**Class Meetings:** Online via Zoom – Mondays & Wednesdays, 4:00-5:30pm [Block 1E]

**Initial Zoom link for all lectures & recitations (requires Brandeis login):**
- [https://brandeis.zoom.us/j/91618290428?pwd=VTd0ZnJrdGhNQkJNRHdpNWRJZXNKUT09](https://brandeis.zoom.us/j/91618290428?pwd=VTd0ZnJrdGhNQkJNRHdpNWRJZXNKUT09)

- Note that this link may change one or more times during the term, for security purposes. The current link and password can always be found at the top of our course LATTE page.

**Instructor:** Lotus Goldberg  
Imgold@brandeis.edu  
Phone: (781) 736-3265  
Mailbox: Volen 261 [Computer Science Dept. Office]  
Office: Volen 252

Note that I will not be on campus regularly this semester, but will hold all office hours and student appointments via Zoom. Regular office hours schedule to be posted soon!

**Teaching Assistant and TA Office Hours:** Eben Holderness,

**COURSE DESCRIPTION AND OBJECTIVES**

This course provides a hands-on introduction to the scholarly approaches to research in linguistics and computational linguistics (CL), including the concepts, methodology, and terminology associated with scientific inquiry, ethical practice, and academic writing in the fields. The course will allow students to engage with original research from a variety of angles—including improving their familiarity with and ability to understand published literature in the field, as well as carrying out their own research.

These aims will be achieved via the central notion of learning how to build up an understanding and full picture of the academic literature on a single topic, with all that this entails. This begins with identifying a topic that seems interesting (and developing an eye for interesting problems on which progress seems doable), and then gradually building up a full picture that includes the topic's major publications, authors, themes, and controversies, along with what issues within the topic have been resolved versus remain in need of further progress and understanding. Learning how to do this not only gives you the ability to research any other new topic that might interest you, but, importantly, allows you to set up a new project within the context of the existing literature.

Students in the course will learn about this process by carrying it out over the course of the semester. This will begin by choosing a subarea of focus for the term, which could be a major subfield or interface area within linguistics (e.g. phonetics, phonology, morphology, syntax, semantics, or pragmatics, or interface areas such as psycholinguistics, language and the law, and so on) or CL (e.g. CL itself, to begin with, or something more narrow such as natural language understanding, machine translation, speech recognition or synthesis, and so on).

Progressive assignments will then guide students through initial literature searching and the reading of major papers that seem potentially helpful; an in-depth written discussion and oral presentation of one especially relevant paper, called the 'Adopted Paper' (AP); and then a detailed proposal, rough draft, final draft, and oral presentation of an 'Independent Paper' (IP), involving either an original research proposal and detailed literature survey motivating it, or an original pilot study whose write-up includes a detailed
motivation and discussion from relevant prior literature. For students who intend to complete an undergraduate Senior Honors Thesis or CL MS Master's Thesis or Capstone Project in the Spring term, the IP completed in this course can then be developed further into a Thesis or Capstone during the Spring.

This course is strongly encouraged for students advanced into the Linguistics major, and is especially useful for those considering graduate study in linguistics, (contemplating) doing a senior honors thesis, and/or (as is the case for many Linguistics majors) just wanting to learn more about what doing research in the field involves.

The course is also encouraged for Computational Linguistics (CL) MS students advanced into the second year or beyond who are considering a Master's Thesis or Capstone Project, but do not yet have a topic developed for which they are ready to begin work on a two-semester thesis. It has also been found useful by CL MS students who would like an experience doing independent research on some CL topic of their choosing, whether or not they plan to do a Thesis or Capstone—as well as by early PhD students specializing in CL who have not taken a course like this previously.

Finally, for both undergraduate and graduate students, the course can serve as a way to develop substantial knowledge in a topic that is not taught directly in a course that we currently offer.

Learning Goals: As a result of taking this course and fully engaging with the material and required work, students will deepen their knowledge and understanding of areas including:

- what constitutes research and research progress in the various linguistics subfields and in CL, and how research is done in each;

- how to identify and develop good topics for research, and how to build up knowledge on a topic of interest from reading the primary literature;

- how to understand, evaluate, and develop claims and proposals in research and writing of the fields studied;

- how to compare competing claims or analyses and critically assess the merits and weaknesses of each;

- the standard methods and best practices for presenting research and related content effectively in linguistics and CL, both in written research papers, as well as in oral presentations;

- techniques for advanced and comprehensive use of digital tools commonly employed by researchers in linguistics and/or CL, including research databases including LLBA and Google Scholar; bibliography managers such as Zotero; and the LaTeX typesetting system.

Prerequisites: either (a) at least two of the following Linguistics core courses, or their equivalent: LING 110a–Phonological Theory, LING 120b–Syntactic Theory, LING 130a–Formal Semantics, or LING 140a–Discourse and Pragmatics, OR (b) for students wishing to choose a CL topic: COSI 114b-Fundamentals of CL plus concurrent enrollment in COSI 134a-Statistical Approaches to Natural Language Processing.

Credit hours: Success in this four-credit course is based on the expectation that students will spend a minimum of nine hours of study time per week in preparation for class (readings, papers, discussion sections, etc.). Note that this is merely the minimum.
Class materials and readings and the use of LATTE as our primary course home: There is no textbook for this course. All obligatory and optional readings, handouts, and other materials will be posted on LATTE—the Brandeis learning management system, which you login to using your UNET ID and password. Each student will also do a substantial amount of reading from the primary literature on their chosen topic for the term, but such readings will all be available in some form via the Brandeis library.

During the semester, we will engage with various online and electronic tools that are helpful in doing research. Use of a web browser (e.g. Firefox, Chrome, Safari) and internet connection will be required throughout the semester. The course will also teach and feature assigned work that uses such tools as Zotero and other bibliography management software; various library databases for searching the academic literature; and multiple ways to create documents using the LaTeX typesetting system. All tools and apps required to do well in this course are available for free, either because they are free to the public, or via our library by logging in with your UNET ID.

Along with class meetings and recitations, LATTE will be used as the major home for our course. This includes that recordings of all classes and recitations will be posted on and viewable in LATTE; all course announcements will be posted on LATTE, as well as emailed from LATTE to each individual student; and all coursework will be handed in and given back graded via LATTE.

A detailed handout of instructions for using LATTE and Zoom in all the ways needed to be successful in our course will be given out at the start of the term, and available at the top of our LATTE site throughout the semester.

COURSE REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Percent of Final Grade</th>
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</thead>
<tbody>
<tr>
<td>Adopted Paper (AP) write-up (15%), presentation (10%)</td>
<td>25%</td>
</tr>
<tr>
<td>Independent Paper (IP) (Rough draft 5%, Final draft 35%)</td>
<td>40%</td>
</tr>
<tr>
<td>IP Presentation</td>
<td>10%</td>
</tr>
<tr>
<td>5-7 Exercise Assignments, each worth a small amount of credit</td>
<td>15%</td>
</tr>
<tr>
<td>Regular attendance and class participation</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Final Course Grade</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

All grades for the course are on a scale of 6 total points, broken down as follows:

- **A range = 5 to 6:**
  - 5.3 and up: A
  - 5.0 up: A-

- **B range = 3.5 and up:**
  - 4.5 up: B+
  - 4.0 up: B
  - 3.5 up: B-

- **C range = 2.5 and up:**
  - 3.2 up: C+
  - 2.8 up: C
  - 2.5 up: C-

- **D range = 1.5 and up:**
  - 2.2 up: D+
  - 1.8 up: D
  - 1.5 up: D-

- **F = below 1.5**
• **The Importance of Attending Classes and Recitations, Synchronously (=Live) or Asynchronously (=by Watching the Recording on LATTE)**

This is a small seminar course in which group discussion and participation are crucial to each class meeting. Class meetings are the way in which this course's content is presented, primarily through a blend of lectures and group discussions. Given this and the class' small size, the success of the course is very dependent on everyone attending and participating fully.

Students should do their best to attend each class meeting synchronously (i.e. live) if at all possible. We will circulate a poll at the start of the course to learn whether this is possible for each student, and what time zone they will be in this semester. For those students who are unable to join synchronously, I will do my best to make the course as accessible as possible, but this is not an ideal situation. I will, however, post a recording of each class meeting on Zoom, viewable from within LATTE. A detailed handout of instructions for using Zoom within our LATTE course site will be given out at the start of the term, and available at the top of our LATTE throughout the semester.

As always, each student is responsible for the content of the entire session at every class meeting, whether or not they can attend synchronously. It is therefore crucial that you watch the recording for any sessions you come to late, leave early, or miss. Additionally, for students who generally join synchronously, please let me know in advance if you will be unable to attend on a given day.

• **Class Recordings**

Class sessions will be recorded for educational purposes, and specifically only so that the recordings can be posted on our course Latte page, requiring a Brandeis login and furthermore only accessible to those enrolled in or teaching our course. This is done so that students in the course can watch the recording if they missed part or all of the class session, or are generally not able to join synchronously.

These recordings will be deleted within two months after the end of the semester. If you can be personally identified in a recording, no other use is permitted without your formal permission. You may decline to be recorded. If so, please contact me to identify suitable alternatives for class participation.

You may not record classes on your own without my express permission, and may not share the URL and/or password to anyone unaffiliated with this course. Your behavior in these recordings, and in this class as a whole, must fulfill Brandeis standards:

(1) Brandeis University is committed to providing its students, faculty and staff with an environment conducive to learning and working, where all people are treated with respect and dignity. [Brandeis Business Conduct Policy p. 2, 2020]

(2) You must refrain from any behavior toward members of our Brandeis community, including students, faculty, staff, and guests, that intimidates, threatens, harasses, or bullies. [Student Rights & Responsibilities, p. 11, 2020 ed.]

• **Students in Time Zones far from Boston's, and More on Participating Asynchronously**

Students in time zones very different from Boston's are welcome to join classes and recitations live, or to watch and participate via recording within LATTE. The experience in this course will be diminished for those who are unable to attend synchronously, but they can still benefit from the course, and we will provide guidance as the semester proceeds to help students in farther away time zones to remain as engaged as possible despite this challenge, and to create ways for such students and those participating synchronously to still exchange ideas and feedback with each other.
• **Participation**
10% of the course grade comes from regular attendance and participation. I construe participation, minimally, as involving either attending live or viewing recorded class sessions for each class and recitation, having read or completed any required readings or tasks for that day's class, if any (there may be occasionally); actively listening to the presentations and discussions that happen during class; and contributing thoughts, questions, and comments during class discussions (or by video recorded and sent in, if asynchronous) minimally when called on, and ideally at other times as well.

• **Assigned Work**
All assigned work is due at the start of class on the day it is due. No late work is accepted in general, but students should contact me before an assignment is due if illness or other extraordinary circumstances prevent you from handing in their assignment on time.

Students who experience time conflicts or delays due to religious observance, significant obligations to care for family, or other significant personal issues are encouraged to contact me as soon as they see a problem.

• **Equipment Needs for Successful Remote Participation**
To be successful in this course, you will need an electronic device such as a computer, laptop, tablet, or (if no alternative is available) phone and an internet connection that will allow you to join live class meetings and recitations, or watch recordings of them. You will also need ideally a computer, laptop, or tablet to do the substantial amount of internet searching and exploring of research tools that this course involves—these would be quite difficult on just a phone. Finally, you will also need some way to produce typed (i.e. not hand-written) electronic copies of the assigned work and the ability to hand these in by uploading them to LATTE. If you have difficulty obtaining or maintaining the regular access to such a device and internet connection needed, please consult the [Brandeis Emergency Resources webpage](https://www.brandeis.edu/emergency) for information on how to seek assistance.

**CONTACTING US AND GETTING HELP IN THE COURSE**

• The best way to contact me and the TA is via email (or by attending office hours; see next immediately below). We will aim to reply to all emails within one business day (i.e. 24 hours) at the latest, and questions should be sent in one total email that lists me and the TA as recipients. This will allow us to make sure that one of us gets back to you as soon as possible. We will do our best to reply with a day to emails sent Friday nights or over the weekend, but at the latest these will receive a reply on Monday.

• All office hours will be held via Zoom. Once the course begins, we will set up a schedule in which both I and the TA have at least one office hours session per week. The full and up-to-date schedule, with links to use to join, will appear at the top of our LATTE page throughout the semester. All enrolled students are welcome (and encouraged!) to attend as many of these as they'd like.

• Please do your best when you would like to come in for help to attend one or more of the scheduled office hours times, if at all possible. If that is not possible, please send one total email with both me and the TA as recipients, including some times you can make over the next several days – and we will do our best for one of us to meet with you individually.

**IMPORTANT POLICIES AND ADDITIONAL THINGS TO NOTE**

• **Accommodations**
Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, I want to support you. In order to provide test
accommodations, I need the letter more than 48 hours in advance. I want to provide your accommodations, but cannot do so retroactively. If you have questions about documenting a disability or requesting accommodations, please contact Student Accessibility Support (SAS) at 781.736.3470 or email access@brandeis.edu.

• **Academic Integrity and Plagiarism**

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University, or other sanctions (see section 20 of the Rights and Responsibilities). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality.

A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at Brandeis Library Guides - Citing Sources.

• **Laptops and Other Electronic Devices**

It is very important to me that students who come to course meetings be able to be here—or watch a recording—with full presence and attention, engaging as fully as possible with the class material and discussions. Therefore, when this course met in person, no laptops or other electronic devices were allowed to be open or used during class, unless stated otherwise (e.g. during a tutorial on Zotero or LaTeX, or to use as the source for slides while giving an oral presentation).

For our virtual setting this semester, it will of course be necessary to participate in classes electronically, live or in recorded form. However, the remainder of my usual policy against using electronic devices will remain in place.

This means that, unless stated otherwise, it is generally not allowed to use or view any electronic device besides the one you're using to join or watch the meeting. And, on the device you're using, you should keep closed all programs and apps besides the one you're using to join or watch class, and have no other tabs or windows open in that program/app. For both classes and recitations, absolutely no web browsing is allowed during live meetings or while watching recordings, with no exceptions.

As always, exceptions are granted for students who have a compelling reason (such as difficulties taking notes by hand) to use a laptop to take notes—in which case the only program that can be open while our class is meeting is the text or word processing program used to take notes. Students with such requests should see me immediately. Absolutely no web browsing is allowed during ordinary class meetings unless stated otherwise; there are no exceptions to this.

• **Seeking Support at Brandeis beyond Our Course**

Brandeis University is committed to supporting all of our students so that they can thrive. Resources are available to help with the many academic and non-academic factors that contribute to student success, including finances, health, food supply, housing, mental health counseling, academic advising, and physical and social activities. Please consult the Support at Brandeis webpage to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.
SYLLABUS (Subject to some change, including a possible additional Exercise Assignment or two.)

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics (Subject to some change per requests for topics that this year’s students would especially like to be covered)</th>
<th>Assigned Work Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: W – Aug 26</td>
<td>Overview of the course and assigned work, including what the Independent Paper will be, and the progressive steps through which it will be built up over the course of the term</td>
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</tbody>
</table>
| 2: MW – Aug 31, Sept 2 | • What is scientific linguistic and CL/NLP research?; developing a research plan and process;  
                        • Intro to evaluating literature sources; types of academic publications; best journals and publishers in Ling and CL | Exercise 1: short write-up identifying your subarea of focus for the term, including for the Adopted Paper and Independent Paper |
| 3: WTh – Sept 9,10  
{M 9-7=Labor Day,  
Th 9-10=Brandeis Mon} | • Overview of academic databases and how to use them  
                        • Advanced literature searching and bibliography-management software such as Zotero, including Guest Lecture #1 by Linguistics and CL Librarian Alex Willett  
                        • Intro to effective reading of academic literature  
                        • The IRB process and discussion of what topic types require IRB approval |                                                                                  |
| 4: MW – Sept 14,16 | • Keeping your literature searches and reading notes organized; More on Zotero from Guest Lecture #2 on by Librarian Alex Willett  
                        • How to identify good research topics; more on effective reading of academic literature, including the overall structure of research writing and experimental design in linguistics and CL | Exercise 2: Rough description and evaluation of content and structure for 3 possible Adopted Papers (APs) |
| 5: MW – Sept 21,23 | • Intro to LaTeX; more on finding good research topics  
                        • Intro to giving effective oral research presentations in Linguistics & CL, including effective use of handouts and slides  
                        • Experimental design in CL (guest lectures by CL faculty) | Exercise 3: First steps in LaTeX |
| 6: W – Sept 30  
{M 9-28=Yom Kippur,  
W 9-30=Brandeis Mon} | • More on giving effective oral presentations of Ling and CL research, including guidance for non-native English speakers  
                        • IRB approval process |                                                                                  |
| 7: MW – Oct 5,7 | • Class presentations of APs | Detailed AP Description and Assessment (15% of course grade) |
| 8: MW – Oct 12,14 | • Finish class presentations of APs (if needed)  
                        • Project design in theoretical linguistics; fieldwork and data elicitation in linguistics; experimental design in linguistics interface areas other than CL | Exercise 4: Independent Paper (IP) topic proposal |
| 9: MW – Oct 19,21 | • Class check-in and discussions of individual student paper topics  
                        • Making detailed proposals and to-do lists for planning contents of research papers |                                                                                  |
<table>
<thead>
<tr>
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</thead>
</table>
| 10: MW – Oct 26,28 | • Best research practices, including taking notes during literature searching/reading, and in meetings with faculty  
• More advanced LaTeX skills and troubleshooting | Exercise 5: Detailed IP proposal and to-do list |
| 11: MW – Nov 2,4 | • Advanced LaTeX skills and troubleshooting, continued (more advanced text formatting, complex lists, charts, graphics, other topics by request)  
• Class check-in and discussion of current IP work, and trouble shooting of problems arising | Exercise 6: Advanced LaTeX skills |
| 12: MW – Nov 9,11 | • Going to research-oriented graduate school (at the Master's and especially PhD level) in linguistics and CL, and academic careers  
• More on research-oriented graduate school: current PhD student/Postdoc guest speakers | IP Rough Drafts Due (5% of course grade) |
| 13: MW – Nov 16,18 | • Informal oral presentations of IP 'elevator pitch'  
• Guidelines for IP presentations | Exercise 7: IP ‘elevator pitch’ |
| 14: MW – Nov 30, Dec 2 | Course wrap-up; Last topics by request | |

*IP Final Draft (35% of course grade) due toward the start of Finals Week*

*IP Oral Presentations (10% of course grade) during Final Exam session as scheduled by the Registrar's Office in the Final Exam Schedule*