## **Course Syllabus**

Jump to Today Sedit

### **Course Description**

This course will introduce you to the field of animal behavior (ethology). We will study the origins, causes, and functions of animal behavior from an evolutionary perspective. In this course, we will learn how animal behavior is studied and how hypothesis testing and models are applied to key topics in animal behavior ranging from sexual selection to cooperation. We will focus on how scientists study and test predictions about animal behavior and what has been learned about the evolution and ecology of animal behavior. The general goal of the course is to develop the ability to think as a scientist. By the end of this course, you should be able to identify an interesting scientific question, formulate a hypothesis, generate testable predictions using biologically informed models, determine how the question could be studied, and critically assess evidence to evaluate the hypothesis. Additionally, this course contains a large writing component, which will allow you to hone your science communication skills to a wide range of audiences.

This course counts as a 4 credit Biology Elective and is intended for students who have completed BIO-110/110L and BIO-111/111L.

### **Contact & Class Information**

#### Dr. Jennifer Kovacs

Email: jkovacs@agnesscott.edu (mailto:jkovacs@agnesscott.edu)

**Office hours:** Zoom Only; I will have office hours on Zoom from 11:40-12:55. You can find the <u>zoom</u> <u>link for my office hours</u> under the <u>Announcements</u> page of the course. If you need to schedule a meeting at a different time or in a format other than Zoom please contact me, either by email or through Canvas by using the Inbox icon on the Canvas Global Navigation menu. In that email, please include 3 times that work for you, and I will do my best to accommodate.

#### **Class Meetings:**

We'll be **meeting together as a group during the Tuesday class session every week** to work on a case study either as a whole class or in small groups on Zoom. Some Zoom classes will be recorded. When they are I will post them. Additionally, we will have a shared google agenda and class document that you can refer back to as needed. There will be no powerpoints for this class. I will be with you guys the whole time to make sure we all are on the same page and to fill in any gaps- just like in a physical classroom. Here is the <u>Zoom info</u> in <u>Announcements.</u>

There will be a **weekly assignments due Friday** (including this Friday) based on that case study done in class and a weekly reading and discussion that will be posted under that week's **module**.

We won't have class on Thursday during the scheduled lecture time, though I will be available to you on zoom as an optional drop-in if you have any questions, want to work on the case study a bit more, or just want to chat. Here is the <u>Zoom info</u> in <u>Announcements</u>.

We will meet synchronously every Thursday afternoon for lab. I have a really cool squirrel behavior experiment that each of you will be doing wherever you are (we are creating your equipment packages now and will mail them to you in the next couple of weeks), and we will be contributing our data to a larger nation-wide dataset looking at squirrel foraging behavior. I'm super excited about the project, and we will be meeting during lab time as a group to discuss our experimental planning, original research questions, data collection, data analysis, etc. We will also use that time to have some guest lecturers come and meet with us throughout the semester. Here is the <u>Zoom info for lab</u> in <u>Announcements.</u>

## ONLINE AND HYBRID EXPECTATIONS

Online and hybrid classes allow for flexibility and convenience. But online and hybrid classes require certain learning traits from you, the student.

- 1. Persistence and independence You need to work daily on every class and persist through challenges. When you run into a challenge, make sure you seek help! Remember this is your education and only yours. What you put into it is what you get out of it.
- 2. Effective Time-Management. Because you need to spend time daily on this class, make sure you schedule that time to make sure you manage your time well! Develop a daily to do and a long term plan for completing the major assignments.
- 3. Remember that your professors want to help but as we are on zoom, we may not pick up on the usual non-verbal cues students give us. In a typical classroom, we pick up on confused looks or blank stares. As we don't have those cues, reach out! Email or talk to your group or a learning assistant. Engage with the online discussions including the <u>Community Forum</u>!
- 4. Be aware of the software needs and make sure you know how to navigate those programs required for the course. Reach out to ITS or a friend or a YouTube how to video for the software/programs for the class.
- 5. Additionally, accessibility resources, such as screen readers and maginifiers are available to you both in Canvas (<u>https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-Canvasaccessibility-standards/ta-p/1564</u> (<u>https://community.canvaslms.com/t5/Canvas-Basics-Guide/Whatare-the-Canvas-accessibility-standards/ta-p/1564</u>) ) and in the Google Suite (<u>https://www.google.com/accessibility/products-features/</u>

<u>(https://www.google.com/accessibility/products-features/)</u>). If you have accessibility issues with some of our technologies or in general, please do not hesitate to reach out to the Offices of Academic

Advising and Accessible Education for help (<u>agnesscott.edu/academicadvising/accessible-</u> <u>education/index.html</u> (<u>http://agnesscott.edu/academicadvising/accessible-education/index.html</u>)

6. When you are engaging in course material, find a good study space. Turn off your cell phone, be in a comfortable space, minimize any distractions, no TV or games, etc.

### Course Goals and Learning Objectives

The topics and ideas that we cover in class aren't just relevant to this class during this semester. There are skills I want you to develop in this class that you will be able to take with you when you leave, similarly, there are ideas that I want you to continue to think about and evaluate after the semester and even after Spelman. Some of those are listed below.

#### Performance Objectives:

After completing this course you should be able to:

- 1. Conduct an independent search of current scientific literature on animal behavior.
- 2. Generate testable hypotheses based on observations of animal behavior and make predictions based on those hypotheses.
- 3. Assess results and data and with that knowledge accept/ reject a hypothesis and generate a new set of hypotheses/ predictions to explain the adaptive significance of specific behaviors.
- 4. Critically evaluate evidence and expert authority in order to think skeptically about issues in the field of animal behavior.
- 5. Make meaningful contributions during classroom discussions and activities.
- 6. Work productively in small groups, on writing projects and case studies.
- 7. Develop polished pieces of writing on scientific subjects through the process of drafting and commenting.

#### Learning Objectives:

After completing this course you should be able to:

- 1. Explain the role of evolution in shaping animal behavior.
- 2. Compare and contrast proximate and ultimate approaches to the analysis of behavior.
- 3. Distinguish the biologically determined mechanisms that control behavior, including developmental, hormonal and neural mechanisms.
- 4. Assess the importance of signals and communication in the evolution of behavior.
- 5. Evaluate the role sensory input plays in behavior.

- 6. Apply cost-benefit analysis to understanding evolutionary constraints on animal behavior.
- 7. Examine controversial and unresolved issues in the field of animal behavior, especially Darwinian puzzles such as altruism and conspicuousness.
- 8. Evaluate behavioral theories using hypothesis testing.

### Class Modules and Assignments for the Semester

The course will consist of <u>13 modules</u>. Each module will contain:

1) A chapter reading from the textbook "An Introduction to Behavioural Ecology" by Davies, Krebs, & Stuart

2) A weekly discussion question over the textbook reading that is due Tuesday before class

3) A second non-textbook reading and asynchronous discussion assignment that is due Friday by 1 PM EST

4) Case study questions that will be assigned during Tuesday's synchronous class meeting (11:40- 12:55 EST) and are due Friday by 1 PM EST -- EXCEPT ON EXAM FRIDAYS

#### Exams:

All exams will be essay exams. I will give you the question(s) on Tuesday after our class meeting and you have until Friday at 1 PM EST to complete and submit them. They are open book, open note, open resource. My only limitation on your exams is that you do not discuss them with any one else prior to Friday at 1 PM EST. The work that you submit should be your own. You will submit an academic honesty along with every exam. Please do adhere to those standards.

There are 4 exams for this class. Their due dates are in the schedule below. They are equally weighted. There is no final for this class.

#### **Semester-long Writing Assignment**

This semester, we will not only be learning all kinds of really cool stuff about animal behavior, but we will also be working on our ability to communicate what you've learned to a larger audience. Several years back, Dr. Olivia Judson published a fantastic pop science book about sexual behavior in the animal kingdom called <u>Dr. Tatiana's Sex Advice to All of Creation.</u> In this book, Dr. Judson wrote under the guise of Dr. Tatiana, a kind of Dear Abbey or Dan Savage advice columnist to the animal world, and as this character, she doled out all kinds of fantastic and salacious information about animal sexual behavior in the context of evolutionary biology. We will be reading parts of this book over the course of the semester.

#### Syllabus for Behavioral Ecology/Lab

Your assignment this part of the semester will be to write an essay (6 manuscript pages long + references) about an animal's behavior in the advice column style of Dr. Tatiana (Judson, 2002). Your essay should be accessible to the average pop science reader while at the same time contain primary literature sources and be well-seated within the fields of animal behavior and evolutionary biology. You will receive a detailed assignment and rubric for the essay. In order to build up to this final paper, you will produce several assignments including summaries of primary literature, primary literature research, drafts, etc. Due dates for essay assignments will be posted soon.

### Course Schedule: I PROMISE I WILL MAKE THIS PRETTIER TODAY!!!!

Module	Date	Day	Book Chapter	Major Topics	Goals	Assignments	Due Dates
1	August 20	R (Sync)	1: Natural Selection/ Ecology & Behavior		Get familiar with the various platforms. Introduce each other/ tools for semester/ syllabus	Introduce yourself visit the this week's watercooler (fun video) Perusall assignment of some sort (very simple)	Case Study #1 DUE Friday at 1pm
lab 0	August 20	Lab		Basic outline of lab's this semester	Introduction to lab and expectations		
2	August 25	T (Sync)	2: Testing Hypotheses		Introduce making predictions using models	Pre-class Discussion Squirrel Video & Discussion Question from ASU	
	August 27	R (Office)				Individual Fine to work in groups, but must be submitted individually (ALL ASSIGNMENTS EXCEPT EXAMS). Please list group members in the assignment submission no	Case Study #2 DUE Friday at 1pm

https://agnesscott.instructure.com/courses/2098/assignments/syllabus

2       Sept 1       T       3: Economic (Sync) Decisions       Seconomic	
2 Sept 1 T 3: Economic (Sync) C Sync) C Sept 1 C Sync) C Sync) C Sept 1 C Sept 1 C Sync) C Sept 1 C Sync) C Sept 1 C Sync) C Sept 1 C	
allow you to assess the validity of your testable hypothesis? Discussion question around "What should we do when a model fails to predict observed behavior?"	
Sept 3       R (Office)       Finish case study questionsRead another paper in Perusall (choose 1) answer reading questions add it to the summary table 3.1	Case Study #3 DUE Friday at 1pm

10/27/21,1:	11 PM			Syllabus	for Behavioral Ecology/L	ab	
lab 2	Sept 3	Lab			Reading #2 analyzing & presenting	end of lab submit figure of data	
					observation data next steps in observation		
3	Sept 8	T (Sync)	4: Predator V/S Prey: Evolutionary Arms Race		study		
	Sept 10	R (Office)				Exam #1 (Chap 1-4)	EXAM #1 DUE FRIDAY SEPT 11 at 1 pm
lab 3	Sept 10	Lab		craft questions	Reading #3 crafting a research question	end of lab approved group research question	
4	Sept 15	T (Sync)	5: Competition				
	Sept 17	R (Office)					Case Study #4 DUE Friday at 1pm
lab 4	Sept 17	Lab		speaker #1	Reading #4 finalizing the research question putting together a methodology preliminary trial	end of lab question/ hyp/ prediction/ variable/ experimental design	
5	Sept 22	T (Sync)	6: Group Living				
	Sept	R					Case

https://agnesscott.instructure.com/courses/2098/assignments/syllabus

	24	(Office)					Study #5 DUE Friday at 1pm
lab 5	Sept 24	Lab		Craft questions	Reading #5 feedback on experimental design	end of lab revision w beginning lit review/ biological justification for research question/ gap in knowledge that this work will fill/ biological interest	
6	Sept 29	T (Sync)	7: Sexual Selection				
	Oct 1	R (Office)					Case Study #6 DUE Friday at 1pm
lab 6	Oct 1	Lab		Speaker #2	Reading # 6 discussion of the literature		
	Oct 6	(Sync)					
7	Oct 13	T (Sync)	8: Parental Care				
	Oct 15	R (Office)		Speaker #2		Exam #2 (Chap 5-8)	EXAM #2 DUE FRIDAY Oct 16 at 1 pm
lab 7	Oct 15	Lab			Reading #7 case study w/ data analysis		
8	Oct 20	T (Sync)	9: Mating Systems				
	Oct 22	R (Office)					Case Study #7 DUE Friday at 1pm
						1	

10/2//21,1:	11 PM			- Syllabus	for Behavioral Ecology/La	b	
lab 8	Oct 22	Lab		craft questions	Reading # 8		
					lab meeting		
					style paper		
					presentation of		
					chosen		
					primary		
					literature		
					paper		
		Т	10 <sup>.</sup> Sex				
9	Oct 27	(Sync)	Allocation				
							Casa
							Case
	Oct 20	R					Sluuy #o
	001 29	(Office)					
							Friday at
<u> </u>							1pm
					Reading # 9		
					presentation of		
lab 9	Oct 29	Lab		Speaker #3	first half of		
					research		
					presentation		
			11: Social				
10	Nov 2	т	Behaviours:	Speaker #2			
		(Sync)	Altruism to	Speaker #3			
			Spite				
	1						Case
							Study #9
	Nov 5	R					DUE
		(Office)					Friday at
							1pm
	+				Reading # 10 -		
lab 10	Nov 5	Lab		craft questions	- data analysis		
<u> </u>		т	12 <sup>.</sup>				
11	Nov 10	(Sync)	Cooperation				
		(Sync)	Cooperation				Casa
							Case
		R					
	INOV 12	(Office)					
		Í					⊢riday at
	<u> </u>		ļ				1pm
lab 11	Nov 12	Lab		Speaker #4	figures		
12	Nov 17	Т	13: Altruism				

		(Sync)	Social Insects			
						EXAM
		D				#3 DUE
Nov 1	Nov 19			Exa	Exam #3 (Chap 9-13)	FRIDAY
						Nov 20
						at 1 pm
				Final research		
				presentations,		
lab 12	Nov 19	Lab		data upload		
				and lab wrap-		
				up		

# Course Summary:

Date	Details	Due
	Diversity in science     (https://agnesscott.instructure.com/courses/2098/assignments/	due by 1pm 12112)
Fri Aug 21, 2020	In Class Module #1 Case Study #1 Extra Pair Copulations and Warblers (https://agnesscott.instructure.com/courses/2098/assignments/	due by 1pm (12198)
	Introducingme	to do: 11:59pm
Tue Aug 25, 2020	Discussion over Davies Chap <u>1 &amp; 2 DUE BEFORE CLASS</u> <u>TUESDAY</u> (https://agnesscott.instructure.com/courses/2098/assignments/	due by 11:45pm ( <u>12668)</u>
	Case Study #2 Marsha's Crows (https://agnesscott.instructure.com/courses/2098/assignments/	due by 4pm (12749)
Fri Aug 28, 2020	Dr. Tatiana Chapter <u>(https://agnesscott.instructure.com/courses/2098/assignments/</u>	due by 11:59pm <u>12897)</u>
	Reading Questions for Lima et al paper DUE AT END OF LAB (https://agnesscott.instructure.com/courses/2098/assignments/	due by 11:59pm (12946)

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Date	Details	Due
Tue Sep 1, 2020	Discussion over Davies Chap <u>3 DUE BEFORE CLASS TUESDAY</u> (https://agnesscott.instructure.com/courses/2098/assignment)	due by 11pm <u>ts/12904)</u>
Thu Sep 3, 2020	Reading for lab #2 (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm <u>ts/13322)</u>
Fri Sep 4, 2020	Friday Reading for Chap 3 (https://agnesscott.instructure.com/courses/2098/assignment	due by 3:59pm t <u>s/13320)</u>
Tue Sep 8, 2020	Discussion over Davies Chap <u>4 DUE TUESDAY BEFORE CLASS</u> (https://agnesscott.instructure.com/courses/2098/assignment)	due by 11:59pm t <mark>s/13586)</mark>
Fri Sep 11, 2020	Exam 1 (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm t <u>s/13587)</u>
Tue Sep 15, 2020	Discussion for due BEFORE Friday (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm t <u>s/13998)</u>
Fri Sep 18, 2020	Mating Strategies in Voles Reading for Discussion (https://agnesscott.instructure.com/courses/2098/assignment)	due by 4pm t <u>s/14209)</u>
Eri Son 25, 2020	Case Study for Competition (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm <u>ts/14080)</u>
Fil Sep 23, 2020	Group Living In-Class Project (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm <u>ts/14435)</u>
	Discussion for BEFORE class <u>Tuesday: Sexual Selection</u> (https://agnesscott.instructure.com/courses/2098/assignment)	due by 11:59pm ts/14576)
Tue Sep 29, 2020	Origin and Evolution of Leadership Paper Discussion on Perusall DUE Tuesday Sept 29 (https://agnesscott.instructure.com/courses/2098/assignment)	due by 11:59pm t <mark>s/14613)</mark>
Fri Oct 2, 2020	Essay or Unessay on Squirrel Behavior Project (https://agnesscott.instructure.com/courses/2098/assignment	due by 11:59pm ts/14934)

Date	Details	Due
	₽ In-Class Case Study	
	Investigating Good Genes &	
	Hamilton-Zuk	due by 11:59pm
	(https://agnesscott.instructure.com/courses/2098/assign	<u>ments/14617)</u>
	Perusall Paper Reading	
Tue Oct 6, 2020	Parental Care & Sexual Selection	due by 11:59pm
	(https://agnesscott.instructure.com/courses/2098/assign	<u>ments/14618)</u>
	First Draft of Dear Doctor	
Fri Oct 9, 2020	Letter DUE Friday 10/9	due by 11:59pm
	(https://agnesscott.instructure.com/courses/2098/assign	<u>ments/15220)</u>
Tue Oct 13, 2020	Tuesday Parental Care	due hv 11.59nm
140 000 13, 2020	(https://agnesscott.instructure.com/courses/2098/assign	ments/14577)
Thu Oct 15, 2020	Squirrel Project for Oct & Nov	to do: 11:59pm
	Exam 2	
Sun Oct 18, 2020	(https://agnesscott.instructure.com/courses/2098/assign	due by 11:59pm ments/14616)
Tue Oct 00, 0000		due hu 44.50mm
Tue Oct 20, 2020	<u>Tuesday Mating Systems</u>	due by 11:59pm
	<u>(https://agnesscott.instructure.com/courses/2098/assign</u>	<u>ments/14578)</u>
	Dear Doctor Assignment 2	
	paragraph summary DUE Friday	due by 11:50pm
	<u>10/23</u>	
Fri Oct 23, 2020	(https://agnesscott.instructure.com/courses/2098/assign	<u>ments/15679)</u>
	Mating Systems: Dunnock	
	Case Study Due Friday	due by 11:59pm
	(https://agnesscott.instructure.com/courses/2098/assign	<u>ments/15898)</u>
Tue Oct 27, 2020	Tuesday Sex Allocation	due by 11.50pm
	(https://agnesscott.instructure.com/courses/2098/assign	ments/14579)
Eri Oct 20, 2020	Annotated Bibliography for	duo hu 11.50
FII UCI 30, 2020	Dear Dr. Letter DUE SUnday 11/1	
	<u>(https://agnesscott.instructure.com/courses/2098/assign</u>	<u>ments/15081)</u>

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Date	Details	Due
Tue Nov 3, 2020	Discussion for BEFORE class Tuesday Social Behaviors (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>its/14580)</u>
Fri Nov 6, 2020	Sex Allocation Case Study (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>its/16248)</u>
Tue Nov 10, 2020	Questions for our Speaker         Lauren Benedict in Lab this         Thursday         (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm 
	Social Behavior Case Study (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>its/16249)</u>
Fri Nov 13, 2020	Discussion for AFTER class Tuesday Cooperation (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>ats/14581)</u>
Fri Nov 20, 2020	Altruism Simulation Case Study Due Friday (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>ats/17102)</u>
Wed Dec 2, 2020	Draft #2 DUE 11/20  (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>its/15684)</u>
Mon Dec 7, 2020	Exam 3- DUE DEC 7 (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>tts/15686)</u>
Mon Dec 7, 2020	Final Draft- Due Dec 7 (https://agnesscott.instructure.com/courses/2098/assignmer	due by 11:59pm <u>its/15685)</u>
	<u>Cooperation Case Study</u> (https://agnesscott.instructure.com/courses/2098/assignmer	<u>nts/16837)</u>
	Discussion for BEFORE class Tuesday (https://agnesscott.instructure.com/courses/2098/assignmer	<u>nts/14213)</u>
	Draft #1 DUE Monday 11/9  (https://agnesscott.instructure.com/courses/2098/assignmer	nts/15683)

Date

Details

Friday Reading about Publication Bias
(https://agnesscott.instructure.com/courses/2098/assignments/15929)

B Google Doc (https://agnesscott.instructure.com/courses/2098/assignments/20934)

In class Group Work-- Case Study #3 Optimal Diet Model (https://agnesscott.instructure.com/courses/2098/assignments/13290)

In class Group Work-- Case Study #4 Brood Parasitism (https://agnesscott.instructure.com/courses/2098/assignments/13654)

In-Lab Presentation on Squirrel Behavior Project (https://agnesscott.instructure.com/courses/2098/assignments/14430)

Research Question (https://agnesscott.instructure.com/courses/2098/assignments/14205)

Spider Summary (https://agnesscott.instructure.com/courses/2098/assignments/15556)

Submit Squirrel Observations Here (https://agnesscott.instructure.com/courses/2098/assignments/13824)