

**BILD 60 – Winter 2019**  
**Diversity, Equity and Inclusion in Relation to Human Biology**

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*Office Hours:* Tuesday 3:30 – 4:30 after class, or by appointment

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**Lecture:** Tues/Thurs 2 – 3:20 PM York 4080A

**Sections:** A01 - Friday 9 – 9:50 AM York 4050A

A02 – Friday 10 – 10:50 AM York 4050A

**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 classroom should be experienced as a “safe zone”, 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 biology from a variety of perspectives. We will start with a biological framework and then examine how underlying biological differences can and have been used to support bias and prejudice against particular groups such as women, African Americans, Latinos and LGBT individuals. We will begin with the history of how self-serving assumptions about human heredity were used to justify the US Eugenics movement, and how “science” has been used to discriminate against specific human groups. Is eugenics a relic of the past or 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 and/or 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 how the environment can affect DNA modification patterns and how this might have long-term transgenerational consequences for different ethnic and cultural groups. We will learn how the discovery and use of HeLa cells has had an extraordinary impact on science but has also raised important issues related to human rights. 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 brain 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 racial stereotypes and the expression of witness bias. There will be guest lectures by experts in several of the topics we cover.

**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 students will be formed during the first couple of weeks of class.

**Research Proposal**

A key part of the course is the preparation by each team of a Research Proposal, which the

team will present to the class towards the end of the course (see Schedule). 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, and come up with an "experimental approach" (hopefully novel) for answering it. Your discussions and research will be the basis for creating a Research Proposal which your team will present and discuss in class. Each individual will also turn in a written version of the proposal

The concept of a Research Proposal is based on the process of conducting 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 discussion section.

### **Discussion Sections**

Attending a Discussion Section is required throughout the quarter. This week in Discussion you will be forming groups that will work together for the quarter on the research proposal. 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:**

***Class Participation:*** (15% of grade): NOTE: You only need to earn 85% of these participation points to get 100% the Class Participation. Participation points can be earned by answering clicker questions, doing in-class "quick writes", and attending/participating in section. Clicker questions will be asked each class period and will cover assigned readings and class discussions (clicker points will count starting lecture #2). Points will be awarded for participation, not for correctness (many questions will not have a single correct answer). From time to time you will also be asked to spend a couple of minutes in class writing down your thoughts on the topic that day (in-class quick writes).

***Weekly News Assignment:*** (20% of grade) Every week starting this week (week 1) each student must find a news article that is related to DEI and science/health/medicine. Students must write a brief report describing the news item and 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 TritonEd and are due every SUNDAY by MIDNIGHT. They will be graded on a scale of 0 – 2 points and you can drop the lowest score. 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*** (10% each, 30% total) There will be 3 in-class quizzes each worth 10% of your grade. Quizzes will be on topics discussed in class as well as on readings. There is no final exam.

***Final Oral presentation*** (20% of grade) Every group will give a 20-25 minute oral presentation to the entire class on their Research Proposal. A PowerPoint File of the presentation must be turned in by 5 pm the day prior to the scheduled presentation.

**A one page written summary of the Research Proposal** (10% of grade) must be turned in within 5 days of the presentation. This will be done individually.

***Reflection Essay*** (5% of grade) At the end of the class you will be asked to write a 1 – 2 page essay reflecting on your experience in the class, with particular emphasis on your identity in relation to other identities discussed in the class.