Neurobiology  
BIOL 4170/617 (3); CRN 33138, 38773

Preliminary Course Syllabus

Michelangelo Buonarroti. *The Creation of Adam* (C. 1510. Fresco)  
Sistine Chapel, Vatican, Rome.

Michael Harris

University of Alaska Fairbanks  
Spring Semester 2006

Classes: Tuesday & Thursday 11:30am -1:00pm,  
NSCI Room 165

Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of homeostasis, sensations and specific behaviors. Applications of basic neurobiological research to pathological conditions. Examples taken mostly from the recent vertebrate literature.

Version: 1/19/06  
This syllabus is subject to change

Course syllabus, content and format are modified from earlier offerings of Biology 417/617 by Dr. Abel Bult-Ito.

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1. Course information:

Course information:
Neurobiology, BIOL 417O/617 (3); CRN 33138, 38773
Meeting Times: Tuesday & Thursday 11:30am -1:00pm, NSCI Room 165
Prerequisites: BIOL F310; COMM F131X or F141X; or permission of instructor.

Instructor:
Michael B. Harris, Ph.D., Assistant Professor of Biology (Neuroscience)
  Office: Arctic Health Research Building Room 260
  Research Lab: Arctic Health Research Building Rooms 257
  Phone: 474-7801 (office)
  E-mail: ffmbh@uaf.edu
  Mailbox: Irving I Room 311
  Lectures: Tuesday and Thursday 11:30am-1pm
  Lecture room: 165 Natural Sciences Facility
  Office hours: Wednesday 2pm-4pm, or by appointment

2. Course readings/materials:


Blackboard Page:
Students are expected to check the course webpage on Blackboard on a regular basis.
Login at http://classes.uaf.edu
Select “Neurobiology”
Contact me by email if you are unable to access this site.

Email Notifications:
On occasion, students will be contacted via email. I will assume that each student will check their university-assigned email address (username@uaf.edu) on a regular basis. If you use another address, it is up to you to have your official university assigned address forward appropriately.
3. Course Description:

Welcome to Neurobiology! The UAF Catalogue describes the topic of this course as follows: Organization and function of the vertebrate nervous system from the subcellular to the organismal levels; Neural bases of homeostasis, sensations and specific behaviors; Applications of basic neurobiological research to pathological conditions, with examples taken mostly from the recent vertebrate literature.

This goal of this course is to provide a basic understanding of the nervous system in vertebrates, by studying its molecular building blocks, individual cells, parts of cells and groups of cells. This course is designed as the first encounter with neurobiology for students that have taken introductory biology courses. It will cover the fundamental facts and principles of neurobiology.

Our fascination with the nervous system derives from the range of phenomena it presents to us: It is the seat of the most complex human traits, such as language, emotions, and ingenuity; yet its workings are made from little more than salt, protein, and fat. The main goal of this course, therefore, is to provide you with a broad perspective on the nervous system, from molecules to behavior. Based on this information, we will learn about the function of sensory and motor systems, the principles of neural development, and mechanisms of complex nervous system functions such as homeostasis, memory and learning. Particular emphasis will be placed on the key experiments that led to our current understanding of the function and development of the nervous system.

Course Organization: The course will consist of 5 major themes, each divided into topics. We will spend 1 - 3 class periods on each topic. You will receive more detailed outlines for upcoming lectures on each topic (posted on the web site). Questions and discussion throughout the course are encouraged and this syllabus should be considered flexible. For example, if there is great interest and prolonged discussion regarding neurotransmitters and receptors, we will spend more time on this subject and can easily adjust the rest of the course to accommodate. If necessary, exams may be rescheduled.

The basic goals of this course are:
1. To understand key neuroscience concepts, such as:
   a) Neurons are the building blocks of the central and peripheral nervous systems, the structure and function of a neuron, and signaling within and between neurons.
   b) The integration of many input signals, many levels of association of information, and many output signals that results in complex behavior, including cognition, perception, action, emotions, language, and learning and memory.

2. To contribute to a student-centered interactive learning environment. A substantial proportion of the content of the course will be presented and chosen by students.

3. To improve oral communication skills. This is an oral intensive class and you will get detailed feedback from peers and the instructor for all your presentations.
4. **To work effectively with others.** This includes team work to prepare for lectures and presentations, participation in group discussion and peer evaluation.

   We will use a variety of approaches to achieve these goals:

1. **Lecture and discussion.** In lecture, we are going to talk about the basic concepts in neurobiology. An important source for this information is from written material including, but not limited to, Purves, et al. *Neuroscience*. 3rd ed. Sunderland, MA: Sinauer Associates. **NOTE: The content of the 2nd edition is distributed by the NIH free at http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books;** however, the interface is awkward, the later chapters have changed substantially, and the Sylvius CD is not included.) A personal computer running at least Windows 95 or Mac OS 7.5.3 is required to use the Sylvius 2.0 CD of human neuroanatomy that is included with the textbook. The CD is a useful supplement, although there will be no assigned use of the CD. **Quizzes will test your knowledge of the lecture material, and material in the text not covered in lecture.** So you need access to the text material somehow.

2. **Student-led lectures (Biol 417/617).** In my experience, the presentation of lecture material by students is one of the best learning tools for the presenters as well as the listeners. Biol 417O students will be asked to give two 30-minute lecture presentations. BIOL617 students will give one full-length lecture.

3. **Student oral presentations of primary literature (Biol 417).** An important skill to develop is how to critically review and present scientific knowledge in a clear, concise, and logical manner. You will have the opportunity to give an oral presentation of a recent, i.e., 2000 or later, peer-reviewed article on a neuroscience topic that appeared in primary scientific literature sources, e.g., journals Science, Nature, and Journal of Neuroscience.

4. **Student oral presentations of a review topic in neurobiology.** To summarize and incorporate information from many different sources into a comprehensive understanding of the material is another important skill of any scientist. You will have the opportunity to present a review on a topic in neuroscience of your choice (Neurobiology: what does it mean to us?).

5. **A written review on a topic in neuroscience of your choice (BIOL617).** This is an individual project on a topic other than the review discussed in 4.
4. Course Requirements

You are expected to read the assigned textbook chapters, to attend the lectures, and take part in class exercises. The textbook and the lectures together define the material covered in the quizzes.

Practice questions as well as summaries of the facts and principles emphasized in class will be posted on Blackboard. Additional announcements will be made in class, via e-mail, and on Blackboard.

Attendance and Class Participation

Class attendance is required. If for any reason you are not able to attend a specific class meeting, you will be responsible for catching up with the material covered during the absence. I will make a subjective assessment of each student’s class participation, and assign a grade during final evaluation. If you are required to participate in either (a) military or (b) UAF-required activities that will cause you to miss class, you must notify me as soon as possible before your absence. Tardiness, absenteeism, inattentiveness, and unfamiliarity with course material will all negatively impact this subjective assessment.

Quizzes

There will be four comprehensive quizzes during the semester, each covering one or two thematic sections of the course. Each quiz may be comprised of multiple-choice, true-false, fill-in-the-blanks, and or short answer questions. Each quiz will count toward 10% of the final grade. Approximately 30-45 minutes of class time will be allotted for each quiz.

Oral Presentations: General Information

Biol 417 caries an Oral Intensive” designation, requiring that a significant component of evaluation is derived from oral communication. You will receive information and be instructed on effective speaking, on organization of material for effective presentation, and on development and use of media and visual aids.

You will be evaluated on the following six criteria:

- Effectiveness of description of the objectives of your presentation and how it fits in with previously presented material if applicable
- Effectiveness of description of the main points of the lecture material or primary literature research study
- Comprehension of the topic
- Original conclusions, synthesis, or recommendations for further research
- Effectiveness of presentation
- Ability to stimulate discussion
Oral Presentation: 30 minute Lectures (BIOL417 only)

Biol 417O students will give one 30-minute lecture on the topic materials assigned for a particular class day (themes II through IV). Two students will present in a given period. Lectures will each be followed by up to 15 minutes of general discussion. Students will also be asked to coordinate your lecture with the other student who is going to present on the same day. Please be advised that the assigned readings contain much more information than can be presented during one class meeting. Therefore, you will have to carefully evaluate and coordinate with the other student what material to present. This course is truly student driven, as students can decide and present the content. However, regardless of what is presented in each lecture, all text material is fair game for the quizzes. Students may volunteer for a particular topic, or lecture dates will be assigned during the 2nd or 3rd week of class.

In addition to the above 30-minute lecture, students will make one other 30-minute presentation which can be one of the following:

1) A second 30-minute lecture, the topic materials selected from optional topics in Theme V.
2) A 30-minute individual presentation on the theme of “Neurobiology: what does it mean to us?”
3) A 30-minute presentation describing a research report from the current Neurobiology literature.

The second presentations are expected to be 20 to 25 minutes followed by 5 to 10 minutes for questions and comments. Three presentations will be made in the 90 minute class period.

Oral presentation: Neurobiology: what does it mean to us? (417O & 617)

Students will present a review of current knowledge on a topic in neurobiology of your choice, incorporating up to five articles from the peer-reviewed primary literature or, at the discretion of the instructor, a single comprehensive work. Teams are asked to choose a topic that has relevance to “us” (humans, students, aging professors, Alaskans, etc). Different teams are not allowed to present on the same topic. Topics are selected on a first-come-first-served basis, so think about this early.

Some things to keep in mind while you are preparing for this review presentation:

- Since the topic should have direct relevance to neurobiology, many topics in sociology and psychology may not apply.
- A great review will have a balanced approach; although the presentation of current knowledge is important, leave time to discuss issues such as controversies in the field, problems in interpretation of results, and/or suggestions for future research.
- How you present your review depends on the topic. For example, discussing the genetic and neural basis of a neurological disorder may require a different approach from discussing the effects of a pollutant on neural pathways involved in learning and memory.
- The instructor will evaluate the overall performance according to criteria discussed in the General Information about Oral Presentations section above.
- Some suggestions for review topics:
The neurobiology of a disease (Alzheimer’s, Fetal alcohol syndrome, Sudden Infant Death Syndrome, Seasonal Affective Disorder, Autism)

The development of current understanding of a neurobiological process

The down-side of recreational pharmacology

What injury has taught us about human neurobiology

Oral Presentation: Literature Review (BIOL417O & 617)

Students may give an oral presentation on an article from the peer-reviewed primary literature. These articles will complement lecture topics and should be taken from the recent literature (published in 2000 or more recently). You are strongly encouraged to select the article yourself even if that would replace a suggestion by the instructor. A particular article cannot be presented more than once in class. You will be assigned to a particular presentation day during the second week of the course. You are asked to suggest an article at least three weeks before your presentation. If you do not give me a suggestion, I will assign one to you at least two weeks before your presentation date. The articles will be on reserve in the Biosciences Library at least two weeks before the presentation date.

Each presentation should be 25 minutes long and will be followed by a 5-minute question and answer period. We may have up to three different presentations during a class period.

Some things to keep in mind while you are preparing for this presentation:

- Does the quality of the study warrant publication?
- Do the authors give an appropriate rationale for their study?
- Are the methods and research designs appropriate?
- Are the (statistical) analyses of the data done appropriately?
- Is the presentation of the results done clearly and in the best way possible?
- Are the sample sizes appropriate?
- Do the results warrant the authors’ conclusions?
- What other interpretations of the results are possible?
- What follow-up studies could/should be done?
- Does the study represent a major advance in the field?

Oral Presentation: Full-Length Lecture (BIOL617 only)

Students taking BIOL617 are required to;

1) Give a full-length lecture (at least 70 minutes long) on the topic materials assigned for a particular class day (themes II through IV).
2) Present a second 30-minute presentation of either;
   a) A second 30-minute lecture, the topic materials selected from optional topics in Theme V.
   b) A 30-minute individual presentation on the theme of Neurobiology: what does it mean to us?
   c) A 30-minute presentation describing a research report from current literature.
Written Literature Review (BIOL617 only)

Students taking BIOL617 are required to write a review article on a topic in neurobiology. The topic should be different from that presented for Neurobiology: what does it mean to us? The topic can be related to your Thesis or Dissertation research. The review paper should be based on at least 10 peer-reviewed journal articles. Your paper should be 8-10 pages long. The 8-10 page limit is only a guideline. It refers to the body of the text and not to the Literature Cited/Reference list or to any tables or figures. I will not be counting pages. I give you this guideline so you will know approximately how large of an effort I expect.

You may print your paper from a word processor, I will not accept hand written documents. Print on one side of the page only, double space your lines, indent your paragraphs, have margins that are at least 1” on right and left sides, put page numbers in a consistent location on each page, and staple your pages together in the upper left-hand corner. Please don't use a binding or cover. For additional formatting suggestions, please check neuroscience journals on the web for manuscript formatting suggestions. Using a peer-reviewed journal article as a formatting guide will work as well. You may submit the paper, via email, as a virus-free text file readable by Microsoft Word for windows (ie .doc, or .pdf). If I can’t open it, I can’t grade it.

A draft of the review of no less than four pages double spaced, including a reference list of the peer-reviewed journal articles to be reviewed can be submitted no later than 10 March 2006. The final draft is due at noon, 4 May, 2006. You are encouraged to submit the initial and final drafts to me at earlier dates and I will return them to you within one week with comments and suggestions. Regarding late assignments, the assignment is worth 20% of the final grade, 5% of which will be deducted per day for late submission.
5. Grading

The final grade will be based on the average of all assignment marks according to the following fixed scale:

<table>
<thead>
<tr>
<th>Activity</th>
<th>BIOL4170</th>
<th>BIOL617</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attendance and Class Participation</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>2. Comprehensive quizzes (4)</td>
<td>40% (10% each)</td>
<td>40% (10 each)</td>
</tr>
<tr>
<td>3. 1st Oral presentations 30 minute Lecture</td>
<td>28% (14% peer evaluation &amp; 14% instructor evaluation)</td>
<td>-</td>
</tr>
<tr>
<td>4. 2nd Oral Presentation:</td>
<td>28% (14% peer evaluation &amp; 14% instructor evaluation)</td>
<td>15% (7% peer evaluation &amp; 8% instructor evaluation)</td>
</tr>
<tr>
<td>Oral Presentation: Full-Length Lecture</td>
<td>-</td>
<td>20% (5% peer evaluation &amp; 15% instructor evaluation)</td>
</tr>
<tr>
<td>6. Written Literature Review</td>
<td>-</td>
<td>20% (instructor evaluation)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
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</table>

The class will be graded on a straight percentage basis: 90-100% is an A, 80-89.9% is a B, 70-79.9% is a C, 60-69.9% is a D, and < 60% is an F. **I will not grade on a curve.** This means that in principle it will be possible for everyone to get an A in this course (but of course it will also be possible for everyone to get an F). Supplemental assignments may be provided at the discretion of the instructor.

**Missed assignments:**

*Times for oral presentations will be assigned well in advance. Presentation of assigned material at the assigned time will be the responsibility of the student. Missed oral presentations will not be rescheduled. Accommodations will only be made for legitimate and documented emergencies.*

**Disabilities Services:**

At UAF, the Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.
6. Dates and topics (Subject to change)

Theme I. Fundamentals of Neuroscience

<table>
<thead>
<tr>
<th>Topic #</th>
<th>Topic</th>
<th>Purves et al.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction/Cells of the Nervous System/Organization of the Nervous System</td>
<td>Chapt. 1 App. A and B</td>
</tr>
<tr>
<td>2</td>
<td>Electrical Signaling</td>
<td>Chapt. 2 Chapt. 3 Chapt. 5 (116-126) Chapt. 4</td>
</tr>
<tr>
<td>3</td>
<td>Synapses and Neurotransmitters</td>
<td>Chapt. 5 Chapt. 6</td>
</tr>
<tr>
<td>4</td>
<td>Receptors and Second Messengers</td>
<td>Chapt. 7</td>
</tr>
<tr>
<td>(1-4)</td>
<td>Exam I</td>
<td>Ch 1-7</td>
</tr>
</tbody>
</table>

Theme II. Sensation and Sensory Processing

<table>
<thead>
<tr>
<th>Topic</th>
<th>Topic</th>
<th>Purves et al.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Principles of Sensory Neuron Function/General Senses/Special Senses:</td>
<td>Chapt. 8 Chapt. 9</td>
</tr>
<tr>
<td>6</td>
<td>Special Senses: Vision</td>
<td>Chapt. 10 Chapt. 11</td>
</tr>
<tr>
<td>7</td>
<td>Special Senses: Auditory and Vestibular</td>
<td>Chapt. 12 Chapt. 13</td>
</tr>
<tr>
<td>8</td>
<td>Chemical Senses</td>
<td>Chapt. 14</td>
</tr>
<tr>
<td>(5-8)</td>
<td>Exam II</td>
<td>Ch 8-14</td>
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</tbody>
</table>
### Theme III. Movement and its Central Control

<table>
<thead>
<tr>
<th></th>
<th>Topic</th>
<th>Chapter</th>
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</thead>
<tbody>
<tr>
<td>9</td>
<td>Motor Neuron Circuits and Motor Control Reflexes</td>
<td>Chapt. 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapt. 16</td>
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<tr>
<td>10</td>
<td>Modulation of Movement</td>
<td>Chapt. 17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapt. 18</td>
</tr>
<tr>
<td>11</td>
<td>Eye Movements, sensory motor integration</td>
<td>Chapt. 19</td>
</tr>
<tr>
<td>12</td>
<td>The Visceral Motor System</td>
<td>Chapt. 20</td>
</tr>
<tr>
<td><strong>(9-12)</strong></td>
<td>Exam III</td>
<td>Ch 15 - 20</td>
</tr>
</tbody>
</table>

### Theme IV. A Changing Brain: Development and Plasticity

<table>
<thead>
<tr>
<th></th>
<th>Topic</th>
<th>Chapter</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>Patterning the Nervous System</td>
<td>Chapt. 21</td>
</tr>
<tr>
<td>11</td>
<td>Development of Neural Circuitry</td>
<td>Chapt. 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapt. 23</td>
</tr>
<tr>
<td>12</td>
<td>Plasticity of the Adult Nervous System</td>
<td>Chapt. 24</td>
</tr>
</tbody>
</table>

### Theme V. Complex Brain Functions (Optional topics, if time allows)

<table>
<thead>
<tr>
<th></th>
<th>Topic</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>13</td>
<td>The Association Cortices</td>
<td>Chapt. 25</td>
</tr>
<tr>
<td>14</td>
<td>Language and Lateralization</td>
<td>Chapt. 26</td>
</tr>
<tr>
<td>15</td>
<td>Sleep and Wakefulness</td>
<td>Chapt. 27</td>
</tr>
<tr>
<td>16</td>
<td>Emotions</td>
<td>Chapt. 28</td>
</tr>
<tr>
<td>17</td>
<td>Sex, Sexuality, and the brain</td>
<td>Chapt. 29</td>
</tr>
<tr>
<td>18</td>
<td>Memory</td>
<td>Chapt. 30</td>
</tr>
<tr>
<td><strong>(10-18)</strong></td>
<td>Exam IV</td>
<td>Ch 21-30</td>
</tr>
</tbody>
</table>
This table will be used to plan and track course content

<table>
<thead>
<tr>
<th>Date</th>
<th>Class</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>January</td>
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<td>February</td>
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<td>April</td>
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<tr>
<td>May</td>
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</tbody>
</table>
7. Student Code of Conduct

As a UAF student, you're subject to the Student Code of Conduct. In accordance with Board of Regents' Policy 09.02.01, UAF will maintain an academic environment in which the freedom to teach, conduct research, learn, and administer the university is protected. Students will enjoy maximum benefit from this environment by accepting responsibilities commensurate with their role in the academic community. The principles of the Code are designed to facilitate communication, foster academic integrity, and defend freedoms of inquiry, discussion, and expression among members of the university community. You should become familiar with campus policies and regulations as published in the student handbook.

UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others. Conduct that unreasonably interferes with the learning environment or that violates the rights of others is prohibited. Students and student organizations will be responsible for ensuring that they and their guests comply with the Code while on property owned or controlled by the university or at activities authorized by the university.

Disciplinary action may be initiated by the university and disciplinary sanctions imposed against any student or student organization found responsible for committing, attempting to commit, or intentionally assisting in the commission of any of the following prohibited forms of conduct:

A. cheating, plagiarism, or other forms of academic dishonesty;
B. forgery, falsification, alteration, or misuse of documents, funds, or property;
C. damage or destruction of property;
D. theft of property or services;
E. harassment;
F. endangerment, assault, or infliction of physical harm;
G. disruptive or obstructive actions;
H. misuse of firearms, explosives, weapons, dangerous devices, or dangerous chemicals;
I. failure to comply with university directives;
J. misuse of alcohol or other intoxicants or drugs;
K. violation of published university policies, regulations, rules, or procedures; or
L. any other actions that result in unreasonable interference with the learning environment or the rights of others.

This list is not intended to define prohibited conduct in exhaustive terms, but rather to set forth examples to serve as guidelines for acceptable and unacceptable behavior.

Honesty is a primary responsibility of you and every other UAF student. The following are common guidelines regarding academic integrity:

1. Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.

2. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses and other reports.

3. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

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Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regent's policy, university regulations and UAF rules and procedures. For additional information and details about the Student Code of Conduct, contact the Dean of Student Services or web www.alaska.edu/bor/ or refer to the student handbook that is printed in the back of the class schedule for each semester. Students are encouraged to review the entire code.

A Few Words on Plagiarism

In general, DO NOT present someone else’s ideas or data as your own; you are expected and required to give credit where credit is due.

Plagiarism is a violation of the law and may lead to serious repercussions! Please follow the following guidelines: for any written assignments, if you use someone else’s ideas, data, or other information, write it in your own words and include the reference in parentheses directly following that information. Avoid copying someone else’s text. If, however, you feel you have to include an exact copy of that text, put it in quotation marks followed by the reference in parentheses. Of course, include all cited references in the Literature Cited section. During oral presentations, please acknowledge the sources by mentioning their name(s) and year of publication or by printing them on overheads, slides, or handouts. Also be aware that you need to cite earlier work by yourself. Any substantial use of any written or other materials that was used for another course or that was generated in any other circumstances will not be accepted for credit in this course. Only minor contributions from earlier work with appropriate citation(s) will be accepted.

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8. Grading (W + O/2 option)

As a test case, some students are participating in a written intensive and partially oral intensive modification of this course. The grading scheme for this option is as follows.

Students will be required to provide an un-graded diagnostic composition on or near the first day of class to help assess writing ability. The final grade will be based on the average of all assignment marks according to the following fixed scale:

<table>
<thead>
<tr>
<th>BIOL497WO/2</th>
<th>Class participation will count toward “oral” evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attendance and Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>2. Comprehensive quizzes (4)</td>
<td>20% (5% each)</td>
</tr>
<tr>
<td>Note: writing activities will comprise a portion of each quiz.</td>
<td></td>
</tr>
<tr>
<td>3. 1 Oral presentations 30 minute Lecture</td>
<td>28% (14% peer evaluation &amp; 14% instructor evaluation)</td>
</tr>
<tr>
<td>4. 3 written responses to Oral Presentations</td>
<td>27% (9% each)</td>
</tr>
<tr>
<td>5. Draft of Written Literature Review</td>
<td>Un-graded: a personal conference will be devoted to the student's writing and the draft will be evaluated by the instructor.</td>
</tr>
<tr>
<td>6. Written Literature Review</td>
<td>20% (instructor evaluation)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The class will be graded on a straight percentage basis: 90-100% is an A, 80-89.9% is a B, 70-79.9% is a C, 60-69.9% is a D, and < 60% is an F. **I will not grade on a curve.** This means that in principle it will be possible for everyone to get an A in this course (but of course it will also be possible for everyone to get an F). Supplemental assignments may be provided at the discretion of the instructor.