## Introduction to Neuroscience & Behavior
**NEUR 201, Spring 2005**

Lecture room: Olmsted 212  
Lab rooms: Olmsted 314 (20 Jan to 4 Mar); Blodgett 213 (22 Mar to 3 May)  
Professors: Carol Cristensen (email: christen) & John Long (email: jolong)  
Offices: Blodgett 231 & Olmsted 317  
Intern: Louisa Steinberg (email: losteinberg)

<table>
<thead>
<tr>
<th>date</th>
<th>day</th>
<th>lecture topic</th>
<th>lab topic</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Section I: Movement — Generation, Control, Evolution</strong></td>
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<tr>
<td>Jan 20</td>
<td>R</td>
<td>What is the neural basis of behavior?</td>
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<td>(Carew, 2000, Ch. 1; Ishiwaka &amp; Mori, 1999)</td>
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<td>21</td>
<td>F</td>
<td>Subjectivity &amp; Objectivity in Measurement: Monosynaptic reflex</td>
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<td>25</td>
<td>T</td>
<td>Is movement behavior?</td>
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<td></td>
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<td>(Jayne &amp; Lauder, 1995a)</td>
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<td>27</td>
<td>R</td>
<td>Does muscle activation explain muscle function?</td>
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<td></td>
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<td>(Altringham &amp; Ellerby, 1999; Jayne &amp; Lauder, 1995b)</td>
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<td>28</td>
<td>F</td>
<td>Vertebrate Escape Response I: Movement Patterns</td>
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<td></td>
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<td>(Domenici &amp; Blake, 1997)</td>
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<tr>
<td>Feb 1</td>
<td>T</td>
<td>Neuromodulating muscle force.</td>
<td><em>Measurement paper due at 9:00 a.m.</em></td>
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<td></td>
<td></td>
<td>(Ehrsson et al. 2003; Korff &amp; Wainwright, 2004)</td>
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<td>3</td>
<td>R</td>
<td>What is the muscular basis of behavior?</td>
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<td></td>
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<td>(Wakeling, 2001; Johnston et al. 1995)</td>
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<td>4</td>
<td>F</td>
<td>Vertebrate Escape Response II: Neural Patterns</td>
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<td></td>
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<td>(Zottile &amp; Faber, 2000)</td>
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<td>8</td>
<td>T</td>
<td>Circuits for escape and prey capture.</td>
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<td></td>
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<td>(Norekian, 1999; Svoboda &amp; Fetcho, 1996)</td>
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<td>10</td>
<td>R</td>
<td>Neuromodulation of significant behaviors affecting evolution.</td>
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<td>(Fetcho &amp; Higashijima, 2004; Ritter et al. 2001)</td>
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<tr>
<td>Day</td>
<td>Time</td>
<td>Event</td>
<td>Reading/Notes</td>
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<tr>
<td>11</td>
<td>F</td>
<td>Vertebrate Escape Response III: Neural Basis of Movement</td>
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<tr>
<td>15</td>
<td>T</td>
<td>Neuromodulating the escape response. (Eaton et al. 2001; Hale, 2002)</td>
<td>Grant proposal due 9:00 a.m. in class.</td>
</tr>
<tr>
<td>17</td>
<td>R</td>
<td>Coordinated, periodic movements. (Grillner et al. 1995; Grillner, 1996; Schaal, et al. 2004)</td>
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<tr>
<td>18</td>
<td>F</td>
<td>Vertebrate Escape Response IV: Independent Investigations I</td>
<td></td>
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<tr>
<td>24</td>
<td>R</td>
<td>What is the environmental basis of behavior? (Ellerby et al. 2001; Padua-Schioppa et al. 2004)</td>
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<td>25</td>
<td>F</td>
<td>Vertebrate Escape Response V: Independent Investigations II</td>
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<tr>
<td>Mar 1</td>
<td>T</td>
<td>Are neuromotor systems conserved during evolution? (Smith, 1994; Hale et al. 2002)</td>
<td>Scientific Manuscript I due; 5:00 p.m.</td>
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<td>4</td>
<td>F</td>
<td>Vertebrate Escape Response VI: Symposium (oral presentations)</td>
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<td>SPRING BREAK</td>
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<td>Mar 22</td>
<td>T</td>
<td>Kin selection (Silk, 2002)</td>
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<td>24</td>
<td>R</td>
<td>Kin selection (Chapais et al. 2001; Fehr &amp; Gachter, 2002)</td>
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<td>25</td>
<td>F</td>
<td>Measuring Human Brain Function I: Learning the Neuroscan System (N.B.: Blodgett 213)</td>
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<td>29</td>
<td>T</td>
<td>Facial recognition in primates (Eifuku et al. 2004; Leibenluft et al. 2004; Lyon, 2003)</td>
<td>Integrative Paper due 1:30 p.m.</td>
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<td>31</td>
<td>R</td>
<td>Olfactory recognition in mammals (Penn, 2002; Schaefer et al. 2002)</td>
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<td>April 1</td>
<td>F</td>
<td>Human Brain Function II: Data collection (Blonder et al. 2004)</td>
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<td>5</td>
<td>T</td>
<td>Dominance hierarchies</td>
<td>(Decker, 2000; Virgin &amp; Sapolsky, 1997)</td>
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<td>7</td>
<td>R</td>
<td>Deception</td>
<td>(Ganis et al. 2003; Tibbetts et al. 2004)</td>
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<td>8</td>
<td>F</td>
<td>Human Brain Function III: Data collection (reading TBA, N170)</td>
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<td>12</td>
<td>T</td>
<td>Emotion</td>
<td>(LaBar et al. 2003; Williams et al. 2004)</td>
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<td>14</td>
<td>R</td>
<td>Motivation &amp; reward</td>
<td>(Elliot et al. 2003; Ernst et al. 2004)</td>
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<td>15</td>
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<td>Human Brain Function IV: Data extraction</td>
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<td>Draft of intro &amp; methods due, 1:30 p.m.</td>
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<td>19</td>
<td>T</td>
<td>Risk taking &amp; psychopathology</td>
<td>(Anderson et al. 1999; Mitchell et al. 2002)</td>
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<td>21</td>
<td>R</td>
<td>Violence &amp; aggression</td>
<td>(Brower et al. 2001; Davidson et al. 2000)</td>
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<td>22</td>
<td>F</td>
<td>Human Brain Function V:</td>
<td>Statistical analysis and analysis of variance</td>
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<td>26</td>
<td>T</td>
<td>Cooperation &amp; affiliation I</td>
<td>(Hyman, 2002; Sapolsky, 1996)</td>
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<td>28</td>
<td>R</td>
<td>Cooperation &amp; affiliation II</td>
<td>(de Waal, 2000; Fehr &amp; Gachter, 2002)</td>
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<td>29</td>
<td>F</td>
<td>Human Brain Function VI:</td>
<td>Discussion of the results</td>
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<td>Social control &amp; evaluation</td>
<td>Scientific manuscript II due, 5:00 p.m.</td>
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Assignments

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<thead>
<tr>
<th>Laboratory</th>
<th>Due Date</th>
<th>% of grade</th>
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<tbody>
<tr>
<td>1. Grant proposal</td>
<td>Tuesday, 15 Feb, 9:00 a.m.</td>
<td>5</td>
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<tr>
<td>2. Scientific manuscript I</td>
<td>Tuesday, 1 March, 5:00 p.m.</td>
<td>10</td>
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<tr>
<td>3. Oral presentations</td>
<td>Friday, 4 March, 1:30 p.m.</td>
<td>10</td>
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<tr>
<td>4. Intro &amp; methods draft (II)</td>
<td>Friday, 15 April, 1:30 p.m.</td>
<td>10</td>
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<td>4. Scientific manuscript II</td>
<td>Tuesday, 3 May, 5:00 p.m.</td>
<td>15</td>
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Analytical paper

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<tr>
<th>Due date</th>
<th>% of grade</th>
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<tbody>
<tr>
<td>1. Measurement &amp; definitions</td>
<td>Tuesday, 1 February, 9:00 a.m.</td>
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Integrative papers

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<thead>
<tr>
<th>Due date</th>
<th>% of grade</th>
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<tbody>
<tr>
<td>1. Movement</td>
<td>Friday, 25 March, 1:30 p.m.</td>
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<tr>
<td>2. Kin &amp; Social Behavior</td>
<td>paper in lieu of final, 7 May, 5:00 p.m.</td>
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Participation & attendance

| Every day and lab (labs are mandatory!)            | 5          |
|TOTAL                                              | 100        |

Written Assignments: for every written assignment, we ask that you turn in (1) an electronic copy to the Blackboard Drop Box and (2) two hard copies to CC and JL.

Grading and Late Policy: Assignments will be graded either with letter grades or with percentages. Translations are as follows, using the B range as an example: B- = 80 – 83.3, B = 83.4 – 86.6, B+ = 86.7 – 89.9. Late assignments are penalized 2% for each day late. All assignments must be completed and handed in prior to 8 May in order to pass the course.

Attendance: Missing a laboratory without prior approval by your Class Advisor will result in a 5% penalty on your final grade. Note well: you will have a FULL laboratory the Friday before Spring Break — DO NOT PLAN TRAVEL BEFORE 5:30 P.M., FRIDAY, 4 MARCH.
Readings


Evolution 43, 293–305.


