

**THE UNIVERSITY OF WESTERN ONTARIO
DEPARTMENT OF PHILOSOPHY
Undergraduate Course Outline 2016-17**

Philosophy 2250: Introduction to Logic

**Fall/Winter Terms 2016-17
MWF 1.30-2.30
TC343**

**Instructor: Professor John L. Bell
St H 4130, . Office hours: MWF 11.30-12.30**

jbelle@uwo.ca

DESCRIPTION This course is a two-semester introduction to logic. Topics to be covered will include:

I. PROPOSITIONAL LOGIC

1. Statements, Inferences and Counterexamples
2. Truth Tables and Testing Validity
3. Tautologies, Contradictions and Satisfiability

II. EQUIVALENCE

1. Equivalence and Bi-implication
2. Expressive Completeness
3. Arithmetical Representation of Statements and Logical Operations
4. Venn Diagrams

III. TRUTH TREES

1. Introduction to Truth Trees
2. The Tree Rules
3. Tree Test for Validity
4. Further Applications of the Tree Method
5. Correctness and Adequacy of the Tree Method

IV. NATURAL DEDUCTION FOR PROPOSITIONAL LOGIC

1. Natural Deduction
2. Indirect Deduction

V. BASIC CONCEPTS OF SET THEORY

1. Sets and Membership
2. Relations
3. Composite, Inverse and Kinship Relations
4. Equivalence Relations
5. Rankings and Orderings
6. Functions and Operations

VI. QUANTIFICATIONAL LOGIC

1. Predicates, Relations and Quantifiers
2. Tree Rules for Quantifiers
3. Identity
4. Validity and Interpretations

VII. CONTEXTUAL (MODAL) LOGIC

1. Contextual Statements
2. Interpretations of Contextual Statements
3. Other Systems of Contextual Logic
4. Other Interpretations of \Box and \Diamond

VIII. EVIDENTIAL (INTUITIONISTIC) LOGIC

1. Evidential logic and evidential tree rules.
2. Interpretations of evidential statements

TEXTS

Course notes: *An Introduction to Logic*, by John L. Bell. Available for purchase at bookstore.

OBJECTIVES

The principal objective of this course is to provide students with a thorough grounding in classical propositional and quantificational logic. Particular emphasis will be placed on the use of truth trees for establishing validity of inferences.

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