

course *schedule*

LAI # 605 | Critical Computational Literacies

Fall 2026 | Dr. Chris Proctor

Schedule version 0: August 24, 2026.

Course Schedule

The course is organized around four themes: **literacy, identity, schooling, and AI**. Weeks 1-4 focus on **literacy** as a way of thinking about cultural practices and academic disciplines. Week 1 contextualizes computer science education in the digitally-mediated worlds of today's youth. Then Week 2 traces the development of computational thinking as an effort to name the relationship between computer science and everyday life and therefore the basis for K12 CS education. Week 3 examines the shortcomings of this project and reframes computational thinking in terms of computational literacies. Finally, Week 4's focus on critical computational literacies explores the role of computation in power and oppression, and how critical literacy practices can produce strategies for resistance.

Weeks 5-8 take up the second major theme of the course, **identity**, considering how people author identities within worlds of literacy practice. Week 5 considers identity authorship as a primary form of learning and examines various computational identities. Week 6 examines the relationship between identity and culture: how existing identities are reenacted and transformed in digital media and the ways in which computing cultures constrain possible selves. Week 8 considers the relationship between identities and the computational media upon which they rely. Finally, Week 7 explores disciplinary identities with a focus on the relationship between identity and the acquisition of disciplinary content knowledge.

Week 9 is devoted to student presentations sharing and interpreting communities of computational literacy practice.

Weeks 10-13 consider **education** as an intervention in the processes of literacy and identity. Week 10 examines the implications of designing and defining CS in a school community. Week 11 considers how teachers and schools can support critical action. Week 12 considers how pedagogy can connect across literacies. And Week 13 puts school-based CS education into its broader context, considering how schools might function as nodes in a network of connected learning.

The course concludes in Week 14 with sharing of participants' teaching statements: syntheses of the ideas explored during the course and statements of their own positionality: how they locate themselves and their work within these ideas and their intentions for future work.

Week 1 (August 24, 2026): Growing up in the age of computers

We open the course with an overview of the major themes of the course. We examine several case studies of how computers currently shape learning and schooling. We will conclude by reflecting on how our discussion of computers and schooling challenges our assumptions (e.g. where is a school? what are its boundaries?) and surfaces essential questions about education.

- Complete course survey.
- No discussion group this week. Instead, write a ~500-word reflection (due before the end of the weekend): Jeanette Wing's (2006) argument for computational thinking kicked off two decades of efforts to integrate computing into K12 schooling. How did this project touch your life? Which of her arguments do you find compelling, and which do you find less so? How important do you think it is, in 2026, for every child to learn CT?

Readings

Wing, J. M. (2006). Computational Thinking. *Commun. ACM*, 49(3), 33–35.
<https://doi.org/10.1145/1118178.1118215>

The Atlantic. (2026, August 26). *How social media makes our lives smaller* [Video]. YouTube. <https://www.youtube.com/watch?v=-SjpyybfEZE>

Week 2 (August 31, 2026): Computational thinking

Our schools are organized around standards and learning objectives: if we are going to teach computing, we need to explain what it is, and what makes it different from other things we are teaching.

Readings

Grover, S., & Pea, R. (2013). Computational Thinking in K–12: A Review of the State of the Field. *Educational Researcher*, 42(1), 38–43.
<https://doi.org/10.3102/0013189X12463051>

Proctor, C. (2023). Computational thinking. In R. J. Tierney, F. Rizvi, & K. Ercikan (Eds.), *International encyclopedia of education (fourth edition)* (Fourth Edition, pp. 88–95). Elsevier. <https://doi.org/10.1016/B978-0-12-818630-5.13078-7>

Week 3 (September 7, 2026): Computational literacies

Building on Week 2, Week 3 focuses on the recent turn toward computational literacies as a framework for thinking about how and why we might teach computing. We will use the critical computational literacies framework to interpret several current K-12 CS education initiatives.

Readings

Kafai, Y. B., & Proctor, C. (2021). A Revaluation of Computational Thinking in K-12 Education: Moving Towards Computational Literacies. *Educational Researcher*.
<https://doi.org/10.3102/0013189X211057904>

Vee, A. (2013). Understanding Computer Programming as a Literacy. *Literacy in Composition Studies*, 1(2), 42-64.

Week 4 (September 14, 2026): Critical computational literacies

We will draw parallels between the disciplinary conversation within English/Language Arts and current debates within K-12 CS education in order to center questions of inclusion, representation, and power. We will identify several specific senses of "critical" education and make connections between the readings and our own experiences as students and teachers.

Readings

Benjamin, R. (2019). Introduction. In *Race after technology: Abolitionist Tools for the New Jim Code*. Polity Press. (pp. 1-48).

Vakil, S. (2018). Ethics, Identity, and Political Vision: Toward a Justice-Centered Approach to Equity in Computer Science Education. *Harvard Educational Review*, 88(1), 26-52.

Week 5 (September 21, 2026): Computing and identity

CS Autobiography due.

Week 5 introduces the second major theme of the course, **identity**. We will review several ways in which the construct of "identity" is used in educational research. This week we will consider a diverse array of computer-mediated cultures and identities, including your own.

Readings

Scott, K. A., & White, M. A. (2013). COMPUGIRLS' Standpoint: Culturally Responsive Computing and Its Effect on Girls of Color. *Urban Education*, 48(5), 657-681.
<https://doi.org/10.1177/0042085913491219>

Vakil, S. (2020). "I've Always Been Scared That Someday I'm Going to Sell Out": Exploring the relationship between Political Identity and Learning in Computer Science Education. *Cognition and Instruction*, 38(2), 87-115.
<https://doi.org/10.1080/07370008.2020.1730374>

Week 6 (September 28, 2026): Mediated identity

Whereas Week 5 considered the ways in which computer science intersects broader identity categories in producing subject positions, Week 6 considers computing as a medium for literacy and identity practices. We will consider how computing mediates literacy practices at scales ranging from individual cognition to social and cultural processes.

Readings

diSessa, A. (2001). *Changing minds: Computers, learning, and literacy*. Mit Press. (Excerpt.)

Turkle, S., & Papert, S. (1990). Epistemological Pluralism: Styles and Voices Within the Computer Culture. *Signs: Journal of Women in Culture and Society*, 16(1), 128-159.

Week 7 (October 5, 2026): Disciplinary identities

Disciplinary identities are one way of thinking about learning in terms of identity. In Week 8 we will focus disciplinary identities within formal learning environments such as K-12 classrooms.

Readings

Lewis, C. M., Anderson, R. E., & Yasuhara, K. (2016). "I don't code all day": Fitting in computer science when the stereotypes don't fit. *Proceedings of the International Computer Science Education Research Workshop*, 23-32.

Vogel, S. (2021). "Los Programadores Debieron Pensarse Como Dos Veces": Exploring the intersections of language, power, and technology with bi/multilingual students. *ACM Transactions on Computing Education (TOCE)*, 21(4), 1-25.

Week 8 (October 12, 2026): Literacy places

Fieldnotes due.

Literacy places: Student presentations of fieldnotes and analyses of communities of computational literacy practice.

Readings: Selections from student fieldnotes.

Week 9 (October 19, 2026): Putting computing into schools

Now that we have spent some time thinking about **literacy** and **identity**, it is clear that the question of what K12 computing education ought to be involves much more than content knowledge. In pursuit of this question we turn to the third theme of the course, **schooling**. In Week 9 we examine several efforts to integrate computing education into schools, and the roles they envision schools playing within society. This is an opportunity to introduce the summative assessment of the class, the teaching statement.

Readings:

Proctor, C., Bigman, M., & Blikstein, P. (2019, February). Defining and designing computer science education in a K12 public school district. In *Proceedings of the 50th ACM Technical Symposium on Computer Science Education* (pp. 314-320).

Research Lab High School. A proposal for a UB+BPS university-assisted community school. <https://docs.google.com/document/d/1PC6MTb-gXJXr7UnMsaKbeT7KY636OAXKszqwCmLaflg/edit?usp=sharing>

Ryoo, J. J., Tanksley, T., Estrada, C., & Margolis, J. (2020). Take space, make space: How students use computer science to disrupt and resist marginalization in schools. *Computer Science Education*, 30(3), 337-361. <https://doi.org/10.1080/08993408.2020.1805284>

Week 10 (October 26, 2026): Looking back at CS for All

This week we zoom out

Readings

Fancsali, C., Mark, J., Hill, K., Li, X., Lee, J., Jain, R., & Flores, M. (2024, December). *Expanding computer science education for all: Successes, challenges, and implications of NYC's CS4All initiative*. The Research Alliance for New York City Schools.
<https://steinhardt.nyu.edu/research-alliance/research/expanding-computer-science-education-all>

Philip, T. M., & Garcia, A. D. (2015). The Schooling of Google: Ideology, Media, and the Corporate Shaping of Computer Science for All. *Harvard Educational Review*. (This reading may be replaced by an article in the TOCE special issue on critical political economy, to be published fall 2026).

Week 11 (November 2, 2026): CT and AI

This week we take up the final theme of the course, AI. We will explore how AI is conceptualized from within computing education, and how AI education might learn from the successes and failures of CS education.

Readings

McCune, J., Zarch, R., Childs, J., Yadav, A., Marshall, S. L., & Grooms, A. (2026). The Fragile Edge of Innovation: Examining Policy Resilience in State-Level K-12 Artificial Intelligence Guidance. *Educational Policy*, 1–41.

Tedre, M., Toivonen, T., Kahila, J., Vartiainen, H., Valtonen, T., Jormanainen, I., & Pears, A. (2021). CT 2.0: Upgrading computational thinking for the AI era. In *Proceedings of the 21st Koli Calling International Conference on Computing Education Research*

Week 12 (November 9, 2026): AI literacies

How do the arguments for moving from computational thinking to computational literacies map onto AI?

Draft teaching statement due.

Readings

Long, D., & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16. <https://doi.org/10.1145/3313831.3376727>

Proctor, C., & Rish, R. (2025). The Song Need Not Remain the Same: AI Literacies in the Lives of Youth. In J. D. DeHart, S. Abas, R. A. Mora, & D. G. Pyles (Eds.), *Reimagining Literacy in the Age of AI: Theory and Practice* (pp. 135–151). CRC Press.

Week 13 (November 16, 2026): To be determined

Based on student interest.



Week 14 (November 23, 2026): No class (Thanksgiving break)

Week 15 (November 30, 2026): Sharing teaching statements

Teaching statement due.

We will conclude the class by sharing our teaching statements and intentions for our future work.