

PHIL10 INTRODUCTION TO LOGIC

UC San Diego, Winter 2019

Peterson Hall, MW 9-9:50

TEACHING TEAM

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READINGS AND TEXTBOOK

The textbook for this class is:

forall x: Calgary Remix—An Introduction to Formal Logic (Fall 2018 bis edition), By P. D. Magnus and Tim Button; with additions by J. Robert Loftis; remixed and revised by Aaron Thomas-Bolduc and Richard Zach

The textbook is free and open source. You can find it on TritonEd and at forallx.openlogicproject.org. Careful: there are multiple versions of it (written and/or modified by multiple authors). Make sure you download the right one (Fall 2018 bis).

EVALUATION AND GRADING

Your grade will be determined by **four midterm exams** and **one final exam**. The breakdown of points will be determined as follows:

- Midterm exams: $4 \times 18\%$
- Final exam: 28%

As a default, attendance is strongly encouraged but not required. I will conduct a review of the course after the second midterm. If there is a combination of low attendance and poor results, I will make attendance mandatory and shift 5% of the credit to in-class quizlets (taking away 1% from each exam).

EXAMS

Each exam is closed books, closed notes. Using notes of any sort will be considered cheating and dealt with accordingly.

There will be no make-up exams of any sort for the midterms. Midterms may not be taken early or late.

If you miss a midterm for a *legitimate reason* (illness, medical emergency), then the points you miss can be made up in the following way: the final exam will be divided into four sections, corresponding to the four parts of the class. Your score on the corresponding section of the final exam will determine your grade for the midterm. For example, if you miss midterm 2 for a legitimate reason and get 80% of the points for section 2 of the final exam, then your grade for midterm 2 will be 80%.

If you miss a midterm for a *non-legitimate reason* (traveling for personal or extracurricular reasons, sleeping in, etc), then your midterm points can be made up in the same way but with a 15 percentage point penalty. For example, if you miss midterm 2 for a non-legitimate reason and get 80% of the points for section 2 of the final exam, then your grade for midterm 2 will be 65%. Adding the course late is not a legitimate reason.

PROBLEM SETS

I will be posting weekly problem sets (on Wednesday afternoon/evening). It is expected that you will make a serious attempt at solving the weekly problem set and that you will bring your work to section.

Problem sets are not graded, are open book and open notes, and you should feel free to discuss them with your fellow students. Solutions to the exercises in the book can be found in a separate file at forallx.openlogicproject.org. For many exercises in the book, there is a unique correct solution. For the case of proofs, though, there is not going to be a unique correct solution. In this case, you can check your work online with the online proof checker at proofs.openlogicproject.org/.

Problem sets are the primary way for you to learn the material in this class. I cannot stress this enough. Coming to all lectures and reading the whole book without doing the problem sets will be of little help. The way to learn logic is to do logic. So I strongly recommend that you work on problem sets extensively. Working on problem sets with your fellow students some of the time (though possibly not all of the time) would also be helpful.

EXTRA CREDIT (LACK THEREOF)

There is going to be no extra credit, at any point, for this class. Your grade will be entirely determined by the midterms and the final.

GETTING IN TOUCH WITH THE TEACHING TEAM

This is a large course, which requires a substantial organizational effort on the part of the teaching team. Both the TAs and I are committed to doing our best in our work, and will put plenty of time and effort into it. In return, we ask you that you don't place demands on our time when this is unnecessary. In particular, this means **not automatically resorting to a direct email whenever you have a question**. Whenever you have a question about the course, please explore the following ways to seek an answer, in this order.

- i. If the question is about admin issues: **check the syllabus!**
- ii. Ask one of your fellow students.
- iii. Come to your TA's or my Office Hours and ask the question in person.
- iv. If you cannot make OH and the question is not urgent (i.e. you don't need the answer to solve the problem set, or to decide whether to keep/drop the course), ask it at the beginning of your next section or at the beginning of the next class.
- v. Email your TA.
- vi. Email me.

ACADEMIC INTEGRITY

Please familiarize yourself with university policies on cheating, plagiarism, and academic integrity. **Cheating and plagiarism need not be knowing or intentional to be penalizable.** Any form of cheating or plagiarism will be reported immediately. Penalties for academic integrity infractions include failing the exam, failing the course, suspension, and expulsion.

ACCOMMODATIONS

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation letter issued by the Office for Students with Disabilities, located in University Center 202 behind Center Hall. Students are required to present their AFA letters to faculty (please make arrangements to contact me privately) and to the OSD liaison in the department in advance so that accommodations may be arranged. Contact the OSD at: (858) 534-4382 (phone), osd@ucsd.edu (email), or disabilities.ucsd.edu (website).

TENTATIVE SCHEDULE

Notice: **the schedule is subject to change.** Please make sure you're looking at the latest version of the syllabus (on the course TritonEd website).

Notice: all readings are to be found in the textbook. You should complete the readings *before* class.

PART 1: INTRODUCTION; BASIC LOGICAL NOTIONS AND TRANSLATION

Week 1

Lecture 1. (January 7th) Admin and syllabus. Introduction: what is logic?

No required reading.

Lecture 2. (January 9th) Logical notions: validity and consequence. First steps towards symbolization.

Required reading: Chapters 1–4

Week 2

Lecture 3. (January 14th) Connectives.

Required reading: Chapter 5

Lecture 4. (January 16th) Translation into TFL; if time allows: beginning of truth tables.

Required reading: Chapter 6, 7

Week 3

No class. (January 21st) *Martin Luther King, Jr. Holiday*

Exam. (January 23rd) **Midterm (in class) on Part 1**

PART 2: TRUTH TABLES

Week 4

Lecture 5. (January 28th) Truth tables and truth functionality.

Required reading: Chapters 8, 9

Lecture 6. (January 30th) More on truth tables, and semantic concepts.

Required reading: Chapters 10–12

Optional reading: Chapter 13

PART 3: NATURAL DEDUCTION PROOF SYSTEMS

Week 5

Lecture 7. (February 4th) Foundations of Natural Deduction; conjunction rules.

Required reading: Chapter 14, 15.2

Exam. (February 6th) **Midterm (in class) on Part 2**

Week 6

Lecture 8. (February 11th) Conditional rules and subproofs.

Required reading: Chapter 15.3, 15.4

Lecture 9. (February 13th) Biconditional, disjunction, and negation rules.

Required reading: Chapter 15.5–15.7

Week 7

No class. (February 18th) *Presidents' Day Holiday*

Lecture 10. (February 20th) Additional rules for TFL.

Required reading: Chapter 16

PART 4: BASIC PROOF THEORY AND PROOF STRATEGIES

Week 8

Lecture 11. (February 25th) Proof Theory and Proof Strategies.

Required reading: Chapters 17 and 18

Exam. (February 27th) **Midterm (in class) on Part 3**

Week 9

Lecture 12. (March 4th) Derived Rules.

Required reading: Chapter 19

Lecture 13. (March 6th) Soundness and completeness. (If time allows; otherwise, spillover material.)

Required reading: Chapter 20

Week 10

Lecture 14. (March 11th) Review session

No required reading

Exam. (March 13th) **Midterm (in class) on Part 4**