"I will not here enter on these several cases, but will confine myself to one special difficulty, which at first appeared to me insuperable, and actually fatal to the whole theory. I allude to the neuters or sterile females in insect communities: for these neuters often differ widely in instinct and in structure from both the males and fertile females, and yet, from being sterile, they cannot propagate their kind."

— Darwin on altruism, from the *Origin of Species* (6th Edition)

Course Objectives: The goal of the course is to develop an appreciation of how evolutionary biologists do their work. Like a detective, biologists are presented with evidence—some aspect of a living organism, either morphological or behavioral—and must use their inferential powers to explain why the organism exhibits this particular adaptation (i.e., what selection pressures lead to the adaptation?). In this course, we will seek an explanation for the evolution cooperation.

Readings:
Matt Ridley (1996) *The Origins of Virtue*
Dierdre N. McCloskey (1999) *Economical Writing* – read this on your own schedule
Selected readings posted on the course website

Resources:
The Library – Librarians want to help you – [http://www.library.ucla.edu/](http://www.library.ucla.edu/)
Plagiarism: Don’t do it. If in doubt: [http://www.deanofstudents.ucla.edu/StudentGuide.pdf](http://www.deanofstudents.ucla.edu/StudentGuide.pdf)
Course Requirements

Participation: Attendance is mandatory. You will be evaluated on how well you participate. This means doing the readings before class and contributing to the discussions. To facilitate more active discussions, cell phones and laptops are not permitted in class. Take notes the old fashion way—on paper. You will be keeping a journal (see below), which can double for notes.

Discussion Questions: Submit two discussion questions by email on the Monday before class. One question should focus on the readings and the other, inspired by the readings, should address something that you would like to know more about.

Quizzes: Each week, I’ll ask a few short questions on the readings at the start of class.

Research Paper: Choose a fictional character (not too obscure, please) who exhibits some behavior you would like to better understand. Write a 10 page paper aimed at a smart reader (but not a specialist) that explains this behavior from an evolutionary perspective. This is a research paper, not creative writing assignment! You should read a lot to understand your topic, mostly research articles, not newspapers or websites. Your final paper should have at least 5 high quality citations. Your assignment isn’t necessarily to come up with a novel evolutionary explanation; since there is plenty of bad science, you can criticize existing explanations. You have complete freedom to choose the character and behavior. Example essays are posted on the course website. If you need help in coming up with a question or finding sources, don’t hesitate to contact me. At the end of the quarter, with your permission, I will compile the essays into a book, called The Science of Fiction, Volume II, and distribute copies to everyone in the class. Below are the deadlines for the paper.

April 14: Bring in a (vague) research question and/or fictional character
April 21: Annotated Bibliography – a detailed summary of at least 3 articles
April 28: Bring in a one-page research proposal
May 12: Rough draft due
June 2: Presentations – email me files by 5 pm the night before!
June 9: Final draft due

Presentation: During week 10, each of you will present a summary of your research paper to the class. I’ll have a projector, though oral presentations are fine. Keep the presentation brief (5–7 minutes, 3–4 slides) so we can accommodate everyone. The presentations are open to the public, so invite whomever you’d like!

Journal: Keep a journal to observe your study species, Homo sapiens. Good science begins with good questions, and good questions often arise from careful observation. Spend time each week watching people and write down what you see. This journal is also a good place to work through problems arising from the course readings and your research paper. Your journal is for you; I will not read it. Bring your journals to class though, so you’ll have discussion topics.
## Reading Schedule

### March 31:
Dawkins, 1986, Chapters **1, 2, 4, 5**, and Epilogue
Dawkins, 2007, Chapters **1** and **2**

### April 7:
Ridley, Prologue and Chapter 1
Feynman, “The Value of Science”
Schwartz, “The importance of stupidity in scientific research”
“Genomic Imprinting: A Talk with David Haig”
Minsky, *Excerpt from The Society of Mind*

### April 14:
Ridley: Chapter 2 and 3
Huang, *Bees and Social Insects* and “Division of labor in social insects”
Griffin, “Naked mole-rat”
Epstein, “Why Model?”
Kokko, “Modelling Philosophy”

### April 21:
Ridley: Chapter 4 and 5
New *et al.*, “Spatial adaptations for plant foraging”
Henrich *et al.*, “Markets, Religion, Community Size...”
Silk *et al.*, “Chimps are indifferent to the welfare of unrelated group members”
Detto *et al.*, “When and Why Do Territorial Coalitions Occur?”

### April 28:
Ridley: Chapter 6 and 7
Gurven and Hill, *Why Do Men Hunt?* – read to page 62; commentary optional
Bateson *et al.*, “Cues of being watched enhance cooperation”
Fehr *et al.*, “Egalitarianism in young children”

### May 5:
Ridley: Chapter 8 and 9
Kohn, “The Needs of the Many”
Richerson and Boyd, “Culture and Genes Co-evolve”
Bowles, “Conflict: Altruism’s midwife”

### May 12:
Huxley, “Evolution and Ethics”
Sandel, “The Case Against Perfection”
Gould and Lewontin, “The Spandrels of San Marco”
Sahlins, “Critique of Vulgar Sociobiology”

### May 19:
Ridley: Chapter 10 and 11
Bshary and Noe, “Biological Markets”
Grief, “Reputation and Coalitions in Medieval Trade”
Diamond, “The Ends of the World as We Know Them”

### May 26:
Ridley: Chapter 12 and 13
Gurerk *et al.*, “The Competitive Advantage of Sanctioning Institutions”
Hirsh, “Fish Shares and Sharing Fish”
Acheson, “Lobster and Groundfish Management in the Gulf of Maine”