

Science/Fiction: Ghosts in the Machine

Tuesdays and Fridays, 10:20–11:40 in HC S124
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Office hours: TBA
<https://andrewgoldstone.com/gm24>

Long before today's sensational headlines about so-called AI, science fiction writers and filmmakers were dreaming up countless thinking and feeling machines: rebel robots, emotional androids, cyborg machine-human hybrids, digital souls without bodies. Reading these fictions, this seminar explores how writing and visual culture imagine, interrogate, and critique scientific and technological change, and how the sciences of mind can themselves be intertwined with fictions of artificial intelligence. The course emphasizes humanistic, cultural-historical approaches to interdisciplinary questions. Course materials include fiction, at least two films, and short essays by philosophers and cognitive scientists.

LEARNING GOALS

1. Analyze individual fictional narratives in writing and film in terms of their themes, formal characteristics, media, and social contexts.
2. Learn to bring cultural-historical analysis of narratives to bear on social and philosophical problems.
3. Develop a historically-informed understanding of thinking machines as simultaneously technological and cultural artifacts.
4. Write effective interpretive arguments that draw on primary-source evidence and engage meaningfully with scholarly sources from multiple disciplines.

This course also satisfies the Writing and Communication (WCd) Core Curriculum goal: Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly; and analyze and synthesize information and ideas from multiple sources to generate new insights.

BOOKS TO BUY

You should buy the following books, which you will be required to bring to class when we discuss them. They are available at Barnes & Noble, or you are free to shop elsewhere for better prices (e.g. at bookshop.org or [amazon](http://amazon.com)). Used copies should not be hard to find. Search using the ISBNs below. Other printed editions (not e-books) are fine.

Dick, Philip K. *Do Androids Dream of Electric Sheep?* 1968. New York: Del Rey, 1996. ISBN: 9780345404473.

Ghosh, Amitav. *The Calcutta Chromosome: A Novel of Fevers, Delirium & Discovery*. Harper, 2001. ISBN: 0380813947.

Gibson, William. *Neuromancer*. New York: Ace / Penguin, 1986. ISBN: 9780441569595.

Leckie, Ann. *Ancillary Justice*. New York: Orbit, 2013. ISBN: 9780316246620.

Mitchell, Melanie. *Artificial Intelligence: A Guide for Thinking Humans*. New York: Picador, 2020. ISBN: 9781250758040.

SCHEDULE

TUESDAY, SEPTEMBER 3. INTRODUCTION.

- In class: can humans think?

FRIDAY, SEPTEMBER 6.

- Okorafor, "Mother of Invention."
- Chiang, "Exhalation."

TUESDAY, SEPTEMBER 10.

- Mitchell, *Artificial Intelligence*, chaps 1 and 3.
- Exercise: thinking about chatting with ELIZA, www.masswerk.at/elizabot/.

FRIDAY, SEPTEMBER 13.

- Turing, "Computing Machinery and Intelligence." Read slowly.

TUESDAY, SEPTEMBER 17.

- Asimov, "Runaround."
 - Look at a scan of the original magazine publication: *Astounding Science-Fiction* 29, no. 1 (March 1942), archive.org/details/Astounding_v29no1_1942-03_dtsgo318.
- Mitchell, *Artificial Intelligence*, chap. 7.
- Exercise: thinking about Mitchell thinking about Asimov.

FRIDAY, SEPTEMBER 20.

- Dick, *Do Androids Dream of Electric Sheep?*, chaps. 1–7.
- Mitchell, *Artificial Intelligence*, chap. 6.

TUESDAY, SEPTEMBER 24.

- Dick, *Do Androids Dream of Electric Sheep?*, chaps. 1–14.
- Hayles, *How We Became Posthuman*, chap. 1.

FRIDAY, SEPTEMBER 27.

- Dick, *Do Androids Dream of Electric Sheep?*
- Rhee, “Beyond the Uncanny Valley.”

TUESDAY, OCTOBER 1.

- Scott, *Blade Runner*.
- Bukatman, *Blade Runner* (excerpt TBA).
- Exercise: thinking about watching a movie.

FRIDAY, OCTOBER 4.

- Scott, *Blade Runner*.
- Mitchell, *Artificial Intelligence*, chaps. 4–5.

TUESDAY, OCTOBER 8.

- Gibson, *Neuromancer*, chaps. 1–4.
- Dehaene, Lau, and Kouider, “What Is Consciousness, and Could Machines Have It?”

FRIDAY, OCTOBER 11.

- Gibson, *Neuromancer*, chaps. 1–10.

TUESDAY, OCTOBER 15.

- Gibson, *Neuromancer*, chaps. 1–16.
- Exercise: thinking about writing about writing.

FRIDAY, OCTOBER 18.

- Gibson, *Neuromancer*.
- Boswell, “Jack In, Young Pioneer.”

TUESDAY, OCTOBER 22.

- Oshii, *Ghost in the Shell*.

FRIDAY, OCTOBER 25.

- Oshii, *Ghost in the Shell*.

(MONDAY, OCTOBER 28.)

- Paper 1 due.

TUESDAY, OCTOBER 29.

- Chiang, "ChatGPT Is a Blurry JPEG of the Web."
- Mitchell, "Debates on the Nature of Artificial General Intelligence."
- In class: talking with chatbots without thinking too much about it.

FRIDAY, NOVEMBER 1.

- Ghosh, *The Calcutta Chromosome*, chaps. 1–11.

TUESDAY, NOVEMBER 5.

- Ghosh, *The Calcutta Chromosome*, chaps. 1–22.
- Dennett, "Where Am I?"

FRIDAY, NOVEMBER 8.

- Ghosh, *The Calcutta Chromosome*, chaps. 1–32.
- Paper 2 topic proposal due.

TUESDAY, NOVEMBER 12.

- Ghosh, *The Calcutta Chromosome*.
- Shinn, "On Machines and Mosquitoes."

FRIDAY, NOVEMBER 15.

- Leckie, *Ancillary Justice*, 1–86.
- Le Guin, "Is Gender Necessary?"

TUESDAY, NOVEMBER 19.

- Leckie, *Ancillary Justice*, 1–167.
- Paper 2 annotated bibliography due.

FRIDAY, NOVEMBER 22.

- Leckie, *Ancillary Justice*, 1–255.
- Parfit, *Reasons and Persons*, chap. 10.

(TUESDAY, NOVEMBER 26. NO CLASS.)

- Thursday classes meet today.

WEDNESDAY, NOVEMBER 27. (FRIDAY CLASSES MEET.)

- Paper 2 workshop.

(THURSDAY, NOVEMBER 28. THANKSGIVING.)

TUESDAY, DECEMBER 3.

- Leckie, *Ancillary Justice*, 1–330.
- Mitchell, *Artificial Intelligence*, chaps. 11, 13.

FRIDAY, DECEMBER 6.

- Leckie, *Ancillary Justice*.

TUESDAY, DECEMBER 10.

- Course conclusion.

(MONDAY, DECEMBER 16.)

- Paper 2 due.

GRADING

The final grade will be calculated as follows:

$$\text{grade} = 0.15(\text{participation}) + 0.1(\text{discussion-leading}) + 0.1(\text{short assignments}) \\ + 0.25(\text{paper 1}) + 0.4(\text{paper 2})$$

Each grade is given on the four-point scale as specified in the Undergraduate Catalog. In converting the final numerical score to a letter, the equivalents in the Catalog are used as follows:

$3.5 < \text{grade} \leq 4.0$	A
$3.0 < \text{grade} \leq 3.5$	B+
$2.5 < \text{grade} \leq 3.0$	B
$2.0 < \text{grade} \leq 2.5$	C+
$1.0 < \text{grade} \leq 2.0$	C
$0.5 < \text{grade} \leq 1.0$	D
$\text{grade} \leq 0.5$	F

The final grade will be based on a numerical score but is subject to my discretion. Unsatisfactory work in all areas of the course will result in an F even if the numerical score corresponds to a passing grade.

PARTICIPATION

Attendance and active, thoughtful participation in discussion are required. Lateness, lack of preparation (including coming to class without the assigned text in printed form), and disruptive behavior affect the participation mark.

If you miss three or more classes without excuse, the *maximum* participation mark you can receive is 3.0 out of 4.0. Missing more than five meetings without an excuse will normally result in a failing grade for the course.

If you fall ill or miss class for a family emergency, please contact me as soon as possible; you can make up for an excused absence.

DISCUSSION-LEADING

Each student will lead a portion of the seminar once. The student will present on an assigned reading, then pose questions and guide discussion.

SHORT ASSIGNMENTS

Short written assignments, completed at home or in class, will prepare students for the longer papers.

PAPER 1

The first paper will require an interpretive argument supported by analysis of primary texts from the course.

PAPER 2

The final paper will require an interpretive, conceptual, or historical argument related to themes of the course that incorporates sources not on the syllabus.

ACADEMIC INTEGRITY

Students and instructors have a duty to each other and to our community to abide by norms of academic honesty and responsibility. To present something as your own original writing when it is not is plagiarism. Plagiarism and other forms of cheating are serious violations of trust. For the purposes of this course, I will also consider any use of so-called “AI” tools for generating text for assignments as a violation of academic integrity. Academic dishonesty, including plagiarism, will have severe consequences, in accordance with the University Policy on Academic Integrity and the Code of Student Conduct. For details about the University’s academic integrity policies, please see academicintegrity.rutgers.edu.

STUDENTS WITH DISABILITIES

All reasonable accommodation will be given to students with disabilities. Students who may require accommodation should contact the Office of Disability Services (ods.rutgers.edu; 848-445-6800) and speak with me at the start of the semester.

OTHER READINGS AVAILABLE VIA CANVAS

Asimov, Isaac. “Runaround.” In *The Complete Robot*. New York: Doubleday, 1982.

Boswell, Suzanne F. “‘Jack In, Young Pioneer’: Frontier Politics, Ecological Entrapment, and the Architecture of Cyberspace.” *American Literature* 93, no. 3 (September 2021): 417–44. <https://doi.org/10.1215/00029831-9361251>.

Bukatman, Scott. *Blade Runner*. London: BFI, 2012. <http://ebookcentral.proquest.com/lib/rutgers-ebooks/detail.action?docID=4763955>.

Chiang, Ted. “ChatGPT Is a Blurry JPEG of the Web.” *The New Yorker*, February 9, 2023.

———. “Exhalation.” *Lightspeed* 47 (April 2014). <https://www.lightspeedmagazine.com/fiction/exhalation/>.

Dehaene, Stanislas, Hakwan Lau, and Sid Kouider. “What Is Consciousness, and Could Machines Have It?” *Science* 358, no. 6362 (2017): 486–492. <https://www.jstor.org/stable/26400627>.

Dennett, Daniel C. “Where Am I?” In *Brainstorms: Philosophical Essays on Mind and Psychology*. Cambridge: MIT Press, 1980. <http://ebookcentral.proquest.com/lib/rutgers-ebooks/detail.action?docID=5966522>.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. University of Chicago Press: University of Chicago Press, 1999. <https://hdl.handle.net/2027/hebo5711.0001.001>.

- Le Guin, Ursula K. "Is Gender Necessary?" In *The Language of the Night: Essays on Fantasy and Science Fiction*, edited by Susan Wood, 161–69. New York: Putnam, 1979.
- Mitchell, Melanie. "Debates on the Nature of Artificial General Intelligence." *Science* 383, no. 6689 (March 21, 2024). <https://doi.org/10.1126/science.ado7069>.
- Okorafor, Nnedi. "Mother of Invention." *Slate*, February 21, 2018. <https://slate.com/technology/2018/02/mother-of-invention-a-new-short-story-by-nnedi-okorafor.html>.
- Oshii, Mamoru, dir. *Ghost in the Shell*. Manga Entertainment, 1996. <https://digitalcampus.swankmp.net/rutgers313400/watch/000EBC783FF9F703?referrer=direct>.
- Parfit, Derek. *Reasons and Persons*. Oxford: Oxford University Press, 1984.
- Rhee, Jennifer. "Beyond the Uncanny Valley: Masahiro Mori and Philip K. Dick's *Do Androids Dream of Electric Sheep?*" *Configurations* 21, no. 3 (April 2014): 301–29. <https://doi.org/10.1353/con.2013.0022>.
- Scott, Ridley, dir. *Blade Runner*. Final cut. 1982. Warner, 2007. <https://digitalcampus.swankmp.net/rutgers313400/watch/C9BD78E96D3A71E0?referrer=direct>.
- Shinn, Christopher A. "On Machines and Mosquitoes: Neuroscience, Bodies, and Cyborgs in Amitav Ghosh's *The Calcutta Chromosome*." *MELUS* 33, no. 4 (December 2008): 145–66. <http://www.jstor.org/stable/20343511>.
- Turing, A. M. "Computing Machinery and Intelligence." *Mind* 59, no. 236 (1950): 433–60. <https://www.jstor.org/stable/2251299>.