Introduction to Logic

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This is the course syllabus for the Michaelmas 2017 *Introduction to Logic* course at University College. It contains everything you need to know about where your classes will be, what we will cover each week, where you can get your weekly problems sets from and how to get in contact with your tutors if you need anything. An additional copy of this can be downloaded from http://www.stephenwrightphilosophy.com.

The *Introduction to Logic* course will help you become familiar with some of the formal techniques that appear in philosophy. Logic has a twofold role in philosophy. Firstly, it will help you get an idea of the kind of formal techniques and vocabulary that appear in all kinds of other areas of philosophy. Without a basic grounding in logic (which is what this course will give you) it's really difficult to make much progress in pretty much any other area of philosophy. Secondly, logic is an interesting area of philosophical investigation in and of itself. In the course of the tutorials, we'll come across a good many interesting and controversial topics. Some things will be hard to get your heads around and some things will be downright odd at first sight. This is the same as it would be with any other type of philosophy course.

The main difference between the logic course and the other philosophy papers that you'll be taking is the mechanics of the course. You won't be writing essays for this course. Again, that's not to say that there aren't essays to be written on the material that's covered here. There are, and if you progress onto FHS study in philosophy, you'll get the chance to write essays on areas of logic and do some real philosophy concerning these areas. But for the purpose of this course, which aims to acquaint and familiarise you with the concepts behind logical analysis, there are problem sets, replacing essays. You'll have tutorials in classes (rather than pairs) and have homework problem sets, rather than essays. Aside from that, treat it as any other philosophy paper, with problems to be explored and difficult stuff to be understood.

One last observation to get you going is that, in a lot of cases (compared to other parts of the prelim philosophy paper) the people who do well in prelim philosophy are the ones who do well in logic. That's partly because, in the case of the logic part of the paper, it's more common for the marks to go really high. That's not because that part of the paper is easier. It's probably harder, actually. But it is because, if you get logic, there's a chance to really show your stuff in an organised and regimented way and force more marks out of the examiners. So logic is tough, make no mistake about it. But the fact that it's tough also brings with it the potential for really great rewards.

Anything you're not clear on in this guide, or in the course more generally, you're very welcome to email us any time. Our email addresses are below. The course is tough and it'll take some serious determination and organisation, as well as no small amount of skill. But we'll help you through it as we go and if you need anything, then don't hesitate to get in touch.

1 Course Admin

1.1 Class Times

The group will be divided into two classes. They are *not* divided according to ability, or our perception of your ability, or anything like that. They're just divided fairly randomly (though with a view to trying to keep the PPE students together where possible and some timetabling issues). The groups are as follows:

Group 1	Time: Tuesday 14:00-16:00	Location: Trinity College, Dolphin Yard Teaching Room*
Tutor:	Annina Loets	annina.loets@trinity.ox.ac.uk
Students:	Caleb Dodd Joel Holmes Maximilian Klinger Nathan Lucaussy Rowan Munson Emily Nethsingha Jun Miang Ning Lara Scheibli	* In 8th week, this class will meet in the Britton Room, Trinity College.

Group 2	Time: Thursday 10:00-12:00	Location: University College, Goodhart Lecture Room**
Tutor:	Stephen Wright	stephen.wright@univ.ox.ac.uk
Students:	Sarah Dexin Michael Hinteregger Cerys Halligan Anna Hoyle Toby Lowther Thomas Schaffner Samuel Pelan Ellie Whiteley	** In 1st week, this class will meet in the Swire Seminar Room, University College.

1.2 Reading

Another thing that makes the logic class distinctive is the reading list. For the logic course, the book you absolutely must get hold of is the following:

Volker Halbach (2010). *The Logic Manual* Oxford: Oxford University Press.

Getting hold of your own copy of this is non-negotiable. You will need it and you can't get away with using anything else instead.

That being said, the Logic Manual is also the *only* book that you'll need for the course. There are lots of logic books on the market. Some of them are very good, some of them are less good. But for the purposes of this course, you don't need to read any of them. Indeed, reading different logic textbooks can be wildly counterproductive. Different logic books use different systems and different definitions and different approaches. They aren't wrong, they're just different, but they will get in the way of you understanding what's going on in the Logic Manual. So the logic course isn't one where you'll have to do loads of reading. In fact, you would be very badly advised to do loads of reading. It'll waste your time and more likely make you go backwards, rather than forwards, in terms of progress. But that point only serves to reinforce the point that reading and understanding the Logic Manual is indispensable to the course.

1.3 Problem Sets

Exactly how this course is assessed depends on what degree course you're on. If you're a Classics student, it will be a paper you sit for Mods. If you are a Physics and Philosophy student, it will be part of the *Elements of Deductive Logic* paper, but the majority of that paper will consist in more advanced topics than the ones we'll cover here. If you are a Philosophy and Linguistics student, or a PPE student, it will be part of the *Introduction to Philosophy* paper. Exactly when your exam is depends on which course you're enrolled on.

During the course, there are weekly problem sets that must be completed. These must be completed before each tutorial. Details of which tutorial group you are in are given above. If you are in Group 1, your problem sets must be submitted to Annina Loets' pigeon hole at Trinity College by 5pm on Monday. If you are in Group 2, your problem sets must be submitted to Stephen Wright's pigeon hole at University College by 12pm Wednesday. No excuses. This gives the tutors a chance to get them marked before the tutorial each week. We will give them back to you in class.

Details of the problem sets for each week are below. Note that they do not neatly correspond to the weeks in the Logic Manual and the logic lectures. There are reasons for this. The Logic Manual problem sets can be downloaded from the Logic Manual website: http://logicmanual.philosophy.ox.ac.uk/exercises/exercises.pdf. If either of the tutors develop additional exercises for any given week, these will be available at http://www.stephenwrightphilosophy.com.

Normally, in philosophy, a big part of your working time will be discussing the material from the course with your classmates. Obviously, in the case of logic problem sets, that can look like cheating. And we are sympathetic to the idea that it can be hard to see where the line for discussion (which is good) and collusion (which is very very bad) is, particularly if you're new to this kind of thing, which you all are. Discussing the stuff from the lecture is clearly not cheating, copying answers clearly is. So obviously there's a line in the middle somewhere. To help you along, here's a guideline:

Firstly, make sure that you sit down and do your problem sets yourselves, individually, each week. The problem sets are the best opportunity you will get to simulate the kind of questions that you'll face in the exam. So doing them yourself is the best preparation you can get. Once you talk about the questions with someone else, that opportunity is gone and it won't come back. Make sure you get that experience in the bank. You can use whatever books you have and whatever notes you've made. But do the problems yourself in the first instance.

After that, you're welcome to discuss whatever you like. You're even welcome to change answers on your problem sets before you hand them in (I won't know) in the light of your discussion. All of that is totally fine. But when you do come to discuss stuff, bear in mind that the point of your discusssions are to help you understand stuff. They're not to get marks in tutorials. Simply swapping answers to problem sets doesn't help you understand anything. Discussing stuff does. Whatever you ultimately write on the problem set page, make sure it's something you understand. If you write something that you don't understand, we will find you out.

1.4 Class Structure

The course has two types of classes associated with it. The first are lectures. These will be given by Volker Halbach (the author of the Logic Manual) as part of the Faculty's core lecture series on the subject. The second are the classes that will be taken by me in college. Neither of these is optional.

In classes, we'll mainly be talking about four types of things:

1. The questions from the exercises you've been doing.
2. Further questions testing similar things.
3. The and issues behind the questions you've been doing.
4. Anything else from the week's reading/problems/lecture that you'd like to talk about.

Different classes might balance these different things in different ways. Much depends on how you get on with the week's questions. If they go badly, we're going to have to spend more time working on them. If they go well, we can push on to trying to get you a deeper understanding of what's going on in the issues you've been reading about. Obviously, if there's anything that you're not clear on that you'd like to raise, then the class is absolutely the right time to do this. The point of the classes is to help you learn. The tutors can take

charge of that, to some extent, but if there's something you're not getting and you can see this, then it's really helpful if you can bring that up. If you're not getting something, chances are that someone else isn't either.

In some of your other courses, you'll work on 4-8 tutorials on various different areas and by the end of it, you'll have looked at 4-8 topics, some of which you'll presumably like more than others. That's the normal thing. Logic is (yet again) different. The logic course builds on itself week by week. If you get lost in Week 3 of a conventional course, you can write it off and work on the other 3-7 areas that you've got a better grip on. If you get lost in Week 3 of logic, this won't happen. You won't understand anything that comes afterwards. Worse yet, you might think you do, but you won't. To understand the material from any particular week, you will need everything that came before it.

This might sound scary, but it shouldn't be. It means that you have to be really organised and really focused in your logic work. But to support this the classes are 2 hours long plus a 1 hour lecture. There's loads of support for this and your tutors will do everything I can to help you get anything you're not confident on. So will your classmates. With the right approach to classes, you'll get everything you need to get out of it. We will make sure of it. And when you do, as described above, there are big marks to be got from this.

2 Course Content & Structure

2.1 Week 1

Reading: *Logic Manual Chapter 1.*

Exercises: *Logic Manual Exercises 1.*

2.2 Week 2

Reading: *Logic Manual Chapter 2.*

Exercises: *Logic Manual Exercises 2.*

2.3 Week 3

Reading: *Logic Manual Chapter 3.*

Exercises: *Logic Manual Exercises 3.*

2.4 Week 4

Reading: *Logic Manual Chapter 6 §6.1.*

Exercises: *Logic Manual Exercises 6.1, 6.2. plus the following:*

Exercise 1. Prove each of the following using natural deduction:

1. $P \wedge Q \rightarrow R$, $Q \rightarrow P$, $Q \vdash R$
2. $Q_{12} \rightarrow P_6$, $P_6 \rightarrow R_{27} \vdash Q_{12} \rightarrow P_6 \wedge R_{27}$
3. $P \rightarrow Q$, $\sim Q \vdash \sim P$
4. $P \vee (Q \wedge R) \vdash P \vee Q$
5. $P \wedge Q \rightarrow \sim R$, Q, $P_1 \rightarrow R$, $P_1 \vdash \sim P$
6. $\vdash \sim (P \wedge \sim P)$
7. $Q_1 \vee Q_2$, $\sim Q_1 \vdash Q_2$

2.5 Week 5

Reading: *Logic Manual Chapter 4.*

Exercises: *Logic Manual Exercises 4.*

2.6 Week 6

Reading: *Logic Manual Chapter 5.*

Exercises: *Logic Manual Exercises 5.*

2.7 Week 7

Reading: *Logic Manual Chapter 6 §6.2 & Chapter 7.*

Exercises: *Logic Manual Exercises 6.3-6.5 & 7.1-7.4.*

2.8 Week 8

Reading: *Logic Manual Chapter 8.*

Exercises: *Logic Manual Exercises 7.5, 7.6 & 8.*