Syllabus: Logic, Reasoning, and Persuasion – 01: 730: 101: 91

Christopher Frugé
Christopher.Fruge@rutgers.edu
Office hours: by appointment

Overview

In this course, we will learn about both good and bad reasoning. By learning what good reasoning is like, we can try to use it. By learning what bad reasoning is like, we can try to avoid it. Our route into bad reasoning will be through Daniel Kahneman's *Thinking, Fast and Slow*, where he discusses a range of biases in our thinking. Our route into good reasoning will be through learning the basics of propositional logic, which allows us to model good argumentation.

Course Goals

Students will learn the basics of first-order logic.

Students will learn about common frameworks for our judgment formation and decision making.

Students will learn to write reflectively about different belief-forming practices.

Required Texts

- Daniel Kahneman, *Thinking, Fast and Slow*
- Paul Teller, *A Modern Formal Logic Primer*
    - Available for free on his website: https://tellerprimer.ucdavis.edu/

Course Structure and Assignments

- Reading
    - Each week there will be reading assigned from *Thinking, Fast and Slow* as well as *A Modern Formal Logic Primer*.
- Lecture videos
    - Each week I'll make short lecture videos covering portions of *Thinking, Fast and Slow* as well as going over some of the logic from *A Modern Formal Logic Primer*.
- Discussion posts
    - You are required to make a post on the discussion forum for each unit of *Thinking, Fast and Slow*. Either post a new thread or respond to someone else's post. So these can be a question about the material, an elaboration on a point made in the book, an example supporting a claim made, or a response to someone else's post with any of the above. These should each be roughly 4-7 sentences. I'll grade these for clarity and engagement with the material. The due dates are listed below.

    - I'll also create discussion forums for the logic chapters. You aren't required to post here, but I encourage you to post with any questions you have about the chapter or in-text exercises. I also encourage you to answer any questions you see. The more people who participate, the more help you will get on your own work! You can also post about the problem sets, but be sure not to give out the answers. (E.g., you can tell someone to try a certain inference rule in completing a proof, but don't write out the whole proof).
- Quizzes
    - There will be quizzes on each unit of *Thinking, Fast and Slow*. The quizzes are open book but you must do them on your own. The due dates are listed below.
- Problem sets
    - There will be problem sets on each chapter of the logic textbook. You can do them on your own or in a small group. The due dates are listed below.
    - For practice, I recommend doing the exercises given in each of the chapters, though these aren't assigned. I'll distribute answers.

Grade breakdown

- Discussion posts: 24% overall
    - 12 posts total, so each is worth 2%.
    - Late posts get a 0, but you get 3 free passes – where a late post will be accepted 1 day late.
- Quizzes: 36% total
    - 12 quizzes total, so each is worth 3%.
    - Late quizzes get a 0, but I'll drop the lowest 3 quizzes at the end of the term.
- Problem sets: 40% total
    - 8 problem sets. Each is worth 5%.
    - Late problem sets will get a 0, but I'll drop the lowest 2 problem set grades.

Schedule

Week 1: Dec 23 – 29

- Readings
    - 1a: Kahneman: Introduction, Chapters 1-3
    - 1b: Kahneman: Chapters 4-6
    - 1c: Kahneman: Chapters 7-9
    - 1d: Teller, v.1, ch. 1
    - 1e: Teller, v. 1, ch. 2

- Lecture videos
    - Kahneman lectures
        - Lecture 1a
        - Lecture 1b

        - Lecture 1c
    - Logic lectures
        - Lecture 1d
        - Lecture 1e

- Assignments
    - Kahneman:
        - Discussion: due by Dec 27
            - Post on Kahneman 1a
            - Post on Kahneman 1b
            - Post on Kahneman 1c
        - Quizzes: due by Dec 28
            - Kahneman 1a quiz
            - Kahneman 1b quiz
            - Kahneman 1c quiz
    - Logic
        - Discussion/Practice Problems: not graded, as needed!
            - Exercises from ch. 1
            - Exercises from ch. 2
        - Problem Sets: due by Dec 29
            - Problem set 1d
            - Problem set 1e

Week 2: Dec 30 – Jan 5

- Readings
    - 2a: Kahneman: Chapters 10-12
    - 2b: Kahneman: Chapters 13-15
    - 2c: Kahneman: Chapters 16-18
    - 2d: Teller, v.1, ch. 3
    - 2d: Teller, v.1, ch. 4

- Lecture videos
    - Kahneman lectures
        - Lecture 2a
        - Lecture 2b
        - Lecture 2c
    - Logic lectures
        - Lecture 2d
        - Lecture 2e

- Assignments
    - Kahneman:

        - Discussion: due by Jan 3
            - Post on Kahneman 1a
            - Post on Kahneman 1b
            - Post on Kahneman 1c
        - Quizzes: due by Jan 4
            - Kahneman 2a quiz
            - Kahneman 2b quiz
            - Kahneman 2c quiz
    - Logic
        - Discussion/Practice Problems: not graded, as needed!
            - Exercises from ch. 3
            - Exercises from ch. 4
        - Problem Sets: due by Jan 5
            - Problem set 2d
            - Problem set 2e

Week 3: Jan 6 – Jan 12

- Readings
    - 3a: Kahneman: Chapters 19-21
    - 3b: Kahneman: Chapters 22-24
    - 3c: Kahneman: Chapters 25-28
    - 3d: Teller, v.1, ch. 5
    - 3e: Teller, v.1, ch. 6

- Lecture videos
    - Kahneman lectures
        - Lecture 3a
        - Lecture 3b
        - Lecture 3c
    - Logic lectures
        - Lecture 3d
        - Lecture 3e

- Assignments
    - Kahneman:
        - Discussion: due by Jan 10
            - Post on Kahneman 3a
            - Post on Kahneman 3b
            - Post on Kahneman 3c
        - Quizzes: due by Jan 11
            - Kahneman 3a quiz
            - Kahneman 3b quiz
            - Kahneman 3c quiz
    - Logic

        - Discussion/Practice Problems: not graded, as needed!
            - Exercises from ch. 5
            - Exercises from ch. 6
        - Problem Sets: due by Jan 12
            - Problem set 3d
            - Problem set 3e

Week 4: Jan 13 – Jan 17

- Readings
    - 4a: Kahneman: Chapters 29-30
    - 4b: Kahneman: Chapters 30-32
    - 4c: Kahneman: Chapters 33-34
    - 4d: Teller, v.1, ch. 7
    - 4e: Teller, v.1, chs. 8-9

- Lecture videos
    - Kahneman lectures
        - Lecture 4a
        - Lecture 4b
        - Lecture 4c
    - Logic lectures
        - Lecture 4d
        - Lecture 4e

- Assignments
    - Kahneman:
        - Discussion: due by Jan 15
            - Post on Kahneman 4a
            - Post on Kahneman 4b
            - Post on Kahneman 4c
        - Quizzes: due by Dec Jan 16
            - Kahneman 4a quiz
            - Kahneman 4b quiz
            - Kahneman 4c quiz
    - Logic
        - Discussion/Practice Problems: not graded, as needed!
            - Exercises from ch. 7
            - Exercises from chs. 8-9
        - Problem Sets: due by Jan 17
            - Problem set 4d
            - Problem set 4e