

# Methods in Critical Thinking

**Period III: February, 1 – March 1, 2018**

## Objectives:

- Learn to distinguish between the form and the contents of an argument.
- Learn to reduce complex arguments into their components (premises, conclusions, supporting theses) and evaluate them.
- Learn to distinguish between strong arguments and weak ones.
- Learn the basics of some of the formal theories for evaluating arguments (e.g. logical and statistical reasoning).
- Learn how to read a complex philosophical or scientific paper.
- Learn how to develop a cogent philosophical argument.

**Assessment** (attendance of 10/12 classes is required for credits):

- 10% class attendance
- 20% exercise sessions
- 70% final exam

## Contents of the course

The main texts for the course will be: (a) I.M. Copi, C. Cohen and K. McMahon, *Introduction to Logic — 14th Edition*. Pearson (2011); (b) Lemmon E.J., *Beginning Logic*. Chapman & Hall (1965); (c) Ian Hacking, *An Introduction to Probability and Inductive Logic*. Cambridge University Press (2000). Other texts will be provided in class by the instructor.

## Structure of the course

The course will be divided in lectures and exercises. The students are requested to attend and participate actively in both lectures and exercises.

## Topics, timetable, and readings

1. **Introduction** **Thu. February 1, 12-14, Päärakennus, Aud XIV**  
OPTIONAL READINGS: Copi et al., *Introduction to Logic* – Chapter 1  
Moore and Parker *Critical Thinking* – Chapter 1
2. **Analyzing Arguments** **Mon. February 5, 14-16, Päärakennus, Aud XIV**  
Copi et al., *Introduction to Logic* – Chapter 2  
**Exercises (Arguments) Wed. February 14, 10-12, Pää. Aud XIV**
3. **Formal Logic – Propositional Calculus** **Wed. February 7, 10-12, Päärakennus, Aud XIV**  
Lemmon, *Beginning Logic* – Chapter 1
4. **Formal Logic – Predicate Calculus** **Wed. February 7, 16-18, Kielikeskus, s115**  
Lemmon, *Beginning Logic* – Chapter 3  
**Exercises (Proofs) Wed. February 14, 16-18, Pää. Kielikeskus, s115**
5. **Fallacies and Biases** **Thu. February 8, 12-14, Päärakennus, Aud XIV**  
Copi et al., *Introduction to Logic* – Chapter 4
6. **Argumentation Schemes** **Mon. February 12, 14-16, Päärakennus, Aud XIV**  
Walton, Reed, Macagno, *Argumentation Schemes*, Chapters 1 and 6  
**Exercise (Fallacies) Thu. February 15, 12-14, Pää. Aud XIV**
7. **Scientific Argumentation** **Mon. February 12, 16-18, Topelia, F211**  
Giere, R. N., *Understanding Scientific Reasoning* – Chapter 2  
Gross, Harmon and Reidy, *Communicating Science* – Chapter 1
8. **Causal Reasoning** **Mon. February 19, 14-16, Päärakennus, Aud XIV**  
Copi et al., *Introduction to Logic* – Chapter 12  
Walton, Reed, Macagno, *Argumentation Schemes*, Chapter 5  
**Exercises (Analysing Arguments) Wed. February 21, 16-18, Pää. Kielikeskus, s115**
9. **Probability** **Wed. February 21, 10-12, Päärakennus, Aud XIV**  
Hacking, J., *An Introduction to Probability and Inductive Logic* – Chapters 3 and 4
10. **Fallacies of Probability** **Thu. February 22, 12-14, Päärakennus, Aud XIV**  
Hacking, J., *An Introduction to Probability and Inductive Logic* – Chapters 5 and 6  
**Exercises (Probability) Wed. February 26, 16-18, Topelia, F211**
11. **Fallacies and Biases:  
– Applications** **Mon. February 26, 14-16, Päärakennus, Aud XIV**  
OPTIONAL READINGS: Baron, J., *Thinking and Deciding* – Chapters 1 and 2.
12. **Thoughts Experiments** **Wed. February 28, 10-12, Päärakennus, Aud XIV**  
Rescher, N., *Thought Experiments in the History of Science and Philosophy*  
**Exercises (Recap) Wed. February 28, 16-18, Kielikeskus, s115**
13. **Exam** **Thu. March 1, 12-14, Päärakennus, Aud XIV**