

MCD Bio 50: Stem Cell Biology, Politics, and Ethics

Christiane I. Meyer, Ph.D.

Lecture: Tue & Th 1:00 pm - 3:00 pm in Botany 325

Course website: www.lsic.ucla.edu

Discussion Section: Wed or Fri 1:30-2:50 pm in Boelter 5264

Office: 4318 Life Sciences Building

E-mail: cimeyer@ucla.edu (course & lecture # in subject line please) **Phone:** 310-794-9663

Office Hours: I invite you to come to office hours! I'm happy to talk about anything related to stem cells and/or academic issues. Please stop by Mo 1:00–2:00 pm, Wed 3:00–4:00 pm or make an appointment.

Teaching assistants: Marianne Bruno (mbruno1985@ucla.edu) **Office hours:** at Café Synapse (Gonda Building), Wed 12:00–1:00 pm & Th 3:15–4:15 pm

Course Description

In this course, we will explore the developmental biology of stem cells with a particular focus on human stem cells and investigate the larger debate on human embryonic stem cell research while drawing connections to the established fields of bioethics, politics, and philosophy. The course will ground the issues by looking at the history of the debate over the embryo, with careful attention paid to the language used in arguments. An exploration of important social, ethical, political, and economic issues will round out the remainder of the course.

Texts

- Stem Cell Now by Christopher Thomas Scott (UCLA bookstore) – please buy the paperback version
- All other readings will be posted on Blackboard.

Required:

You must read Stem Cell Now in its entirety.

For section, you *must read, annotate & print out* the reading material and bring it to section.

For lecture, I recommend doing the readings posted on blackboard but they are not required, unless specifically announced.

Please purchase a clicker (Interwrite PRS) at the UCLA bookstore and bring it to all lectures.

Laptops are not permitted in the lecture or discussion sections.

Grading

If you have any testing difficulties or learning disabilities, please inform me during the first week of class or as soon as possible after a new diagnosis.

I expect to assign final grades based on the following contributions:

15%	90 pts	Discussion Section
10%	60 pts	Lecture Quizzes
30%	180 pts	Midterm Exam (July 9)
15%	90 pts	Paper on Ethical Justifications of hESC Research (July 31)
<u>30%</u>	<u>180 pts</u>	Final Exam (July 30)
100%	600 pts	

Your lowest Lecture Quiz score will be dropped. No questions asked. But this also means that I will **not accept** any form of excuse (funeral, sickness, job interview, car accident...) for another missed quiz.

Attendance at discussion sections is required for passing the course; one absence will be excused **only** in the case of unexpected, **documented** medical or family emergencies. If you miss one discussion without excuse or if you have more than one absence, you **must** schedule a meeting with Dr. Meyer within one week and severe penalties will be imposed, including possibly failing the course.

Final grades will be assigned based on the number of points you have earned throughout the quarter. I expect to assign grades as follows: an A range grade for 90% or more of the points, a B range grade for 80% or more, a C range grade for 70% or more, a D range grade for more than 50%, an F for equal or fewer than 50% of the points. I may adjust the grade ranges in your favor if the overall mean is relatively low. You always know your minimum grade (e.g. a C range grade if your score is 78%) but your final grade may actually be better (e.g. a B- if I adjust the scores). If you have problems during the summer session that may impact your performance in the course, please come and talk to me right away.

Written Assignments & Exams

Electronic submissions will not be accepted under any circumstance. Late work will be penalized by a 20% deduction for each day that it is late. For example, the highest score that a one-day late assignment can receive is 80% of the total score possible.

I accept re-grade requests for written assignments. However, please make sure that you are certain that you have good reasons to seek more points because I personally will look over your work in its entirety and check the grading quality. If you feel an answer/essay section deserves more points, please submit a request but if you are simply looking for more points, you should refrain from doing so. All requests must specify exactly how many additional points are requested for what reason in comparison to the comments/answer key. It must be typed and handed in as a hardcopy together with the original graded assignment within three work days after the assignment/exam is returned to you.

Scientific dishonesty and plagiarism are not acceptable and because many people (not just students!) are confused about this, we will talk about it in lecture. **If in doubt, ask** your TA and me about what is and is not okay. If you worry you may have been academically dishonest but didn't realize it at the time, do come and talk to me.

1) Discussion Section

Attendance and participation at discussion section is required. Your discussion grade will primarily be based on the weekly Write-Up assignments but you may be marked down if you are not participating. The teaching assistant will first give you a warning if you are at risk of incurring such a penalty. For each week, you are expected to (1) bring printed, annotated readings to discussion, (2) be prepared to discuss the material, (3) actively participate in group discussion, and (4) be respectful of your peers.

Weekly Write-Ups consist of questions and responses that you will post on Blackboard's "Discussion Board." Simply log in to the course website, click on "Discussion Board," and reply to the appropriate thread to post your questions. There will be separate threads for the lecture material and discussion section questions. More information on how to write your questions will be provided during the first discussion section this week.

The following must be posted each week **by 9 pm two days before** your discussion section meets:

1. **Three** review questions about material from the previous week.
2. **Two** questions about assigned reading material for the current week's discussion section.

The following must be posted each week **by 9 pm one day before** your discussion section meets:

3. **One** response to another student's lecture review question.
4. **One** response to another student's reading material question.

2) Lecture Quizzes

You will take seven unannounced quizzes, each worth 10 pts, during lecture using your PRS clicker. Your lowest score will be dropped: six of the seven quizzes count toward your final score (max. 60 pts).

3) Midterm Exam – Thursday July 9th during lecture period

The exam covers the material from Lectures 1-5 and includes multiple-choice and written-answer questions. Be sure you can *explain* the concepts and examples! There is no make-up exam; special provisions may be made **only** in the case of unexpected, **documented** medical or family emergencies.

4) “How is this hESC policy ethically justified?” (due Friday July 31st)

This assignment is about ethical justifications of human ESC research and will be discussed in more detail in lecture and section in Weeks 4 and 5.

5) Final Exam – Thursday July 30th during lecture period

The exam will focus on the material covered since the midterm, unless specified otherwise and be formatted similarly to the midterm. There are no make-up exams; special provisions may be made **only** in the case of unexpected, **documented** medical or family emergencies.

WEEK 1**Lecture 1 (June 23) – What is an Embryo? & Introduction to Stem Cells**

Required: *Stem Cell Now* – read the following three chapters: “Chapter 1: The Experiment That Shook The World” & “Chapter 2: The Cell” & “Chapter 3: How We Get to How We Are”

Lecture 2 (June 25) – Embryonic Stem Cells

Required: *Stem Cell Now*: “Chapter 4: A Brief History of Embryonic Stem Cells” & “Chapter 6: Seven Questions” (first half only: pp 75-82)

- **Discussion 1: Introduction & Really Knowing the Basics: Landmark Papers**

WEEK 2**Lecture 3 (June 30) – Reprogramming I: Epigenetics, Nuclear Transfer, and Cloning**

Required (as for Lecture 2): *Stem Cell Now*: “Chapter 4: A Brief History of Embryonic Stem Cells”

Lecture 4 (July 2) – Reprogramming II: Induced Pluripotent Cells – The Hottest Thing Around

- **Discussion 2: Science, Language, and Media Portrayals**

WEEK 3**Lecture 5 (July 7) – Adult Stem Cells and their Niches; Stem Cell-Based Therapies**

Required: *Stem Cell Now*: “Chapter 5: Hunting adult Stem Cells” & “Chapter 6 Seven Questions” & “Chapter 7: The Future of Medicine”

Lecture 6 (July 9) – Midterm Exam (on Lectures 1-5)

- **Discussion 3: Cloning – what’s real, what’s possible, what’s not?**

WEEK 4**Lecture 7 (July 14) – Introduction to the Human ESC Debate: IVF, rDNA, Abortion & Major Lines of Argument**

Required: *Stem Cell Now*: “Chapter 8: The Great Moral Divide”

Lecture 8 (July 16) – Human ESC Debate: Ethical Theories & Religious Viewpoints

Required (as for Lecture 7): *Stem Cell Now*: “Chapter 8: The Great Moral Divide”

- **Discussion 4: What is the Moral Status of the Human Embryo?**

WEEK 5

Point Outline of Your Final Paper: due at the same time that your questions for discussion section are due (i.e. 2 days before to section by 9 pm)

Lecture 9 (July 21) – Informed Consent; International Policy

Required: *Stem Cell Now*: “Chapter 10: The South Korean Affair”

Lecture 10 (July 23) – US Federal Policy; California’s Policy

Required: *Stem Cell Now*: “Chapter 9: The Consequences of Politics”

- **Discussion 5: Working with Your Paper Outlines (you *must* bring a hard copy to section); South Korean Research Scandal & Research Ethics**

WEEK 6**Lecture 11 (July 28) –WARF, Patents, and Science as a Commodity****Lecture 12 (July 30) – Final Exam (on Lectures 7-11)**

- **Discussion 6: Who Should Fund Stem Cell Research?**

Due on Friday, July 31st: Final Paper