



RUTGERS

Language and Cognition (185:340)

Term: Spring 2021

Class time: Asynchronous lectures (videos uploaded on Canvas)
Optional: Wed.: 2:50–4:10 (Q/A session, discussion)

Lecturer contact information

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Office hours:

Thursday: 6 to 7pm, or by appointment
on zoom

Course description

This course is about the relation of language to human cognition. What is language? How does human language in general, and any specific language in particular, interact with cognition and human cognitive processing? How does language relate to specific aspects of cognition that have been studied for some time: perception, attention, and memory? Are there ways in which language has similarities to these aspects of cognition? What ways is it different?

Human language complexity has led to theories of acquisition and processing that give language a special status, as an aspect of cognition that is largely innate (rather than acquired via general learning mechanisms), and largely encapsulated from other aspects of cognition and behavior. In this course, we will critically examine the arguments for treating language as a series of special systems and as being separate from other aspects of cognition. We will discuss several key subdomains of psycholinguistics, their relations to each other, and influences of non-linguistic aspects of cognition on language and speech processing.

Objectives

- Understand the basic questions and issues in the study of the relation of language and mind
- Explore some of the methodologies used to find out about how the mind works in relation to language
- Be able to integrate ideas from relevant areas of Cognitive Science so that they shed light on the study of the mind through language
- Be able to read and understand primary scientific literature, or what we refer to as “papers” or “journal articles”. This involves a number of skills that you may not have encountered before, like extracting information from visual figures and graphs, puzzling out experimental methods that are unfamiliar to you, looking at citations to understand the context for *why* the authors have taken the approach they have, etc.
- Develop scientific and critical reasoning skills. For instance, understand *why* people have taken different approaches, what empirical evidence different people view as most important to explain, and the different “ways of knowing” about language.
- Be able to think creatively and come up with ways to apply the frameworks studied to topics of interest to you

Textbook

There is no textbook for this course. Instead, readings will be drawn from the primary scientific literature, from a number of different fields and perspectives. The required readings will be available on Canvas for you to download. There are also optional readings that may be helpful or interesting if you find yourself wanting to read more about that topic. **Do not skip or skim the required readings. Be sure to read them ahead of watching the video of the lecture/discussion.** Do not wait until the last minute to do the readings! Even short papers can be quite difficult (and sometimes the short ones are even more difficult).

Class Meetings - Optional

Class: Each week Wednesdays 2:50-4:10

- [Zoom link](#) (password 070021)

NOTE: Attending class on Wednesday is not required, but strongly encouraged if you can attend because (1) you will learn more from attending, and (2) it will create a group spirit that might be nice given that you would not come to class.

Structure of the course

This class will be driven as much by **you**—the questions you bring, the particular curiosity you have, and the work you put into engaging with the readings—as much or more than by my lectures, which I will keep to a minimum. You are expected to come to class prepared to participate fully in these discussions, get out of your intellectual comfort zone, and contribute to our joint inquiry. I hope you come away from this class with an appreciation for how interesting and complex the relationship between language and cognition is, and with an understanding that no one, yet, has the answers, or even a monopoly on the right questions to ask.

Readings

I'll also post a few supplementary readings each week. Sometimes these will provide additional background that will be useful if the main readings are outside your comfort zone. Most of the time they will provide a more in-depth or complex look at the issues raised in the primary readings.

Assignments and grading

Your course grade will be determined by the following:

Weekly reading reflections: 40%

Post a short (250 words or less) reflection on the week's readings at least 24 hours before the Wednesday class (i.e., **2:50 am on Tuesday**). This could be a question you had about the readings, an idea from earlier in the course or elsewhere that it made you reconsider or think more deeply about, etc. My goal with these assignments is to help motivate you to engage with the readings, and to help me see what you're thinking about or struggling with before class. A **small** amount of extra credit will be available for thoughtful responses to other students' reflections (which you'll be able to see after you post your own).

You can skip **two** reading reflections without penalty; if you need to miss more for some reason, contact me as soon as possible and we'll try to work out some alternative. Late reflections are worth 50% up until the start of class (that is, the 24 hours between the due date and the start of class), and 0% after.

Module subject quizzes: 30%

At the end of each module there will be a short quiz on the subject matter covered in that module. This is to ensure that you have command of the main techniques and results from each of the areas we cover. These will be announced at least a week in advance, but the tentative dates are **2/3** (classes 1-3), **2/24** (classes 4-6), **3/24** (classes 7-9), and **4/21** (classes 10-13).

1 short paper 30%

Any topic in the area of the relation of language to mind (connecting as appropriate to the topics dealt with in the course. Aim for 5 pages at most (plus references).

Extra Credit Option: A number of researchers in Linguistics conduct experiments that are relevant to the material covered in this class. You have the opportunity to participate in up to 3 experiments in Linguistics for 3 points for each experiment, added onto your final grade. Information for accessing the subject pool is available on Canvas under PAGES. You must select one course to designate as the one for which you will receive the credit. Note: you can only select one course and that will be the one in which you receive the extra credit points. I will be notified about your participation automatically at the end of the semester. If you sign up for, but fail to show up for two or more experiments, you may be barred from further participation.

Technological Requirements

Please visit the [Rutgers Student Tech Guide](#) page for resources available to all students. If you do not have the appropriate technology for financial reasons, please email Dean of Students deanofstudents@echo.rutgers.edu for assistance. If you are facing other financial hardships, please visit the [Office of Financial Aid](#).

Any live lectures, all recitations, and all office hours will be conducted using **Zoom**. You do not need to purchase any software to join a meeting or a videocall. Basic information about Zoom can be found here:

<https://zoom.us/meetings>

You can join a meeting or videocall by either downloading (free!) the Zoom app or by launching it in a browser.¹ You can sign up for a free Zoom account if you want to, but it isn't necessary.²

NOTE: Class meetings (including video, audio, and chat text) will be recorded.

An important note about video: Please turn on your video when possible. It is helpful to be able to see each other, just as in an in-person class. Exceptions: If you have limited internet bandwidth or no webcam, it is ok to not use video or if you're unable to find an environment without a lot of visual distractions, it is also ok to turn off your video.

Please make use of the next few days to see what set-up works for you. Please learn how to unmute yourself and also turn on your video. I can't promise that things will always go smoothly, but I will try my best to have things run as smoothly as can be expected under the circumstances.

Email Etiquette

The following webpage "Email Etiquette: Guidelines for Writing to Your Professors" created by Dr. Mark Tomforde is required reading for the course:

<https://www.math.uh.edu/~tomforde/Email-Etiquette.html>

Trying Our Best During a Global Pandemic

You are trying to learn — and I am trying to teach — during a global pandemic. If we are lucky, all that will mean for us is that the semester will be more stressful than usual. I'm usually pretty strict for basically everything related to my courses, and I usually hold myself to the same high standard that I hold my students. For example, I expect things turned in on time and in return we grade material and get it back to students quickly. But seriously, there is a global pandemic going on. So let's just agree that we will all try our best. I will cut you some slack, and I expect you to cut me some slack, provided that we communicate with each other about our needs and constraints. (used with permission from Ryan Briggs @ryancbriggs)

Students with disabilities

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 on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Contact information for Disability Services:

Lucy Stone Hall, Suite A145, Livingston Campus 54 Joyce
Kilmer Avenue
Piscataway, NJ, 08854
Phone: (848)-445-6800
Website: <https://ods.rutgers.edu/>

Academic Integrity Policy:

Cheating: You are expected to be familiar with and abide by [Rutgers University's Academic Integrity Policy](#). Any collaboration with other students or non-allowed materials to answer questions in reading quizzes or the exams is a violation of Rutgers' Academic Integrity Policy.

Plagiarism: Plagiarism is the use of another person's words, ideas, or results without giving that person appropriate credit. To avoid plagiarism, every direct quotation must be identified by quotation marks or appropriate indentation and both direct quotation and paraphrasing must be cited properly according to the accepted format for the particular discipline or as required by the instructor in a course. Some common examples of plagiarism are:

- Copying word for word (i.e. quoting directly) from an oral, printed, or electronic source without proper attribution.
- Paraphrasing without proper attribution, i.e., presenting in one's own words another person's written words or ideas as if they were one's own.
- Submitting a purchased or downloaded term paper or other materials to satisfy a course requirement.
- Incorporating into one's work graphs, drawings, photographs, diagrams, tables, spreadsheets, computer programs, or other nontextual material from other sources without proper attribution.¹

Students caught cheating or committing plagiarism will be penalized, as per Rutgers policy. All students in this course must agree to the following Honor Policy:

By my honor, I agree that I will complete all exams without helping or receiving help from others, and without referring to my notes, textbook, or other resources.

Statement as a responsible employee

Rutgers faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. Rutgers has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The University strongly encourages all students to report any such incidents to the University. Please be aware that, with the exception of those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to Policy 10.3.12, all Rutgers

employees are required to report information about such discrimination and harassment to the University. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the University's Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can find a list of resources in Appendix A to University Policy 10.3.12. For more information about your options at Rutgers, please visit endsexualviolence.rutgers.edu.

Student-Wellness Services:

Just In Case Web App

<http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901

<http://health.rutgers.edu/medical-counseling-services/counseling/>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / <http://vpva.rutgers.edu/> Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-9321181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

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 on the ODS web site at: <https://webapps.rutgers.edu/student-ods/forms/registration>.

Report a Concern: <http://health.rutgers.edu/do-something-to-help/>

Get Involved with Cognitive Science Club!

Find information on the exciting events being organized by the Cognitive Science Club:

<http://ruccs.rutgers.edu/academics/cogsci-club>.

Like them on Facebook to get updates: <https://www.facebook.com/RUCogSciClub>

Tentative Schedule**

Date	Topic	Readings
January		
20	The dawn of modern linguistics	Chomsky 1959
27	Language universals?	Hauser, Chomsky, and Fitch 2002; Everett 2005
February		
3	Rules and exceptions	Pinker 1991; Elman 2001
10	Statistical learning	Maye, Werker, and Gerken 2002; Saffran, Aslin, and Newport 1996
17	Speech perception and word recognition	Cutler 2012 Ch 1, 2; (optional: Andruski et al. 1995; McMurrey & Spivey 2000)
24	Pattern matching vs. episodic memory	Tulving 1972; Frauenfelder 1996 (optional: Goldinger 1998)
March		
3	Lexical activation models	McClelland & Elman 1996
10	Adaptation: sounds	Eisner and McQueen 2006; Clayards et al. 2008 (optional Babel 2010, 2012)
17	SPRING BREAK	
24	Adaptation: context	Clark & Brennan 1991, Clark & Gibbs 1986
31	The learner	Hudson Kam and Newport 2005; Culbertson, Smolensky, and Legendre 2012 (optional: Fedzechkina, Newport, and Jaeger 2017)
April		
7	The environment	Lupyan and Dale 2010; Terry Regier, Carstensen, and Kemp 2016 (optional: Atkinson, Smith, and Kirby 2018)
14	Space	Levinson 1996; Li and Gleitman 2002 (optional: Levinson et al. 2002; Brown and Levinson 1993)
21	Natural tasks, vision and language	Tanenhaus et al. 1995; Allopenna et al. 1998
28	Sentence processing and prosody	Cutler 2012, Ch 7; Ito & Speer 2008
May		
7	Paper due	8am via Canvas as .pdf

** This syllabus represents my current plans and objectives. As we go through the semester, these plans (including exact assignment due dates) may need to change to enhance learning opportunities for the class. (e.g. due to an extension of our discussion of specific topics that arise during lectures). Such changes, communicated clearly, are not unusual and should be expected.

List of readings

Allopenna, P. D., Magnuson, J. S., & Tanenhaus, M. K. (1998). "Tracking the time course of spoken word recognition using eye movements: Evidence for continuous mapping models". *Journal of Memory and Language*, 38, 419-439 [**but skip Experiment 2**].

Andruski, J. E., Blumstein, S. E., Burton, M. (1994). „The effect of subphonetic differences on lexical access". *Cognition*, 52, 163-187.

Atkinson, Mark, Kenny Smith, and Simon Kirby. 2018. "Adult Learning and Language Simplification." *Cognitive Science* 42 (8): 2818–54. <https://doi.org/10.1111/cogs.12686>.

Babel, Molly. 2010. "Dialect Divergence and Convergence in New Zealand English." *Language in Society* 39 (04): 437–56. <https://doi.org/10.1017/S0047404510000400>.

Brown, Penelope, and Stephen C. Levinson. 1993. "'Uphill' and 'Downhill' in Tzeltal." *Journal of Linguistic Anthropology* 3 (1): 46–74. <https://doi.org/maji>.

Chomsky, Noam. 1959. "Review of Verbal Behavior." *Language* 35 (1): 26–58.

Clark, H. H., and Brennan, S. A. (1991). In L.B. Resnick, J.M. Levine, & S.D. Teasley (Eds.). *Perspectives on socially shared cognition*. Washington: APA Books.

Clark, Herbert H., and Deanna Wilkes-Gibbs. 1986. "Referring as a Collaborative Process." *Cognition* 22 (1): 1–39. [https://doi.org/10.1016/0010-0277\(86\)90010-7](https://doi.org/10.1016/0010-0277(86)90010-7).

Clayards, Meghan A, Michael K Tanenhaus, Richard N Aslin, and Robert a Jacobs. 2008. "Perception of Speech Reflects Optimal Use of Probabilistic Speech Cues." *Cognition* 108 (3): 804–9. <https://doi.org/10.1016/j.cognition.2008.04.004>.

Culbertson, Jennifer, Paul Smolensky, and Géraldine Legendre. 2012. "Learning Biases Predict a Word Order Universal." *Cognition* 122 (3): 306–29. <https://doi.org/10.1016/j.cognition.2011.10.017>.

Cutler, A. 2012. *Native Listening. Language Experience and the Recognition of Spoken Words*. MIT Press. (ch. 1, 2, 7, but I'll post the entire book).

Eisner, Frank, and James M McQueen. 2006. "Perceptual Learning in Speech: Stability over Time." *The Journal of the Acoustical Society of America* 119 (4): 1950–53. <https://doi.org/10.1121/1.2178721>.

Elman, Jeffrey L. 2001. "Connectionism and Language Acquisition." In *Language Development: The Essential Readings*, 295–306. *Essential Readings in Developmental Psychology*. Malden: Blackwell Publishing.

Everett, Daniel L. 2005. "Cultural Constraints on Grammar and Cognition in Pirahã Another Look at the Design Features of Human Language." *Current Anthropology* 46 (4): 621–46. <https://doi.org/10.1086/431525>.

Fedzechkina, Maryia, Elissa L. Newport, and T. Florian Jaeger. 2017. "Balancing Effort and Information Transmission During Language Acquisition: Evidence From Word Order and Case Marking." *Cognitive Science* 41 (2): 416–46. <https://doi.org/10.1111/cogs.12346>.

Feldman, Naomi H, Emily B Myers, Katherine S White, Thomas L Griffiths, and James L Morgan. 2013. "Word-Level Information Influences Phonetic Learning in Adults and Infants." *Cognition* 127 (3): 427–38. <http://ling.umd.edu/~nhf/papers/LexicalDistributionalLong.pdf>.

Frauenfelder, U. H. (1996). "Computational models of spoken word recognition". In T. Dijkstra & K. de Smedt (Eds.), *Computational Psycholinguistics: AI and Connectionist Models of Human Language Processing* (pp. 114-138). London, UK: Talylor & Francis.

Goldinger, S. D. (1998). "Echoes of echoes? An episodic theory of lexical access". *Psychological Review*, 105, 251-279.

Hauser, Marc D, Noam Chomsky, and W Tecumseh Fitch. 2002. "The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?" *Science* 298 (5598): 1569–79. <https://doi.org/10.1126/science.298.5598.1569>.

Hudson Kam, Carla L, and Elissa L Newport. 2005. "Regularizing Unpredictable Variation: The Roles of Adult and Child Learners in Language Formation and Change." *Language Learning and Development* 1 (2): 151–95.

Ito, K. & Speer, S. (2008). "Anticipatory effects of intonation: Eye movements during instructed visual search". *Journal of Memory and Language* 58(2):541-573. <http://dx.doi.org/10.1016/j.jml.2007.06.013>

Levinson, Stephen C. 1996. "Frames of Reference and Molyneux's Question: Cross-Linguistic Evidence." In *Language and Space*, edited by P Bloom, M Peterson, L Nadal, and Merrill F. Garrett, 109–69. Cambridge, MA: MIT Press.

Levinson, Stephen C, Sotaro Kita, Daniel B M Haun, and Björn H Rasch. 2002. "Returning the Tables: Language Affects Spatial Reasoning." *Cognition* 84 (2): 155–88. <http://www.ncbi.nlm.nih.gov/pubmed/12175571>.

Li, Peggy, and Lila Gleitman. 2002. "Turning the Tables: Language and Spatial Reasoning." *Cognition* 83 (3): 265–94. <http://www.ncbi.nlm.nih.gov/pubmed/11934404>.

Lupyan, Gary, and Rick Dale. 2010. "Language Structure Is Partly Determined by Social Structure." *PLOS ONE* 5 (1): e8559. <https://doi.org/10.1371/journal.pone.0008559>.

Maye, Jessica, Janet F Werker, and LouAnn Gerken. 2002. "Infant Sensitivity to Distributional Information Can Affect Phonetic Discrimination." *Cognition* 82 (3): B101–11. <http://www.ncbi.nlm.nih.gov/pubmed/11747867>.

McDonough, Laraine, Soonja Choi, and Jean M Mandler. 2003. "Understanding Spatial Relations: Flexible Infants, Lexical Adults." *Cognitive Psychology* 46 (3): 229–59. [https://doi.org/10.1016/S0010-0285\(02\)00514-5](https://doi.org/10.1016/S0010-0285(02)00514-5).

McMurray, B., and Spivey, M. (2000). "The categorical perception of consonants: the interaction of learning and processing". Proceedings of the Chicago Linguistics Society, 34(2).

Pinker, S. 1991. "Rules of Language." *Science* 253 (5019): 530–35. <https://doi.org/10.1126/science.1857983>.

Regier, Terry, Alexandra Carstensen, and Charles Kemp. 2016. "Languages Support Efficient Communication about the Environment: Words for Snow Revisited." *PLOS ONE* 11 (4): e0151138. <https://doi.org/10.1371/journal.pone.0151138>.

Saffran, Jenny R, Richard N Aslin, and Elissa L Newport. 1996. "Statistical Learning by 8-Month-Old Infants." *Science* 274 (5294): 1926–28. <https://doi.org/10.1126/science.274.5294.1926>.

Tanenhaus, M. K., Spivey-Knowlton, M., Eberhard, K., & Sedivy, J. C. (1995). "Integration of visual and linguistic information is spoken-language comprehension". *Science*, 268, 1632-1634.

Tulving E. (1972). "Episodic and semantic memory," in *Organization of Memory*, eds Tulving E., Donaldson W. (New York: Academic Press), 381–403.
