

Moravian College
Department of Biological Sciences
Brain Sex - NEUR/IDIS 293
Fall 2011

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Instructor: Dr. Cecilia M. Fox
Phone: 610-861-1426
E-mail: cfox@moravian.edu
Office: Collier Science - Room 304
Office Hours: Mondays and Wednesdays 12-2pm and Thursdays 1-2pm and by appt.
Class Meeting Times: Wednesdays 6:30-9:30pm
PPHAC 232

Textbook: *Pink Brain, Blue Brain - How Small Differences Grow Into Troublesome Gaps - And What We Can Do About It* by Lise Eliot **Publisher:** Mariner Books, ISBN-13: 978-0547394596

Additional Readings: *Discussions based on several readings from texts, scientific journals, popular magazines, media, and Internet sources will take place throughout the course.*

Course Introduction and Description:

In considering sex differences in the brain, a number of questions arise. Do biological factors, such as sex hormones, influence our sexual fate after our genetic information is established? Do these biological factors make women more nurturing or men more aggressive? Do these same factors explain differences in sexual orientation between or within each sex group? Do they contribute to the predominance of men and women in particular careers? This course will explore how scientists working from a behavioral neuroscience perspective would address these questions differently than those working from a neuroendocrinological and psychosocial perspective. The answers to these questions may have critical implications for understanding the social roles of men and women in today's society and the different educational and emotional issues that face males and females. Sex differences in the brain may also impact the legal rights of those whose sexual orientation or gender identity do not conform to social norms and may influence the type of health care provided due to brain gender related issues. Empirical investigations and scientific theories from the fields of neurobiology, psychology, sociology and endocrinology that claim to define and explain gender differences will be discussed. Cognitive abilities and preferences, gender identity and communication styles will be studied using popular and scientific literature from the fields of psychology, behavioral neuroscience, endocrinology, developmental biology and genetics. We will end our study by questioning whether the "doing of science" is itself a gendered activity.

Course Objectives: Upon completion of this course the students will be able to:

- 1) Develop an understanding of the relationship between brain structure and function as related to brain gender
- 2) Approach the study of brain gender from a multidisciplinary viewpoint
- 3) Understand sex differences in human behavior and cognition
- 4) Appreciate the various factors (environmental, genetic, social, etc) that engender the brain
- 5) Gain proficiency in scientific literacy
- 6) Consider ethical dilemmas associated with brain gender research
- 7) Design a research experiment in brain gender and communicate this research design to the class

Grading: The grading system is as follows: (+/- will be administered as professor deems appropriate)

A = 90 - 100

B = 80 - 89

C = 70 - 79

D = 60 - 69

Course Requirements: The student's grade will be based on the following:

Weekly reflection papers/quizzes	
on reading assignments (8x20pts each)	160 points
Three exams (100 points each)	300 points
Brain gender research design	100 points
Brain gender "In the News" presentations	100 points
Class participation in discussion/activities	<u>140 points</u>
	800 points

*** Please note: it is within the instructor's purview to apply qualitative judgment in determining grades for an assignment or the entire course*

Expectations:

- a) **Attendance:** Regular class attendance is expected. **No** make-up exams/presentations will be permitted unless you have an acceptable reason (family emergency, illness, etc). If an emergency should arise, you must notify the instructor prior to the exam/presentation date and **not** after. Notification from the Moravian College Health Center, Learning Services or the Moravian College Dean of Students' Office will be necessary if you miss more than three classes consecutively. I will recognize legitimate excused absences such as when students are representing the university in an official capacity (e.g. for presentation at scientific meetings, intercollegiate athletic competition, but not practice, off-campus music performances, etc.). Such activities are scheduled ahead of time; thus, I expect you to make arrangements with me ahead of time as well.
- b) **Cheating or plagiarism** will not be tolerated. Plagiarism may result in failure of the course. Students will be held to the highest standards as specified by the Moravian College Honor Code. Violations of this code will be handled in the most severe manner allowed by college policy. Please read the **Academic Honesty Policy** that is included in the student handbook. I have attached a cover sheet to the policy that each of you will sign indicating that you have read and understand the policy and implications of violating it. If you have any questions about plagiarism or other forms of academic dishonesty, please ask. Several assignments in this class will involve the use of Internet resources; copyright violations and plagiarism policies still apply.
- c) **Appropriate Literature Sources:** A "Reference Tutorial" will be provided during the course. All students will be required to understand the differences between primary and secondary literature sources. I will also provide examples of appropriate Internet sources. **Under no circumstances are you to use "Wikipedia" as a reference for any assignment.**
- d) **Reading Assignments:** should be completed prior to each class session.
- e) **Presentations:** Information regarding the "Brain Gender In the News" presentation and research design project will be discussed during as the course progresses.

- f) Extra Help: If any difficulties arise during this course from selecting a research topic to designing your presentation, please see me. *I will be happy to help!*

Best wishes for a great course!
- C. Fox

Tentative Class Schedule

<u>Date</u>	<u>Topic</u>	<u>Reading Assignment</u>
Aug. 31	Expectations of Course Introduction to Topic of Gender	
Sept. 7	Genes, Environment and Sex The Biology of Sexual Development	Chapters 1 and 3 - LeVay
Sept. 14	The Endocrine System and Introduction to Neuroanatomy	Handouts distributed in class
Sept. 21	Exam 1 The Birth of the Female Brain and the Teen Girl Brain	Chapters 1 and 2 - Brizendine
Sept. 28	<i>Introduction to Brain Gender Research Design Project</i> The Boy Brain and the Teen Boy Brain	<i>Reeves Library</i> Chapters 1 and 2- Brizendine
Oct. 5	Sex and Brain Development	Chapters Intro, 1 and 2 - Elliot
Oct. 12	Childhood Differences in Behavior and Learning	Chapter 3 and 4 - Elliot Additional readings distributed in class
Oct. 19	Exam 2 Sex Differences in Human Behavior	
Oct. 26	Gender Identity and Homosexuality	Chapter 8 - Moir and Jessel Appendices 1 and 3 - Brizendine Additional readings distributed in class
Nov. 2	The Third Gender	Chapter 13 - LeVay Additional readings distributed in class
Nov. 9	Androgens and Aggression	Chapter 6 - Brizendine Chapter 7 - Hines Chapter 7 - Elliot
Nov. 16	No Class - Society for Neuroscience Conference	
Nov. 23	No Class - Thanksgiving Holiday	

Nov. 30	Exam 3 Postpartum Depression Cognition and Neurological Disorders	Appendix 2 – Brizendine Additional readings distributed in class
Dec. 7	Brain Gender Research Design Presentations	
Dec. 14	Brain Gender Research Design Presentations	

Additional Notations:

The following films may be shown in this course:

- The Gender Puzzle, Cambridge Educational Films
- Relevant clips from YouTube
- Transamerica- IFC Films

Reading excerpts will be assigned from publications such as Scientific American Mind, Journal of Neuroscience, and Nature (to list a few) as well as the following texts: The Sexual Brain by Simon LeVay (The MIT Press) and Brain Sex by Anne Moir and David Jessel (Dell Publishing), The Female Brain by Louann Brizendine (Broadway Books), The Male Brain by Louann Brizendine (Three Rivers Press) and Brain Gender by Melissa Hines (Oxford University Press).

Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

