

**Evolution of Sex & Gender in Animals**  
**11:216:115 (3 credits)**

**Fall 2016**

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This course will examine the biological basis of sex determination and resultant gendered behavior in all animals, including humans. We will discuss how and why sex evolved, how different organisms express (& often change) their gender, and what selection pressures shape mating systems and mate selection. In addition, we will examine how gender-specific selection influences offspring care and attachment, aggression and friendship. Throughout the course, we will evaluate which principals can and cannot be extrapolated to human behavior as well as how we as humans project our ideas of gender onto our study of the natural world.

**SAS Core Curriculum Learning Goals**

II NS. e. Understand and apply basic principles and concepts in the physical or biological sciences.

- **Demonstrate understanding of the diversity of sex determination mechanisms, sexual development and gender flexibility in animals.**
- **Demonstrate a solid understanding of the evolutionary basis for sex-based behavioral differences in animals.**
- **Understand the evolutionary drivers behind behavioral differences in human males and females (and the interplay between biology & culture).**

II NS g. Identify and critically assess ethical and societal issues in science.

- **Understand the degree to which humans project our ideas of gender onto our study of the natural world.**
- **To be able to evaluate and think critically about the validity of evolutionary arguments regarding behavior.**

**Prerequisites.** There are no pre-requisites or co-requisites for this course.

**Course readings.** Readings to inform lectures and discussion will come from two sources: book chapters and primary literature.

*Required:*

Zuk, M. 2002. *Sexual Selections: What we can and can't learn about sex from animals.* University of California Press. ISBN-10: 0520240758, ISBN-13: 978-0520240759

*Optional:*

Hrydy, S.B. 2009. *Mothers and Others: The Evolutionary Origins of Mutual Understanding.* Belknap Press of Harvard University Press. ISBN-10: 0674032993, ISBN-13: 978-0674032996

### Tentative Schedule of Topics

DATE	LECTURE TOPIC
Week 1	Introduction: Overview
	Evolutionary Principles
Week 2	Historical Biases & The Study of Behavior
	The Biological Basis of Sex Determination
Week 3	Gender Diversity
	Sexual Conflict
Week 4	Fighting for Mates
	Choosing Mates
Week 5	Role Reversals & Conflicting Pressures
	<b>Exam 1</b>
Week 6	How to Identify Bias in Research & Reporting
	Phylogeny & The Comparative Method
Week 7	The Naturalistic Fallacy
	Winners & Losers in Love & Reproduction?
Week 8	Resources & Sexual Lifestyles
	Gender Roles: Identification, Utility & Development
Week 9	Becoming Male or Female
	Sexual Segregation
Week 10-	<b>Exam 2</b>
	Social Structure: Gendered Hierarchies
Week 11	Social Structure: Coalitions & Friendships
	Sociosexual Behavior
Week 12	Parenting & Attachment: Moms
	Parenting & Attachment: Dads
Week 13	Social Parenting, Adoption & Abandonment
	Gendered Play
Week 14	Learning & Aptitude
	Aggression & War
Week 15	Altruism & Kinship
Final Exam Period	<b>Exam 3</b>

### **Assessment Plan**

Student achievement will be assessed based on 1) a pre- and post-test 2) 6 short written assignments and 3) three lecture exams.

#### **Pre-test & Post-test**

- Will be on the first and last day of class
- Will be short-answer format
- Will test them on 1) their understanding of basic evolutionary principles (**Ie**) 2) their understanding of the determinants of behavior in animals (**Ie**) 3) their understanding of sex determination & sexual diversity in the animal kingdom (**Ie**) and 4) their understanding of the influence of gender on both behavior and perception of the behavior of others in a scientific context (**Ig**).

#### **Short papers**

- These papers (full detail of the assignment given below) will allow me to assess learning goal **Ig**. Students are asked to find an article in the popular media, summarize and critique it for evidence of bias and scientific validity based on their knowledge of the scientific method.
- Six times over the course of the semester, students will be required to submit a 1 to 2 page paper discussing an article found in the popular media that addresses a class-related topic. What is the “popular media”? Websites like CNN.com, Yahoo.com, Salon.com, Slate.com, etc. Newspapers or magazines like the New York Times or the New Yorker. Open your eyes to the news you happen across every day and I promise you easily find something on a weekly basis. Come to class ready to discuss what you found. These papers must include: 1) a short summary of the article 2) its relationship to topics covered in class (or will be covered) 3) Ultimate/evolutionary question the article is addressing and 4) evaluation of potential bias in research and/or reporting. You cannot submit more than one article per week and the articles must be current (from the week you submit).

#### **Exams.**

- Exams will be a mixture of multiple choice & short-answer questions.
- Short-answer questions will assess both knowledge of the course material and understanding of the mechanisms by which we evaluate scientific research on the topic of sexual/gendered behavior (**Ie**). Students will be asked to evaluate studies (some hypothetical) based on their assumptions, methodology and interpretation of results and potential sources of bias (**Ig**). Students will also be asked questions regarding how biological development & culture influence gendered differences in behavior (**Ie**).

#### **Grading:**

Exams 300 points (3 x 100 points each)

Short written assignments 120 points (6 x 20 points each)

Class participation (attendance and discussion) 75 points

**Class Meetings.** Sometimes I will be giving you information, but much of the time will be spent discussing papers or topics either in small groups or as a class. For this reason, it is essential that you 1) come to class 2) come to class having read the assigned papers and 3) come to class prepared to engage with your peers.