PHIL 2352 (20869): Introduction to Contemporary Logic

Sam Houston State University, Spring 2018

SHSU Online

Instructor: Dr. Thomas J. Brommage, Ph.D.	Phone: 936-294-2460 (office) 267-CALL-DR-B (Google Voice)
Office: CHSS 347	Email: brommage@shsu.edu
Office Hours: T/Th 11AM -12:30 PM	Website: http://brommage.freeshell.org

Course Objective: This course will introduce the student to the principles of ordered thought and to the terminology and rules of symbolic logic. Topics to be discussed include the logic of statements and the logic of predicates, quantifiers, and identity.

This course is designed to be 100% online, and asynchronous in its approach. Students can complete the work for that unit at any time during the week. There will be face-to-face review sessions scheduled which you may attend, but attendance is not required.

Course Objectives and Learning Outcomes:

(1) Students successfully completing this course will gain an understanding of the concepts and methods of symbolic logic. They will be able to use that logic to express patterns and relationships and to clarify ordinary language statements. We will cover topics such as deductive vs. inductive reasoning, logical connectives and truth-tables, conditional statements and quantifiers, valid and invalid arguments.

- Learning outcome: Learning fundamental principles, generalizations, or theories

(2) Students successfully completing this course will have gained skills at constructing multi-step logical proofs for arguments—a skill vital not only to mathematics, but also the legal profession, science, medicine, etc.

- Learning outcome: Applying course material to improve thinking, problem solving, and decisions.

(3) Students successfully completing this course will come to a familiarity with the basics of inductive arguments, including being able to articulate the distinction between inductive and deductive reasoning and being able to recognize different types of inductive arguments and critical factors regarding each.

- Learning outcome: Analyzing and critically evaluating ideas, arguments, and points of view

Skill Objectives:

(1) *Critical Thinking Skills*: This course will emphasize basic aspects of critical thinking by giving students consistent practice in systematic, structured thinking wherein each step of inference is assessed for its validity. Also, the practice of translating ordinary language statements into symbolic language of necessity compels giving careful attention to determining what exactly the statements express, another basic critical thinking skill. In addition, the critical thinking skill of being able to distinguish valid patterns of inference such as Modus Tollens (Denying the Consequent) and nonvalid patterns such as Affirming the Conseqent is an integral feature of the course

(2) *Communication Skills*: Communication skills will be reinforced with practice since students will regularly be doing homework problems that require written responses. Also students will routinely be called upon to present their resposes to the class, orally on some occasions and, on other occasions, visually with diagrams on the board.

(3) *Empirical and Quantitiative Skills*: In the inductive logic portion of the course empirical and quantitative skills will be emphasized as students become familiar with the logic of hypothesis testing, in particular the need to present falsifiable hypotheses, and as they practice applying basic concepts of sampling, experimental design, and probability to situations that model real world circumstances.

Required Texts: Paul Tomassi, *Logic* (New York: Routledge, 1999) $45

For information on SHSU policies, please visit: http://www.shsu.edu/syllabus/

Course Schedule: The course is divided into eleven Units. Each Unit is expected to be completed in about one week time (with the exception of the orientation unit). All dates and content scheduled is tentative and subject to change by the Instructor! (Note: Due to time constraints, some of the material in the units may be altered, reduced, or possibly eliminated entirely!)

Unit #0: Orientation (1/17-1/19)

Complete orientation activities

Unit #1: (1/20-1/26)

Read pp. 1-26

Complete Ex. 1.1, #1,2,4

Unit #2: Inductive Arguments (1/27-2/2)

Read Russell, "On Induction"

Complete Inductive arguments handout

Unit #3: WFFs, Sequents, and Proof Theory (2/3-2/9)

Read pp. 32-46

Complete Ex. 2.1 #1-3; Ex. 2.2

Unit #4: Conjunctions, Conditionals (2/10-2/16)

Read pp. 47-55

Complete Ex. 2.3 #2; Ex. 2.4

Exam #1 (Units #1-3)

Unit #5: Conditionals and Bi-conditionals (2/17-2/23)

Read pp. 56-69

Complete Ex. 2.5; Ex. 2.6; Ex. 2.7

Unit #6: Conditionals, Negations (2/24-3/9)

Read pp. 74-82

Complete Ex. 3.1; Ex. 3.2; MT Handout

Exam #2 (Units #4-6)

Spring Break: No Work Assigned (3/12-3/16)

Unit #7: Disjunctions (3/17-3/23)

Read pp. 82-93

Complete Ex. 3.4 #2; Ex. 3.5, Ex. 3.6, Ex. 3.7, Ex. 3.8

Unit #8: Reductio Ad Absurdum (3/24-3/30)

Read pp. 94-105

Complete Ex. 3.9

Unit #9: Completing PL (3/31-4/6)

Read pp. 106-107

Complete selected problems from pp. 108-111

Exam #3 (Units #7-9)

Unit #10: Truth-tables (4/7-4/20)

Read pp. 122-143

Complete Ex. 4.1; Ex. 4.2 #1; Ex. 4.3.

Unit #11: Using Truth-tables (4/21-5/4)

Read pp. 144-163

Complete Semantic Relations handout; Ex. 4.3

Exam #4 (Units #10-11)

Final Exam (5/7-5/10)

Evaluation: There will be an assignment due every Friday at midnight throughout the course. After the submission is graded, you will have an opportunity to correct your work and resubmit within two weeks of the original due date. In addition, five exams will be given through the semester. Each exam covers the material in approximately 2-3 Units--except for the final, which will be cumulative. The best four of five exams will be counted into calculating your final grade. NO MAKE UPS will be offered on the exams.

The following weighting will be used to calculate your grade:

Exams (best 4 of 5) 4 x 20% ea. = 80%
Weekly homework assignments = 20%

Your rounded average of these assignments will determine your grade, based on the following scale: A= 100-90; B= 90-80; C= 80-70; D = 70-60; F= 60-0

Expectations, Suggestions, Tips:

1. Mastering logic requires practice. As we spend more time doing the deductions, for example, you'll find yourself getting better at it. Don't get frustrated; if you can't finish a problem, move on and come back with "fresh eyes."
2. Try to complete the week's work early. Waiting until the day of the deadline is not advisable! Some of the assignments may take a good deal of time to complete.
3. Especially true in logic more than most other areas in philosophy, diligence is important. The difficulty of the subject is indirectly proportional to the amount of work put into the course. Expect to have up to five hours a week of reading and practice in order to get an "A" for the course. Additionally, for these reasons, attendance is of vital importance. *If you do not keep up with the reading and homework, you will not pass this class!*
4. Please feel free to make mistakes. We all will from time to time, even your omniscient instructor.
5. Please feel free to make an appointment to discuss the material you do not understand. Often, I can help you understand fairly readily. Waiting until later in the semester to "catch up" is not advisable. I am excellent at fixing small problems, but horrendous at fixing large ones. The only difference between small and large problems is time.
6. Have fun! The material is only as dry as you make it out to be. Sharpening one's mind can be an exhilarating process.