

# NSC 448 ADVANCED TOPICS IN NEUROSCIENCE

## AGGRESSION AND VIOLENCE

SPRING 2007

TuTh 9:30-10:45 NSB 314



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Office Hours: M 9-10, W 11:30-1,  
Th 12-2, F 9:30-10:15

NSC 448 is a “graduate-style seminar for the senior neuroscience major and will stress reading and discussion of primary texts and timely issues within the field.” This year’s seminar will focus on the biology and psychology of aggression and violence, as well as selected current topics chosen by members of the class.

Aggressive behavior, and the violence that comes with it, is often thought of as an aberration (“going postal”). Many people think of children as being born “pure” and non-violent, with violent behavior arising as a consequence of bad parenting, bad experiences, or disadvantaged social standing. Yet biologists have found that aggression is common among animals and violence is ubiquitous in human history. The study of aggressive behavior provides an opportunity to evaluate how biologists and psychologists have attempted to understand the mechanisms of a complex behavior. To what extent is aggression “natural”? To what extent is aggressive behavior genetic? What are the anatomical, cellular and developmental foci for aggressive behavior? The problem has been studied using a variety of approaches, from social psychology to experiments with animals to ethological studies in the wild to surgical studies in humans and animals to molecular and genetic approaches. We will evaluate studies on aggression by reading primary literature using all these approaches, discussing papers in class, and writing about them. We will confront our ignorance, as well as the limitations of certain kinds of studies and certain kinds of arguments. The success of this class depends on your participation!

## COURSE SCHEDULE

DAY	DATE	TOPIC	READING	ASSIGNMENT
Tu	16-Jan	Violence and aggression in society	Niehoff Ch. 1	
Th	18-Jan	History of human violence		
Tu	23-Jan	Ethological models of aggression	Niehoff Ch. 3	Group Topics
Th	25-Jan		TBA	Paper question
Tu	30-Jan	Experimental behavioral studies	Niehoff Ch. 3	Neuroscience Creations Topic
Th	1-Feb		TBA	Paper question
Tu	6-Feb	Anatomical basis of aggression	Niehoff Ch. 4	
Th	8-Feb		TBA	Paper question
Tu	13-Feb	Cell biology of aggression	Niehoff Ch. 5	
Th	15-Feb		TBA	Paper question
Tu	20-Feb	Hormones and aggression	Niehoff Ch. 6	Group Bibliographies
Th	22-Feb		TBA	Paper question
Tu	27-Feb	Conversation with author Sue Miller	TBA	Essay: anatomy, circuits and aggression
		6:30 PM NSC 448 Night at the Movies	<i>A Clockwork Orange</i>	
Th	1-Mar		TBA; Movie discussion	Paper question; Neuroscience Creations
		<b>SPRING BREAK!</b>		
Tu	13-Mar	Genetics and aggression	Niehoff Ch. 2, 8	
Th	15-Mar		TBA	Group 1 Outline; Paper question
Tu	20-Mar	Human genetics and aggression	TBA	Essay: <i>A Clockwork Orange</i>
Th	22-Mar		TBA	Paper question
Tu	27-Mar	Human behavior and reducing violence	Niehoff Ch. 9	Group 2 Outline
Th	29-Mar	<b>EXAM</b>		
Tu	3-Apr	STUDENT GROUP 1		Group 3 Outline
Th	5-Apr		STUDENT GROUP 1	Paper question
Tu	10-Apr	STUDENT GROUP 2		Group 4 Outline
Th	12-Apr		STUDENT GROUP 2	Paper question
Tu	17-Apr	STUDENT GROUP 3		Groups 5 Outline; Group 1 Review Paper
Th	19-Apr		STUDENT GROUP 3	Paper question
Tu	24-Apr	STUDENT GROUP 4		Group 2 Review Paper
Th	26-Apr		STUDENT GROUP 4	Paper question
Tu	1-May	STUDENT GROUP 5		Group 3 Review Paper
Th	3-May		STUDENT GROUP 5	Paper question
	8-May			Groups 4-5 Review Paper

In general, we will have more conventional class “lectures” and discussion on Tuesdays and discussions that focus on papers (and other topics) on Thursdays. The precise sequencing of topics is tentative. We might spend a bit more time on a particular topic and less time on another. Each student will work as a part of a “group”—actually a pair—to present a class and lead a discussion on a topic of your choice in April or May.

## TEXT

Niehoff, Debra, *The Biology of Violence*, New York: The Free Press, 1998.

This book is a work of non-fiction designed for a general educated reader, not a science textbook in the traditional sense. It is generally well-written, inexpensive, and a fairly easy read. The author touches on most of the topics we will cover; however her treatment is sometimes problematic. Students of biology should watch for errors of fact and argument that reveal the author’s somewhat weaker grasp of the concepts of biology. The author lives in nearby New Hope, PA.

Additional readings will be handed out or made available on Blackboard.

## ASSIGNMENTS

I will assign two take-home writing projects throughout the semester. Each is due at the beginning of class on the date indicated on the course schedule. They are open-book. I will evaluate both the accuracy of your answer and the quality of your written work.

In addition, every member of the class must hand in one written question relating to each of the 13 scheduled discussions (see schedule). The question must be written *before* coming to class and must be **emailed to me *before 9 AM*** on the day of the relevant discussion. The question should focus on unanswered questions raised by the paper, problematic arguments, or potential implications of the paper. The question should NOT focus on things you did not understand. It should be drawn from what you DID understand in the paper.

## REVIEW ESSAY

One of the requirements for NSC 448 is the completion of Review Essay on a topic relevant to neuroscience. You will identify an area of interest in neuroscience and provide a thorough review and critique of the subject from primary sources. The area of interest will also be the area that you and your partner present to the class and lead a discussion of a primary literature article. While you and your partner will be working together on the presentation and discussion and will necessarily be writing an essay on the same topic, the written work must be entirely your own. Put another way, each student should write an essay that has a unique thesis, analysis, and discussion. Using the words of your partner constitutes plagiarism. The paper will be between 6 and 12 pages long. The written work must be analytical. Papers that simply recount what is known will be evaluated less generously. Note that the topic of the paper is due early in the semester (see schedule) and must be approved by me. More details will follow.

## EXAM

We will have one exam, scheduled for March 29, at the completion of the aggression component of the course. The exam will have both a written take-home component and an in-class component. There will not be a final exam.

## NEUROSCIENCE CREATIONS

This assignment is an experiment. All students will complete a creative project that focuses on a representation of a concept from Neuroscience. The project may involve fictional prose, poetry, painting, sculpture, musical composition, collage, movie, etc. You will be required to hand in a 1-2 page written description that provides a context for understanding your thinking regarding the connection to Neuroscience.

## EVALUATION

Written and oral work constitutes the bulk of the student output that will be evaluated in this course. Attendance and participation in every class is expected. Note that attendance at Neuroscience seminars is also expected (see below). I will determine final grades based on the following breakdown:

- 20% Review essay
- 20% Discussion and participation
- 15% Short essays (two)
- 15% Exam
- 10% Neuroscience creations
- 10% Presentation
- 10% Discussion leadership

## DISCUSSIONS

We will have class discussion almost every week on Thursday. The discussions will focus on the evaluation of one to two primary literature articles. Each student (working with a partner) will be assigned to lead one class lecture and one primary literature discussion. All members of the class will read each paper before coming to class on the day of a presentation. Everyone is expected to participate in the discussion segment. While I realize that some students are quiet by nature (I was one), this is something you need to start getting over now. If you don't participate, I have no way of learning what you've thought about the paper.

## NEUROSCIENCE SEMINARS

As upper-level Neuroscience or Biology majors you have a responsibility to set the tone for your peers. I expect students enrolled in a "capstone" seminar such as this class to attend Neuroscience lectures on campus. I will announce where and when Neuroscience seminars are scheduled and expect to see you there. Attendance at Neuroscience seminars "counts" as participation in this course.

## BLACKBOARD

Much of the essential and supplementary material for this class will be posted on-line on our Blackboard page. If for some reason you do not have a Blackboard account, please see OIT promptly to arrange an account.

## COURSE POLICIES

All assignments are due on the date indicated. Late assignments will result in a significant penalty. The exam must be taken on the date and time scheduled. Exceptions to these policies will be allowed only in the case of serious illness or family emergency. All exceptions must be pre-approved by the instructor and documented by a physician or other official.

Cheating will not be tolerated in any form. Keep in mind that all written work handed in for this course must be your own. You may discuss assignments with your peers or me, but the written work submitted must be your work alone. Plagiarism will be taken VERY seriously. Remember that plagiarism includes not only dropping in the words of others whole-scale, but also includes paraphrasing the words of others without clearly citing their work. Note especially that a few topics that we will touch on have been written about extensively. Detecting plagiarism via WWW search engines is fairly easy. You have been forewarned!

Attendance is required at every class. If you cannot attend a particular class, it is your responsibility to obtain notes from a classmate, but this is generally not sufficient for discussions. While I understand that you might have to miss a class due to an interview or other compelling reason, you will need to let me know ahead of time. If you expect to miss more than one or two classes, you should discuss with me whether this class is appropriate for you to take this semester.

It is important that students with documented disabilities discuss appropriate accommodations with me as soon as possible.