices should be set to silent mode during lectures. Audio or video recording of lectures is not permitted without the written permission of the instructor. Students violating this policy are subject to discipline under the University of Calgary's Non-Academic Misconduct policy

Emergency Evacuation:

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The list of assembly points is found at http://www.ucalgary.ca/emergencyplan/assemblypoints . Please check this website and note the nearest assembly point for this course.

Other Helpful Contacts

- Safewalk and Campus Security: 403-220-5333.
- Faculty of Arts Student Representatives: 403-220-6552, arts1@su.ucalgary.ca , arts2@su.ucalgary.ca, arts3@su.ucalgary.ca, arts4@su.ucalgary.ca .
- Student Ombudsman: http://www.ucalgary.ca/provost/students/ombuds