

BILD 60 - Fall 2020

SYLLABUS (15Sep20 Draft)

Exploring Issues of Diversity, Equity and Inclusion as They Relate to Human Biology

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Class and Section Schedule

Class: TuTh 9:30 - 10:50 pm,
Galbraith Hall 242

Sections: A01 F 4:00 - 4:50 pm On-line
A02 F 9:00 - 9:50 am On-line

Course Website: <https://canvas.ucsd.edu/courses/18594>

Course Principles

By its very nature, this course will include readings, presentations and discussions on difficult topics that affect human relations and feelings. Mutual respect and sensitivity are essential, as well as the strong consideration of privacy and tolerance. The class room and spaces on-line should be experienced as a “safe zones”, where participation, conversation and discussion lead to learning and understanding, not to confrontation. Adherence to these principles is a requirement.

Course Overview

In this course, we will examine diversity, equity, and inclusion in the context of human biology from a variety of perspectives. In each class, we will consider a biological topic, such as race and human genetics, and then examine how underlying biological differences can and have been used to support bias and prejudice against particular groups, such as African Americans, Latinos, women and LGBT individuals. We will begin with a discussion of ethical principles in biomedical research, and continue with the history of how self-serving assumptions about human heredity were used to justify the US Eugenics movement and how “science” was used to discriminate against specific human groups. Is eugenics a relic of an inglorious past? And can our ability to manipulate genomes spawn a modern-day version of this movement? This question will lead us into the topic of genomes, genome sequencing, and ultimately questions of how widely available genetic testing in a post-genomic age can affect individuals as well as different racial or ethnic groups in the US. The topic of epigenetics, beginning with the biology of chromosomal DNA modification, lays the foundation for examining whether and how the environment can affect DNA modification patterns and how this may have long-term transgenerational consequences for different ethnic and cultural groups. We will also discuss how genetics as well as environment and cultural issues affect public health and disease in the US. Finally, we will consider how development and sex hormones affect human brain structure and function, which will set the stage for examining differences in sexual identity as well as the establishment of gender and racial stereotypes.

Ethical considerations, as they relate to the topics of diversity, equity, and inclusion, will be an important focal point of this course.

Course Goals

- To understand biological arguments that have been and are used to explain differences between human groups
- To learn how presumed biological differences and often false “scientific” arguments have been misused to justify prejudice and discrimination.
- To learn how environmental factors may play an important role in human biology at molecular, cellular, and organismal levels, and how these influences can differ depending on human characteristics
- To better understand one’s racial/ethnic/gender/cultural identity in the wider context of other identities discussed in the course.

Student Teams

The course is designed to be highly interactive. Lectures will include questions to the students and plenty of time for discussion. Students will also work cooperatively, in teams of 4 students that will be formed during the early discussion section meetings. Teams will collaborate on in-class exercises as well as on a **research proposal** (described below).

Principal Assignment: Create a Research Proposal

A key part of the course is the preparation by each student team of a **Research Proposal**. Many questions and ideas will arise as we (and your Team) discuss the various topics we will cover. Many of these questions have no easy answers, and there may not be data or observations that would support specific answers. Your team's assignment will be to select and discuss one such question or idea, do a critical analysis of the relevant literature, and come up with an "experimental approach" (hopefully novel?) for answering it. Your discussions and research will be the bases for creating the **Research Proposal** that your team will present and discuss in class. Your team will turn in a written version of the team's proposal. About half way in the course, each team will make a 5 min presentation on their topic background and hand in a list of references they have identified for their project.

The concept of a Research Proposal is based on the process we have to carry out scientific research. It requires that a well-constructed proposal be submitted to a funding source in order to obtain the funds to support the performance of the work. A proposal has the following parts: (1) Question(s) to be addressed (hypothesis?), (2) Relevant background and significance (why is the question important? what is already known?), (3) Research Plan (how will data be obtained?), (4) Discussion and future directions (in light of possible answers). Further details of this assignment will be discussed in the first class.

Discussion Sections

Attending a Discussion Section is required throughout the quarter. Because of issues related to the Covid-19 Pandemic, Discussion sections in Fall 2020 will only be held ON-LINE. A principal goal of the Sections is to work together on your projects, and to get feedback from the instructional assistant on your ideas and your use of sources and references. Later in the Quarter, the main objective will be to prepare your presentations: go over your materials and graphics, what to include or exclude, and how to organize your presentations.

Evaluation/Grading

Grades: Letter grades (F through A+) will be assigned on the basis of several performance criteria, including: (1) attendance and participation in discussion sections; (2) hand in weekly news article assignments (described below); (3) grades in two out of three quizzes; and (4) a final oral presentation of your Research Proposal.

Note: This is not exclusively a Pass/no Pass course, though you may opt for such a grade. To obtain a P for the course, you will need to perform at least at the level of a B- letter grade in the course.

Attendance and Participation: (maximum 10 points)

Weekly News Assignment: (maximum 10 points) Every week, beginning the second week, each student must find a current (published within the last 5-6 months) news article that is related to diversity, equity or inclusion and science/medicine/health and write a brief report (up to 1 page, single-spaced) summarizing the news item and describing how it is related to some aspect of diversity, equity or inclusion. The source (or URL) of the news article must be cited in the report to receive credit. These news reports must be turned in through the course Canvas website. They will be graded on a scale of 0 to 2 points. Students must also be prepared to give a 2- to 3-minute oral presentation about their news items in class if called upon. A few students will be randomly selected to present at most class meetings.

Quizzes: (15 points each, 30 points total) There will be 3 required in-class quizzes, though only those with the highest 2 scores will count towards your grade. Quizzes will be on topics discussed in class as well as on readings. There is no midterm or final exam in this course.

Final Oral Presentation of Research Proposal: (40 points) Each team will give a ~20-minute oral presentation to the entire class on their Research Proposal. All students in the group must participate in the oral presentation. A PowerPoint File of the presentation must be turned in by 5 pm the day prior to the scheduled presentation. **A written version** of the Proposal must be turned in within 3 days of the oral presentation. All members of each team will receive the same number of points for the quality of the team's Proposal (up to 18 points), but each individual will receive up to 7 additional points based on the quality of her/his presentation.

Reflection Essay: (10 points) At the end of the course you will be asked to write a 1 – 2 page essay reflecting on your experiences in the class and how (or whether) these have impacted your understanding and appreciation of issues related to DEI.

LECTURE/CLASS SCHEDULE

(NOTE: Topics may change)

Oct 1 Thursday	1. <u>Introduction: course goals and logistics</u> <u>Topics:</u> The pervasiveness of racism in the USA; The Inequalities of the COVID-19 Epidemic. The UCSD Principles of Community. Why does UCSD have a DEI course requirement?
Oct 6 Tuesday	2. <u>Biological Determinism and the Concept of Race</u> <u>Topics:</u> Moral Instincts vs. Moral Norms. The evolution of empathy. The concept of “race” and the racialization of biological phenotypes. Race in biomedical research and medical practice.
Oct 8 Thursday	3. <u>Intrinsic vs Extrinsic Bias and Stereotype Threat</u> <u>Topics:</u> Naturome vs Nurturome. Genetic and epigenetic inheritance of traits defining human potential in brain functions, behaviors and intelligence. Intrinsic and extrinsic bias, stereotype bias, defining the in-group and the out-groups.
Oct 13 Tuesday	4. <u>Guest Lecturer: Stephanie Mel – The use of science to institutionalize discrimination: From eugenics to modern day genetic testing.</u> <u>Topics:</u> The Eugenics Movement in the USA lasted much longer than most people realize, and modern human genetics opens the possibility of new ways for genetic discrimination.
Oct 15 Thursday	5. <u>Biological Consequences of Early Life Adversity.</u> <u>Topics:</u> What is Epigenetics? Could it be a mechanism through which social and racial inequalities get perpetuated across generations?
Oct 20 Tuesday	6. <u>Guest Lecturer: Mary Devereaux – Sex & Gender Bias in Biology and Medicine</u> <u>Topics:</u> Good science depends on objectivity in gathering and analyzing empirical data. Yet studies show that women and non-human female mammals get short shrift in biomedical research.
Oct 22 Thursday	7. <u>Sexual differentiation of the brain</u> <u>Topics:</u> TBD
Oct 27 Tuesday	8. <u>Class Discussion:</u> of topics/papers covered October 1 to October 20; <u>Quiz 1</u> (25 minutes)

Oct 29 Thursday	9. <u>Topics in the News; Define Subject of the Research Project.</u> News reports topics related to DEI in the biomedical sciences. Discussion of possible topics for team projects
Nov 3 Tuesday	10. <u>Neuroscience and Racism 1</u> <u>Topics:</u> TBD
Nov 5 Thursday	11. <u>Neuroscience and Racism 1</u> <u>Topics:</u> TBD
Nov 10 Tuesday	12. Student Teams - short presentations (5 min/team) -- Brief presentations outlining Team Projects -- turn-in literature reviews.
Nov 12 Thursday	13. <u>The Demographics of Dementia</u> <u>Topics:</u> Brain Development & Aging; types of dementia and their prevalence among different groups
Nov 17 Tuesday	14. Class Discussion of topics/papers covered Oct 22 – Nov 12 Quiz 2 (25 minutes)
Nov 19 Thursday	15. TBD
Nov 24 Tuesday	16. 3 Student Team Presentations and Discussion
Nov 26 Thursday	Thanksgiving Day – No Class
Dec 1 Tuesday	17. 3 Student Team Presentations and Discussion
Dec 3 Thursday	18. 3 Student Team Presentations and Discussion
Dec 8 Tuesday	19. 3 Student Team Presentations and Discussion
Dec 10 Thursday	20. Class Discussion of presentations/proposals Nov 24 – Dec 3. Course wrap up/Fill out evaluations Quiz 3 (25 minutes)

NOTE: There is no Midterm or Final Exam in this Course