

SYMBOLIC LOGIC (FALL 2010)

PHIL-215-01 – Class Number 9355 ♦ 124 Stein Hall ♦ T-Th 12:30-1:45pm

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Course Description

How to tell whether a certain pattern of reasoning is correct? And, which patterns are true regardless of their content? During this course students will learn how to approach these and related questions upon being introduced to classical sentential and predicate logic. The course is self-contained and there are no prerequisites to enroll. Nonetheless, a willingness to work at a certain level of abstraction is desirable.

Structure and Course Requirements:

Readings and Participation: You will be expected to complete the assigned readings before the class for which they are assigned, to bring the textbook with you to class, and to come to class prepared to discuss it.

Attendance: You are expected to attend each class. If you will be absent, please e-mail me in advance (aborghin@holycross.edu). The only grounds for which absences will be excused are religious holidays, family crises, illness, or athletic competitions (which does not include athletic training); an absence due to the last three reasons must be accompanied by a note from a dean or a doctor. For each class, I keep track of students who are late. Accumulating several late arrivals will incur in a grade reduction of one third of a grade. If you have scheduling conflicts, please come see me.

Non-Mandatory Weekly Discussion Session (time TBA): There will be a one-hour weekly discussion session, during which we will do exercises and we will discuss the materials.

Assignments: During the semester you will have to complete seven assignments. Typically, I will post the assignment on Thursday, and you are expected to hand in the assignment the following Thursday, in class (or by class time, if you cannot attend). Late assignments will incur in a grade reduction of one point per day.

Three in-class examinations: see schedule for exact dates.

Textbook for the Course:

G. Forbes: *Modern Logic*, Oxford University Press, ISBN: 978-0872201361

Grade Breakdown:

Assignments: 28% (4% each)

Exams: 60% (20% each)

Participation: 12%

Please be advised: In order to pass the class you are required to do *all* the coursework (e.g. completing five out of seven assignments will result in failing the class). Plagiarism, cheating, and collusion, in any form, will not be tolerated, in accordance with the *Student Handbook*, p. 35.

Office Hours:

My office hours are Tuesday: 3-5pm and Thursday 9:30-10:30am in 519 Smith Hall. I am also on campus at other times, and you can make an appointment to see me by e-mail (aborghin@holycross.edu). Please don't hesitate to get in touch with me about any aspect of the course.

Tentative Schedule:

SECTION I: SENTENTIAL LOGIC

Week 1

9.2 (Th) Introduction: §1.1-1.5

Week 2

9.7 (T) Preliminaries; Negations: §2.1-2.2

9.9 (Th) Conjunctions and Disjunctions: §2.2
ASSIGNMENT #1 DISTRIBUTED

Week 3

9.14 (T) Conditionals and Biconditionals: §2.3
ASSIGNMENT #1 DUE

9.16(Th) Symbolization of entire arguments: §2.4
ASSIGNMENT #2 DISTRIBUTED

Week 4

9.20 (M) Synthax: §2.5-2.6 (MAKE UP CLASS: 5pm)

9.21 (T) Truth-functions: §3.1-3.2
ASSIGNMENT #2 DUE AND ASSIGNMENT #3 DISTRIBUTED

Week 5

9.28 (T) Testing for validity I: §3.3
ASSIGNMENT #3 DUE

9.30 (Th) Testing for validity II: §3.4

Week 6

10.5 (T) **EXAM #1**

10.7 (Th) Proofs: rules for conjunction and the conditional: §4.1-4.2

Week 7

10.12 (T) ACADEMIC HOLIDAY

10.14 (Th) ACADEMIC HOLIDAY

Week 8

10.19 (T) Proofs: rules for negation, disjunction and the biconditional: §4.3-4.6

10.21 (Th) More proofs: §4.7-4.8
ASSIGNMENT #4 DISTRIBUTED

SECTION II: MONADIC PREDICATE LOGIC

Week 9

10.26 (T) Existential and universal quantifiers: §5.1-5.3
ASSIGNMENT #4 DUE

10.28 (Th) The syntax of LMPL: §5.4-5.5
ASSIGNMENT #5 DISTRIBUTED

Week 10

11.2 (T) Semantics for the quantifiers: §6.1
ASSIGNMENT #5 DUE

11.4 (Th) Counterexamples and deductive consequence: §6.2-6.3

Week 11

11.9 (T) Existential elimination: §6.4

11.11 (Th) **EXAM #2**

Week 12

11.16 (T) Extensions of sequent introduction: §6.5

SECTION III: FIRST-ORDER LOGIC WITH IDENTITY

11.18 (Th) N-place predicates: §7.1
ASSIGNMENT #6 DISTRIBUTED

Week 13

11.23 (T) Identity, Number, Descriptions, and the syntax of LFOL: §7.2
ASSIGNMENT #6 DUE

11.28 (Th) ACADEMIC HOLIDAY

Week 14

11.30 (T) Interpretations in LFOL and the demonstration of invalidity: §8.1-8.2

12.2 (Th) Proofs and rules for identity in NK: §8.3-8.4
ASSIGNMENT #7 DISTRIBUTED

Week 14

12.7 (T) Recap class
ASSIGNMENT #7 DUE

12.9 (Th) **EXAM #3**