

Elementary Logic
Summer 2022

Course Instructor: Dr. Michael Johnson

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Office: Run Run Shaw Tower 10.05

Course Number: PHIL1068

Meeting Times: 14:30-17:30

Meeting Location: TBA

Course Description

This course is a comprehensive introduction to first-order logic. We will begin with sentential logic, covering its syntax and semantics, and covering truth-table and natural deduction methods for evaluating validity for arguments in that language. We will then cover the same topics for the more advanced language of first-order predicate calculus.

Course Reading

We will be using an open-access textbook for this course, which I will post on Moodle.

Magnus, P. D. & Ichikawa, Jonathan Jenkins (2020). *forall* x (UBC Edition). Creative Commons: Attribution-ShareAlike 3.0.

You are expected to read the relevant materials before class. There is no marked homework for this course: homework is always to do the reading!

Assessment

Participation: 20%

In-class exercises (10): 20%

Exams (3): 60%

Course Schedule

Week 1 Introduction to Sentential Logic

18 July Basic Logical Concepts

Read: Magnus & Ichikawa, Ch. 1

19 July Syntax and Semantics of SL; translation into SL

Read: Magnus & Ichikawa, Ch. 2

20 July Truth-tables

Read: Magnus & Ichikawa, Ch. 3

21 July Entailment and Models for SL

Read: Magnus & Ichikawa, Ch. 4

22 July SL Trees

Read: Magnus & Ichikawa, Ch. 5

Exam #1 administered

Week 2 Natural Deduction

25 July Natural Deduction Proofs for SL Part I

Read: Magnus & Ichikawa, Ch. 7

26 July Natural Deduction Proofs for SL Part II

Read: Magnus & Ichikawa, Ch. 7

27 July Natural Deduction Proofs for SL Part III

Read: Magnus & Ichikawa, Ch. 7

28 July Natural Deduction Proofs for SL Part IV

Read: Magnus & Ichikawa, Ch. 7

29 July Quantified Logic

Read: Magnus & Ichikawa, Ch. 8

Exam #2 administered

Week 3: Quantified Logic

1 August Semantics of QL

Read: Magnus & Ichikawa, Ch. 9

2 August Natural Deduction Proofs for QL Part I

Read: Magnus & Ichikawa, Ch. 13

3 August Natural Deduction Proofs for QL Part II

Read: Magnus & Ichikawa, Ch. 14

4 August Natural Deduction Proofs for QL with Identity

Read: Magnus & Ichikawa, Ch. 12

5 August **FINAL EXAM**