

Science and Human Nature: Biological Sciences

COR 401-001 & 401-002

Spring 2015

INSTRUCTOR'S CONTACT INFORMATION

Name: Dr. Roarke Donnelly

Office: Robinson 103

Office Hours: M 1:15-2:15, Tu 10:30-12:30, F 1:15-3:15

Email: rdonnelly@oglethorpe.edu

Phone: 404.364.8401

COURSE MEETINGS

(001) Lecture: MW 2:15-3:45pm in G-219

(002) Lecture: MWF 11:45am-12:45pm in R-116

COURSE OVERVIEW

Description

Some human behaviors are found in so many cultures that they are considered universal, or part of human nature. One of these behaviors is “groupishness”; we would rather cooperate and live with other humans than live alone. Why? Many great works of philosophy and the social sciences have attempted to answer this question. This class will provide you with a different, biological perspective. It will explore the roots of our groupishness through the lens of biological evolution.

The course is comprised of two or three class periods per week--depending on your class section--that are organized around readings. During a typical class period, you will meet in the classroom to discuss readings, hear a short lecture, and/or complete an exercise.

Objectives

After successful completion of this course you will:

- be able to identify sound science and distinguish it from other ways of knowing
- understand the theory of evolution via natural selection and why it was arguably the most important paradigm shift in the history of biology
- understand the levels of organization at which natural selection works
- appreciate the breadth of evidence supporting the modern synthesis of evolutionary theory
- know how to explain apparent altruism with kin selection
- appreciate the importance of division of labor and reciprocity to the development and maintenance of human society
- know how our societies compare to those of other animals
- recognize that science and human nature affect each other

- be able to read critically, formulate logical arguments, and effectively communicate those arguments using writing and speech.

Prerequisite

To enroll and stay enrolled in this course, you must have at least junior standing.

SCHEDULE

Tentative schedule of events

Week	M's Date	Lecture	Primary reading source	Notes
1	12-Jan	Science		
2	19-Jan			M off
3	26-Jan	Biological evolution	Dawkins, Watson, Weiner	
4	2-Feb			
5	9-Feb			
6	16-Feb			
7	23-Feb			
8	2-Mar	Evolution & human nature	Ridley	Exam 1
9	9-Mar			No class M-F (Spring Break)
10	16-Mar			
11	23-Mar			
12	30-Mar			
13	6-Apr			
14	13-Apr			
15	20-Apr			
16	27-Apr			
17	4-May	Review		M is last class; Exam 2 is 2:30pm W for 001 & 11:15am F for 002

Other important dates

Tu	1/20	Last day to drop/add and receive 100% tuition refund
F	3/6	Midterm grades due
M	3/23	Last day to withdraw with a "W" grade
Th	4/2	Liberal Arts and Sciences Symposium, no classes
M-F	3/30-4/3	Pre-registration advising for Fall 2015
M-F	4/6-4/10	Registration for Fall 2015

STUDENT RESPONSIBILITIES

Attendance

You are required to attend all regularly scheduled class periods. You are, however, permitted a total of four absences from class. This total includes any class to which you are more than 10 minutes late or from which you leave early. If you accumulate a fifth absence before 3/24, you must withdraw from the class before end of business on 3/23 or I will assign you a grade of "FA" for the course. If you accumulate a fifth absence after 3/23, I will assign you a grade of "FA" for the course. I will monitor absences with a daily sign-in sheet and submitted assignments. To avoid violating the attendance policy,

keep track of your absences and “save” absences for times when you absolutely cannot attend class.

Etiquette

You must observe the following rules during class periods:

- keep all electronic devices (e.g., cell phones, laptops) off (i.e., unable to communicate with you in any way),
- do not eat or drink in a way that is distracting or impolite to your peers or the instructor,
- do not use tobacco products,
- treat your peers, the instructor, and university property with care and respect,
- show a positive attitude toward learning and course material, and
- during hands-on exercises, wear appropriate clothing and footwear for indoor work with chemicals, sharp instruments, etc.

I will warn you upon your first etiquette violation. I will punish each violation after the first with dismissal from the class or lab period and one absence. See the Attendance section for the consequences of accumulating five absences.

Readings

Readings from primary (i.e., those that you must buy in hardcopy) and secondary sources (i.e., those that I will make available in softcopy or hardcopy) are essential to this course. For this reason, you will be required to complete these readings before the associated discussions so that you have the background to learn from the discussion and you can make a meaningful contribution to the discussion. I will encourage you to complete the readings before their discussion in two ways. First, I will give eight “pop” quizzes on reading content before discussions. Second, I will evaluate the degree to which you participate in and make a positive contribution to all activities, including discussions. I will usually assign readings in blocks of two consecutive classes using reading prompts that include citations and questions. The following is a tentative list of readings. Primary sources are noted with bold text.

- Augustine, N. 1998. What we don't know does hurt us: how scientific illiteracy hobbles science. *Science* 279:1640-1641.
- [Darwin, C. and A. Wallace.](#) 1858. On the tendency of species to form varieties and species by natural means of selection. *Journal of the Proceedings of the Linnaean Society (Zoology)* 3:45-62.
- [Darwin, C. 1859.](#) On the origin of species by means of natural selection. Murray, London.
- **Dawkins, Richard. 1976. *The selfish gene*. Oxford University Press, Oxford.**
- Dial, K.P. 2003. Wing-assisted incline running and the evolution of flight *Science* 299:402-404.
- [Franklin, R. and R.G. Gosling. 1953.](#) Molecular configuration in sodium thymonucleate. *Nature* 171:740-741.
- [Gould, S.J. 1998.](#) The great Asymmetry. *Science* 279:812-813.

- Grant, B.R. 2003. Evolution of Darwin's Finches: a review of a study on Isla Daphne Major in the Galapagos Archipelago. *Zoology* 106:255-259.
- [Hardin, G. 1968](#). The tragedy of the commons. *Science* 162:1243-1248.
- Heilbroner, R.L. 1986. *The essential Adam Smith*. W.W. Norton and Co., New York.
- Herrell, A. et al. 2008. Rapid large-scale evolutionary divergence in morphology and performance associated with exploitation of a different dietary resource. *Proceedings of the National Academy of Sciences* 105:4792-4795.
- Kuhn, T.S. 1962. *The structure of scientific revolutions*. University of Chicago Press, Chicago.
- Maddox, B. 2003. *Rosalind Franklin: Dark lady of DNA*. Harper Collins, New York.
- Partecke, J. and E. Gwinner. 2007. Increased sedentariness in European Blackbirds following urbanization: a consequence of local adaptation?" *Ecology* 88: 882-290.
- Platt, J.R. 1964. Strong inference. *Science* 146:347-353.
- **Ridley, Matt. 1996. *The origins of virtue*. Penguin Books, New York.**
- [Watson, J.D. and F.H. Crick. 1953a](#). A structure for deoxyribose nucleic acid. *Nature* 171:737-738.
- [Watson, J.D. and F.H. Crick. 1953b](#). Genetical implications of the structure of deoxyribonucleic acid. *Nature* 171:964-967.
- **Watson, James. 2001. *The double helix: a personal account of the discovery of the structure of DNA*. Simon and Schuster, New York.**
- **Weiner, J. 1995. *The beak of the finch*. Vintage, New York.**
- [Wilson, E.O. 1998](#). Scientists, knaves, and fools. *American Scientist* 86:6-7.
- Wong, K. 2014. The new science of human origins. *Scientific American* 311.
- Wrangham, R. *Catching fire: how cooking made us human*. Basic Books, New York.

Quizzes

See lines 5-7 under the subheading on reading.

Exams

Questions on exams may take a variety of formats including but not limited to short essay, fill in the blank, matching, multiple choice questions, sketches, and long essay. Exam 1 will cover all material presented/covered since the beginning of the class. Exam 2 will emphasize material presented since Exam 1, but it may also include a few synthetic questions that span the entire semester. I will discuss the cumulative nature of Exam 2 as it approaches.

Papers

You must write three short papers over the course of the semester. Two of these papers will be reactions to class discussions that allow you to explore a course theme in greater depth and with a more personal perspective. There will be several themes from which you can select. One of these papers will be an explanation of a class-themed poem that you wrote. I will present more details on these papers in the first few weeks of class.

Research Project

You must also help to conduct research for, prepare, and present group research (in a paper and a powerpoint presentation) on a course-relevant topic (e.g., conflicts of interest in industry-funded scientific research). I will provide more information on these projects around week four.

Participation

See lines 7-10 under the subheading on reading.

GRADING

All work in this course is subject to the terms of the honor code. In keeping with this principle, you must include an affirmation of the [honor code](#) to receive a grade (i.e., credit) for a course assignment. If you have any questions about the honor code, I strongly encourage you to reread the code and ask me questions. Be aware that the code describes many responsibilities and prohibited activities. The latter include:

- Cheating is the umbrella under which all academic malfeasance falls. Cheating is any willful activity impacting or connected to the academic enterprise and involving the use of deceit or fraud in order to attempt to secure an unfair advantage for oneself or others or to attempt to cause an unfair disadvantage to others.
- Plagiarism includes representing someone else's words, ideas, data or original research as one's own and in general failing to footnote or otherwise acknowledge the source of such work.

I will evaluate the answers you give on quizzes and exams based on two criteria. The first criterion, content, is the most important. An answer with meritorious content is the product of correct and complete recollection, translation, interpretation, application, analysis, synthesis, and/or evaluation of data and/or concepts. The second criterion is format. An answer with correct format clearly communicates relevant and logical ideas and adheres to the rules of English spelling and grammar. If other grading criteria pertain to a particular assignment, they will be explained later (i.e., in conjunction with that particular assignment or a group of similar assignments).

I will reduce the points earned for late submissions by 10% of the point possible per 24hr period after the due date/time. The first 24hr period begins immediately after the due time. In many cases, this will be just after the lecture or lab period begins.

I will award points for activities as follows:

Activity	# of units and unit pt value	Total pt value
Exams	2 @ 100	200
Research project	1 @ 90	90
Quizzes	8 @ 10	80
Papers	3 @ 25	75
Participation	1 @ 35	35
	Total pts possible	480

I will assign grades based on the following scale:

Earned % of total points possible	Letter grade	Quality points
>92	A	4
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2
70-72	C-	1.7
67-69	D+	1.3
60-66	D	1
<60	F	0

*For more information on the grade of “incomplete”, please see the OU Bulletin

SOURCES OF HELP

From the Professor

If you need help with anything related to this class, please talk with me after class, talk with me during office hours, find me in my office outside office hours, schedule an appointment, or send me an [email](#).

From University Services

If you need assistance with writing or notetaking, please contact the [Academic Success Center](#) on the first floor of OU's Weltner Library. If you need reasonable accommodations for a documented disability that could impact your learning, please contact [Disability Services](#) (disabilityservices@oglethorpe.edu; 404.364.8869). I cannot provide any disability accommodation without a letter requesting these accommodations from this office. If you need assistance with your internet account or Moodle, please contact [Information Technology Services](#) (404.364.8880).

Read the information below. Provide your printed name, your signature, and the date in the spaces provided. Submit the completed form to me by the beginning of the second day of class (W 1/14/15).

My signature below indicates that I:

- have read the syllabus for the Spring '15 offering of COR 401 Science and Human Nature: Biological Sciences,
- understand all of the course requirements including those for attendance and participation in discussions,
- understand how the course grade will be determined,
- agree to abide by the rules of etiquette and the honor code, and
- understand the potential penalties for more than 4 absences and breaches of the aforementioned rules and code.

Printed name _____

Signature _____

Date _____