PLIN Modules – Module Information Sheet (2023/24)

1. General Information

- **Module Code:** PLIN0038
- **Title:** Neurolinguistics
- **Credits:** 15
- **Module Tutor:** Dr Ana Campos Espinoza **Contact:** ana.espinozaa.16@ucl.ac.uk
- **Module Available at the following levels:**
    - **Level 6 UG**
    - **Level 7 PG**
- **Module Description:**

  This course provides an introduction to the neuroscience of language and the role that linguistic theory has played. The ultimate goal of neuroscience of language is to understand how language is represented and processed in the brain. Background knowledge in the nature of language representations, anatomy and neuroscientific methods are necessary for the required reading of research papers in this area. The essential knowledge will mostly be covered in the first couple lectures, but some basic linguistic knowledge is assumed or reviewed throughout (see prerequisites).

  Aims

  - Critically read and understand experimental papers on how language is processed and the brain regions responsible
  - Understand and describe recent findings from experimental work on language processing considering theoretical linguistics

  Learning Objectives

  - Identify key anatomical structures in the brain relevant to language processing
  - Describe experimental techniques to study language and the brain (i.e., lesion, fMRI, ERP)
  - Compare and contrast advantages and disadvantages of the different techniques

- Apply theoretical linguistics to the evaluation of experimental designs and results
- Describe and explain key neurolinguistic findings (e.g., phoneme processing, processing derived words, syntactic processing)
- Describe and critique key neurolinguistic theories (e.g., Tree Pruning Hypothesis, Trace Deletion Hypothesis, cue-based retrieval, decompositional theory, prediction in sentence processing)
- Relate experimental findings from different areas of language processing
- Make experimental predictions based on neurolinguistic theories
- Design mini experiments to test theoretical predictions

- **Prerequisites:** PLIN0003 Introduction to Generative Grammar A, or equivalent
- **Timetable:** https://timetable.ucl.ac.uk/tt/moduleTimet.do?firstReq=Y&moduleId=PLIN0038

- **Summary:**

1. INTRODUCTION AND NEUROANATOMY 1

Course overview. What is neurolinguistics? Linking linguistics to the brain. Single neurons, action potentials and propagation. Neuronal ensembles and Hebb's postulates.

2. NEUROANATOMY 2 AND IMAGING TECHNIQUES

Macro-level structures relevant to language. Brodmann areas and cortical lobes. Introduction to the major imaging techniques (fMRI, EEG, MEG, lesion studies, TMS, PET).

3. SPEECH AND SOUNDS

Brain regions engaged in speech perception (fMRI/PET) and evidence for abstract categories (phonemes) in the brain (MEG)

4. CONCEPTUAL SEMANTICS

Semantic Dementia (SD) and Conceptual Knowledge – Anterior Temporal Lobe (ATL).

5. WORDS – Lexical Access

Lexicon (organization), processes of Lexical Access (electrophysiological data), brain regions engaged in mapping sounds to meaning (aphasia and fMRI data).

6. WORDS – Morphological Complexity

Testing Nonderivational vs Derivational Theories of morphologically complex words with Cognitive Neuroscience

7. SENTENCE Processing in Aphasia

Sentence Comprehension deficits in Aphasia – The Trace Deletion Hypothesis (TDH)

An Account for Sentence Production Deficits in Aphasia – Tree Pruning Hypothesis (TPH)

8. SENTENCE Processing & Executive Functions in Healthy Individuals

Dependency Relations, Memory Mechanisms and Executive Functions

9. Simple SENTENCE Processing in Healthy Individuals

Hierarchical Structure Building in Healthy Adults with fMRI - Anterior Temporal Lobe

10 BILINGUAL BRAIN AND SUMMARY

Some interesting studies on bilingual language representation in the brain. Summary of the module

- **Information for students on other programmes and Affiliate/intercollegiate students:**

  If you want to take this module, you should select it on Portico as usual. Any general queries about taking the module can be addressed to pals.lingteachingoffice@ucl.ac.uk.

2. Teaching

- **Teaching methods and tutorial/lab arrangements:**

  1.5-2 hr lecture (depends on the week) + 1 hour tutorial. Lectures will use PowerPoint slides; these will be available at least 2 days prior to the lecture. Occasionally videos will be used for demonstration (ie, Person with Broca's aphasia speaking). The tutorials will be used to review material from lecture and apply that knowledge. The application may take the form of generating predictions on new data from a theory presented, critiquing real/fictional experimental designs, discussing similarities/distinctions across theories or experiments, or group work debating areas of disagreement on a given topic.

- **Communication:**

  Email is the best method of communication. I should respond within 24hr. Depending on the nature of the question (ie, requiring a lengthy discussion of material), I might suggest an online meeting.

- **Workload:**
    - Students are expected to spend 5-7hr/week on private reading.

- **Core Texts:**
- The reading list outlines the required reading for each week.

- **Libraries and other resources:** n/a
- **Additional Information:**

  Late work and extenuating circumstances

  Any requests for extensions to deadlines, or for extenuating circumstances to be taken into consideration by examiners, should be made by completing the relevant form. Instructions are available on the Moodle page for this module, under the Assessment tab. No extensions or special consideration can be given outside of this process, and there is a grading penalty for late submission of coursework. Again, information about this policy can be found on the course Moodle page, under the 'Assessment' tab.

- **Recording:** Lectures for this module are recorded via the UCL Lecturecast system, and a link to recordings will be made available via the Moodle page for this module. Please note that recordings can fail for a number of reasons.

3. Assessment

- **Level: 6/7 UG/PG**

Mode of Assessment	Weight	Format
Exam	**70%**	Take home exam.
Coursework	**30%**	1250 words.

Table 1. Assessment Formats and Weightings

Other assessment information: Your grade on both the exam and coursework will reflect both the accuracy of the content of your response and the clarity of expression.

Over length work on the essay will be penalised 5% points. The word count should be provided at the start of the assignment.

4. Types of Feedback

Types of feedback students on this module can expect to receive.

4.1 Generic Tutor Feedback

Type of Feedback	Provided
Oral feedback is given to the whole class (e.g. this may be about coursework, an in-class or online task).	**Yes**
Electronic feedback to the whole group (e.g. see oral feedback above).	**No**
Printed feedback to the whole group (e.g. answers to an exercise done in class, feedback relating to general performance on coursework or a task etc).	**Yes**
Coverage of topics in class which have been raised by members of the class (e.g. in areas where students ask for clarification/elaboration, these topics are addressed in class).	**Yes**
Electronic responses to the whole group via the VLE or via email (eg sending replies to individual queries to the whole group).	**Yes**

Table 2. Generic Tutor Feedback

4.2 Automated Feedback

Type of Feedback	Provided
Tests / quizzes within Virtual Learning Environment (VLE). These are tests which do not count towards the module mark, but serve to inform students of how well they are understanding materials taught.	**No**
Personal Response Systems used within class (e.g. to test that students understand a concept, to survey which topics students would like elaborated).	**No**

Table 3. Automated Feedback

4.3 Specific Targeted Tutor Feedback

Type of Feedback	Provided
Oral responses within class (e.g. demonstrators talking to students in lab, stats and computing classes).	**Yes**
Oral responses outside class (e.g. students are invited to telephone or meet with module staff with individual queries regarding topics taught).	**Yes**
Electronic responses to queries from individual students are provided (as above)	**Yes**
Summative comments on coursework (e.g. handwritten feedback at the end of a written assessment which counts towards the module mark).	**No**
On-script comments in the body of individual summative coursework	**Yes**
Indication of achievement against set marking criteria (e.g. for an individual essay or a lab report).	**No**
Feedback using a standard feedback form (e.g. essay feedback form or lab marking forms)	**Yes**
Oral feedback on coursework talking to individual students about their coursework on the phone or in person, this could be summative points or specific comments on parts of the essay / lab report / project.	**No**
Electronic feedback on coursework. This could be via email or within VLE (e.g. using Gradebook on Moodle).	**Yes**

Table 4. Specific Targeted Tutor Feedback

4.4 Feedback From People Other Than Module Staff

Type of Feedback	Provided
Peer feedback: fellow students commenting on/marking each other's work, or working together on a task (e.g. group work providing students with feedback on their ideas/understanding).	**Yes**
Self-feedback (e.g. students evaluating their own coursework, worksheet answers, etc.)	**No**
Feedback from seminar tutors: Students may receive feedback on their understanding of topics/answers to queries/feedback on coursework from their tutor (e.g. poster, Research Project presentations etc)	**No**

Table 5. Feedback from People other than Module Staff

4.5 Feedback related to examinations

Type of Feedback	Provided
A mock examination is given to help students prepare for the final exam.	**No**
Marks for the previous year provided online, with a breakdown of marks for individual questions	**No**
Samples of real student work, such as coursework, exam essays, and projects from previous students on the module.	**No**

Table 6. Feedback related to examinations

5. Specific Transferable Skills

Transferable skills students on this module can expect to develop, categorised into skill areas.

5.1 Academic

Type of transferable skill	Provided
Learning Actively – Able to approach learning as an active agent, taking responsibility for the process and outcomes.	**Yes**
Analysing Data – Able to filter and organise information to develop an argument and work toward a conclusion, applying numerical analysis where appropriate.	**Yes**
Thinking Critically – Able to consider claims made against the evidence available and to develop one's own view systematically	**Yes**

Using Sources – Able to locate and use appropriate books, journals, websites and other sources to gather relevant data	**Yes**
Solving Problems – Able to use systematic approaches to overcome difficulties in producing a desired outcome	**Yes**
Managing Projects – Able to plan a coordinated set of tasks and enact over time to produce a substantial result	**No**

Table 7. Academic transferable skills

5.2 Self-Management

Type of transferable skill	**Provided**
Reflecting on Learning – Able to review dispassionately one's approaches to learning and the outcomes and progressively improve the process	**No**
Managing Time – Able to prioritise tasks and commitments to achieve optimum results in a designated timeframe	**Yes**
Being Creative/Innovative – Able to generate and apply original approaches to tasks and problems and produce improved outcomes	**Yes**
Assessing Oneself – Able to identify one's own strengths, weaknesses, progress made and action needed to improve effectiveness	**No**
Being Independent – Able to work at own initiative with minimal supervision, taking responsibility for action and outcomes	**Yes**
Managing Resources – Able to allocate and conserve funds and other resources on a day to day basis and to support projects	**No**

Table 8. Self-management transferable skills

5.3 Communication

Type of transferable skill	**Provided**
Writing – Able to communicate in textual forms (essay, reports, journal entries, web pages etc.) in an appropriate style with a clear narrative flow	**Yes**
Listening – Able to hear and appreciate the content, background and purpose of what someone else is communicating to you	**Yes**
Using Information Technology – Able to use digital technology for managing information and to mediate communication for learning and other purposes	**Yes**
Presenting – Able to speak to an audience, using visual aids as appropriate and respond to questions	**No**

Communication globally – Able to understand and manage factors affecting communication across cultures, including means of monitoring progress	**No**
Planning and making decisions – Able to identify steps needed to work towards global and communicate them, including means of monitoring progress	**No**

Table 9. Communication transferable skills

5.4 Working with others

Type of transferable skill	Provided
Working in teams – Able to co-operate with others, to contribute your strengths and learn from theirs with a common purpose	**No**
Negotiating – Able to respect the needs and interests of others when they differ from your own and to find common ground	**Yes**
Leading – Able to galvanise a team into cooperative action, to manage, guide or facilitate a group to maximise success	**No**
Understanding others – Able to recognise the variety of ways in which people can thing and approach tasks, adjusting your own to suit	**Yes**
Assessing self and peers – Able to assess your own performance objectively and to give and receive constructive feedback with others	**No**
Managing change – Able to adapt to changing circumstance and maintain focus on the group's declared goals	**No**

Table 10. Working with others transferable skills