

**LOGIC 1**  
21/22  
Semester 2

This course is an introduction to what is known as formal or symbolic logic, requiring no prior knowledge of philosophy or mathematics. Logic is the science of reasoning—the systematic study of the principles of good and bad reasoning, and has been a central and foundational part of philosophy, stretching back over 2000 years to the earliest investigations of logic in Ancient Greece. Logic is both an historically important area of philosophy and an indispensable tool used in philosophy. Virtually every area of philosophy—be it ethics, metaphysics, or epistemology—relies extensively on concepts from logic. The aim of this course is not to communicate results about logical systems per se but instead to impart a skill—the ability to recognize and construct correct derivations and countermodels. We will proceed via a graduated but unified development of logic from the basics of the sentential logic up to predicate logic.

**Course Organiser:** [Brian Rabern](#)

**Course Website:** <http://brianrabern.net/logic1.html>

**Course Secretary:** [philinfo@ed.ac.uk](mailto:philinfo@ed.ac.uk)

## LECTURE TOPICS AND READINGS

**Course Text:** [An Exposition of Symbolic Logic](#), Terrence Parsons

### Week 1

- What is logic? [Parsons 0: 5-13]
- Formal languages and systems [Hunter, ["Formal languages"](#): 4-13]
- System MIU [Hofstadter: ["The MU-puzzle"](#); Homework: [MIU exercises](#)]

### Week 2

- L1 (The language of 'if' and 'not') [Parsons 1: 1-6]
- Symbolisations [Parsons 1: 7-10] [[A note on 'if' and 'only if'](#)]
- Inference rules [Parsons 1: 11-12]

### Week 3

- Introduction to derivations [Parsons 1: 13-18]
- Direct, Conditional, and Indirect Derivations [Parsons 1: 18-30]
- Sub-derivations [Parsons 1: 30-44]

### Week 4

- L2 (The language of 'if', 'not', 'and', 'or', 'iff') [Parsons 2: 1-11]

- Inference rules [Parsons 2: 12-14]
- Derivation strategies [Parsons 2: 15-18]

### Week 5

- Box and cancel [Parsons 2: 19-21]
- More derivations [Parsons 2: 25-33]
- **Midterm Test** (not assessed)

### Week 6

- Truth tables [Parsons 2: 34; [Wittgenstein's TLP](#)]
- Truth tables and tautologies [Parsons 2: 34-37]
- Validity and countermodels [Parsons 2: 37-39]

### Week 7

- Introduction to quantifiers [Parsons 3: 1-3]
- Names, variables, and predicates
- L3 symbolisations [Parsons 3: 3-7]

### Week 8

- Quantifier inference rules [Parsons 3: 8-19]
- Derivations with quantifiers [Parsons 3: 19-24]
- More derivations [Parsons 3: 25-28]

### Week 9

- Quantifier negation rules [Parsons 3: 28-39]
- Models [Parsons 3: 40-42]
- Invalidity and countermodels [Parsons 3: 42-44]

### Week 10

- Countermodels [Parsons 3: 45-47]
- Derivations and models [Parsons 3: 48]
- Beyond monadic [Parsons 4: all]

### Week 11

- Review
- Review
- Conclusion

Lecture notes and other materials will be available on the course webpage.  
<http://brianravern.net/logic1.html>

## **Tutorials**

You will have weekly tutorials. These give you a chance to further discuss topics and issues in the course and its lectures. Tutorials will take place (perhaps online), at times and places to be arranged, during weeks 2 through 11 of the semester.

Attendance at tutorials is compulsory for all students on this course. The class tutor will maintain a register of attendance. Unexplained absences will be brought to the attention of your Personal Tutor.

You will be allocated a suitable tutorial group by the Timetabling Department based on your timetable. Should you wish to change the group you have been allocated to, you will need to fill in the *Tutorial Group Change form* on the Timetabling Department's webpage.

Please inform your tutor and the Teaching Office of any absences. Students who miss tutorials may be required to do additional written work.

## **Logic Lab (Online)**

These are 4-hour drop-in help sessions that run every Friday during the semester. The Logic Lab is a place where students can get extra help and get personalised attention beyond their tutorials. The sessions are operated by the lecturer and a team of logic tutors. See website for link.

## **ASSESSMENT**

- Weekly Homework Sets: 20%
- Final Take Home Test: 80%

### **Coursework**

There is a program of assigned Exercises for weeks 2 through 10. The Exercises are available online, on the web application **elogic**, and form an integral part of the course; they will be discussed in the respective weekly tutorial, and it is extremely important that students work on the exercise prior to tutorial.

The marks on the coursework are counted as 20% of the final mark.

### **Visiting undergraduates**

The assessment arrangements for visiting undergraduates are the same as for other students.

### **Mark Schemes**

For Philosophy-specific marking guidelines go here:

[Grade-related marking guidelines for Philosophy](#)

For the University's general marking scheme go here:

[Common Marking Scheme](#)

## LEARNING RESOURCES

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Weekly homework exercises will be assigned on the web application **elogic**. This program is essential to the course. Instructions for getting started are on the [course website](#).

You should regularly check the [course website](#).

You should also regularly check your university email.

The course *Learn* page will also provide information.

### Getting in Touch

If you have a question regarding lecture content you should ask it in your tutorial group.

For other specifically academic matters you can contact the Course Organiser.

If you have questions not specifically about lecture content, you should contact the Course Secretary.

### Prizes

Students who perform with special excellence in Logic 1 may be eligible for a Simon Gray Prize in Philosophy.

[v 20.12.2021]