PHIL 110: Introduction to Logic, section 009
Fall 2015
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Course Description:
This course is designed to introduce students to the syntax, semantics, and derivational rules of sentential and predicate logic, introduce them to the meta-theoretical justifications of these systems and explore some of their applications.

Course Objectives:
Upon completing this course, the successful student will be able to:

1. Apply, as appropriate, principles of analytical reasoning, using as a foundation the knowledge of mathematical, logical, and algorithmic principles
2. Recognize and use connections among mathematical, logical, and algorithmic methods across disciplines
3. Identify and describe problems using formal symbolic methods and assess the appropriateness of these methods for the available data
4. Effectively communicate the results of such analytical reasoning and problem solving
5. Identify the logical structures of ordinary language statements and arguments
6. Use the symbolism of first-order logic to represent those logical structures
7. Explain and apply the logical properties of validity, consistency, logical truth, and logical equivalence
8. Apply deductive techniques for the evaluation of arguments couched in the symbolism of first-order logic

Required Texts:
Introduction to Formal Logic by Michael Dickson. Available on Blackboard under "Course Documents"

Course Requirements:
1. Homework (15%): A homework assignment will be due almost every class period. I will check to see that each task is completed, but will not grade the assignment. However, we will devote the first 15 minutes of class to going over the answers and working any homework problems that you found difficult. You may miss two homework assignments without penalty. Even though these are not graded, it is in your best interest to work through the questions carefully since the weekly quizzes will be taken directly from the homework problems (hint, hint; nudge, nudge!). Students who have done the homework carefully should have no difficulty

earning full credit on the quizzes. Thus, doing the homework will guarantee a full 30% of your final grade (which is more than any single test, including the final).

2. Quizzes (15%)
We will have quizzes on most Thursdays throughout the semester. There are a total of 11 quizzes, and your lowest grade will be dropped. Thus, each of your best 10 quizzes will count 1.5% toward your final grade. But remember, you will have seen all of these problems before. Where? On your homework—the homework that we went over in the previous class, on which you made notes and corrections, and which you studied for the next two days! That is why you are completely prepared to get a stellar score on every quiz. That one you get to drop? That's for when you were feeling ill and missed class.

3. Tests (60%)
There will be three comprehensive exams, each worth 20% of your final grade.

4. Attendance and Participation (10%)
A sign-in sheet will be sent around at the beginning of each class period. Each student is allowed 2 absences without penalty. Students are expected to take responsibility for their own learning and performance in this class. Students are responsible for all material covered and announcements made during classes they have missed. It is the student's responsibility to get notes from a fellow student or arrange to meet with the professor. Further absences, except in cases when the student has a documented, good reason (illness, accident, death in the family, etc.), will result in the deduction of one full percentage point from the final grade. In addition to coming to class, students are expected to participate in class discussions and group work throughout the term. Students who use class periods to catch up on sleep, to surf the net, or to text friends will be marked absent for the day.

Grading Scale:

A	90-100	Student demonstrates exceptional knowledge of the material. Student's work significantly exceeds expectations.
B+	87-89	
B	80-86	Student demonstrates solid working knowledge of the material. Student's work exceeds the minimum requirements.
C+	77-79	
C	70-76	Student demonstrates a minimum satisfactory knowledge of the material. Student's work meets minimum requirements.

D+	67-69	
D	60-66	Student demonstrates a significantly deficient understanding of the material. Student's work comes short of requirements.
F	Below 60	Student does not demonstrate significant comprehension of the material. Student's work falls far short of requirements.

Class Decorum:

Students are expected to show the utmost respect for their fellow students and the instructor during class. Causing unnecessary noise during class fails to respect the learning goals of the other students. As a result, students eating and drinking in class are expected to do so discretely. Please silence cell phones before the beginning of each class period. Texting and instant messaging in class is strictly prohibited, as it is distracting not only for the student engaging in the activity, but also for those around him or her. While electronic devices such as laptop computers and e-readers are permitted (since our text is a pdf), the instructor reserves the right to ask students to discontinue use if it becomes obvious that use of the device is not contributing to the learning goals of the class. Students who fail to comply will be asked to leave for the day and will face whatever attendance penalties may apply.

Any student found signing in for another student or copying another student's work on quizzes or exams will receive a failing grade on the assignment, possibly for the entire course, and will be reported to the office of academic integrity.

Student Success Center:

In partnership with University of South Carolina faculty, the Student Success Center (SSC) offers a number of programs to assist you in better understanding your course material and to aid you on your path to success. SSC programs are facilitated by trained undergraduate peer leaders who have previously excelled in their courses. Resources available to students in this course include:

- **Peer Tutoring:** You can make a one-on-one appointment with a peer tutor by going to www.sc.edu/success. Drop-in Tutoring and Online Tutoring may also be available for this course. Visit our website for a full schedule of times, locations, and courses.
- **Supplemental Instruction (SI):** SI Leaders are assigned to specific sections of courses and hold three weekly study sessions. Your SI is Miranda Brophy. Sessions focus on the most difficult content being covered in class. The SI Session schedule is posted through the SSC website each week and will also be communicated in class by the SI Leader.
- **Success Connect:** Throughout the semester, your instructor may communicate with the SSC regarding your progress in the course. If contacted by the SSC, please

schedule an appointment to discuss campus resources that are available to you. Success Connect referrals are not punitive and any information shared by your professor is confidential and subject to FERPA regulations.

SSC services are offered to all USC undergraduates at no additional cost. You are invited to call the Student Success Hotline at (803) 777-1000 or visit www.sc.edu/success to check schedules and make appointments. Success Consultants are available to assist you in navigating the University and connecting to available resources.

Tentative Schedule:

(This schedule is subject to change. Changes will be announced in class. Students who are absent are responsible for finding out if any changes have been made)

Date	**Topic:**	**Reading:**	**Due:**
8/20	Syllabus; What is Logic?	Introduction ("For Students" section); 1.1	
8/25	Formal Languages	1.2-1.3	Exercises I.1.k-s, 2.a-f
8/27	Syntax and Semantics	2.1-2.2	II.2.a-c; III.2.a-h; **Quiz 1**
9/1	Models	2.3	I.3.a-f, 4.a-f, (#6 will be an extra credit question on quiz); II.2.a-d
9/3	Semantics of Assertions	2.4	III.1.a-f, 3-5; **Quiz 2**
9/8	Arguments	2.5-2.6	IV.1.a-m, 3.a-m (#4 will be an extra credit question on quiz)
9/10	Syntax of TFL	3.1-3.3	V.2-4; **Quiz 3**
9/15	Semantics of TFL	4.1-4.2	I.1.j-s; II.1.f-m; III.1.c-h
9/17	Formal Semantics of TFL	4.3	I.3.a-e; II1.f-k; 3, 4.f-j **Quiz 4**
9/22	Truth Tables	4.4	III.1.e-h
9/24	Semantic Properties of TFL	4.5-4.6	IV.1.e-l; **Quiz 5**
9/29	Review for Exam I		V.1. e-f, 2.e-f, 3.e-f, 4.e-f; VI.1.e-f;
10/1	**Exam I**		
10/6	Disjunctive Normal Form	4.7	

10/8	Constraint Optimization	5.1	HW (blackboard)
10/13	Introductions to Derivations	6.1	
10/15	Elimination Rules	6.2-6.3	HW (blackboard)
10/20	Working Backward	7.1	II.1a-c, 2a-c; III.1a-d; **Quiz 6**; **Quiz 7**
10/22	**Fall Break: No Class**		
10/27	Finding the Rule	7.2	I.1a-e
10/29	Rules with Assumptions	8.1-8.2	II.1a-f, 2a-d; **Quiz 8**
11/3	Deriving Logical Truths	8.3-8.4	I.1-3; II.1-3
11/5	Derivation Practice		III.1-3; IV.1-4; **Quiz 9**
11/10	Review		I.4-5; II.4-5; III.4-5, IV. 5-6
11/12	**Exam II**		
11/17	Gate and Circuits	9.1-9.2	
11/19	Normal Form and Circuits	9.3-9.4	HW (blackboard)
11/24	Soundness and Completeness	10.1	HW (blackboard); **Quiz 10**
11/25-29	**Thanksgiving Break: No Class**		
12/1	Introduction FOPL	11.1-11.3	HW (blackboard)
12/3	Final Review		HW (blackboard); Quiz 11
12/10	**Final Exam *9:00am***		