



## PLIN Modules – Module Information Sheet (2023/24)

### 1. General Information

- **Module Code:** PLIN0034
- **Title:** Introduction to Computational Linguistics
- **Credits:** 15
- **Module Tutor:** Dr Andrew Lamont (he/him/his) **Contact:** [andrew.lamont@ucl.ac.uk](mailto:andrew.lamont@ucl.ac.uk)
- **Module Available at the following levels:**
  - **Level 4 UG:** No
  - **Level 5 UG:** Yes
  - **Level 6 UG:** No
  - **Level 7 UG:** No
  - **Level 7 PG:** Yes
- **Module Description:** The module introduces students to core concepts in computational linguistics and provides a comprehensive introduction to the Python programming language. It discusses foundational issues such as the representation of linguistic structure and probability theory. Students gain hands-on experience implementing formal theories of phonology and morphology and working with probabilistic models such as  $n$ -grams and Hidden Markov Models.
- **Prerequisites:** Familiarity with entry-level phonology and syntax (PLIN0064 and PLIN0004, respectively, or equivalents)
- **Timetable:**  
<https://timetable.ucl.ac.uk/tt/moduleTimet.do?firstReq=Y&moduleId=PLIN0034&acadYearFI=N>
- **Summary:** Lectures will cover topics in computational theory including first-order logic and probability theory, as well as formal linguistic models such as Boolean Monadic Recursive Schemes,  $n$ -gram models, and Hidden Markov Models. Additionally, lectures will develop students' understanding of the syntax and semantics of the Python programming language. Students will apply their knowledge to concrete problems in tutorial.

## Tentative syllabus

<i>Week 01</i>	Propositional logic, set theory, and functions Basic data types, variables, and defining functions in Python <u>Python for Linguists</u> chapters 1 and 2
<i>Week 02</i>	Boolean Monadic Recursive Schemes Strings and control structures in Python <u>Python for Linguists</u> chapter 3
<i>Week 03</i>	Implementing BMRS in Python <u>Python for Linguists</u> chapter 5
<i>Week 04</i>	The MinEdit algorithm <i>for</i> and <i>while</i> loops in Python <u>Speech and Language Processing</u> chapter 2.5
<i>Week 05</i>	Morphological analogy Lists, tuples, and dictionaries in Python <u>Python for Linguists</u> chapter 9
<i>Week 06</i>	No class: UCL reading week
<i>Week 07</i>	Basic probability and $n$ -gram models <u>Speech and Language Processing</u> chapter 3
<i>Week 08</i>	Maximum Likelihood Estimation Authorship classification
<i>Week 09</i>	Hidden Markov Models and the Forward and Viterbi algorithms <u>Speech and Language Processing</u> chapter A
<i>Week 10</i>	The Forward-Backward Algorithm
<i>Week 11</i>	Part-of-speech tagging <u>Speech and Language Processing</u> chapter 8

- **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](mailto:pals.lingteachingoffice@ucl.ac.uk).

## 2. Teaching

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

120-minute lectures are presented every week with weekly 60-minute tutorials devoted to data analysis and discussion. 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.

- **Communication:**

Office hours: <TBD>, 102B Chandler House

If this time does not work for you, please set up an appointment by email.

**Workload:**

- 30 hours attendance;
- 5 hours private reading and other preparation per week;
- 20 hours revision and assessment;

- **Core Texts:** Michael Hammond's [Python for Linguists](#) (2020), Dan Jurafsky and James H. Martin's [Speech and Language Processing](#) (2021; 3<sup>rd</sup> edition)

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

- **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:** <TBD>

Mode of Assessment	Weight	Format
Coursework 1	50%	Written assessment, 1000 words.
Coursework 2	50%	Written assessment, 1000 words.

Table 1. Assessment Formats and Weightings

## 4. Types of Feedback

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

## 4.1 Generic Tutor Feedback

Type of Feedback	Provided
<b>Oral feedback</b> is given to the whole class (e.g. this may be about coursework, an in-class or online task).	<b>Yes</b>
<b>Electronic feedback</b> to the whole group (e.g. see oral feedback above).	<b>No</b>
<b>Printed feedback</b> to the whole group (e.g. answers to an exercise done in class, feedback relating to general performance on coursework or a task etc).	<b>Yes</b>
<b>Coverage of topics in class</b> 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).	<b>Yes</b>
<b>Electronic responses</b> to the whole group via the VLE or via email (eg sending replies to individual queries to the whole group).	<b>Yes</b>

Table 2. Generic Tutor Feedback

## 4.2 Automated Feedback

Type of Feedback	Provided
<b>Tests / quizzes</b> 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.	<b>No</b>
<b>Personal Response Systems</b> used within class (e.g. to test that students understand a concept, to survey which topics students would like elaborated).	<b>No</b>

Table 3. Automated Feedback

## 4.3 Specific Targeted Tutor Feedback

Type of Feedback	Provided
<b>Oral responses within class</b> (e.g. demonstrators talking to students in lab, stats and computing classes).	<b>Yes</b>
<b>Oral responses outside class</b> (e.g. students are invited to telephone or meet with module staff with individual queries regarding topics taught).	<b>Yes</b>
<b>Electronic responses to queries</b> from individual students are provided (as above)	<b>Yes</b>

<b>Summative comments on coursework</b> (e.g. handwritten feedback at the end of a written assessment which counts towards the module mark).	<b>Yes</b>
<b>On-script comments</b> in the body of individual summative coursework	<b>Yes</b>
<b>Indication of achievement</b> against set marking criteria (e.g. for an individual essay or a lab report).	<b>Yes</b>
<b>Feedback using a standard feedback form</b> (e.g. essay feedback form or lab marking forms)	<b>Yes</b>
<b>Oral feedback on coursework</b> 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.	<b>No</b>
<b>Electronic feedback on coursework.</b> This could be via email or within VLE (e.g. using Gradebook on Moodle).	<b>Yes</b>

Table 4. Specific Targeted Tutor Feedback

#### 4.4 Feedback From People Other Than Module Staff

Type of Feedback	Provided
<b>Peer feedback:</b> fellow students commenting on/marketing each other's work, or working together on a task (e.g. group work providing students with feedback on their ideas/understanding).	<b>No</b>
<b>Self-feedback</b> (e.g. students evaluating their own coursework, worksheet answers, etc.)	<b>No</b>
<b>Feedback from seminar tutors:</b> 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)	<b>Yes</b>

Table 5. Feedback from People other than Module Staff

#### 4.5 Feedback related to examinations

Type of Feedback	Provided
<b>A mock examination</b> is given to help students prepare for the final exam.	<b>No</b>
<b>Marks for the previous year provided online</b> , with a breakdown of marks for individual questions	<b>No</b>

<b>Samples of real student work</b> , such as coursework, exam essays, and projects from previous students on the module.	<b>No</b>
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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
<b>Learning Actively</b> – Able to approach learning as an active agent, taking responsibility for the process and outcomes.	<b>Yes</b>
<b>Analysing Data</b> – Able to filter and organise information to develop an argument and work toward a conclusion, applying numerical analysis where appropriate.	<b>Yes</b>
<b>Thinking Critically</b> – Able to consider claims made against the evidence available and to develop one’s own view systematically	<b>Yes</b>
<b>Using Sources</b> – Able to locate and use appropriate books, journals, websites and other sources to gather relevant data	<b>Yes</b>
<b>Solving Problems</b> – Able to use systematic approaches to overcome difficulties in producing a desired outcome	<b>Yes</b>
<b>Managing Projects</b> – Able to plan a coordinated set of tasks and enact over time to produce a substantial result	<b>No</b>

Table 7. Academic transferable skills

### 5.2 Self-Management

Type of transferable skill	Provided
<b>Reflecting on Learning</b> – Able to review dispassionately one’s approaches to learning and the outcomes and progressively improve the process	<b>Yes</b>
<b>Managing Time</b> – Able to prioritise tasks and commitments to achieve optimum results in a designated timeframe	<b>Yes</b>
<b>Being Creative/Innovative</b> – Able to generate and apply original approaches to tasks and problems and produce improved outcomes	<b>Yes</b>
<b>Assessing Oneself</b> – Able to identify one’s own strengths, weaknesses, progress made and action needed to improve effectiveness	<b>Yes</b>

<b>Being Independent</b> – Able to work at own initiative with minimal supervision, taking responsibility for action and outcomes	<b>Yes</b>
<b>Managing Resources</b> – Able to allocate and conserve funds and other resources on a day to day basis and to support projects	<b>No</b>

Table 8. Self-management transferable skills

### 5.3 Communication

Type of transferable skill	Provided
<b>Writing</b> – Able to communicate in textual forms (essay, reports, journal entries, web pages etc.) in an appropriate style with a clear narrative flow	<b>No</b>
<b>Listening</b> – Able to hear and appreciate the content, background and purpose of what someone else is communicating to you	<b>Yes</b>
<b>Using Information Technology</b> – Able to use digital technology for managing information and to mediate communication for learning and other purposes	<b>Yes</b>
<b>Presenting</b> – Able to speak to an audience, using visual aids as appropriate and respond to questions	<b>No</b>
<b>Communication globally</b> – Able to understand and manage factors affecting communication across cultures, including means of monitoring progress	<b>No</b>
<b>Planning and making decisions</b> – Able to identify steps needed to work towards global and communicate them, including means of monitoring progress	<b>No</b>

Table 9. Communication transferable skills

### 5.4 Working with others

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

Table 10. Working with others transferable skills