

This seminar explores the neural systems and behaviors that underlie human, and sometimes animal, emotions. Questions will include: why we have emotions, what is their survival value, why do we find funny jokes rewarding, and why we envy, feel guilt or joyfully embrace love. We will review some of the latest literature on these topics and discuss implications for understanding human behavior. We will finally discuss disorders such as depression, anxiety, aggression, and psychopathy and how these are associated with disruptions to the neural systems that regulate healthy emotion.

II. Full course description:

Emotions are at the forefront of most human endeavours. Emotions aid us in decision-making (gut feelings), help us remember, torment us, yet have ultimately helped us to survive. Over the past few decades, we have begun to characterize the neural systems that extend from primitive affective response such as fight or flight to the complex emotions experienced by humans including guilt, envy, empathy and social pain. This course will begin with an in-depth examination of the neurobiological systems that underlie negative and positive emotions and move onto weekly discussions, based on assigned journal articles that highlight both rudimentary and complex emotions. The final weeks will be devoted to exploring how the neurobiological systems are disrupted in affective disorders including anxiety, aggression and psychopathy. In addition to these discussions and readings, each student will be required to write a review paper on a topic related to one of the emotions discussed in these seminars and its underlying neural mechanisms.

III. Rationale for giving the course:

SS 250 Frontiers in Affective Neuroscience is an advanced seminar, designed particularly for graduate students.

The seminar will be well suited to students who have completed at least one neuroscience course. These seminars will help students to develop their oral, written, presentation and theorizing skills.

Students who complete this seminar will learn to: 1) understand experimental methods used in affective neuroscience; 2) will learn about the neural systems that underlie both complex and basic emotions; 3) critically read and interpret the primary research literature and discuss the strengths and weaknesses of experimental results; 4) conduct literature searches and synthesize these searches into a comprehensive literature review/short movie.

Each week, students will participate in a 3-hour seminar. Class time will be devoted to the presentation and discussion of journal articles. The publications have been chosen to cover the classic and currently most exciting research in Affective Neuroscience, and to serve as a stimulus for discussion.

IV. Schedule of topics and readings [subject to revision]:

The reading list and weekly schedule

Readings: No textbook is required, but assigned readings will be made available in pdf format through CourseWorks (<https://courseworks.columbia.edu>) or freely available online.