

BILD 60 - Fall 2022

SYLLABUS

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

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Class and Section Schedule

Class: TuTh 12:30 - 1:50 pm
Ridge Walk Academic Building (RWAC) 103

Sections:	B01 Monday	5:00 - 5:50 pm	WLH 2110
	B02 Tuesday	8:00 - 8:50 am	WLH 2110

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 “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 ethnicity 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 human 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 other 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/Groups

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/groups on in-class exercises as well as on a final research proposal/oral presentation. Teams of 4-5 students will be formed during the first couple of weeks of class.

Final Presentation

A key part of the course is the preparation by each team of a final presentation, which the team will present to the class towards the end of the course. Many questions and ideas will arise as we discuss various topics in class. Many of these questions have no easy answers, nor are there observations/data 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, analyze and present data from the literature, and propose next questions, expected outcomes, and longer term future directions

Discussion Sections

Discussion sections will meet weekly throughout the quarter, beginning week 2. Attending a Discussion Section is required throughout the quarter. A principal goal of the Sections is to work together on your presentation, 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

Weekly News Assignment: (15% of grade) 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 will be turned in through Canvas and are due every SUNDAY by MIDNIGHT. They will be graded on a scale of 0 – 3 points. We will be discussing news articles many times in class so you should always come prepared to give a brief, 2 – 3 minute presentation on your news item.

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

Attendance and Participation: (20% of grade) Points can be earned by attending and contributing to the discussions in Class and in Section.

Final Oral Presentation: (20% of grade) Every group will give a 20-25 minute oral presentation to the entire class. 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.

An individually **written summary of the Final Presentation** (10% of grade) must be turned in within 3 days of the oral presentation.

Reflection Essay: (5% of grade) 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.

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LECTURE/CLASS SCHEDULE

(NOTE: Topics may change)

Sep 22 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?
Sep 27 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.
Sep 29 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 4 Tuesday	4. <u>The use of science to institutionalize discrimination: From eugenics to modern day genetic testing.</u> <u>Topics:</u> The establishment of the Eugenics movement in Great Britain and the USA; eugenics in the second half of the 20 th Century; modern human genetics and genetic discrimination?
Oct 6 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 11 Tuesday	6. <u>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 13 Thursday	7. <u>Sexual differentiation of the brain</u> <u>Topics:</u> Neurological diseases and gender; Contributing roles of genes vs. gonads; Are there “male” and “female” brains? The mosaic brain.
Oct 18 Tuesday	8. <u>Class Discussion:</u> of topics/papers covered September 22 to October 11; <u>Quiz 1</u> (25 minutes)
Oct 20 Thursday	9. <u>Neuroscience and Racism 1: Intelligence and Performance.</u> <u>Topics:</u> Poverty and the human brain; the blank slate of Locke; Intelligence & IQ – the Flynn Effect; Genes and educational attainment.

Oct 25 Tuesday	10. <u>Neuroscience and Racism 2: GWAS, SNPs and Polygenic Scores</u> <u>Topics:</u> Twin Studies and Heritability; Genome-Wide Association Studies and SNPs; Polygenic Scores and Educational Attainment
Oct 27 Thursday	11. <u>Neuroscience and Racism 3: Current Literature Review</u> <u>Topics:</u> IQ and neuronal structure and function; “Genetic” Nurture; A Neuroscience of “Race”?
Nov 1 Tuesday	12. Student Teams - short presentations (5 min/team) -- Brief presentations outlining Team Projects -- <u>turn-in literature reviews.</u>
Nov 3 Thursday	13. <u>Empathy and the Demographics of Dementia</u> <u>Topics:</u> Brain Development & Aging; types of dementia, their prevalence among different human groups; Empathy and Diversity.
Nov 8 Tuesday	14. Class Discussion of topics/papers covered Oct 13 – Nov 3 Quiz 2 (25 minutes)
Nov 10 Thursday	15. Guest Speaker: TBD
Nov 15 Tuesday	16. 3 Student Team Presentations and Discussion
Nov 17 Thursday	17. 3 Student Team Presentations and Discussion
Nov 22 Tuesday	18. 3 Student Team Presentations and Discussion
Nov 24 Thursday	Thanksgiving Day – No Class
Nov 29 Tuesday	19. 3 Student Team Presentations and Discussion
Dec 1 Thursday	20. Class Discussion of topics, presentations/proposals Nov 10 – Nov 29. Course wrap up/Fill out evaluations Quiz 3 (25 minutes)

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