Introduction to Formal Reasoning and Decision-Making (Online Course)

Isaac Wilhelm (isaac.wilhelm@rutgers.edu, isaacwilhelm.com)
Philosophy 109
May 26 – July 3, Summer 2020
Office hours: Th 12-1 and by appt.

Course Description

Reasoning is one of the most important activities in which humans engage. We form arguments for the ideas, beliefs, and views which we have. We argue against alternative ideas, beliefs, and views. But what makes some arguments good, and other arguments bad? More generally, what rules ought to govern reasoning?

In this course, students will learn a theory of reasoning—called 'propositional logic'— which addresses these questions. We will focus on natural language arguments, formal language arguments, formal and informal characterizations of validity, some characterizations of soundness, and techniques for extracting arguments from texts.

Two Versions of the Course

Because of the pandemic, I am offering students the option of taking either of two different versions of this course. Roughly put, students who take the 'pandemic' version will (i) have fewer homework problems, and (ii) be graded more leniently. Students who take the 'non-pandemic' version, however, will have more homework problems, and they will be graded more strictly.

For more details about these different versions, see the pdf "Two Versions of the Course": on Canvas, this pdf is located in the "Policies" folder (which is contained in the "Files" folder on the left side of the screen); on my course website, this pdf is located under "General Documents". Those websites are below.

1. Canvas course website: https://rutgers.instructure.com/courses/58583
2. My course website: isaacwilhelm.com/teaching.htm

Students must tell me, by 11:59pm on Friday May 29, which version of the course they want to take.

Course Requirements

The requirements for this course can be sorted into two groups: graded, and ungraded. You will not lose any points if you do not complete the ungraded requirements. But I strongly recommend that you complete them: they consist of tasks which will help you succeed in

this course.

<u>Graded requirements</u>
1. Weekly questions (10 points each)
   - Each week, you must post one question to the Canvas website.
   - The question must be about the material covered in the handout, the assigned reading in the book, or the homework, for that week.
   - Each week, you must submit your question by 11:59pm on Thursday.
2. Weekly lectures (10 points each)
   - For each of weeks 1-5, there will be one online lecture.
   - Each lecture will take place at 10am on Friday.
   - You must attend the lecture, or watch the recorded video, before submitting your homework for that week.
3. Homework (50 points each)
   - Homework will be assigned for each of weeks 1-5.
   - Each week, you must submit your completed homework problems by 5pm on Saturday.
4. Final exam (150 points)
   - The final exam will be held at 10am on July 3.

<u>Ungraded requirements</u>
1. Introductory lecture
   - During the first week, there will be one online lecture.
   - The lecture will take place at 10am on Tuesday.
   - You must attend the lecture, or watch the recorded video. It will contain a lot of helpful information about the course.
2. Readings
   - Each week, you must read a certain portion of the course textbook. The readings for each week are listed under the 'Schedule' section at the end of this syllabus.
   - Each week, you must read the handout for that week.
3. Review questions for week 6
   - During the sixth week, you must post two questions to the Canvas website.
   - The questions can be about any of the material covered in the course.
   - See the 'Schedule' section for the dates by which these questions are due.
4. Review lectures
   - During the sixth week, there will be two online lectures.
   - See the 'Schedule' section for the dates and times of these lectures.
   - You must attend each lecture, or watch the recorded video, before the final.

Late Assignments, Make-Up Work, And So On

Long story short, late work will *not* be accepted, extra credit will *not* be provided, and there will be *no* opportunities for make-up work. For a more precise, detailed description

of these policies—and other course policies too—see either the Canvas course website or my course website.

Goals for the Course

By this course's conclusion, you should be able to
- translate natural language arguments into arguments in propositional logic,
- distinguish valid arguments from invalid arguments,
- extract arguments from texts, and
- discuss complex philosophical ideas respectfully.

Plagiarism and Academic Integrity

Please adhere to the Rutgers University policies on plagiarism and academic integrity. Penalties for violations of these policies can be severe: they include an automatic failing grade for the course, and possibly worse. A comprehensive overview of these policies can be found at http://academicintegrity.rutgers.edu/academic-integrity-policy/.

Accessibility

This class should be a great, fun, and educational experience for everyone. And of course, everyone deserves equal access to all educational opportunities at Rutgers. Disabled students are encouraged to speak with me if that would be helpful, and to avail themselves of the resources provided by the Office of Disability Services (https://ods.rutgers.edu/).

Schedule

The readings will be drawn from two sources: handouts that I have written, and the textbook *forallx: Calgary Remix* by Magnus and Button. The textbook is free and available online: for your convenience, I have posted it to the course's Canvas website. The handouts will be posted to both of the course's websites.

In the schedule below, I list the requirements and readings for each week. For the requirements, I list the due dates. Bolded text indicates something which you will need to submit through Canvas: a question, a homework, or the final. Note that you need not attend the lectures when they occur: you are required, however, to watch the lecture videos, before you submit your homework for that week. As for the readings, feel free to complete them whenever is convenient. I recommend completing them before submitting your question, however: you might want to ask a question about the reading.

Week 1: Natural Language Arguments

Requirements
- May 26: introductory lecture at 10am.
- May 28: **week 1 question due by 11:59pm.**
- May 29: lecture at 10am.
- May 30: **homework 1 due by 5pm.**

Readings
- Handout (Week 1).
- *forallx*, Chapter 1.
- *forallx*, Chapter 2.

Week 2: The Formal Language

Requirements
- June 4: **week 2 question due by 11:59pm.**
- June 5: lecture at 10am.
- June 6: **homework 2 due by 5pm.**

Readings
- Handout (Week 2).
- *forallx*, Chapter 4.
- *forallx*, Chapter 6.
- *forallx*, Chapter 5.

Week 3: Truth and Validity

Requirements
- June 11: **week 3 question due by 11:59pm.**
- June 12: lecture at 10am.
- June 13: **homework 3 due by 5pm.**

Readings
- Handout (Week 3).
- *forallx*, Chapter 8.
- *forallx*, Chapter 10.
- *forallx*, Chapter 11.4.

Week 4: Natural Language Arguments and Formal Arguments

Requirements
- June 18: **week 4 question due by 11:59pm.**
- June 19: lecture at 10am.
- June 20: **homework 4 due by 5pm.**

Readings
- Handout (Week 4).
- *forallx*, Chapter 11.5.

Week 5: Extraction

Requirements
- June 25: **week 5 question due by 11:59pm.**
- June 26: lecture at 10am.
- June 27: **homework 5 due by 5pm.**

Readings
- Handout (Week 5).

Week 6: Review and Final

Requirements
- June 29: **review question due by 11:59pm.**
- June 30: lecture at 10am.
- July 1: **review question due by 11:59pm.**
- July 2: lecture at 10am.
- July 3: **final exam at 5pm.**

Readings
- Review handouts 1-5.