BIO 295: Animal Behavior  
Spring 2008

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Homepage: http://www.grinnell.edu/individuals/brownj

Course Homepage: http://web.grinnell.edu/courses/bio/S08/Bio-295-01/ -- you will find useful links there, as well as links to electronic copies of all handouts and papers.

Office hours: Office hours: Mon 3:15-4:15 pm, Tues 8-9 am, Wed 10-11 am, Thurs 9-10 am, Fri 3:30-4:30 pm. Please contact me for appointments at other times, after consulting my schedule outside my door.

Course description -- Investigations of the causes, functions, and origins of animal behavior. We will use an evolutionary perspective to understand and integrate common behavioral adaptations, e.g., obtaining food, avoiding predators, living in groups, communicating, mating, and caring for offspring. Laboratory projects emphasize design, analysis, and communication of quantitative tests of hypotheses carried out in the lab and field. Three lectures and one scheduled lab per week. Prerequisites: Bio 150.

Meetings: MWF 8:00-8:50 in Science 1612; labs will take place in 1609 and later in the semester at CERA. Each Friday, I will be giving you assignment sheets with details on reading assignments and study questions that will help you prepare for the week. (These can also always be found on the Class Web Page.) It’s important that you are prepared for every day of class. We will start promptly at 8:00 am; please arrive on time -- and awake!

Texts: Dugatkin’s Principles and Animal Behavior and Heinrich’s Mind of the Raven. You should also buy a lab notebook dedicated to this course.

Evaluation: Grades will be based on the following assignments:

- Exams 45%
- Oral presentation 10%
- Chickadee Intro and Discussion 10%
- Gall Fly Paper 20%
- Pre-lab assignments/homework/lab notebook 5%
- Science journalism article 10%

Quizzes and exams will evaluate your ability to use terms correctly, explain major ideas from the readings, interpret data, and propose tests of hypotheses. If you do NOT do the assigned readings before coming to class, participate in class, do homework problems, and practice writing about the ideas after class, you will do poorly on the quizzes and exams!
Letter grades will be determined in the following manner:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93-100%</td>
<td>A</td>
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<tr>
<td>90-93%</td>
<td>A-</td>
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<td>87-90%</td>
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<td>83-87%</td>
<td>B</td>
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<tr>
<td>80-83%</td>
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<td>77-80%</td>
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<td>70-77%</td>
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<td>60-70%</td>
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<td>&lt; 60%</td>
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I do not using a grading curve because I believe it discourages students from working together. I encourage you to form study groups and to work with me individually or in groups on the subject matter of the course. I do consider the effect of single assignments in lowering your grades (i.e., one bad day shouldn’t matter) and take into account improvement over the semester. If you are worried about your performance in the class, please come talk to me during office hours. *I have very high expectations of you – and nothing is more important to me than helping you reach and surpass them.*

**Policies:** Late papers will be accepted with a penalty of 10%/day. Penalty-free extensions will be given in the case of illness documented by the health center. *Please let me know in advance if you need to miss class because of a conflict with an extracurricular or other activity. I will try to make reasonable accommodations, but not at the last minute!*

*Learning disabilities* – I am committed to accommodating all documented learning disabilities. Please speak with me early in the semester if there is a way I can facilitate your success in this course.

**Schedule (subject to revision – consult weekly assignment sheets)**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Lab Investigations</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>1/21-25</td>
<td>• Introductions</td>
<td>Describing and quantifying behavior I</td>
<td>• Dugatkin Chapt. 1-2</td>
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<tr>
<td></td>
<td>• Natural Selection</td>
<td></td>
<td>• C. Darwin</td>
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<tr>
<td>I</td>
<td></td>
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<tr>
<td>1/28-2/1</td>
<td>Proximate factors in behavior</td>
<td>Describing and quantifying behavior II</td>
<td>• Dugatkin Chapt. 3</td>
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<tr>
<td>II</td>
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<tr>
<td>2/4-8</td>
<td>Learning</td>
<td>Testing hypotheses quantitatively – design and trials</td>
<td>• Dugatkin Chapt. 4</td>
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<tr>
<td>III</td>
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<tr>
<td>2/11-15</td>
<td>Social Learning</td>
<td>Testing hypotheses quantitatively – data acquisition and analysis</td>
<td>• Dugatkin Chapt. 5</td>
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<td>IV</td>
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<tr>
<td>2/18-22</td>
<td>Foraging</td>
<td><strong>Oral presentations on experiments (2/19,21)</strong></td>
<td>• Dugatkin</td>
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<td>V</td>
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<td>• Chapt. 10</td>
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<td>• Exam 1 (2/21)</td>
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<td>2/25-2/29</td>
<td>Anti-predator behavior</td>
<td>Foraging decisions in chickadees (CERA)</td>
<td>• Dugatkin Chapter 11</td>
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### 3/5-9
**Habitat selection and territoriality**
- Foraging decisions in chickadees (CERA)
- Dugatkin Chapter 13

### 3/12-16
**Migration**
- Foraging decisions in chickadees (CERA)
- Dugatkin Chapter 13
- Exam II (3/16)

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**SPRING BREAK – 3/17-3/30**

### 3/31-4/4
**Sexual selection**
- Mating behavior and mate choice (gall flies)
  - observations
- Dugatkin Chapt. 6

### 4/7-11
**Mating systems**
- Mating behavior and mate choice (gall flies)
  - experiments
- Dugatkin Chapt. 7
- Intro and Discussion of Chickadee Foraging experiment (4/7)

### 4/14-18
**Kinship**
- Mating behavior and mate choice (gall flies)
  - Experiments
- Dugatkin Chapt. 8

### 4/21-25
**Cooperation and Aggression**
- Ant foraging and aggressive behavior (CERA) – observations
- Dugatkin Chaps. 9, 14
- Full paper on gall fly mate choice (4/23,25)

### 4/28-5/2
**Discussion**
- Ant foraging and aggressive behavior (CERA) – experiments
- Mind of the Raven
- Exam III (4/30)

### 5/5-9
**Discussion**
- Ant foraging and aggressive behavior (CERA) – analysis
- Mind of the Raven

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No final exam -- Science journalism paper on ant foraging due by noon on Thursday May 15th.