PHIL 005
Spring, 2018
Calendar of Class Meetings, Assignments, and Examinations

Problem sets should be submitted at the start of lecture as indicated.

01.10 Lecture 1: What is this course about?

01.17 Lecture 2: Truth-functional Logic: Syntax and Semantics

01.19 Problem Session 1

01.22 Lecture 3: Expressive Completeness of Truth-functional Logic
Problem Set 1 Due

01.24 Lecture 4: Truth-functional Validity, Satisfiability, and Implication

01.26 Problem Session 2

01.29 Lecture 5: Monadic Quantification Theory (MQT): Syntax and Semantics
Problem Set 2 Due

01.31 Lecture 6: MQT: Counting Structures

02.02 Problem Session 3

02.05 Lecture 7: MQT: Validity, Satisfiability, and Implication
Problem Set 3 Due

02.07 Lecture 8: MQT: Homomorphisms and Monadic Equivalence of Structures

02.09 Problem Session 4: Practice Examination 1

02.12 Examination 1

02.14 Lecture 9: MQT: Decision Procedure for Validity, Satisfiability, and Implication

02.16 Problem Session 5

02.19 Lecture 10: Polyadic Quantification Theory (PQT): Syntax and Semantics
Problem Set 4 Due

02.21 Lecture 11: Exploring the Expressive Power of PQT: Simple Graphs, Linear Orders, and Functional Relations

02.23 Problem Session 6

02.26 Lecture 12: Exploring the Expressive Power of PQT: Equivalence Relations and Binary Functions

02.28 Lecture 13: Exploring the Expressive Power of PQT: Finite Spectra

03.02 Problem Session 7

03.12 Lecture 14: Definability of Relations
Problem Set 5 Due

03.14 Lecture 15: Symmetry, Automorphisms, and Isomorphisms

03.16 Problem Session 8

03.19 Lecture 16: Automorphisms and Definability: Orbits
Problem Set 6 Due

03.21 Lecture 17: Review for Examination 2

03.23 Problem Session 9: Practice Examination 2

03.26 Examination 2

03.28 Lecture 18: PQT: Validity, Satisfiability, and Implication

03.30 Problem Session 10

04.02 Lecture 19: PQT: A System of Deduction
Problem Set 7 Due

04.04 Lecture 20: PQT: Deductions

04.06 Problem Session 11

04.09 Lecture 21: PQT with Identity: A System of Deduction
Problem Set 8 Due

04.11 Lecture 22: PQT with Identity: Deductions and Counterexamples

04.13 Problem Session 12

04.16 Lecture 23: PQT with Identity: Soundness, Completeness, and Compactness
Problem Set 9 Due

04.18 Lecture 24: PQT with Identity: Undecidability of Validity – The Church-Turing Theorem and Beyond

04.20 Problem Session 13

04.23 Lecture 25: Whither Now?

04.25 Lecture 26: Review for Final Examination

05.03 Final Examination 12:00-2:00

Schedule of Readings

Readings will be assigned throughout the Term from the *LGIC 010 Textbook* by Scott Weinstein, Owain West, and Grace Zhang, available from the course webpage. Supplementary readings from *Deductive Logic* by Warren Goldfarb may be read along with lectures according to the following schedule.

For Lectures 1-4 read Sections 1-16

For Lectures 5-9 read Sections 18-27

For Lectures 10-26 read Sections 28-41

Course Requirements and Grades

There will be nine problem sets, with due dates specified in the calendar above, examinations in class on Monday, February 12 and Monday, March 26, and a final examination on Thursdayday, May 3, 12:00-2:00 pm. 10% of the final grade will be based participation in the problem sessions, 20% on the problem sets, 40% on the exams in class, and 30% on the final exam.