EÖTVÖS LORÁND TUDOMÁNYEGYETEM
Bölcsészettudományi Kar
Email: incoming@btk.elte.hu

EÖTVÖS LORÁND UNIVERSITY
Faculty of Humanities
E-mail: incoming@btk.elte.hu

COURSE DESCRIPTIONS

Code of course: **BMI-LOTD-102E.2**

Title of course: **Logic lecture**

Lecturer: **Márton Gömöri**

General aim of the course:
The course provides an introduction to first-order logic.

Content of the course:

- Syntax of first-order languages
- Formalization of ordinary language structures
- Semantics of first-order languages
- Central logical notions
- Peano arithmetic
- Limits of first-order logic

Grading criteria, specific requirements:
Grading is based on homework.

Required reading:
P. D. Magnus and T. Button, *forallx:Cambridge*, 2017.
J. Barwise and J. Etchemendy, *Language, Proof and Logic*. CSLI Publications, 2011.

Suggested further reading:
L. T. F. Gamut, *Logic, Language, and Meaning. Volume I: Introduction to Logic*. University of Chicago Press, 1991.
E. Mendelson, *Introduction to Mathematical Logic*. Springer, 1997.

Code of course: **BMI-LOTD17-202E.04**

Title of course: **Theories of meaning/Introduction to Philosophy of Language**

Lecturer: **Zsófia Zvolenszky**

General aims of the course:
The aim of the course is to review and discuss central issues in philosophy of language based on influential primary and secondary texts.

Prerequisites:
– Students should be prepared to read and discuss materials in English. The language of instruction for the course is English.

Content of the course:
A preliminary list of themes covered (the list is subject to change):

- Frege on sense and reference, on proper names and definite descriptions
- Russell and Strawson on definite descriptions
- Kripke on proper names
- Kripke and Putnam on natural kind terms
- Context-sensitive expressions
- Quine on analyticity
- Grice on meaning
- Austin and Searle on speech acts
- Grice on communication
- Applications of Grice, Frege, Strawson: for example, pejorative language use

Our words, sentences are about—refer to—things in the world: objects, people, events. Plausibly, the meanings of expressions play a central role in explaining this referential feature: for example, it is in virtue

of the meaning of the word 'horse' that it refers to horses. But what exactly does this role played by meaning consist in? The answer is not at all straightforward. Consider these two sentences:
Joanne K. Rowling is a famous novelist.
Robert Galbraith is a famous novelist.
How does the meaning of the first sentence differ from the meaning of the second? After all, both are about the same individual: who is called Joanne K. Rowling but has become famous as J. K. Rowling, also writing under the pseudonym 'Robert Galbraith'. Yet—according to Gottlob Frege—the two sentences cannot have the same meaning because someone may rationally believe one (the first, say), without believing the other. This is what Frege's "puzzle" consists in, providing the starting point for 20th-century philosophy of language. In the seminar, our aim is to gain a greater understanding of the nature of meaning and its relation to reference, truth, communication.

Grading criteria, specific requirements:

– 30–40 pages of reading each week
– at the beginning of (almost) every seminar, a short quiz (the 6 highest scores count towards 20% of the final grade)
– posting 2 questions/comments at the course discussion forum each week (the 6 best make up 20 % of the final grade), by 4 p.m. on the previous day
– class participation (worth 15 %)
– writing 3 short (2-3-page-long) response papers during the semester (the best 2 of these go towards 30 % of the final grade)
– once during the semester, acting as MC (Master of Ceremonies) (this involves briefly introducing the readings as well as students' questions and comments, worth 15 %)

You should come to class ready to discuss the readings, having read them all, preferably several times—reading philosophy can be tricky (the "textbook" readings should make it much easier to read the classic papers by Frege, Russell, etc.) You should post 2 questions/comments on the readings by 4 p.m. the previous day. Being Master of Ceremonies (when it's your turn) involves: (i) giving a brief, 3-minute summary of the readings, selecting maximum ten of the student questions/comments posted by students, grouping them by topic, compiling a handout of the questions/comments that you make available to students. Be sure to include the authors of the questions, so we know who made which comment.

In the **response paper**, you should focus on critical assessment, don't just summarize the readings. Instead select an argument or claim that you consider interesting and critique it.

Three useful sites about writing response papers:
http://www.davidhildebrand.org/uploads/3/2/1/2/32124749/hildebrand_how_to_write_a_short_critical_paper.pdf
http://web.mit.edu/sts001/www/responsetips.pdf
http://www.jimpryor.net/teaching/guidelines/writing.html (this one is intended for a longer piece than ours).

It's a good idea to get started early on the response papers, so you can get feedback based on which you can make your next response paper even better. For this reason, you can only hand in one response paper at a time, and by mid-semester you should hand in at least two of your response papers.

Regular preparation, attendance and participation are required. To receive a grade, you must attend at least 7 seminars (including the one when you are M.C.-ing).

Required reading:

Alongside foundational texts in the philosophy of language (by Frege, Grice, Kripke, Strawson, Austin, Searle, Putnam), and a recent survey article on racism in language use (by Langton, Haslanger and Anderson), one more reading will function as a "textbook":

- W. Lycan (ed.) 2008: *Philosophy of Language: A Contemporary Introduction*, 2nd edition. London: Routledge (referred to as 'Lycan' in the schedule below). Excerpts from selected chapters will be assigned. Electronic copies of all required readings are available in the Gmail Drive for the course.

The foundational texts (by Frege, Grice, Kripke and Strawson) can also be found in the following anthology:

- P. Martinich and D. Sosa (eds.) 2012: *The Philosophy of Language*, 6th edition. Oxford: OUP. (Previous editions are ok, except for Frege's "Sense and Reference", which appears in a different translation in earlier editions.)

Langton–Haslanger–Anderson's survey article "Language and Race" can be found in the following anthology of essays:

- G. Russell and D. G. Fara (eds.) 2012: *Routledge Companion to the Philosophy of Language*. New York: Routledge.

The bulk of the articles can also be found in the following anthology:

- P. Martinich (ed.) 1996: The Philosophy of Language. Oxford: OUP.

Suggested further reading:

Further essays, chapters in the volumes used in the course:

- W. Lycan (ed.) 2008: *Philosophy of Language: A Contemporary Introduction*, 2nd edition. London: Routledge (referred to as 'Lycan' in the schedule below). Excerpts from selected chapters will be assigned. Electronic copies of all required readings are available in the Gmail Drive for the course.
- P. Martinich and D. Sosa (eds.) 2012: *The Philosophy of Language*, 6th edition. Oxford: OUP. (Previous editions are ok, except for Frege's "Sense and Reference", which appears in a different translation in earlier editions.)
- G. Russell and D. G. Fara (eds.) 2012: *Routledge Companion to the Philosophy of Language*. New York: Routledge.
- S. Kripke 1972/1980: *Naming and Necessity*. Oxford: Basil Blackwell.

If you have read through the syllabus and have questions, send the instructor an email at zvolenszky@nyu.edu

Code of course: **BMI-LOTD17-206E.01**

Title of course: **Causality**

Leader: **László E. Szabó**

General aim of the course:

What does causation consist in, and, depending on the possible answers, what are the basic characteristics of a causal relationship? -- this is the main topic of the lecture course. We shall also discuss the most important contexts of causality: the relationship of causality to concepts of explanation, law-like regularity, statistical correlation, time, modality, and logical inference. Our considerations will be based on the analysis of the causal narratives in our scientific, first of all, physical theories; rather than our every day experiences or common sense intuition.

Grading criteria, specific requirements:

Oral exam from the material of the lectures. Video records and the slides of the lectures will be available.

Required reading:

1. *Causation*, Oxford Readings in Philosophy, E. Sosa and M. Tooley, eds., Oxford University Press (1997)
2. L.E. Szabó: *A nyitott jövő problémája - véletlen, kauzalitás és determinizmus a fizikában* (The Problem of Open Future - chance, causality, and determinism in physics), Typotex Kiadó, Budapest 2002 (The manuscript of the English edition will be available for the students in PDF form.) Chap. 4-6, 9.4-9.6

Suggested further reading:

- G. Hofer-Szabó, M. Rédei, L. E. Szabó: *The Principle of the Common Cause*, Cambridge University Press, 2013.
- L. E. Szabó: The Einstein--Podolsky--Rosen Argument and the Bell Inequalities, *Internet Encyclopedia of Philosophy* (2008)
- L. E. Szabó: Objective probability-like things with and without objective indeterminism, *Studies in History and Philosophy of Modern Physics* 38 (2007) 626–634.

Code of course: **BMI-LOTD17-208E.03**

Title of course: **Epistemology of the Principle of Relativity**

Leader: **László E. Szabó**

General aim of the course and the contents:

The course is a case study on one of the most fundamental and influential principles of modern physics, the Principle of Relativity. After a short review on the history of the principle, from the famous passage in Galileo's *Dialogue* through Einstein's 1905 paper to the contemporary texts, we will consider a typical textbook formulation of the principle: "The laws of physics have the same form in all inertial frames of reference." The core part of the lecture course will be a word-by-word analysis of this single sentence. It will be seen that the actual statement is not at all simple and obvious. We will encounter several difficulties to be resolved, and our final analysis will conclude that some of the problems remain unanswered, and the universal validity of the principle, at least in a few peculiar situations, is questionable. Finally, we will deal with the general epistemological status of the Relativity Principle and its friends (like the Cosmological Principle). It will be seen that there is a tension between these principles and the operational foundations of physical concepts. In fact, it will be argued, there is no objective knowledge of the world without the perspectival elements of our experiences.

Grading criteria, specific requirements:

Oral exam from the material of the lectures. Video records and the slides of the lectures will be available.

Suggested readings:

- H. Reichenbach: *The Theory of Relativity and A Priori Knowledge*, University of California Press, Berkeley and Los Angeles, 1965.
- L. E. Szabó: On the meaning of Lorentz covariance, *Foundations of Physics Letters* 17 (2004) pp. 479 - 496 [preprint: PDF]
- H. Reichenbach: *The philosophy of space and time*, Dover Publications, New York, 1958.
- M. Friedman: *Foundations of Space-Time Theories -- Relativistic Physics and Philosophy of Science*, Princeton University Press, Princeton, 1983.
- J. S. Bell: How to teach special relativity, in *Speakable and unspeakable in quantum mechanics*, Cambridge University Press, 1987.
- A. Einstein, Relativity: The Special and General Theory
- L. E. Szabó: Lorentzian theories vs. Einsteinian special relativity -- a logico-empiricist reconstruction, in A. Maté, M. Rédei and F. Stadler (eds.), *Vienna Circle and Hungary -- Veröffentlichungen des Instituts Wiener Kreis*, Springer 2011. [PDF]
- L. E. Szabó: Does special relativity theory tell us anything new about space and time? [PDF] (Prolog)
- M. Gömöri and L.E. Szabó: Formal statement of the special principle of relativity (2015), *Synthese*, 192 (2015), pp. 2053–2076, DOI: 10.1007/s11229-013-0374-1
- Earman, J. (2004): Laws, Symmetry, and Symmetry Breaking: Invariance, Conservation Principles, and Objectivity, *Philosophy of Science* 71, 1227.
- Norton, J. D. (2013): Special Theory of Relativity: The Principles, http://www.pitt.edu/~jdnorton/teaching/HPS_0410/chapters/Special_relativity_principles

Code of course: **BMI-LOTD-307E.03**

Title of course: **Dedekind-finite structures**

Leader: **Amitayu Banerjee**

General aim of the course: Study the possible structures admitted by certain Dedekind finite sets (infinite sets that do not have an infinite countable subset, such sets exist in models of set theory where the Axiom of Choice is false).

Content of the course: PH.D. thesis of Agatha C. Walczak-Typke under the supervision of Professor John K. Truss. We will focus on the following topics.

1. Model theoretical basics.

2. Definitions of Dedekind-finite (IV-finite), weakly Dedekind-finite (III-finite), (II-finite), Mostowski-finite, strictly Mostowski finite and amorphous sets.
3. Fraenkel--Mostowski Permutation model constructions.
4. Plotkin's construction.
5. Weakly Dedekind finite structures.
6. Strictly Mostowski Finite structures.
7. Structures admitting MT rank.
8. Methods from Infinitary logic.

Grading criteria, specific requirements: Seminar/Talk
Required reading: PH.D. thesis of Agatha C. Walczak-Typke
Suggested further reading: 1. W. Hodges, Model Theory.
2. T. Jech, The Axiom of Choice.

Code of course: **BMI-LOTD-308E.04**

Title of course: **Logic & Relativity**

Lecturer: **Judit Madarász, Gergely Székely**

General aim of the course: Getting some familiarity with the basic assumptions and fundamental concepts of special relativity from the point of view of logic and definability theory.
Content of the course: Building up and investigating special relativity theory in first-order logic. The emphasis will be on exploring the first-order logic conceptual structure (algebra of explicitly definable relations) of special relativistic and classical spacetimes.
Grading criteria, specific requirements: Grading is based on homework.
Required reading:
H. Andréka, J. X. Madarász, I. Németi and G. Székely:
On Logical Analysis of Relativity Theories
Hungarian Phil. Review; 54 2010/4; 20, arXiv:1105.0885
H. Andréka, J. X. Madarász, I. Németi and G. Székely:
A logic road from special relativity to general relativity
Synthese 186(3): pp.633-469 (2012), arXiv:1005.0960v2

Code of course: **BMI-LOTD-317E.02**

Title of course: **Gödel's Incompleteness Theorems**

Lecturer: **András Máté**

General aim of the course:
Competence in proving the central theorems of metalogic.
Content of the course:
The course will strictly follow Raymond Smullyan's book with the same title (details see below). The book investigates the theorems and some related theorems (Tarski, Shepherdson) in a rather broad and general framework. It contains several excercises that are substantial to the understanding. The classes will usually begin with solving some of these excercises specified at the previous class.
Grading criteria, specific requirements:
Knowledge of classical first-order logic is a prerequisite.
The mark will depend on the student's achivement in solving excercises.
Required reading:
Raymond M. Smullyan, Gödel's Incompleteness Theorems. Oxford-New York: Oxford University Press, 1992.

Code of course: **BMI-LOTD-414E.04**

Title of course: **Language and Context Sensitivity**

Lecturer: **Zsófia Zvolenszky**

General aim of the course:

This is an accelerated introduction to philosophy of language that focuses on a special topic: the interaction of linguistic meaning and contexts of speech or though, and how such contexts can affect what speakers convey via language.

Prerequisites:

– Students should be prepared to read and discuss materials in English. The language of instruction for the course is English.

– This is an accelerated introductory course intended for students with some familiarity with contemporary Anglo-American analytic philosophy, its approach, tools, readings. Students are expected to have taken at least one course in: logic, philosophy of language, metaphysics, epistemology, philosophy of mind.

– If you haven't yet taken a course in one of the above areas: the instructor's permission is required for taking this course.

Content of the course:

People rely on shared linguistic meanings for their expressions to have, in some ways, a measure of stability across conversational contexts. Meanwhile, some expressions – indexicals like 'I', 'here', demonstratives like 'that', 'you', 'they' – clearly rely for their meaning on contexts (who the speaker, place of utterance, and so on, are). Other expressions still do this sort of relying, but do so less obviously: 'tall' is a gradable adjective that can invoke radically different height ranges if the subject discussed is first-graders than if it is basketball players. In this course we read an introductory textbook on the topic, by Cappelen and Dever, *Context and Communication*, to help us understand and connect some classic texts about context-sensitivity phenomena by philosophers of language as well as linguists.

Grading criteria, specific requirements:

– 30–65 pages of reading each week

– posting questions/comments at the course discussion forum each week

– class participation

– writing a seminar paper or several shorter response papers

– once during the semester, acting as MC (Master of Ceremonies) (this involves briefly introducing the readings as well as students' questions and comments)

In the **seminar paper or response papers**, you should focus on critical assessment, don't just summarize the readings. Instead, select an argument, claim, distinction or definition that you consider interesting and critique it. Your 3 response papers should be on distinct readings, but beyond that you are free to choose as the theme for your response paper any prior reading (textbook section or essay).

Two useful sites about writing response papers:

http://www.davidhildebrand.org/uploads/3/2/1/2/32124749/hildebrand_how_to_write_a_short_critical_paper.pdf

http://www.jimpryor.net/teaching/guidelines/writing.html (this one is intended for a longer piece than ours).

It's a good idea to get started early on the response papers, so you can get feedback based on which you can make your next response paper even better. For this reason, you can only hand in one response paper at a time, and by mid-semester you should hand in at least two of your response papers.

Regular preparation, attendance and participation are required. To receive a grade, you must attend at least 7 seminars (including the one when you are M.C.-ing).

Required readings, materials include:

- We'll use as textbook the following: Herman Cappelen and Josh Dever: *Context and Communication* (2016 OUP). We'll additionally read foundational papers by, among others, David Beaver, H. P. Grice, David Beaver, Saul Kripke, Rae Langton, David Lewis, Jennifer Saul, Robert Stalnaker.

If you have read through the syllabus and have questions, send the instructor an email at zvolenszky@nyu.edu

Code of course: **BMI-LOTD-514E.03**

Title of course: **The Open Society and its Enemies – reading seminar**

Lecturer: **Zoltán Sóstai**

General aim of the course:

An introduction in Karl Popper's book in the form a reading seminar. The aim of the course is to analyse the book from the point of some of the key epistemological problems and themes central to Karl Popper's philosophy called critical rationalism.

Content of the course:

The themes to be intestigated include the following:

- The problem of methodological essentialism
- The problem of induction
- Justificationism and its popperian critique
- Progress by a way of conjectures and refutations
- Popper's tetradic scheme of evolutionary problem-solving

- The problem of the quest for a utopian society by means of violent and revolutionary reforms in contrast to piecemeal engineering
- Open vs closed societies and the strain of civilization
- Poppers view of Plato's philosophy and the origin of various the forms of goverments
- The problem of the "who shall rule?" question
- Platonic justice, perfectionism
- Individualism and collectivism

- Nature and convention, critical dualism and the is/ought distinction
- The institutional means of political critique
- The paradox of tolerance
- Popper's critique of relativism
- The problem of uncritical rationalism
- Popper's critical rationalism

Grading criteria, specific requirements:

At each class we will read and analyse 1 to 3 chapters. The chapters will be divided amongst participants. Creating a small presentation is required for grading.

Required reading:

The Open Society and it Enemies vol. I-II. by Karl R. Popper

Suggested further reading:

The Cambridge Companion to Popper by Jeremy Shearmur and Geoffrey Stokes (Editors)
Pocket Popper by David Miller (Editor)

Code of course: **BMI-LOTD-613E.01**

Title of course: **Realist interpretations of quantum mechanics**

Lecturer: **Márton Gömöri**

General aim of the course:

The course provides an introduction to the foundations of quantum mechanics, focusing on the prospects of a realistic physical account of quantum phenomena.

Content of the course:

- **Eight quantum experiments and the phenomenon of quantum non-locality**
- **The quantum recipe**
- **The wavefunction, the quantum state and the** Pusey-Barrett-Rudolph theorem
- **Collapse theories and the problem of local beables**
- **Pilot wave theories**
- **Many worlds**
- **Relativistic quantum field theory**

Grading criteria, specific requirements:

Oral exam.

Prerequisites: knowledge of basic physics as well as calculus and linear algebra is presupposed, but no knowledge of quantum theory is required.

Required reading:

Tim Maudlin, *Philosophy of Physics: Quantum Theory.* Princeton University Press, 2019

Suggested further reading:

David Albert, *Quantum Mechanics and Experience,* Cambridge, MA: Harvard University Press, 1992.

Adam Becker, *What Is Real?* New York: Basic Books, 2018.

John Stewart Bell, *Speakable and Unspeakable in Quantum Mechanics*, second edition, Cambridge: Cambridge University Press, 2004.

Jean Bricmont, *Making Sense of Quantum Mechanics,* Cham, Switzerland: Springer International, 2016.

Travis Norsen, *Foundations of Quantum Mechanics: An Exploration of the Physical Meaning of Quantum Theory,* Cham, Switzerland: Springer International, 2017.