

PHIL 8340: Concepts and Cognitive Architecture
Fall 2024 | MW 12:30-1:45
25 Park Place, Rm. 1618

Instructor: Professor Daniel Weiskopf
Email: dweiskopf@gsu.edu
Office hours: Tues 2:00-4:00 (via WebEx)

COURSE OVERVIEW

Minds are complex systems built from an array of interlocking subsystems. These subsystems are traditionally modeled as functionally dedicated computational devices employing proprietary representations, operations, and databases. The coordinated operations of these subsystems are invoked to explain an array of human, animal, and machine behaviors. We will consider some theoretical and empirical challenges involved in mapping out this cognitive architecture. Our focus will be on three topics: how to distinguish between perception and higher cognition; what kinds of representational formats these systems use to carry out their specialized functions; and what light computational models, particularly deep neural networks and transformer models, can shed on our understanding of cognitive processing.

Course objectives

The goal of this course is to acquaint you with the state of several current research programs in theorizing about cognitive architecture. You should end the course competent to undertake your own research into any of the topics that we have covered. You will show this competence by producing a semi-professional piece of writing that could serve as the basis for a conference paper, writing sample, or master's thesis.

Prerequisites

Graduate standing or permission of instructor.

READINGS AND ASSIGNMENTS

Assignments

The points available for the class break down as follows (no extra credit):

Response papers 30%
Term paper 70%
Total 100%

A+ 100-97%	A 96-93%	A- 92-90%
B+ 89-87%	B 86-83%	B- 82-80%
C+ 79-77%	C 76-73%	C- 72-70%
D 69-60%	F 59-0%	

Attendance is not graded. However, I expect you to attend every class, do all of the readings, and be a regular and thoughtful discussant. Seminars are intellectual communities, and as such they depend on everyone's participation.

Response papers are brief (300-500 word), focused discussions of a claim, argument, or example used in one of the readings. You will submit 7 of these during the term. RPs are due on Fridays by 5pm.

Term paper. This is a research paper of 3000 to 5000 words. In it you are expected to motivate, develop, and defend a substantial position of your own. The topic may be anything that we have covered in class, or that bears a plausible, well-motivated relation to the course content. Paper topics must be submitted and cleared with me in advance, and your proposed topic must be approved no later than **Wed, 11/6**. The paper will be due on **Mon, 12/9** at midnight.

SCHEDULE OF READINGS

The readings are available on the course iCollege page.

Disclaimer: The course syllabus provides a general plan for the course; deviations may be necessary.

FOUNDATIONS

- M 8/26 Introduction and course overview
- W 8/28 Zenon Pylyshyn, "Computation and cognition: Issues in the foundations of cognitive science"
- M 9/2 **** Labor Day ****
- W 9/4 Jerry Fodor, "Why should the mind be modular?"

PERCEPTION AND COGNITION

- M 9/9 Chaz Firestone & Brian Scholl, "Cognition does not affect perception: Evaluating the evidence for 'top-down' effects"
- W 9/11 Cognitive penetration continued
- M 9/16 Wayne Wu, "Shaking up the mind's ground floor: The cognitive penetration of visual attention"
- W 9/18 E. J. Green, "The perception-cognition border: A case for architectural division"
- M 9/23 Susanna Siegel, "Which properties are represented in experience?"
- W 9/25 Daniel Burnston, "How to think about higher-level perceptual contents"
- M 9/30 Ben Phillips, "The shifting border between perception and cognition"
- W 10/2 No readings; discussion session

REPRESENTATIONAL FORMATS

- M 10/7 John Haugeland, "Representational genera"
- W 10/9 Alfredo Vernazzani & Dimitri Coelho Mollo, "The formats of cognitive representation: A computational account"

- M 10/14 Jake Quilty-Dunn, Nicholas Porot, & Eric Mandelbaum, "The best game in town: The reemergence of the language-of-thought hypothesis across the cognitive sciences"
- W 10/16 LOT continued
- M 10/21 Jacob Beck, "The generality constraint and the structure of thought"
- W 10/23 Corey Maley, "Analog and digital, continuous and discrete"
- M 10/28 Elisabeth Camp, "Thinking with maps"
- W 10/30 Michael Rescorla, "Cognitive maps and the language of thought"
- M 11/4 John Kulvicki, "Maps, pictures, and predication"
- W 11/6 No readings; discussion session

COMPUTATIONAL MODELING

- M 11/11 Cameron Buckner, "Black boxes or unflattering mirrors? Comparative bias in the science of machine behavior"
- W 11/13 Emily Sullivan, "Understanding from machine learning models"
- M 11/18 Felix Wichmann & Robert Geirhos, "Are deep neural networks adequate behavioral models of human visual perception?"
- W 11/20 Brenden Lake & Gregory Murphy, "Word meaning in minds and machines"
- M 11/25 **** Thanksgiving Break ****
- W 11/27 **** Thanksgiving Break ****
- M 12/2 Topic and reading TBD by the group
- W 12/4 Course wrap-up
- M 12/9 Final paper due by midnight

COURSE POLICIES AND PROCEDURES

Conduct

Attendance at all meetings is expected. We meet for the entire scheduled time unless otherwise noted. You may not distribute recordings or transcripts of lectures and discussions. You must request permission to make recordings for personal use. Adhere to normal standards of good classroom behavior: cell phones silent and put away, no loud personal conversations, snoring, etc.

Special accommodations

All efforts will be made to accommodate students with special needs. Students who wish to request accommodations may do so by connecting with the Access and Accommodations Center (AACE). Students will be accommodated upon instructor receipt of an accommodation notice from AACE (see [How to Connect](#)).

Involuntary withdrawal

If by the midpoint of the semester you have not submitted a preponderance of required work, have been absent for two or more weeks without communicating with me, or fail to respond to email messages about nonattendance or a failing grade, I may withdraw you from the class.

Laptops and other electronic devices

Use of laptops and related electronic devices is permitted for course related use only. Disruptive or distracting use of personal electronics will first result in a warning, then in your being asked to leave the class.

Technical support

Online platforms like iCollege can be hard to use, and often break in weird ways. If you are having trouble getting iCollege to do what you want, documentation can be found [here](#). If the platform is broken or inaccessible, contact GSU's [IT department](#) via [email](#).

Lateness policy

Late work is penalized by half a letter grade or the equivalent. It is due at most 72 hours after the original deadline and will not be accepted after that point. Exceptions will be considered in rare circumstances (e.g., serious illness or family medical emergency).

COVID-19 and other illness

Should you test positive for COVID, any accommodations will be informed by evolving guidance on quarantine duration. There will be no change to mode of course delivery, so you will be responsible for collecting notes for missed in-person classes.

Academic honesty

Acceptable academic conduct is laid out in the GSU [Code of Conduct](#). You are expected to abide by this code. The most important aspect of the code is that work you submit should be your own (i.e., not plagiarized). **The penalty for violations is an "F" in the course, which cannot be replaced by repeating the course or with a withdrawal.**

AI tools such as ChatGPT, LLaMA, Claude, Bard, etc. are banned. Work produced using these systems does not count for our purposes as your own intellectual labor, and it will be handled as if plagiarized. Similarly, the use of group chat platforms (Slack, GroupMe, etc.) to complete assignments is also banned unless the assignment is an explicitly collaborative one. Collaborating and using assistive technology is important, but so is learning to think, research, write independently and take authorship of your work.

Department of Philosophy: General Syllabus Statement: Fall 2024

Diversity and Inclusion: GSU is home to a highly diverse student body. In our classrooms, this diversity is a source of strength and a resource for teaching and learning. The Department of Philosophy welcomes voices and viewpoints that have been historically marginalized or underrepresented within the discipline. Faculty and students in Philosophy courses commit to creating an intellectual environment that is inclusive of students' experiences, beliefs, and perspectives, regardless of their race, religion, language, immigration status, sexual orientation, gender identification, ability status, socioeconomic status, national identity, or any other identity markers.

Respect & Civility: All students in this course should be treated with respect and dignity and provided with an equitable opportunity to participate, contribute, and succeed. Disagreement is part of philosophical discussion. But students should avoid language that is demeaning or stigmatizing, particularly when addressing other members of the class and responding to their views. Students who wish to use a name or pronoun other than what is available on the class roll or iCollege may introduce themselves to the class using it or inform the instructor via email. Students should use the names and pronouns preferred by students and faculty.

- **This syllabus provides a general plan for the course. Deviations may be necessary.**
- The **withdrawal period** for a course with the possibility of receiving a "W" for **Fall 2024, Sep 3rd – Oct 15th**. A student may be awarded a **W** no more than 6 times in their career at Georgia State. After 6 W's, a withdrawal is recorded as a WF, which counts as an F in a GPA.
- **The customary penalty for any violation of academic honesty is an "F" in the course, which cannot be replaced by repeating the course or with a withdrawal.** See selections from the University Policy on Academic Honesty below. **Copying or using any material from the internet in any way without proper citation is a violation of the policy.**
- Students who wish to request an accommodation for a disability may do so by registering with the [Access and Accommodation Center \(AACE\)](#). Students may only be accommodated upon issuance by AACE of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.
- Students are responsible for confirming that they are attending the course section for which they are registered. Failure to do so may result in an F for the course.
- By University policy and to respect the confidentiality of all students, **final grades** may not be posted, emailed, or given out over the phone. To see your grades, use PAWS.
- Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State University. Upon completing the course, **please take the time to fill out the online course evaluation on PAWS.**

Please subscribe to one of our department listservs for current information and events:

<https://philosophy.gsu.edu/listserve-form/>

For more information on the philosophy program and the value of philosophy courses visit:

<http://philosophy.gsu.edu>

For more information on GSU Code of Conduct visit:

<https://codeofconduct.gsu.edu/>

For more information on student accommodations visit the AACE website:

<https://access.gsu.edu/>

For more information on assistance for students visit the Dean of Students website:

<https://deanofstudents.gsu.edu/student-conduct/>

Policy on Academic Honesty, from the GSU Student Code of Conduct

As members of the academic community, students are expected to recognize and uphold standards of intellectual and academic integrity. The university assumes as a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work.

The university's policy on academic honesty is published in the *Faculty Handbook* and *On Campus: The Student Handbook* and is available to all members of the university community. The policy represents a core value of the university, and all members of the university community are responsible for abiding by its tenets. Lack of knowledge of this policy is not an acceptable defense to any charge of academic dishonesty. All members of the academic community—students, faculty, and staff—are expected to report violations of these standards of academic conduct to the appropriate authorities. The procedures for such reporting are on file in the offices of the deans of each college, the office of the dean of students, and the office of the provost.

Definitions and Examples

The examples and definitions given below are intended to clarify the standards by which academic honesty and academically honorable conduct are to be judged. The list is merely illustrative of the kinds of infractions that may occur, and it is not intended to be exhaustive. Moreover, the definitions and examples suggest conditions under which unacceptable behavior of the indicated types normally occurs; however, there may be unusual cases that fall outside these conditions that also will be judged unacceptable by the academic community.

Plagiarism: Plagiarism is presenting another person's work as one's own. Plagiarism includes any para-phrasing or summarizing of the works of another person without acknowledgment, including the submitting of another student's work as one's own. Plagiarism frequently involves a failure to acknowledge in the text, notes, or footnotes the quotation of the paragraphs, sentences, or even a few phrases written or spoken by someone else. The submission of research or completed papers or projects by someone else is plagiarism, as is the unacknowledged use of research sources gathered by someone else when that use is specifically forbidden by the faculty member. Failure to indicate the extent and nature of one's reliance on other sources is also a form of plagiarism. Any work, in whole or in part, taken from the Internet or other computer-based resource without properly referencing the source (for example, the URL) is considered plagiarism. A complete reference is required in order that all parties may locate and view the original source. Finally, there may be forms of plagiarism that are unique to an individual discipline or course, examples of which should be provided in advance by the faculty member. The student is responsible for understanding the legitimate use of sources, the appropriate ways of acknowledging academic, scholarly or creative indebtedness, and the consequences of violating this responsibility.

Multiple Submissions: It is a violation of academic honesty to submit substantial portions of the same work for credit more than once without the explicit consent of the faculty member(s) to whom the material is submitted for additional credit. In cases in which there is a natural development of research or

knowledge in a sequence of courses, use of prior work may be desirable, even required; however the student is responsible for indicating in writing, as a part of such use, that the current work submitted for credit is cumulative in nature.

Cheating on Examinations: Cheating on examinations involves giving or receiving unauthorized help before, during, or after an examination. Examples of unauthorized help include the use of notes, computer-based resources, texts, or "crib sheets" during an examination (unless specifically approved by the faculty member), or sharing information with another student during an examination (unless specifically approved by the faculty member). Other examples include intentionally allowing another student to view one's own examination and collaboration before or after an examination if such collaboration is specifically forbidden by the faculty member.

Unauthorized Collaboration: Submission for academic credit of a work product, or a part thereof, represented as its being one's own effort, which has been developed in substantial collaboration with another person or source or with a computer-based resource is a violation of academic honesty. It is also a violation of academic honesty knowingly to provide such assistance. Collaborative work specifically authorized by a faculty member is allowed.

Falsification: It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise, assignment or proceeding (e.g., false or misleading citation of sources, falsification of the results of experiments or computer data, false or misleading information in an academic context in order to gain an unfair advantage).