Neuroethics
Monday, Wednesday, Friday, 3:30 – 4:30 pm
PSYC394-06 | Spring 2026 | THEATR 213

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<u>Student/Office Hours:</u>
  Mondays, 4:30 pm – 5:30 pm,
  Wednesdays, 12:00 pm – 2:00 pm,
  or *by appointment*

Welcome

Welcome to Neuroethics! I am so glad you are here. This class is a space for curiosity, exploration, and growth for all of us. This is my second semester teaching at Macalester and what I am most looking forward to is getting to know you and exploring ideas together. My hope is this class will be a place where we can learn alongside one another by asking thoughtful questions, making connections, and finding new ways to understand the material.

Whether you are taking this course to fulfill a requirement, to explore an interest, or to build on an existing passion, you belong here. My goal is to support you as you take intellectual risks and discover what excites you most about this topic.

About me: I am a neuroscientist interested in the cellular and circuit mechanisms of motor (dys)function. Before Macalester, I completed my PhD at the University of California, San Francisco (UCSF). Outside of class, you will usually find me working on a knitting project with a cup of tea, swimming, or spending time with my cat, Rhoda. If you ever want to talk about neuroscience, grad school, your favorite local artists, or anything else, I'm always happy to chat. You can call me Emily, Professor Twedell, Dr. Twedell, or any combination that makes you feel comfortable. I use she/her/hers pronouns.

Overview of the Course

What does neuroscience reveal about free will, responsibility, and identity – and how do those insights challenge the ways we think about law, medicine, and society?

This discussion-based seminar examines the ethical, legal, and societal questions raised by contemporary neuroscience. Topics include moral decision-making, brain-based lie detection, cognitive enhancement, psychiatric neurotechnologies, and the use of neural data in courts, clinics, and consumer settings. The course also considers how neuroethics intersects with broader questions of equity, disability, identity, and systemic bias.

Course work involves reading and analyzing work from neuroscience, psychology, philosophy, and law. It also includes leading and contributing to inclusive discussions and applying ethical reasoning to real-world scenarios. A final project provides the opportunity to investigate a neuroethical issue in a format that fits individual interests, such as a research proposal, policy brief, public-facing resource, or legal case analysis.

Learning Goals

By the end of this course, you will be able to:
1. **Analyze complex ethical questions arising from advances in neuroscience** using evidence-based reasoning and ethical frameworks to evaluate competing perspectives.
2. **Evaluate how neuroscientific knowledge interacts with social, cultural, legal, and policy contexts,** and assess the implications of these interactions for responsibility, equity, and justice.
3. **Articulate and defend reasoned positions on brain-based interventions and applications** (e.g., gene editing, neural enhancement, predictive biomarkers) with careful attention to agency, autonomy, and responsibility.
4. **Synthesize perspectives across disciplines** (neuroscience, psychology, philosophy, law, and disability studies) to develop well-supported responses to emerging neuroethical dilemmas.
5. **Communicate ethical reasoning clearly and persuasively** in written and oral formats, tailoring arguments to scientific, clinical, legal, and public audiences.
6. **Reflect critically on your own assumptions and responsibilities** as a scientist, clinician, policymaker, or informed citizen when engaging with ethical questions in neuroscience.

Community Code of Conduct (* to be amended based on your input)

This class is more than a collection of individuals – it is a learning community. The following expectations are designed to create a space where all students feel welcomed, challenged, and supported in their growth as scientists, thinkers, and people. These principles apply to all in-person and digital interactions in this course.

1. <u>Respect One Another</u>
   - Listen actively and attentively when someone is speaking - everyone's perspective has value.

- Use names and correct pronouns.
- Critique ideas, not individuals. When offering feedback, be kind, constructive, and specific.
- Step up, step back: Try to speak up if you're usually quiet and try to make space for others if you tend to talk often.

2. <u>Engage with Openness and Curiosity</u>
   - Ask questions about the material, about each other's ideas, and about how we think.
   - Acknowledge that learning often involves making mistakes and sitting with discomfort.
   - Assume positive intent but be accountable for the impact of your words and actions.

3. <u>Honor Diverse Ways of Learning and Communicating</u>
   - Recognize that people process and express ideas differently. Some may think aloud, others may prefer to reflect before speaking.
   - Respect alternative forms of participation (e.g., written contributions, partner discussions, collaborative documents).
   - Be patient and inclusive of different backgrounds, levels of experience, and learning needs.

4. <u>Take Care of Ourselves and Each Other</u>
   - Be mindful of your well-being and ask for support when needed.
   - Respect mental, physical, and emotional boundaries - including in collaborative work.
   - Celebrate each other's contributions and encourage growth, not perfection.

5. <u>Academic Honesty</u>
   - Academic integrity is part of how we build trust and learn from one another.
   - Collaboration is encouraged, but you are expected to acknowledge all contributors and clearly distinguish your own work from shared ideas.
   - Give proper credit to all sources of information and ideas. Avoid plagiarism and fabrication.
   - For individual assessments (e.g., exams), all work must be completed independently.
   - If you are unsure whether something is acceptable, **please ask me** before submitting your work! Questions about process or citation are *always* welcome.

6. <u>Co-Create a Safe and Supportive Space</u>
   - If you witness or experience exclusion, disrespect, or harm, speak up or come talk to me - you will be supported.

We will revisit these agreements as needed and adjust them together to reflect the evolving needs of our community.

Assignments and Activities

This course is designed to help you build core skills in scientific thinking, communication, and collaboration. Throughout the semester, you'll engage in reading, discussion, peer review, and a culminating research proposal project. Each assignment is scaffolded to support your growth and confidence as a scientist and scholar.

Participation (15%)
Your active engagement is essential to creating a meaningful learning environment. Participation can take many forms:
- Asking or answering questions during class
- Submitting discussion questions in advance
- Leading a figure walkthrough
- Contributing during peer feedback sessions
- Engaging thoughtfully in small-group or whole-class activities

You don't need to speak every class session, but regular, thoughtful participation is expected. We all have different communication styles, and participation may look different for different students. If you are not able to participate verbally during class but would like to demonstrate active engagement, you are welcome to email me with a comment or idea you would have liked to share.

Attendance and punctual arrival are part of your participation grade. You are allowed three classroom absences, no questions asked, per semester. Absences for religious observances will not count towards these, so please just let me know in advance so we can plan accordingly. If you are unable to attend class or lab for any reason, please email me as soon as possible to discuss how you can stay engaged with the course material and community.

Students with any concerns, questions, or need for consideration for flexibility should connect with me as soon as possible to determine an appropriate plan.

Discussion Leader (10%)
Each student will lead the discussion for one research article during the semester. You will:
- Prepare a 1-page **handout** that includes:
  - Brief background and context (optional)
  - Two **Think-Pair-Share prompts** (one on rationale/broader impact, one on experimental design)
  - One **figure for live annotation**, with questions to guide interpretation
- Facilitate class discussion and annotation of your chosen figure
- Encourage participation and help classmates understand the paper's significance
  You'll be assessed on your preparation, communication, and ability to guide peer learning.

Resource Engagement Questions (10%)

To support meaningful, prepared discussion, you will regularly submit brief written responses to assigned course resources (e.g., readings, videos, podcasts) prior to class discussion. These responses are designed to ensure enagement with course materials and to help you identify key ethical questions, tensions, or points of uncertainty in advance of our conversations.

Prompts may ask you to summarize a central claim, identify an ethical issue or trade-off, raise a question, or connect the resource to broader course themes. Responses are graded for completion and thoughtful engagement, not for arriving at a particular interpretation or conclusion.

Policy Brief (15%)

Neuroethical questions often require decisions to be made under uncertainty and real-world constraints; this assignment emphasizes ethical reasoning in applied contexts. You will write a concise policy brief addressing a real-world neuroethical issue for a specific decision-making audience (e.g., hospital ethics committee, regulatory body, school district, or advisory panel). Your brief will:

- Clearly define the policy problem and relevant context
- Identify key ethical considerations and trade-offs
- Make a justified recommendation grounded in evidence and ethical reasoning
- Acknowledge uncertainty, limitations, or potential risks

You will be evaluated on the clarity of your reasoning, the quality of your justification, and your ability to write for a specific audience, rather than on whether your recommendation aligns with a particular viewpoint.

Dual Perspectives Essay (15%)

Neuroethical questions rarely have a single correct answer. Instead, they involve competing values, priorities, and constraints held by different stakeholders. In this essay, you will analyze a neuroethical issue by writing from two distinct stakeholder perspectives (e.g., patient, clinician, caregiver, policymaker, researcher). You will:

- Present one section arguing the issue from the perspective of one stakeholder
- Present a second section arguing the issue from the perspective of a different stakeholder
- Ground each perspective in ethical reasoning and relevant empirical or contextual evidence
- Include a brief reflective paragraph on the experience of writing from multiple perspectives.

You will be evaluated on the clarity, rigor, and fairness with which you represent each stakeholder's ethical concerns, rather than on advocating for a particular position.

Final Project (25%)
The culminating assignment is an in-depth exploration of a neuroethical issue of your choice. You will identify and analyze a question at the intersection of neuroscience, ethics, and society, and communicate your reasoning in a format that plays to your strengths, whether academic, applied, or public-facing. Your work must be grounded in ethical reasoning and appropriate use of empirical, legal, or policy-relevant sources, and should attend to uncertainty, trade-offs, and broader implications. You will present your project during our final class sessions.

Final Presentation (10%)
You will present your proposal in a 10-minute oral presentation during the final week of class. In addition to clearly introducing your neuroethical question or issue, your presentation should highlight your analysis, key ethical tensions, and the broader implications of your work. This is your opportunity to share your project in the format you designed, explain your reasoning choices, and engage your classmates in discussion. Presentations will be followed by a brief Q&A. Alternate presentation formats (e.g., pre-recorded, small group) are available upon request.

Weekly Reflections (not graded, but completion counts towards participation)
Each Friday, we'll begin class with a short, written reflection. Prompts may include:

- "What was the most interesting thing you learned this week?"
- "What concept is still unclear?"
- "How does this connect to other things you've learned or observed?"

These will be ungraded but reviewed to help me adapt the course and support your learning.

File Format and Submission Naming Conventions

All written assignments must be submitted electronically via Moodle as either a Word document (.docx) or PDF (.pdf) file. To ensure files can be identified and returned efficiently, please name your files using the following format:

FirstLast_AssignmentTitle_S2026

For example:
EmilyTwedell_PolicyBrief_S2026
MarthaFarah_FinalProject_S2026
CamilloGolgi_DualPerspectivesEssay_S2026

Safe Space to Share Your Thoughts

I recognize that there is an inherent imbalance in the power dynamic between us and know that can stand in the way of open communication. For this reason, I have created an anonymous GoogleForm that will remain open to submissions and be checked regularly for you to ask questions, provide feedback, or share any information without

worrying about how it might affect you. If you would like a direct response, you can also provide your name and/or contact information (completely optional).

Accommodations

I am committed to ensuring access to course content for all students, including those with disabilities. If you have a disability, please meet with me early in the semester to discuss your accommodation plan. If you have not yet obtained a plan or are unsure if you have a disability that requires accommodation, please contact Disability Resources: disabilityresources@macalester.edu, or call 651-696-6275. You can learn more about the Center for Disability Resources here.

Health and Wellness

Here at Macalester, we encourage you to make your well-being a priority throughout this semester and your time here. Investing time into taking care of yourself will help you engage more fully in your academic and holistic experience. Sleeping, moving your body in a way that feels supportive to you, and connecting with others can be strategies to help you navigate your time at Macalester. Remember that beyond being a student, you are a human being carrying your own experiences, thoughts, emotions, and identities with you. Acknowledging any stressors you may be facing, which can be mental, emotional, physical, financial, etc., and how they can have an academic impact may be helpful and Macalester offers an array of resources to help you navigate these challenges. If you are having difficulties maintaining your well-being, please feel welcome to reach out to me or to the Hamre Center directly so we can help connect you to the resources that are supportive of you and your unique experience.

Academic Resources

Macalester has many resources to support students academically. For example, the Writing Center (WC) provides one-on-one peer tutoring for writing at any stage of a project or paper; the Science and Quantitative Center (SciQ) supports group tutoring for many math, science, and econ courses; and Academic Coaching provides one-on-one support for study skills, time management, reading, note taking, and effective learning strategies. Seeking help is a sign of strength and maturity, and everyone is encouraged to take advantage of the (free) resources available. Check out the Academic Success page for more information about their services.

Academic Integrity

Academic integrity is essential to learning and to building trust in our classroom community. You are expected to follow Macalester College's academic integrity policies and to submit work that reflects your own understanding, reasoning and language. You can learn more about Macalester College's official academic integrity policies here. You can also learn more about how to document sources and how to avoid plagiarism from the Library website.

Use of AI tools:
In this course, you may use AI tools for limited support tasks such as brainstorming, idea generation, outlining, or identifying areas of confusion. However, AI tools may produce inaccurate, incomplete, or misleading information, and overreliance on them can interfere with your own learning.

You may **not** submit AI-generated text, analyses, explanations, or answers as your own work. This includes (but is not limited to) text used in exams, written assignments, lab notebooks, discussion materials, or reflections. All submitted work must be written in your own words and reflect your own reasoning.

If you use AI tools in an appropriate way (e.g., to generate ideas or organize your thoughts), you must still:
- Independently evaluate the content for accuracy
- Write the final submission yourself
- Cite the use of AI tools when they contribute to ideas or language, just as you would any other source

If you are unsure whether a particular use of AI is permitted, please ask **before** submitting your work. Questions about process, citation, or boundaries are always welcome.