International school in
psycholinguistics, neurolinguistics and
clinical linguistics

# 2025 SCHOOL

# COURSE DESCRIPTIONS

**Introduction to linguistics:** Srdjan Popov (Introductory, MONDAY, slot 1)

This introductory course to linguistics is intended for a wide audience, from linguists to students or professionals with no previous linguistic training. The course will cover a number of essential theoretical topics, mainly in the fields of morphology and syntax. The goal of the course is to prepare the students for the courses in psycholinguistics and neurolinguistics. The course is also of interest to (advanced) linguistics students, as it will focus in detail on a number of selected topics that will later be covered from an experimental perspective.

**Introduction to Language Testing in Awake Surgery:** Adrià Rofes (Introductory, MONDAY, slot 2)

Language testing during awake brain surgery is a multidisciplinary practice commonly employed for individuals with brain tumors and/or epilepsy. In this discussion, we will explore the primary goals of language testing in awake brain surgery, the roles of different team members in the operating theater (e.g., neurosurgeon, clinical linguist, speech therapist), practical considerations that affect language testing during surgery (e.g., patient positioning, electrostimulation protocols), and the types of language tasks that are typically administered.

**Information theory in psycholinguistics:** Dušica Filipović Đurđević (Advanced, MONDAY, slot 3)

This course will describe the conceptual background of information theory and its application in the study of various language phenomena. At the very start, the basic concepts of information theory will be introduced. Throughout the course, several information theory measures will be explained and illustrated through presentation of published research which demonstrated their effects in language processing at the levels of phonology, morphology, syntax and semantics.

**Distributional semantic models of cognition:** Dušica Filipović Đurđević (Advanced, MONDAY, slot 4)

This course will introduce the conceptual and historical background of distributional semantics and its application in cognitive psychology and psycholinguistics. We will start from the very roots of the idea that concepts can be represented as vectors in multidimensional semantic space and end by describing the Large Language Models as state-of-the-art. We will also provide a practical demonstration of how this approach can be used in testing psycholinguistic models of learning and processing word meanings.

**Neuroanatomy for linguists 1-2:** Silvia Martínez-Ferreiro (Introductory, TUESDAY & WEDNESDAY, slot 1)

The course provides an overview of the main anatomical landmarks involved in speech and language production and comprehension. The course departs from genetics and a broad characterization of the phono-articulatory and the nervous system and deepens into cortical and subcortical structures relevant for language.

**Informing Cognitive Models of Language with Language Testing in Awake Brain Surgery:** Adrià Rofes (Advanced, TUESDAY, slot 2)

George Ojemann and Catherine Mateer pioneered the first model of language using data from awake brain surgery. Forty years later, ongoing discussions about the advantages and disadvantages of intraoperative tasks and efforts to standardize tests have led to the development of several anatomically based models of language and a growing interest in the cognitive underpinnings of language functions. We will examine how language testing during awake brain surgery can confirm findings from other aphasia research and how it can generate novel hypotheses, enhancing our understanding of the organization of language.

**First language acquisition:** Mirjana Mirić (Advanced, TUESDAY, slot 3)

This course will present various theoretical approaches to the phenomenon of typical language acquisition, such as generative, cognitive and socio-cultural. The focus will be on the issues of innateness, universal grammar, poverty of stimulus argument, and critical period for language acquisition. Additionally, the course will present the milestones in language acquisition across different levels of linguistic structure.

**Eye-tracking in language research:** Ana Matić Škorić (Advanced, TUESDAY, slot 4)

In this course, you will get the most important information about eye-tracking as a method used in language processing studies. Specifically, we will review 1) basic aspects of this technique, 2) the most commonly used eye-tracking measures, 3) different eye-tracking paradigms, e.g., the reading paradigm and the visual world paradigm, and 4) examples of studies with different populations. Newer trends in online experimental studies which combine multiple methods (e.g. eye-tracking and EEG) will also be mentioned.

**Clinical linguistics 1-3:** Silvia Martínez-Ferreiro, Ana Matić Škorić, Claudia Peñaloza (Introductory, WEDNESDAY, slot 2, FRIDAY, slots 1 and 2)

The course includes an overview of the main communication disorders. There is a focus on the description, assessment and treatment of speech and language pathologies occurring throughout the lifespan. This includes genetic, developmental, acquired, and degenerative conditions.

**Applied statistics for linguistics I & II:** Seçkin Arslan, Ksenija Mišić, Milica Stijačić Popović, (Advanced, WEDNESDAY, slots 3 and 4)

This course offers a gentle and accessible introduction to using mixed-effects regression models for psycho- and neurolinguistic data, by providing step-by-step tutorials in R studio. We will be using pieces of sample data from a reaction times experiment for the mixed-effect regression model, and from an eye-tracking experiment for a generalized mixed-effect regression model. The course requires no prerequisites; however, we recommend participants to bring along a laptop computer with R and R-studio installed.

**Ethics and data management:** Srdjan Popov (Introductory, THURSDAY, slot 1)

This course focuses on ethical (and legal) aspects of conducting research with human participants. We will talk about why it is necessary to have your research evaluated by an ethical committee and what to do in case there is no such body at your institution. Particular emphasis will be placed on the difference between research requiring medical ethical and non-medical/general ethical review. In addition, we will talk about general aspects of data and privacy protection, but we will also discuss (research) data handling in terms of the EU General Data Protection Regulation.

**Experiment design in PsychoPy:** Seçkin Arslan (Introductory, THURSDAY, slot 2)

PsychoPy is a freely available open-source software tool (created by Jonathan Peirce) that can allow you to program experiments for psychology and linguistics. This tutorial will provide you with the basic principles of designing a simple experiment using PsychoPy using its builder interface. Following this tutorial, you will be able to build an experiment on your own laptop ready for data collection. Participants who will attend this tutorial are kindly asked to install PsychoPy beforehand.

**Bilingualism and its effect on executive functions:** Sabina Halupka-Rešetar (Advanced, THURSDAY, slot 3)

In this talk we are going to focus first on defining bilingualism and executive functions. We will then introduce theoretical frameworks that link bilingualism and executive functions and will provide empirical evidence for the bilingual advantage but will also dwell on the controversies and counterarguments for the bilingual advantage. We will explore the potential reasons behind the inconsistencies observed in research into bilingualism. Finally, drawing on an exploration of the role of language similarity on memory and executive functions by comparing the performance of three groups of young adults (two bilingual groups and a monolingual group), we will attempt to determine the extent to which the combination of languages spoken by the bilinguals contributes to an advantage in executive functions.

**A usage-based theory of grammar and grammaticalization and its testing psycho- and neurolinguistically:** Kasper Boye (Advanced, THURSDAY, slot 4)

In this talk I first point out problems in established ways of understanding the lexical-grammatical contrast. Subsequently, I outline a usage-based theory of the contrast according to which it represents a conventionalization of the attentional potential of parts of complex messages. I then show how the usage-based theory can be used to generate hypotheses about language perception and language production in both neurotypical persons and persons with aphasia. I go through a number of experiments in which we tested hypotheses entailed by the usage-based theory.
The methodological paradigms employed include letter detection, change blindness, Transcranial Magnetic Stimulation and multiword phrase elicitation. The languages covered span from relatively isolating languages to clear cases of polysynthetic languages, and include Chinese, Danish, Dutch, English, Spanish, Tagalog and West Greenlandic.

Towards the end of the talk, I outline a theory of grammatically impaired speech according to which the grammatical sparsity is partly due to a compensatory response to cognitive resource reduction in which attentionally foregrounded material is given top priority at the cost of backgrounded – including grammatical material.

**Introduction to neuroimaging**: Christina Manouilidou (Introductory, FRIDAY, slot 3)

The course will give an introduction to the field of neuroimaging. It will be divided into two parts. The first part will be a short theoretical introduction into neuroscience and neuroimaging, covering all relevant aspects of physiology, neuroanatomy and some of the most relevant functional networks. In the second part, the course will cover the latest developments on electrophysiological (EEG), electromagnetic (MEG) and hemodynamic techniques (fMRI & PET) used in the study of language.

**Neuromodulation of language:** Christina Manouilidou (Advanced, FRIDAY, slot 4)

The course will be an introduction to the neuromodulation of language. Students will get familiar with the use of Transcranial Magnetic Stimulation (TMS) and transcranial Direct-Current Stimulation (tDCS) in improving language performance in populations with brain damage. The techniques are being used for the treatment of chronic stroke-induced aphasia, but also for a number of neurodegenerative conditions, such as Primary Progressive Aphasia, Mild Cognitive Impairment and Alzheimer's disease.