

PUBP 3244: Stem Cell Science, Policy, and Ethics

Fall 2026 • Tuesday/Thursday 5:00-6:15pm • Clough 262



Course Instructor

Morgane Golan, Ph.D.

Postdoctoral Fellow, School of Public Policy

Email: mgolan6@gatech.edu

Phone: (201) 300-5430

Zoom/In-person appointments scheduled by email.

ABOUT THIS COURSE

Examination of the current state of scientific knowledge regarding stem cells and historical development, relevant ethical issues, and policy considerations.

Stem cells occupy an unusual place at the intersection of science, medicine, ethics, and policy. The ability to self-renew and differentiate creates extraordinary opportunities for understanding human development, modeling disease, and developing new therapies; however, questions about the origins and uses of stem cells have generated decades of disagreement about embryos, reproductive technologies, research funding, patient safety, access to treatment, commercialization, and the appropriate role of government.

In this course, we will examine stem cell science alongside the ethical and policy debates that encircle it. We will begin by building a common foundation in stem cell biology, policymaking, and ethical reasoning, enabling us to deeply examine major controversies regarding fetal tissue research, in vitro fertilization, human embryonic stem cells, somatic cell nuclear transfer, induced pluripotent stem cells, organoids and embryo models, federal and state stem cell policy, cell therapy commercialization, CAR-T therapy, and the regulation of unproven interventions.

This is not a course in which you will simply memorize what different people believe about stem cells. Instead, we will repeatedly ask a more difficult question:

How should society make decisions about powerful and ethically contested stem cell technologies when scientific evidence, moral values, stakeholder interests, and political institutions point toward disparate answers?

We will practice answering this question through discussion, case studies, simulations, policy analysis, writing, and structured deliberation – and we'll have fun doing it!

COURSE LEARNING OBJECTIVES

By the end of this course, you will be able to:

1. **Explain** the biological foundations, capabilities, and limitations of major stem cell and cell therapy technologies.
2. **Recognize ethical and professional responsibilities** in regenerative medicine and apply and compare established ethical theories, principles, and frameworks to contested biotechnology issues.
3. **Explain** how institutions, stakeholders, laws, courts, and historical events shape stem cell and biotechnology policy.
4. **Evaluate** scientific evidence, ethical arguments, stakeholder interests, policy tradeoffs, and the implications of policy choices for individuals and broader society.
5. **Develop and defend** concise, evidence-based policy recommendations for specified decision-makers and policy contexts.
6. **Communicate and deliberate productively** through scientific uncertainty and moral or political disagreement.

REQUIRED COURSE MATERIALS

There is **no required textbook purchase** for this course. Assigned readings will be provided through Canvas, and will include selections from books, peer-reviewed scientific and ethics literature, court decisions, government documents, policy statements, materials produced by relevant stakeholder organizations, etc.

You should have regular access to a **laptop/tablet (and charger!)** with internet access for Canvas and in-class activities. If access to a device creates a barrier to participating in the course, please contact me so that we can identify a solution.

HOW THIS COURSE WORKS

This is an active-learning course. Class meetings will combine instruction with discussion, cases, games, collaborative problem-solving, policy analysis, simulations, and structured deliberation. Be prepared to engage thoughtfully every day: you can expect to do something effortful with the material we cover.

Several issues covered in this course involve sincere ethical, religious, political, scientific, and personal disagreement. You will never be required to disclose your own beliefs or personal experiences. In some activities, you may be asked to represent an assigned stakeholder or ethical position that does not reflect your own views. Our goal is not to eliminate disagreement, but to learn how to disagree respectfully, evaluate arguments fairly, and distinguish criticism of an idea from judgment of the person expressing it.

COMMUNICATION

Canvas will be the central home for course announcements, readings, assignments, resources, and updates.

For individual questions, you are welcome to email me directly. I will generally respond to messages within **2 business days**. Messages received during evenings, weekends, or university holidays may take longer.

If your question would be easier to discuss than to write out, please schedule a meeting by email. I am happy to meet with you in person or over Zoom. I am also generally available to speak in the classroom both before and after class, if you are open to more public conversation. Questions about the course content, assignments, expectations, or your progress are welcome at any point in the semester!

ARTIFICIAL INTELLIGENCE USE

Artificial intelligence tools are welcome in this course when used **transparently and appropriately**. AI can be a valuable aid in your learning process, particularly when it comes to research, organization, and comprehension. In fact, I will introduce you to specific AI tools that can support your understanding of the literature and help you locate credible sources for your assignments.

AI should never be used as a substitute for your own thinking. Learning is like training a muscle: if you outsource all the work, your brain doesn't grow stronger. Please use AI to support your efforts, not to replace them. If you're ever unsure whether a particular use of AI is acceptable, just ask! I want you to use these tools ethically and effectively and am here to help you learn how, because breach of this policy (even if unintentional) may constitute academic misconduct.

Generally permitted uses: AI may be used to generate search terms or help locate potential sources, clarify concepts you are struggling to understand, support brainstorming or help you organize ideas, identify unclear sections of your writing, and check spelling, grammar, or readability – as long as the final product reflects *your own* understanding and work. Be mindful to disclose AI use when it is applied in any of the ways permitted above. Unless an assignment specifies otherwise, a brief statement identifying the AI tool used and describing how you used it is sufficient.

Generally prohibited uses: AI and any other study aids are strictly forbidden during exams and other closed-resource assignments. You may not fabricate sources, evidence, quotations, or citations in any context, nor may you replace required reading with an AI-generated summary when your assignment requires direct engagement with the original source. You may not submit AI-generated work as though you wrote or reasoned through it yourself; this includes generating your contribution to a role-play or deliberation activity in lieu of preparing and understanding your assigned position.

GRADING CRITERIA & SCALE

ASSIGNMENT

VALUE

Separate grading rubrics will be available on Canvas!

Engagement & Preparation

20%

Your engagement grade will reflect preparation for class and meaningful participation in activities, discussions, simulations, reading exercises, and other short learning products. The goal is not to reward students who talk the most. Strong engagement may include asking a thoughtful question, contributing evidence to a group discussion, completing an activity carefully, listening and responding constructively to classmates, or revising your thinking in response to new information. Engagement will be scored according to a rubric once per unit, with the lowest of the six scores for the semester being dropped.

I understand that illness, emergencies, professional obligations, religious observances, and other circumstances can interfere with engagement and preparation. Students with Institute-approved absences will be permitted to make up missed graded work in accordance with Georgia Tech policy. If you miss class for another reason, please communicate with me as soon as possible. You are responsible for reviewing course materials and announcements associated with any class you miss. You will never be required to use a dropped score or other grading flexibility to account for an officially approved Institute absence.

Ethics Board Meeting

10%

Early in the semester, we will undertake an ethical reasoning exercise in which you will independently develop a character representing a particular ethical framework and prepare to participate in a simulated board meeting. Your preparation will address your character's responsibilities, interests, ethical commitments, relevant evidence, likely allies and disagreements, and possible areas of compromise. This is a relatively low-stakes opportunity to practice the kind of structured deliberation we will use throughout the semester!

Planned board meeting date: Thursday, September 10th, 2026

Stakeholder Perspectives Analysis

10%

Applying the skills and knowledge you gained from the ethics board meeting activity, you will research the perspective of a stakeholder involved in stem cell policy. Your analysis will consider the stakeholder's interests, policy position, issue salience, internal diversity, influence, and the quality of evidence available to support your characterization of that stakeholder. Teams will give brief presentations, and each student will complete an individual reflection.

Planned presentation date: Thursday, September 17th, 2026

Policy Memo 1

10%

Your first policy memo will ask you to analyze a contemporary policy problem related to in vitro fertilization and reproductive biotechnology. Writing for a specified decision-maker, you will identify the policy problem, evaluate realistic alternatives, consider relevant scientific evidence and stakeholder impacts, and make a concise evidence-based recommendation. The assignment is designed to teach the structure and style of

professional policy writing. We will complete a policy-analysis workshop in class before the memo is due.

Tentative due date: Thursday, October 8th, 2026

Exam 1

15%

Exam 1 will assess your ability to integrate the scientific, ethical, stakeholder, and policy concepts covered during Units 1-3. The exam will emphasize explanation and application rather than isolated factual recall. We will devote Tuesday, October 20th to an active Exam 1 Review session. Exam 1 will be administered in class by a proctor while I am attending the Biomedical Engineering Society Annual Meeting. Material on SCNT and egg donation introduced on October 13th and October 15th will not be included on Exam 1.

Exam date: Thursday, October 22nd, 2026

Policy Memo 2

10%

The second policy memo will build on the skills developed in Policy Memo 1 while requiring more sophisticated institutional and political analysis. You will evaluate how a stem cell policy proposal could affect a research institution like Georgia Tech and recommend an appropriate institutional response. Your analysis may consider scientific impact, implementation, legal constraints, funding, politics, stakeholder response, institutional mission, and possible amendments to the proposal. Feedback from Memo 1 should inform your approach to Memo 2.

Tentative due date: Thursday, November 19th, 2026

Capstone Policy Simulation

10%

At the end of the semester, you will participate in a structured policy simulation involving a contested issue in stem cell science or regenerative medicine. In the role of an assigned stakeholder, you will prepare evidence, respond to questioning, negotiate with other participants, and contribute to a final policy recommendation – think of this as a debate-style presentation. This capstone project is designed as the advanced counterpart to our *Ethics Board Meeting* and *Stakeholder Perspectives Analysis*. This project represents the integration of skills developed throughout the semester: scientific reasoning, ethical analysis, stakeholder assessment, evidence evaluation, policy recommendation, and communication of ideas.

Tentative due date: Thursday, December 3rd, 2026

Exam 2

15%

Exam 2 is the final assessment for this course. It will be cumulative, with greater emphasis on material introduced after Exam 1. The exam will assess your ability to integrate science, ethics, policy, and stakeholder reasoning across the course. We will devote Tuesday, December 8th to an active Exam 2 Review session.

Exam date: Thursday December 10th, 2026 – 6:00 to 8:50 PM

A	B	C	D	F
90+	80-89	70-79	60-69	<59
Scores >0.5 will be rounded up.				

CLASSROOM CONDUCT EXPECTATIONS

Georgia Tech's [Student-Faculty Expectations](#) call for a positive, respectful, and engaged academic environment. This course covers subjects upon which reasonable people may disagree deeply. Our classroom should therefore be a place where challenging questions can be examined without requiring students to defend their identities, personal experiences, political affiliations, religious beliefs, or private moral commitments.

We will practice the following norms:

- Critique arguments, evidence, assumptions, and policies rather than attacking people.
- Represent opposing arguments accurately before criticizing them.
- Distinguish empirical disagreements from ethical disagreements.
- Ask questions when you do not understand someone's reasoning.
- Make room for classmates who process ideas differently or need time before speaking.
- Changing your mind is allowed.
- Saying "I am not sure yet" is allowed.
- You may decline to disclose personal experiences or beliefs.

ACCESSIBILITY & ACCOMMODATIONS

Georgia Tech is committed to providing students with equitable access to learning. If you anticipate/experience barriers related to the format or requirements of this course, you are welcome to discuss them with me at any time. Students who require disability-related accommodations should contact the [Georgia Tech Office of Disability Services \(ODS\)](#) and obtain a Course Accessibility Letter. Once you receive a letter, please share it with me so that we can discuss how your accommodations will be implemented in this course. Approved accommodations will be implemented in accordance with ODS guidance. Accommodations are intended to provide access to the course and an equitable opportunity to demonstrate learning. They do not lower the academic expectations or learning objectives of the course.

ACADEMIC HONOR CODE

All students are expected to comply with the [Georgia Tech Academic Honor Code](#). The goal of academic integrity in this course is not simply to prevent cheating; trust is essential in a course that asks students to evaluate evidence, represent the arguments of others fairly, and develop their own policy recommendations. Lack of knowledge of the academic honesty code is not a reasonable explanation for a violation. Questions related to course assignments and academic honesty should be directed to your instructor.

DISCLAIMER

This syllabus represents our plan for the semester. Changes may occasionally be necessary because of developments in science or policy, university circumstances, guest availability, or the pace of the class. Any substantive changes will be communicated through Canvas with enough notice for students to adjust. Updated versions of the syllabus will also be posted as needed.

FALL 2026 COURSE SCHEDULE

This schedule provides the planned sequence of course topics and major assessments. Specific readings, preparation materials, and in-class activities will be posted in the corresponding Canvas modules and may be adjusted as the semester progresses.

Date	Topic / Major Event
UNIT 1: FOUNDATIONS	
Tue. Aug. 25	Course Introduction & Stem Cell Biology Foundations
Thu. Aug. 27	Stem Cell Biology & Active Reading
Tue. Sept. 1	Governance & Policymaking
Thu. Sept. 3	Ethical Frameworks in Regenerative Medicine, Virtual Class
UNIT 2: PRECURSOR CONTROVERSIES	
Tue. Sept. 8	Abortion Law, Moral Status & Fetal Tissue Research
Thu. Sept. 10	Ethics Board Meeting
Tue. Sept. 15	Fetal Tissue Research Ethics, Policy & Stakeholder Analysis
Thu. Sept. 17	Stakeholder Perspectives Analysis Presentations
Tue. Sept. 22	In Vitro Fertilization: Science, Practice & Ethics
Thu. Sept. 24	IVF Governance & Policy Analysis / Policy Memo 1 Workshop
UNIT 3: HUMAN EMBRYONIC STEM CELL SCIENCE & ETHICS	
Tue. Sept. 29	Human Embryonic Stem Cell Derivation & Research
Thu. Oct. 1	Moral Status & hESC Ethics I
Tue. Oct. 6	No Class, Fall Break
Thu. Oct. 8	Moral Status II & Embryo Disposition / Policy Memo 1 Due
UNIT 4: ALTERNATE PLURIPOTENT TECHNOLOGIES	
Tue. Oct. 13	Somatic Cell Nuclear Transfer & Therapeutic Cloning
Thu. Oct. 15	Egg Donation, Compensation & Research Ethics
Tue. Oct. 20	Exam 1 Review
Thu. Oct. 22	Exam 1, Proctored
Tue. Oct. 27	Induced Pluripotent Stem Cells

Date	Topic / Major Event
Thu. Oct. 29	Organoids, Embryoids & Stem Cell-Based Embryo Models
UNIT 5: GOVERNANCE & POLICY	
Tue. Nov. 3	Federal Stem Cell Policy: Clinton to 2026 & the Courts
Thu. Nov. 5	Policy Actors & Science Policy in Practice
Tue. Nov. 10	State Stem Cell Policy
Thu. Nov. 12	Policy Effects & Institutional Strategy / Policy Memo 2 Workshop
UNIT 6: TRANSLATION, REGULATION & ACCESS	
Tue. Nov. 17	Adult Stem Cells, Hematopoietic Stem Cells & Cord Blood
Thu. Nov. 19	CAR-T: Clinical Trials, Manufacturing & Access / Policy Memo 2 Due
Tue. Nov. 24	Cell Therapy Manufacturing, Commercialization & Access
Thu. Nov. 26	No Class, Thanksgiving Recess
Tue. Dec. 1	FDA Oversight & Unproven Stem Cell Interventions
Thu. Dec. 3	Capstone Policy Simulation
Tue. Dec. 8	Exam 2 Review
Thu. Dec. 10	Exam 2 / Final Exam, 6:00–8:50 PM