

**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**

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**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  $Z$  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. Secondary objectives are: (1) to introduce students to the basic concepts of set theory and their connection with logic and (2) to acquaint students with the fundamentals of two important non-classical systems of logic: contextual (modal) logic and evidential (intuitionistic) logic.

## **REQUIREMENTS**

First semester: 3 one-hour in-class tests: 23 Sept., 19 Oct., 30 Nov.

Second semester: 3 one-hour in-class tests: 25 Jan., 15 Feb., 17 Mar..

Two-hour final examination.

Each test worth 10%, final examination 40% of final grade.

## **AUDIT**

Students wishing to audit the course should consult with the instructor prior to or during the first week of classes.

The **Department of Philosophy Policies** which govern the conduct, standards, and expectations for student participation in Philosophy courses is available in the Undergraduate section of the Department of Philosophy website at <http://www.uwo.ca/philosophy/undergraduate/policies.html>. It is your responsibility to understand the policies set out by the Senate and the Department of Philosophy, and thus ignorance of these policies cannot be used as grounds of appeal.

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

**Students are directed to view the Policy on Accommodation for Medical Illness** (<https://studentservices.uwo.ca/secure/index.cfm>).

### **Policy on Academic Offences**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)."

### **Statement on Use of Plagiarism Software**

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the

service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com> ).”

#### **Additional Links**

- Registrarial Services (<http://www.registrar.uwo.ca>)
- Student Support Services (<http://westernusc.ca/services/>)