

Course Syllabus
PSYC G4440: Topics in Neurobiology & Behavior
Neurosex and Neurosexism: Facts and Alternative “Facts”

Meeting Time:
Tuesday 10:10-12 noon
Room: TBD Schermerhorn Hall
Columbia University
Spring 2020

Course:
Mondays 10:10am-12pm
405 Schermerhorn Hall

Instructor: Prof. Rae Silver
Office Hours: **Tuesday 12-1:00 PM**
Email: Rae.Silver@columbia.edu

Bulletin: Examines our understanding of the research on Sex, Gender, Sex Differences and Gender Assignment

Course Description: The goal of the course is to examine and differentiate sex and gender differences in brain and behavior. Professional scientists try to weigh evidence and evaluate its strength to distinguish between the known facts, the possible facts and the known unknowns. Topics such as sex and gender differences interest many different stakeholders who need to use research findings for purposes well beyond what is supported by evidence. This may include Olympic sports commission deciding who competes as a male or female, Larry Summers accounting for the absence of women in the sciences at Harvard, newspapers/ magazines sensationalizing findings to increase readership, parents and their medical consultants seeking to help children with sex/gender assignments; drug companies selling treatments, etc. This seminar will explore the research on sex differences, with an emphasis on the brain. We will begin with an overview of behavioral endocrinology and the basics of hormone production and actions on target tissues, using case studies to understand the sequence of changes in sex development. We will use a comparative approach to examine the reciprocal interactions between the neural/neuroendocrine systems and behavior, considering the effects of hormones on the brain, development and adult behavior. This aspect will explore non-human vertebrate species and assess relevance to humans. We will establish clearly, when and how comparative studies promote the understanding of sex differences, and where such work cannot contribute to the understanding of human gender roles. Topics to be included are: sexual differentiation and sex differences in brain and behavior, the difference between sex and gender. Student interests will determine the exploration the consequences of these sex and gender differences on reproductive, parental, anxiety and aggressive behaviors, differences in

frequencies of disease and illness such as schizophrenia, anxiety disorders, circadian/sleep disorders (etc.), responses to medications, and homeostatic regulation of metabolism and.

Prerequisites: At least one college course in Biology and One in Psychology

Role in the Psychology Curriculum: This course can be used to fulfill xxx

Course Objectives:

The course has three primary objectives:

1. To help students become sophisticated readers of the scientific literature. Roughly every other week, students will be asked to read empirical papers, magazine or book reviews, or case studies related to the topic of that week. Students will learn to evaluate scientific literature and discuss the strengths and merits of arguments in these readings.
2. To help students understand all aspects of the evaluating and presenting research findings and how to explore their uses by various stakeholders.
3. To help students discover how to discuss facts, “alternate facts” and wishful extrapolation by presenting their ideas in the seminar audience of peers.

Schedule:

2020 01 21 Week 1 Introduction to the course

2020 01 28 Week 2: Techniques and Methods ---revealed through journal readings and Nobel prizes

2020 02 04 Week 3: Introduction to the Neuroendocrine System—revealed through journal readings and case studies

2020 02 11 Week 4: Sexual differentiation - revealed through journal readings and case studies

2020 02 18 Week 5: Sexual differentiation - revealed through journal readings and case studies

2020 02 25 Week 6: Sex vs Gender – The stakeholders and their viewpoints revealed through journal readings and news reports and commentaries

2020 03 03 Week 7: Sex vs Gender – The stakeholders and their viewpoints revealed through journal readings and news reports and commentaries

2020 03 10 Week 8: Sex differences in the brain of animals: Current status of strong evidence revealed through journal readings

2020 03 17 Spring Break

2020 03 24 Week 9: Sex differences in the brain of animals: Current status of strong evidence

Visitor to Class: Dr Maria de la Paz Fernandez: an expert on sex differences: genetic and epigenetic factors

2020 03 31 Week 10: Sex differences in the brain of humans: Evidence and evidence extrapolation

2020 04 07 + 04/14 + 04/21 +04/28 Week 11-14: Each student will choose a topic for presentation and a paper to be selected no later than **2020 02 18:** Topics include sex differences in social and affiliative behavior, sleep and daily rhythms, stress responses, anxiety behaviors, autism, the evidence-based extrapolations of the athletics and the Olympic commission, parental behaviors.

Class Participation and Weekly Journals. This seminar requires that all students be active participants, engaging in stimulating, thought-provoking (and sometimes lively) dialogue. Each week, students readings related to the topic of discussion for that week are posted on courseworks. Students are expected to come to class prepared with discussion issues related to the current readings. To facilitate this process, students will keep a journal documenting important questions or issues about the readings. Although journal entries should be of an intellectual nature, raising questions about the appropriateness of the conclusions drawn by the study authors based on the study design and/or presented data, they should be no more than a few paragraphs or thorough bullet points. The journals will be submitted (typed, printout on paper), prior to the start of each class and late journals will not be accepted.

Student Presentations. Each week, 3 papers (all available on Courseworks) will be discussed. Starting on Week 2, students will present. Students choose articles they are interested in presenting in the first class.

Each presentation will last ~30 minutes. Students are expected to use PowerPoint or equivalent aids to facilitate communication of the paper. Presentations will be evaluated by the following criteria:

1. Presentation Skills a. presentation style and communication with audience b. General preparedness
2. Presentation Content a. Study rationale b. Hypothesis tested c. Experimental design/methodology d. Results and authors' conclusions
3. Ability to Point out Merits and/or Limitations of the Article
4. Ability to Facilitate Discussion Letter to the Editor.

Grades:

20% Class participation: Underscores the importance of reading the literature carefully, having questions for discussants, etc.

50% Class participation/Discussion leading on articles: Each student will lead several 30 minute presentations

30% Paper submission: Each student will submit a paper (~10 double-spaced pages) on one of the topics discussed in week 11-14. (Other topics can be selected in consultation with Professor Silver)

Class policies: boilerplate from Caroline...a placeholder

Attendance. Because this is an upper level undergraduate/graduate seminar, attendance is mandatory and absences are rarely excused. Class participation is the foundation of this course. Of course, there are times when life gets in the way of things, but more than one absence will be detrimental to your learning. You must personally notify Professor Silver before the session and must present some evidence certifying the legitimacy of your absence.

Academic integrity: As members of this academic community, we are responsible for maintaining the highest level of personal and academic integrity: "[E]ach one of us bears the responsibility to participate in scholarly discourse and research in a manner characterized by intellectual honesty and scholarly integrity.... The exchange of ideas relies upon a mutual trust that sources, opinions, facts, and insights will be properly noted and carefully credited. In practical terms, this means that, as students, you must be responsible for the full citations of others' ideas in all of your research papers and projects... [and] you must always submit your own work and not that of another student, scholar, or internet agent" (from the Columbia University Faculty Statement on Academic Integrity:

<https://www.college.columbia.edu/faculty/resourcesforinstructors/academicintegrity/statement>).

Class Etiquette: Research shows that many of us think we're good multi-taskers. Research also shows that most of us are not. If you typically take notes or read papers on a laptop, you can, of course, use the laptop in class. But, out of respect for your classmates and in the interest of your own learning and ability to actively participate in class discussions, please do not use your laptop inappropriately. You are asked not to ever pull out your phone in the classroom.

Students with Disabilities: Students with special needs who may require classroom/assignment accommodations should make an appointment with me before or during the first week of class. You should also contact the Office of Disability Services (ODS) in Lerner Hall before the start of the course to register for these accommodations. The procedures for registering with ODS can be found at <http://health.columbia.edu/services/ods> or by calling (212) 854-2388.

Syllabus is subject to revision and specific student assignment dates and topics will be impacted by class size, class participants and visitors to the class. Updates will be posted on CourseWorks and described in class.