

Evolution of Sex & Gender in Animals
11:216:115 (3 credits)
Fall 2020

Instructor: Dr. Kimberly N. Russell (kimberly.russell@rutgers.edu)
Office: ENR 124 Lab: 201 Plant Physiology

Individual Live Video Meetings: <https://krussell.rutgersuniversity.youcanbook.me>

Pre-requisite: None

Core Curriculum: NS-1, CCO-2

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 modern human behavior as well as how we as humans project our ideas of gender onto our study of the natural world. In addition, we will critically discuss contemporary articles concerning gender in the popular media.

Course Learning Goals:

1. **Recognize and articulate the diversity of sex determination mechanisms and gender flexibility in animals.**
2. **Recognize and discuss the evolutionary basis for sex-based behavioral differences in animals as well as when we expect or don't expect to see differences.**
3. **Analyze the evolutionary drivers behind behavioral differences in human males and females and the interplay between biology & culture.**
4. **Evaluate and think critically about the validity of evolutionary arguments regarding gendered behavior.**
5. **Assess the degree to which humans project our ideas of gender onto our study of the natural world.**
6. **Critically evaluate contemporary articles in the popular media concerning topics related to gender and gender bias in humans (AKA how to spot "fake news").**

Core Curriculum Learning Goals

- **Contemporary Challenges CCO-2.** Analyze the relationship that science and technology have to a contemporary social issue
- **Natural Sciences NS-1.** Understand and apply basic principles and concepts in the physical or biological sciences

Course modality. Due to the global pandemic, this course has been modified to operate exclusively **online**. The course is also classified as **asynchronous**. This means there will be weekly assignments/expectations, but students will be able to complete these at times that are convenient for them.

- **Lectures.** There will be two video lectures posted per week (accessible via the Media Gallery) – Tuesdays and Thursdays. Embedded within these lectures will be a couple of quiz questions. As an incentive for students to view lectures in a timely fashion, students will have 7 days to get credit (2 points) for viewing the lecture and completing the embedded quiz, after which the lecture will still be viewable, but the quiz points will not count.
- **Discussion groups.** Every week, there will be a short assignment that is meant to be completed in small groups of 4 or 5 students – ideally, these will provoke discussion. Initially, student groups will be assigned. In order to promote live interaction among students for these

assignments, groups will be chosen based on stated availability. Students can use Zoom or group chat to complete the assignments at an agreed upon time each week, but the work will be submitted individually.

- **Live Q & A.** Dr. Russell will host two thirty-minute live Zoom sessions per week to provide students with an opportunity to interact in real time with myself and other students: **Mondays at 5:30pm and Tuesdays at 9:15am**. Students should bring questions/comments they have about lectures or assignments, but can also just stop in to say hello. These sessions are **COMPLETELY OPTIONAL**.

Course readings. Readings to inform lectures and discussion will come from two sources: book chapters and primary literature. Articles will be posted on Canvas for students. In addition, for those students interested in reading further on various topics, I will create folders of optional readings that students are free to download.

Recommended:

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

Grading:

Exams 300 points (3 x 100 points each)

Short written assignments 100 points (4 x 25 points each)

Class participation

- Embedded lecture quizzes (48 points)
- Small group discussions (72 points)

Total course points: 520*

**note some manual adjustments might be necessary to the point totals due to schedule changes, but the relative contribution of each will stay the same.*

**note, there is a required pretest and a posttest in order to evaluate how much you have learned over the course of the semester. Neither of these will affect your grade.*

Exams I, II, III.

- Exams will be a mixture of matching, multiple choice & short-answer questions. They will be given online, with students given a window of time (24 hours) during which to complete the exam. However, once started, the exam must be finished within the time limit established. Students are not allowed to work together on exams or to consult online sources of information during the exam. Students caught will be immediately turned in to the Office of Student Conduct for disciplinary action.

Exam make-ups are only allowable with a note from a Dean or a Doctor and arrangements must be made in advance. In case of emergency, please notify the instructor as soon as possible.

Short papers

- Four times over the course of the semester, students will be required to submit a 1 to 2 page (single spaced) paper discussing an article found in the popular media that addresses a class-related topic. What is the "popular media"? General news websites like CNN.com, Yahoo.com, Salon.com, Slate.com, bbc.com, etc. Newspapers or magazines like the New York Times or the New Yorker. Note these **MUST** be general news sites/magazines (NOT science-only). You are expected to browse the news regularly during the semester to find new articles that concern sex and gender. You may be asked to discuss these articles with your discussion group. These papers must include:
 - o 1) a short summary of the article (& a link to the article)

- 2) its relationship to topics covered in class (or will be covered)
- 3) a biological/evolutionary analysis of the article (how can you use your understanding of biology and biological evolution to evaluate and inform the article?) and
- 4) critical evaluation of potential bias in reporting.

It is recommended that students separate these sections into paragraphs.

Late assignments will be deducted 10% per day, no questions asked. Students are responsible for making sure their assignment upload to Canvas correctly. Uploading mishaps or corrupted files will not be exempt from late penalties.

Instructor Accessibility. Please note that general questions about the course (content questions, due date clarifications, etc.) should be asked either in the weekly live Zoom Q&A sessions or in the general Q&A Discussion in Canvas so that all students can benefit from the answer. To reach me regarding questions that are personal in nature or if you are unable to attend the scheduled Q&A session, please contact me via direct e-mail (Kimberly.russell@rutgers.edu; please do NOT use the Canvas e-mail system). I will also be available to schedule private zoom meetings with students by appointment (<https://krussell-rutgersuniversity.youcanbook.me>). In addition, I will respond to e-mails outside of those hours within reason. You can expect a response within 24 hours, usually less, for e-mails received during the week.

Academic Integrity. All students are expected to follow University policies on academic integrity: <http://academicintegrity.rutgers.edu/>

Academic Honor Code

Each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community. Cheating and Plagiarism: Plagiarism is defined as the use of any information, published, or unpublished without acknowledgement. Cheating occurs when you use the work of another student in place of your own. Neither will be tolerated. It is extremely important that you distinguish your own ideas from those of others. You must always acknowledge sources. If you have any questions, see the instructor.

Disability Services. Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>

Statement of Diversity and Inclusion

It is our intention that students of all backgrounds will be well served by this course. We will work to create an environment of **inclusion** which respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities and perspectives. We are lucky to have a diverse university. Diverse voices and life experiences enhance the learning process and we welcome students to share their personal experiences. We will not tolerate disrespectful language or behavior against any individual or group. If you feel as though you have been disrespected or treated unfairly by the instructors or any other individual please let us know. You may speak with the instructors in person, over email or report anonymously using the feedback note box. You may also report bias to the Rutgers Diversity and Inclusion initiative using this link: <http://inclusion.rutgers.edu/report-bias-incident/>.

SPECIAL COVID-19 CONSIDERATIONS

This is a remote class due to the COVID-19 pandemic. We understand that this is an unusual situation and that new and unanticipated issues may arise, either due to coordinating a shared space, illness of students and/or family members and internet disruptions. It is important to us that you communicate with us if any **special circumstances** make it impossible or risky for you to complete assigned classwork. If you let us know in advance, we can usually find a solution. We intend to be flexible, while still being fair.

Tentative Schedule of Topics			
Posting Date		LECTURE TOPIC	Readings & Assignments
9/1	Week 1	Lecture 1 Introduction: Overview Gender Data Collection	
9/8 & 9/10	Week 2	Lecture 2 Historical & Persistent Biases in the Study of Behavior Lecture 3 Primer on Evolutionary Principles	Intro & Ch. 1
		Discussion Activity 1	Upload by 9/14
9/15 & 9/17	Week 3	Lecture 4 Primer on the Study of Animal Behavior Lecture 5 The Naturalistic Fallacy & Scala Naturae	Ch. 2 Ch. 6
9/21			Essay #1 due 9/21
		Discussion Activity 2	Upload by 9/24
9/22	Week 4	Lecture 6 How to Identify Bias in Research & Reporting	TBA
9/28		Exam 1 (available for 5 days)	
9/29 & 10/1	Week 5	Lecture 7 Sex Determination Mechanisms Lecture 8 Gender Diversity	Roughgarden 2004 (2 chapters)
		Discussion Activity 3	Upload by 10/7
10/6 & 10/8	Week 6	Lecture 9 & 10 [Film: What females want and males will do]	Ch. 5 (76-89)
10/12			Essay #2 due 10/12
		Discussion Activity 4	Upload by 10/13
10/13 & 10/15	Week 7	Lecture 11 Sexual Selection & Sexual Conflict Lecture 12 Winners & Losers in love & reproduction	Ch. 4
		Discussion Activity 5	Upload by 10/21
10/20 & 10/22	Week 8	Lecture 13 Mating Systems: Social & Sexual Lifestyles Lecture 14 Parenting & Attachment: Moms & Dads	Ch. 3
		Discussion Activity 6	Upload by 10/28
10/27 & 10/29	Week 9	Lecture 15 Parenting & Attachment: Contingent care Lecture 16 Social Parenting	Alvergne 2009 Hrdy 2009
		Discussion Activity 7	Upload by 11/4
11/3 & 11/5	Week 10	Exam 2 (available for 5 days)	
11/9			Essay #3 due 11/9
11/10 & 11/12	Week 11	Lecture 17 Gender Roles I: Animals Lecture 18 Gender Roles II: Humans	Ch. 12 Fausto-Sterling et al. 2012
		Discussion Activity 8	Upload by 11/18
11/17 & 11/19	Week 12	Lecture 19 The Significance of Play Lecture 20 Coalitions and Friendships	Hassett et al. 2008 Zimmer 2012
		Discussion Activity 9	Upload by 11/25
11/24 & 11/26		THANKSGIVING BREAK	

12/1 & 12/3	Week 13	Lecture 21 Film: The Painted Dogs of the Okavango Lecture 22 Sociosexual behavior and self-domestication	Ch. 9 & 11
12/7			Essay #4 due
		Discussion Activity 10	Upload by 12/9
12/8 &* 12/10	Week 14	Lecture 23 Hierarchies & Aggression Lecture 24 Conclusions & The Future	Ch. 8 Conclusion
TBA	Finals week	Exam 3 (available for 24 hours)	