

**Psychology 235: Introduction to Evolution and Behavior**  
*Winter 2022: Provisional Syllabus*

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Office Hours: TBD

**What is this course about?**

This course will examine the evolutionary origins, biological foundations, and psychology underlying human and animal behaviors including social relationships, kinship, sexual behavior, foraging, cooperation, aggression, warfare, and culture. Using a comparative approach, we will contextualize human behavior by examining nonhumans, especially primates. In addition, we will examine how evolutionary perspectives can be fruitfully applied to human behavior by examining the full breadth of human diversity in behavior. The focus will be on establishing a strong foundational knowledge in the evolution of behavior and cognition. Readings will consist of a variety of electronic book chapters and articles. Performance will be assessed through participation in discussion sections; activities and short written assignments; and exams.

**Pre-requisites**

- The enforced pre-requisite is one of the following: PSYCH 111, 112, 114, or 115.

**What are the objectives of this course?**

Our focus will be on establishing a strong foundational knowledge in the evolution of behavior. My goal is that you will leave this class with three main skills:

1. A conceptual understanding of theoretical views concerning the evolution of behavior
2. A practical understanding of how scientists go about the study the evolution of behavior
3. An ability to apply this evolutionary knowledge to new problems, such as in order to make predictions or design societal interventions

**Class format**

- Lectures will be recorded. Slides and videos from lectures will be posted online after the lecture. Each lecture has associated readings that will be posted online (three sessions have an associated movie in lieu of assigned readings).
- Most weeks, there will a short online activity that will be posted after the relevant lecture and due before discussion sections start. Most activities should take 15-30 mins to complete (exception: for the three weeks with assigned movies the activity is a handout that goes with the movie. Movies are approximately 1-1.5 hours long.)
- Discussion sessions may involve discussion about the online weekly activities, discussion of empirical papers (assigned on three weeks), and/or live interactive activities.

**Course Materials and Resources**

This course aims to integrate class lectures, discussion, films, and class activities with scientific readings. All materials will be posted on Canvas.

- Each session of the class is organized as a Module on the Canvas website with associated

video clips, readings, and/or activity handouts once they become available.

- Readings consist of book chapters and articles; three sessions include empirical scientific papers which will specifically be discussed in sections.
- Pdfs of any slides will be posted online in the relevant module after the session.

### How are grades determined?

- *Online Activities (15%)*: Across the semester there will be 11 online activities, such as a worksheet with conceptual problems relevant to that week's topics, or a handout to complete while watching a movie. These activities are designed to enrich your understanding of the concepts discussed in class. Credit is received for making a good-faith effort and submitting the assignment (not whether your answers are correct). The activities and correct answers will typically be discussed further in the discussion sections. **You should complete at least 9 of 11 activities to receive full credit on this portion of the grade. You therefore have 2 freebie missed activities; as such there are not makeup assignments for missed activities.** Each additional activity missed below the requisite number will reduce your total score by 10% (e.g., completing 8 activities results in a score of 90% for that portion of your grade). Please note that even if you did not complete an assignment you are still responsible for learning the content, as they are relevant to exams.
- *Section attendance and participation (10% total)*: Discussion sections are opportunities for you to deepen your understanding of the material covered in lectures and in reading assignments in a smaller, more hands-on group setting. The course comprises a total of 10 discussion sections (on two additional weeks, standard sections have been replaced by optional office hours). **You should attend at least 9 of 11 discussion sections (and actively participate) to receive full credit. You therefore have 2 freebie missed sections; as such there are not makeup assignments for missed section participation.** Each additional section missed below the requisite number will reduce your total score by 10% (e.g., attending 8 sections results in a score of 90% for that portion of your grade). Please note that even if you did not attend a section, you are still responsible for learning the content, as they are relevant to exams.
- *Examinations*: There will two exams during normal class times, and a comprehensive final exam.
  - *Exam 1*: 25%
  - *Exam 2*: 25%
  - *Cumulative Final Exam*: 25%

### How do exams work?

There will be two in-class exams (see tentative date below in the course schedule), as well as a final exam during the scheduled exam period for this class. ***Please note that the specific dates for the exams are subject to change if the course schedule changes.***

- *Exam format*: Exams will be composed of a mixture of multiple choice, true/false, fill in the blank, and matching questions, as well as short (paragraph-length) essays. These examinations will not only test your memory and understanding of the material we

covered, but also ask you to extend your understanding of these concepts to apply it to novel questions.

- **Accommodations:** Students with disabilities will always be accommodated. Please consult me at least two weeks before an exam to explain your requirements for ADA accommodations (e.g. different room, longer exam period).
- **Missed exams:** If you have a documented reason for missing an exam, we will arrange a makeup, typically to occur within one week of the original schedule if possible.
- **Final scores:** **You can ask to have the cumulative final count double, and then replace one mid-term exam, if you are concerned about your scores on Exam 1 or 2. (We will take the top combo the final grades).**

### **Does this course have an academic Integrity policy?**

Yes! First off, discussion and the exchange of ideas are essential to academic work. You are encouraged to consult with your classmates to understand and discuss readings and activities. **However, you should ensure that *any written work you submit for evaluation, including exams and Activity responses, is your own.*** For example, you are welcome to collaborate on Activities but you should not simply submit responses crafted by another student.

### **Does this course have an accommodation policy?**

Yes! If you think you need an accommodation for a disability, please let me know at your earliest convenience. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations. SSD (<http://ssd.umich.edu>) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

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## **UNIT 1: PRINCIPLES OF EVOLUTION AND BEHAVIOR**

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### **Week 1: Introduction to the course**

1. Wednesday Jan 5: Why is evolution important for understanding behavior?

*No readings.*

*No sections this week.*

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### **Week 2: Natural selection and evolution 1**

2. Monday Jan 10: Natural selection and evolution 1

Readings:

- Excerpts from Wilson (2007) *Evolution for everyone*
- Mayr (2001) *What evolution is*. Chapter 2: What is the evidence for evolution on earth?

3. Wednesday Jan 12: Natural selection and evolution 2

*Readings:*

- Losos (2017). *Improbable destinies: Fate, chance, and the future of evolution. Introduction*; Chapter 1: Evolutionary deja vu; Chapter 2: Replicated retiles; Chapter 3: Evolutionary idiosyncrasy
- Grant (1991) Natural selection and Darwin's finches. *Scientific American*

**Section:** Natural selection

**Activity:** Processes of selection

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**Week 3: Natural selection and evolution 2**

*Monday Jan 17: Martin Luther King Day, no class*

4. Wed Jan 19: Adaptation

*Readings:*

- Lamb (2011) Evolution of the eye. *Scientific American*.
- Gould (1980) The panda's thumb. From: *The Panda's Thumb*

**Section:** Inferring adaptations

**Activity:** Phylogeny

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**Week 4: Sexual Selection**

5. Monday Jan 24: Sexual selection 1

*No readings. Watch the movie "Why Sex?"*

6. Wednesday Jan 26: Sexual selection 2

*Readings:*

- Ridley (1993) *The red queen: Sex and the evolution of human nature*. Chapter 2: The enigma; Chapter 4: Genetic mutiny and gender
- Empirical article: Petrie et al (1991) Peahens prefer peacocks with elaborate trains. *Animal Behavior*.

**Section:** Sexual selection. Make sure to read empirical paper *before* section.

**Activity:** 'Why sex?' Movie Handout

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## Week 5: Altruism

### 7. Monday Jan 31: Altruism 1

*Readings:*

- Okasha (2012) Biological altruism. From: *The Stanford Encyclopedia of Philosophy*

### 8. Wednesday Feb 2: Altruism 2

*Readings:*

- Axelrod (1984) *The evolution of cooperation*. Chapter 1: The problem of cooperation; Chapter 2: The Success of TIT FOR TAT in computer tournaments; Chapter 4: The live-and-let-live system in trench warfare in World War I

**Section:** Prisoner's Dilemma game

**Activity:** Kin selection

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## UNIT 2: EVOLUTIONARY PERSPECTIVES ON NONHUMANS

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## Week 6: EXAM 1 and introduction to animal behavior

### Monday Feb 7: EXAM 1

### 9. Wed Feb 9: Chimpanzees as a model for animal behavior

*No readings. Watch movie "The New Chimpanzees"*

No weekly section: Optional open office hours

**Activity:** 'The new chimpanzees' Movie Handout

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## Week 7: Food

### 10. Monday Feb 14: Socioecology

*Readings:*

- Boyd & Silk (2015) Primate diversity and ecology. From: *How Humans evolved*

### 11. Wednesday Feb 16: Food

*Readings:*

- Kano (1992) *The last ape*. Chapter 4: Food and nutrition.
- Natterson-Horowitz & Bowers (2012) *Zoobiquity*. Chapter 7: Fat planet.

**Section:** Food

**Activity:** Optimal foraging theory

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## Week 8: Mating and offspring

### 12. Monday Feb 21: Mating

#### Readings:

- Dixon (2012) Mating systems. From: *Primate sexuality*

### 13. Wednesday Feb 23: Parents and offspring

#### Readings:

- Hrdy (2011) *Mothers and others*. Chapter 3: Why it takes a village

**Section:** The mating game

**Activity:** Parent-offspring conflict

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Week of Feb 28: No classes (spring break)

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## Week 9: Social interactions

### 14. Monday March 7: Kinship

#### Readings:

- Cheney and Seyfarth (2007) *Baboon metaphysics: The evolution of a social mind*. Chapter 4: Chapter 5: Females: Kinship, rank, competition, and cooperation
- Empirical paper: Buchan et al (2003) True paternal care in a multi-male primate society. *Nature*

### 15. Wednesday March 9: Aggression

#### Readings:

- Daly & Wilson (1994). Evolutionary psychology of male violence. From: *Male violence*.

**Section:** Kinship. Make sure to read empirical paper *before* section.

**Activity:** Kinship and the prisoner's dilemma

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## Week 10: EXAM 2, and Introduction to humans

### Monday March 1: EXAM 2

### 16. Wednesday March 24: Nonhuman cognition

#### Readings:

- Shettleworth (2010). *Cognition, evolution, and behavior*. Chapter 1: Cognition and the study of behavior.

**No weekly section:** *Optional open office hours*

**No Activity.**

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### UNIT 3: EVOLUTIONARY PERSPECTIVES ON HUMANS

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#### Week 11: Culture and human behavior

##### 17. Monday March 11: Culture and human cognition

Readings:

- Richerson & Boyd (2005) *Not by genes alone: How culture transformed human evolution*. Chapter 3: Culture evolves. Chapter 4: Culture is an adaptation
- Empirical paper: Herrmann et al 2007 Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science*.

##### 18. Wednesday March 23: Human socioecology

Watch the movie "Baka: the people of the forest"

Readings:

- Gibbons (2018) Hadza on the brink. *Science*.

**Section:** Human versus ape cognition. Make sure to read empirical paper *before* section.

**Activity:** Movie Handout- 'Baka: The People of the Forest'

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#### Week 12: Foundations of society

##### 19. Monday March 28: Marriage

Readings:

- Shostak (1981) *Nisa: the life and words of a !Kung woman*. Chapter 4: Discovering sex; Chapter 5: Trial marriages; Chapter 6: Marriage

##### 20. Wednesday March 30: Warfare

Readings:

- Wrangham (2019) *The goodness paradox: The strange relationship between virtue and violence in human evolution*. Chapter 11: Overwhelming power; Chapter 12: War

**Section:** Human mating

**Activity:** The marriage game

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#### Week 13: Religion and cultural evolution

##### 21. Monday April 4: Religion

- Norenzayan (2013) *Big gods: How religion transformed cooperation and conflict*. Chapter 1: Religious evolution; Chapter 2: Supernatural watchers; Chapter 3: Pressure from above; Chapter 4: In Big Gods we trust

22. Wednesday April 6: Cultural evolution

Readings:

- TBD

**Section:** Cultural evolution

**Activity:** Cooperation and cultural group selection

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**Week 14: Human genetic evolution and controversis**

23. Monday April 11: Human genetic evolution

Readings:

- Pritchard (2010) How we are evolving. *Scientific American*.
- Jablonski & Chaplin (2002) Skin deep. *Scientific American*.

24. Wed April 13: Why is the evolution of behavior controversial?

Readings:

- Time Magazine (1977) "Why you do what you do"

**Section:** Human adaptations

**Activity:** Optional review activity

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**Week 15: Wrap Up**

25. Monday April 18: Wrap up

No readings.

No sections or activities

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**Final exam during exam period**