COURSE SYLLABUS

Fall 2022

LINGUISTICS AND COGNITIVE SCIENCE
01:615:441:01

CLASS MEETINGS

Classroom:	MTh2 10:20 – 11:40 am, SC-214 (CAC)
Canvas site:	2022FA – Ling & Cog Science 01:615:441:01.
Final Exam:	Thur. Dec. 22, 8 – 11 am, SC-214.

To access the Canvas course site, please visit Rutgers Canvas at https://canvas.rutgers.edu/ and log in using your NetID.

Classes begin **9/6** and end on **12/14**. The last day to drop this course without a "W" grade is 9/15. The last day to drop this course with a "W" grade is 10/31.

INSTRUCTOR INFORMATION

Instructor:	Prof. Bruce Tesar
Email:	tesar@rutgers.edu
Office:	Room 109, Linguistics Building (18 Seminary Place, CAC)
Office Hours:	In Person: M 2-3, and by appointment. Online (Zoom): by appointment. Contact the instructor via e-mail to schedule an appointment.
Communication:	Throughout the semester, I will communicate with you via either **Canvas Announcements** or your **Rutgers email account**. Make sure that you have your Canvas options set so that notifications will reach you quickly.

GENERAL COURSE DESCRIPTION

This course examines some of the many connections that exist between linguistics and cognitive science. The very beginning of the course will examine some of the philosophical arguments that led to the development of cognitive science, in particular arguments from the nature of language phenomena. The next part of the course is an introduction to the theory of formal languages and automata; this section will illustrate how the search for a psychological basis for linguistic phenomena ultimately had a great influence on the development of theoretical computer science. That will be followed by an examination of the relationships between computational approaches to parsing and experimental studies of human sentence processing. The course will also include an introduction to speech errors, and the way in which they provide independent support for the representations used in linguistic theories. Some connectionist network models of memory will be studied, along with the alternative view of computation that they provide. The final part of the course will examine how efforts to reconcile symbolic and connectionist

approaches to language unexpectedly resulted in a powerful new approach to linguistic theory, Optimality Theory.

Throughout the course, an emphasis will be placed on the ways in which ideas from different traditional disciplines interact and work together. The course will demonstrate both how ideas from different traditional disciplines combine to create what is known as cognitive science, and how the effort to conduct interdisciplinary cognitive science can have a strong impact on the original disciplines themselves.

Prerequisites:

615:201 **and** (615:305 **or** 615:315 **or** 615:325)

MATERIALS

Required Text:

I, Robot, by Isaac Asimov. ISBN 978-0-55329-438-5.

This book may be purchased from the Rutgers University Bookstore as a paperback, $8 new, $6 used. It is also available from Amazon.com. It is a popular collection of science fictions stories, and has been around for many decades, so if you have access to a decent-sized public library, you might find a copy of it there. We will be using one of the stories in the book, *Runaround*.

NOTE: the course packet from previous semesters is now obsolete; instead of a $60 course packet, you now only need to buy one $8 book, and everything else can be downloaded without charge. **Do not** buy a used copy of the course packet from a previous semester.

Additional Course Resources:

Most of the materials for the course will be provided on the course Canvas site as downloadable handouts, in PDF format.

One reading is available from the Rutgers Library, in electronic form. It is listed in the Canvas Reading List tool. The listed title is "Verbal Behavior"; click on the title, login to the library with your NetID, and you should be able to view the article, and download it.

Technology Requirements:

This course will make occasional use of jsSyntaxTree, a free on-line tool for creating diagrams of linguistic trees. The tool is embedded in a page on the course Canvas site, and can also be accessed via a browser at https://ironcreek.net/syntaxtree/.

STUDENT LEARNING OBJECTIVES

Course Learning Goals:

By fully participating in this course, you should:

1. Understand the basic nature of Cognitive Science.
2. Understand key relationships between Linguistics and other cognitive disciplines.
3. Appreciate the ways in which different academic disciplines can influence each other, and can combine to provide greater insight into major issues.
4. Have an introductory grasp of several formal tools relevant to Linguistics and Cognitive Science.

Linguistics Department Learning Goals Addressed:

1. Be able to reason about language scientifically.
2. Demonstrate knowledge of cross-linguistic variability and universal patterns of language.
3. Evaluate a range of views on the nature, origin, and/or structure of language.
4. Identify what someone knows when they know a language.
5. Demonstrate strong problem-solving skills.
6. Extend understanding of theoretical linguistics into other domains of linguistic research.
7. Access current research in the field.

COURSE COMPLETION REQUIREMENTS

Your success in this course depends on the following:

- Attending class meetings.
- Reading the assigned readings.
- Viewing all posted videos.
- Participating in the assigned groupwork.
- Submitting assigned problem sets.
- Submitting the integrative assignment.
- Taking the final exam.

GRADING

Problem Sets (60%):

Eleven problem sets will be given during the semester. The lowest score on the problem sets will be dropped when computing the final grade. **Collaboration between students on graded problem sets is not permitted.** Students will typically have a week to complete each problem set. Problem sets must be uploaded prior to 11:59 pm on the due date.

Group Participation (10%):

Each student will be assigned to a small group. Eleven exercise assignments will be given to the groups during the semester, and the members of each group are required to work together on them. **Group work will not be graded on accuracy, but each student will be graded on participation in each group assignment.** Participation in the group work consists of posting an answer to one of the exercises, and commenting on at least one of your groupmates' posted answers. The lowest score on the group participation will be dropped when computing the final grade. Groups will typically have about 2.5 days to complete the group work. Work (both posted answers and comments on work) must be uploaded prior to 11:59 pm on the due date.

Group assignments will be done using Google Docs in the Canvas Collaborations tool. Students will not be required to be online at the same time for groupwork; they are required to contribute answers and comments to the shared documents online.

Integrative Assignment (5%):

The integrative assignment is due on Mon. Dec. 12. It involves relating different sections of the course to each other. Details of the assignment will be provided early in the course, so that you can keep it in mind as the semester progresses.

Final Exam (25%):

The final exam take places on Dec. 22, 8 – 11 am, in SC-214 (the regular classroom). It will be open notes: you may bring your own notes and assignments to the room and consult them during the exam.

Final Course Grade:

Grades in this course are weighted according to the table below.

Activity or Major Assignment	Points or Grade %
Problem Sets	60%
Group Participation	10%
Integrative Assignment	5%
Final Exam	25%
Total	**100%**

Grading Scale:

Grade	Range
A	100 – 90
B+	85 – 90
B	80 – 85
C+	75 – 80
C	70 – 75
D	60 – 70
F	0 – 60

Warning Grades:

The warning grade period is Oct. 10-21. Warning grades will be sent to students who, at that point, have not been doing well in the course. The point is to give a clear indication to the student, so that they can consult with the instructor and take steps to improve their standing in the class, or if warranted, drop the course. A W1 warning is given to students whose grade performance is below 60%, putting them in danger of failing the course. A W2 warning is given to students who have had poor attendance in the course. A W3 warning is given to students who would warrant both W1 and W2 warnings.

TIMELINE OF A MODULE

The course consists of a set of overlapping modules. A module will typically unfold by starting new material for the module during a Thursday class. Students then do some reading and watch videos related to the material between the Thursday class and the following Monday class. That Monday class will present more new material, and group exercises will be assigned, due by the end of Wednesday. Thursday's class will discuss the group exercise problems, and then a problem set will be assigned, due on Thursday of the following week. The remainder of the Thursday class will then begin material for the next module.

There will be a couple of deviations from that pattern during the semester. These will be explained via in-class announcements, and via announcements made through Canvas.

ACADEMIC POLICIES AND PROCEDURES

Attendance Policy:

Attending class is an integral part of this course. You are responsible for material covered in any class that you do not attend. If you miss a class, you must contact a classmate or me for the missed information. Attendance in class may be taken, but is not a direct component of the grade.

When possible, absences should be reported using the University self-reporting absence system: https://sims.rutgers.edu/ssra/. If you have a prolonged health or financial issue impacting you over an extended period of time, you should contact your Dean of Students, deanofstudents@echo.rutgers.edu.

Submission Policy:

Your work on each problem set is to be prepared in a word processor and uploaded to Canvas as a PDF file.

MS Word (part of MS Office) works well. Google Docs will also work well, and is freely available to all students via ScarletApps. You can use another word processing app, so long as it is up to the task: you will need to create tables, insert image files (specifically PNG files), and generate a PDF file of the whole document.

For further information and advice on preparing work to be handed in, see the document *Preparing and Submitting Problem Sets*, posted on the course Canvas site.

Late Work:

Assignments must be successfully uploaded by 11:59 pm on the due date. It is recommended that you not wait until just before the deadline, lest a computer crash or a struggling internet connection prevent you from uploading in time.

If an assignment is uploaded after the deadline, but before answers to the assignment are posted or presented in class, half credit will be awarded. Once the answers have been posted, a score of zero will be assigned. Students may still submit zero credit assignments to the instructor in order to get feedback.

Coursework Difficulties:

If you are having difficulties with the class, please contact the instructor right away, via email, in regular office hours or by making an appointment. Take this action if you are having difficulty understanding the material, if external issues are making it hard to get the work done on time, or for any other difficulty.

This course involves material from a variety of disciplines, and it is common for students to find that some of the material is outside of their familiar comfort zone. If you are struggling, contact the instructor sooner rather than later. **Do not wait until after the end of the semester, and then contact the instructor asking what you can do to raise your grade; at that point, it is too late**.

Incomplete Policy:

If you are unable to complete the coursework during the semester due to some catastrophic issue, contact the instructor as soon as possible to discuss your alternatives.

ACADEMIC INTEGRITY

You should not discuss problem sets and the integrative final assignment with anyone other than the instructor. Contact the instructor to clear up any confusion or uncertainty you have about a problem set or

the final assignment. For anything else (group work, exercises, study, general questions on course material), discussing with fellow students outside of the class is fine, and in fact encouraged.

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy (https://academicintegrity.rutgers.edu) and the possible penalties (including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution, including re-using a previous assignment
- Unauthorized collaboration
- Sabotaging another student's work

If you are uncertain about whether a particular action is permitted, please ask the instructor first.

Intellectual Property Rights:

Lectures and materials utilized in this course, including but not limited to videocasts, visual presentations, handouts, assessments, and assignments, are protected by United States copyright laws as well as Rutgers University policy. As the instructor of this course, I possess sole copyright ownership. You are permitted to take notes for personal use or to provide to a classmate also currently enrolled in this course. Under no other circumstances is distribution of recorded or written materials associated with this course permitted to any internet site or similar information-sharing platform without my express written consent. Doing so is a violation of the university's Academic Integrity Policy. Similarly, these copyright protections extend to original papers you produce for this course. In the event that I seek to share your work further, I will first obtain your written consent to do so.

STUDENT CODE OF CONDUCT

Students are required to adhere to the University Student Code of Conduct delineated in the Rutgers Student Affairs website Student Conduct page: https://studentconduct.rutgers.edu/student-conduct-processes/university-code-of-student-conduct/#1495568095620-2f5ce77d-17dd

DISABILITY ACCOMMODATIONS

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines.

If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this

process, please complete the Registration form:
https://webapps.rutgers.edu/student-ods/forms/registration.

STUDENT SUPPORT SERVICES

Academic Services:

- Student Success Essentials: https://success.rutgers.edu
- Rutgers Academics Student Support: https://www.rutgers.edu/academics/student-support
- For tutoring and other help, visit the Learning Centers: https://rlc.rutgers.edu/
- For help with writing skills, visit the Writing Centers: https://writingctr.rutgers.edu/
- Library assistance: https://www.libraries.rutgers.edu/

Rutgers Student Health Services:

Rutgers Student Health Services is dedicated to health for the whole student body, mind and spirit. It accomplishes this through a staff of qualified clinicians and support staff. Services are available at several locations throughout the New Brunswick-Piscataway area. For more information visit: https://health.rutgers.edu/.

The Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS) can be found at https://health.rutgers.edu/medical-counseling-services/counseling/.

The Office for Violence Prevention and Victim Assistance is at https://www.vpva.rutgers.edu.

Veteran Services:

Rutgers is proud to support veterans. If you are a veteran of the armed forces, please visit the Office of Veteran and Military Programs and Services website for more information: https://veterans.rutgers.edu/.

Financial Concerns:

Students who have financial concerns that impact their participation in class, including difficulty getting reliable internet access or appropriate computing equipment, should contact the Dean of Students at deanofstudents@echo.rutgers.edu.