PHL 134

Formal Logic

S2 External 2018

Dept of Philosophy

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General Information

Unit convenor and teaching staff Unit Convenor Jennifer Duke-Yonge jennifer.duke-yonge@mq.edu.au Contact via jennifer.duke-yonge@mq.edu.au By arrangement
Credit points 3
Prerequisites
Corequisites
Co-badged status
Unit description Logic is concerned with the study of good reasoning. While PHL137 examines reasoning as it occurs in everyday life, this unit is a course in formal logic, where we look behind these particular contexts and consider what it is that makes a piece of reasoning good or bad: What makes one claim follow from another? People disagree about all sorts of things, but are there some claims and arguments that any rational person must accept? If so, what is special about those claims and arguments? In this unit, you will learn to use formal techniques to prove whether certain kinds of arguments are valid or invalid, and will examine some of the philosophical problems that arise in connection with the methods and assumptions of formal logic. The unit is suitable for those with an interest in the nature and philosophy of logic for its own sake, and for those who want to understand the techniques of formal logic for use in philosophy, or in other areas such as computing, mathematics and linguistics.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Translate between English and the language of propositional logic

Use truth tables and variants to test formulas and arguments in propositional logic

Use trees to test formulas and arguments in propositional logic

Translate between English and the language of predicate logic.

Use trees to test formulas and arguments in predicate logic

Understand and apply fundamental logical concepts

Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Demonstrate commitment to learning through regular engagement

General Assessment Information

Special Consideration

Requests for extensions should be submitted via a Special Consideration request, which is available in the http://ask.mq.edu.au portal. Your request should be accompanied by appropriate documentation, such as a medical certificate. Please see the Special Consideration policy in the list of policies at the end of this document for further details.

Read the policy closely as your request may be turned down if you have not followed procedure, or if you have not submitted a request in a timely manner.

Late Submission Penalty

Unless a Special Consideration request has been submitted and approved, (a) a penalty for lateness will apply – two (2) marks out of 100 will be deducted per day for assignments submitted after the due date – and (b) no assignment will be accepted more than seven (7) days (incl. weekends) after the original submission deadline. No late submissions will be accepted for timed assessments – e.g. quizzes, online tests.

Academic Honesty

In Philosophy, academic honesty is taken very seriously. Misrepresenting someone else's work as your own may be grounds for referral to the Faculty Disciplinary Committee. If you have questions about how to properly cite work or how to credit sources, please talk to one of the teaching staff and see also Academic Integrity Policy (see the Policies and Procedures section below).

Your assessments in this units are *individual assessments*, so the work you submit must be your own work. You may not work on the assignments with other students.

For information about extensions, late penalties and special consideration, see *Policies and Procedures* section below.

Any assessment problems should be discussed with the convenor as soon as they arise.

Rationale for unit assessment

Assessment is spread through the unit in such a way that no task is too heavily weighted, and you will always receive feedback on one assessment before having to do the next. Any questions about feedback should be discussed with the convenor as soon as possible.

Assessment Tasks

Name	Weighting	Hurdle	Due
Online quiz 1	5%	No	11.59pm, Sun 19/8 (Wk3)
Take-home task 1	10%	No	Friday 31/8 (Wk5)
Test	30%	No	Sunday 16/9 (Wk7)
Online quiz 2	5%	No	11.59pm, Sun 21/10 (Wk10)
Take-home task 2	25%	No	Friday 26/10 (Wk11)
Online quiz 3	15%	No	11.59pm Sun 11/11 (Wk13)
Participation	10%	No	Weeks 1-12

Online quiz 1

Due: **11.59pm, Sun 19/8 (Wk3)**
Weighting: **5%**

Online quiz 1 is available from 9am Monday August 13 until 11.59pm on Sunday August 19 (week 3). It consists of five multiple choice questions, and you will have 20 minutes to complete it. Further instructions and a sample quiz will be made available through iLearn.

The quiz covers material from weeks 1 and 2, and is designed to give you early feedback on your progress in the unit.

Criterion for assessment: understanding of content from first two weeks, as demonstrated by correct choice of answer in multiple choice quiz.

See the General Assessment Information section for information about Special Consideration.

On successful completion you will be able to:

- Translate between English and the language of propositional logic
- Understand and apply fundamental logical concepts

Take-home task 1

Due: **Friday 31/8 (Wk5)**
Weighting: **10%**

A short exercise based on material from the first four weeks.

The exercise for external students will be made available via iLearn on Friday of week 4 (24/8). It is due on Friday of Wk 5 (31/8). It will be returned in week 6.

Criterion for assessment: Demonstrated understanding of logical concepts and methods from weeks 1-4.

See the General Assessment Information section for information about Special Consideration and penalties for lateness.

On successful completion you will be able to:

- Translate between English and the language of propositional logic
- Use truth tables and variants to test formulas and arguments in propositional logic
- Use trees to test formulas and arguments in propositional logic
- Understand and apply fundamental logical concepts

Test

Due: **Sunday 16/9 (Wk7)**
Weighting: **30%**

The external students' test is a 50 minute test that will be administered through iLearn. It will be available from Thursday 13/9 until Sunday 16/9, but you will only have 50 minutes to work on it once you open it. Because some of the work you will be doing is easier to do by hand, it is recommended that you have access to a scanner, smartphone or another device that will allow you to take an image of your written work to return via iLearn. Arrangements for submission are to be confirmed with the convenor by week 6.

The test is **open book.** Permitted resources will be discussed in lectures and confirmed in iLearn by week 5.

In-class test 'safety net'

Any student who makes a serious attempt at the first in-class test but receives a mark under 50% for it, will be given the opportunity to complete some additional work as determined by the convenor, and sit a supplementary test on a Pass/Fail basis (ie for a maximum mark of 50%) at a time to be negotiated with Jenny, no later than the end of week 9. No extensions of time will be given. This opportunity is only available for the in-class test, and is intended to help ensure that all students meet the learning outcomes for the first part of the course required for success in the second half.

Criterion for assessment: Demonstrated understanding of logical concepts and methods from weeks 1-6.

See the General Assessment Information section below for information about Special Consideration.

On successful completion you will be able to:

- Translate between English and the language of propositional logic
- Use truth tables and variants to test formulas and arguments in propositional logic

- Use trees to test formulas and arguments in propositional logic
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Online quiz 2

Due: **11.59pm, Sun 21/10 (Wk10)**
Weighting: **5%**

Online quiz 2 is available from 9am Monday October 15 until 11.59pm on Sunday October 21 (week 10). It consists of five multiple choice questions, covering material from weeks 8 and 9, and you will have 20 minutes to complete it. Further instructions will be given through iLearn.

Criterion for assessment: understanding of content from weeks 8 and 9, as demonstrated by correct choice of answers in multiple choice quiz.

See the General Assessment Information section for information about Special Consideration.

On successful completion you will be able to:

- Translate between English and the language of predicate logic.
- Understand and apply fundamental logical concepts

Take-home task 2

Due: **Friday 26/10 (Wk11)**
Weighting: **25%**

A take-home exercise based on material from weeks 8-10.

The external students' task will be made available via iLearn on Friday of week 9 (12/10). It is due on Friday of Wk 11 (26/10). It will be returned in week 12.

Criterion for assessment: Demonstrated understanding of logical concepts and methods from weeks 8-10.

See the General Assessment Information section for information about Special Consideration and penalties for lateness.

On successful completion you will be able to:

- Translate between English and the language of predicate logic.
- Use trees to test formulas and arguments in predicate logic
- Understand and apply fundamental logical concepts

Online quiz 3

Due: **11.59pm Sun 11/11 (Wk13)**

Weighting: **15%**

The final online quiz will cover material from the second half of the unit, with a focus on weeks 11-12. It will be available from midday Monday to 11.59pm Sunday of **week 13, 11/11/18.**

It will consist of five multiple-choice questions and three short-answer questions (requiring one-paragraph answers). This is a timed quiz, and you will have one hour to complete it. A sample will be made available via iLearn.

Criterion for assessment: understanding of content from second half of the unit, with a focus on weeks 11-12, as demonstrated by correct choice of answers in multiple choice questions; and understanding and clarity in answers to short answer questions.

See the General Assessment Information section for information about Special Consideration.

On successful completion you will be able to:

- Translate between English and the language of predicate logic.
- Use trees to test formulas and arguments in predicate logic
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Participation

Due: **Weeks 1-12**
Weighting: **10%**

Participation is an essential part of this unit, since you will be developing a set of skills that are formed through practice. You will therefore be assessed on your level of engagement with the content throughout the unit.

External students' participation marks will be based primarily on the weekly submission of short review exercises on which feedback will be provided by the convenor. Review questions will be provided on Fridays from week 1 onwards and will be due by the following Friday, except in weeks 5 and 11, when there are formal exercises due for all students. A schedule of external homework tasks will be available through iLearn.

These are participation exercises, rather than tests: It is important to note that your mark will depend not on whether you get the exercises right or wrong, but on your engagement with the course activities as demonstrated by your having attempted them. These exercises are designed to allow your teacher to see how you're going and provide feedback and assistance as required, to scaffold your progress through the unit. Feedback will be provided individually, and through an 'external students' forum' on the website where you can also learn from your classmates.

In most weeks your exercise will be submitted directly to the convenor, who will mark and return it within a few days, but in a few of the weeks where we are covering more philosophical material, the participation exercise will involve engaging in a discussion of a set question or topic on the discussion forum. More information about these participation exercises will be given in

iLearn.

They will be assessed based on engagement and preparation, as demonstrated by your making a serious attempt at the questions set.

On successful completion you will be able to:

- Translate between English and the language of propositional logic
- Use truth tables and variants to test formulas and arguments in propositional logic
- Use trees to test formulas and arguments in propositional logic
- Translate between English and the language of predicate logic.
- Use trees to test formulas and arguments in predicate logic
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.
- Demonstrate commitment to learning through regular engagement

Delivery and Resources

CLASSES

There are two lectures each week, at 12-1 on Wednesdays and 11-12 on Thursdays. Both of these lectures will be recorded through the Echo 360 system, and video lectures will be available through the unit website shortly after delivery.

Further advice on studying this unit externally will be available through iLearn.

REQUIRED TEXT

The textbook for the unit is Logic Greg Restall (UCL Press, ISBN 9780415400688). This book will be used throughout the course and you will need a copy of it. It is available at the Co-op Bookshop.

UNIT WEBPAGE AND TECHNOLOGY USED AND REQUIRED

This unit has an online presence. Login is via: https://ilearn.mq.edu.au/ Students are required to have regular access to a computer and the internet. Mobile devices alone are not sufficient.

- For technical support go to: http://mq.edu.au/about_us/offices_and_units/informatics/help - For student quick guides on the use of iLearn go to: http://mq.edu.au/iLearn/student_info/guides.htm

PASS (Peer Assisted Study Sessions)

Peer Assisted Study Sessions (PASS) are now operating in this unit. PASS sessions are not compulsory, but are highly recommended for all students taking this unit. PASS sessions are 1 hour weekly study groups where students get together to consolidate their understanding of the

course material; reinforce key concepts and develop effective study strategies. Students work in small study groups facilitated by skilled leaders who will specifically guide your learning. Our PASS Leader, Kramer Thompson, is a former student of this unit who achieved excellent results, and who has been trained as a PASS leader to help you get the most out of the unit. PASS is for everyone – it is not a remedial program for struggling students, but a program for all students who want to improve their performance. More information about PASS sessions will be given in the first lecture, and through iLearn.

Unit Schedule

Week		Reading
	Formal propositional logic	
Week 1 1 & 2/8	Introduction; Propositions and Arguments	Restall, Chapter 1
Week 2 8 & 9/8	Translation: Connectives and argument forms	Restall, Chapter 2
Week 3 15 & 16/8	Truth tables *First online quiz this week*	Restall, Chapter 3
Week 4 22 & 23/8	Trees	Restall, Chapter 4
	Problems in the Philosophy of Logic (1)	
Week 5 29 & 30/8	Vagueness and bivalence *Take-home task 1 due this week in tutorials*	Restall, Chapters 5
Week 6 5 & 6/9	Conditionality	Restall, Chapter 6
Week 7 12 & 13/9	Revision (Wednesday); Test (Thursday) *No tutorials this week*	
	Midsemester break	
	Formal predicate logic	

Week 8 3 &4/10	Introduction to predicate logic: predicates, names and quantifiers	Restall, Chapter 8
Week 9 10 & 11/10	Trees for predicate logic	Restall, Chapter 10
Week 10 17 & 18/10	Trees for predicate logic *Second online quiz this week*	Restall, Chapter 11 (excluding 'Functions')
	Problems in the Philosophy of Logic (2)	
Week 11 24 &25/10	Definite Descriptions ; Non-existence *Second take-home task due this week in tutorials*	Restall, Chapters 12 and 13
Week 12 31/10 &1/11	What is a predicate? What is logic	Restall, Chapters 14 and 15
Week 13	No lectures or tutorials *Third online quiz this week*	

Learning and Teaching Activities

Lectures

Internal students attend two lectures each week. These cover the required content for each week, but are also interactive, providing a forum for skills practice and discussion. External students will watch the lectures online, and should do the activities set in class while doing so.

Participation exercises

External students' participation in the unit is assessed through the submission of short weekly exercises. See the "Assessment" pages for further information. External students are also encouraged to submit any other exercises or work they would like feedback on to the convenor.

Reading and exercises

Each week, there will be reading set from the textbook. You can do this either before or after the lectures: whichever you find works best for you. There are exercises at the end of each chapter, some of which we will go through in tuts, but any we don't get through should be attempted for extra practice. Exercise solutions will be posted online at the end of each week.

Online resources

The website will contain lecture slides, audio/video lecture recordings, and a discussion forum which you are encouraged to use. Additional resources will be posted online for you to make use

of as you wish. This year, these will include further revision materials to assist students who need them, but also advanced materials for students who are interested in going beyond the required material.

PAL/PASS

PASS sessions are optional but highly recommended sessions, led by a trained and experienced student leader, Kramer Thompson, who has done well in this unit in the past. The sessions are open to anyone who wants to attend. The PASS sessions will be used for further exercises and discussion. The sessions are open to anyone who wants to attend. The PASS sessions will be used for further exercises and discussion. These are only available on-campus, but any external students who are able to make it are welcome.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.m

q.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Assessment tasks

- Test

- Take-home task 2
- Online quiz 3
- Participation

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcome

- Understand and apply fundamental logical concepts

Assessment task

- Participation

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.
- Demonstrate commitment to learning through regular engagement

Assessment tasks

- Test
- Online quiz 3
- Participation

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where

relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Translate between English and the language of propositional logic
- Use truth tables and variants to test formulas and arguments in propositional logic
- Use trees to test formulas and arguments in propositional logic
- Translate between English and the language of predicate logic.
- Use trees to test formulas and arguments in predicate logic
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Assessment tasks

- Online quiz 1
- Take-home task 1
- Test
- Online quiz 2
- Take-home task 2
- Online quiz 3
- Participation

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Translate between English and the language of propositional logic
- Translate between English and the language of predicate logic.
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Assessment tasks

- Take-home task 1
- Test
- Take-home task 2
- Online quiz 3
- Participation

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Translate between English and the language of propositional logic
- Use truth tables and variants to test formulas and arguments in propositional logic
- Use trees to test formulas and arguments in propositional logic
- Translate between English and the language of predicate logic.
- Use trees to test formulas and arguments in predicate logic
- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Assessment tasks

- Take-home task 1
- Test
- Take-home task 2
- Online quiz 3
- Participation

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Understand and apply fundamental logical concepts
- Understand and explain some central problems in the philosophy of logic arising out of the formal methods studied, and some of the main responses to those problems.

Assessment tasks

- Take-home task 1
- Test
- Take-home task 2
- Online quiz 3
- Participation