Instructor: Dr. Gabriel Yospin, giy@uoregon.edu, yosping@gmail.com, @GabrielYospin

Office: KLA 73

Office Hours: Tuesday 1430-1530, Wednesdays 1030-1130, and by appointment

Teaching Assistant: Thom Nelson, tcn@uoregon.edu

Office:

Office Hours:

“Lectures” Mondays & Wednesdays, 12 - 1:20 PM, in McKenzie 229

“Discussion Sections” Wednesdays, 2 - 5 PM, in Klamath 5

The Idea Behind This Course

We live in a world teeming with life, unique in the known universe. For millennia, humans have postulated how living things on our planet are related to each other. Within the last century, the Neo-Darwinian theory of biological evolution by natural selection has emerged as the most robust framework with the greatest explanatory power. Indeed, Theodosius Dobzhansky famously expounded that “nothing in biology makes sense except in the light of evolution.” Given that evolution is so important to understanding the biological world (including ourselves), in this course we will strive to understand how evolution works.
By the end of the course, students will be able to:

- Evaluate the effectiveness of competing approaches to conceptualize changes in groups of organisms over varying timespans
- Classify components of the biological world in terms of their relationships in space, time, and taxonomy
- Assess the strengths and weaknesses of basic research programs focused on evolutionary biology
- Propose, explain, and defend a new research path, relevant to current topics in evolutionary biology

Classroom Conduct

Our classroom must be a place where people are free to present their ideas, express their opinions, and question assumptions. We ask that we all do our best to be intellectually honest, while also being tolerant of personal differences. We welcome the intellectual controversy that will stem from your ideas and the ideas in this course. That controversy is essential to real learning.

At the same time, we ask that we all respect the rights of others to hold different opinions, even as we challenge the ideas supporting those opinions. We will debate these ideas passionately, but never acrimoniously. Strive to make it clear to your classmates that you respect them and value their ideas, even when you disagree.

If you have a documented disability and anticipate needing accommodation in this course, please make arrangements to meet with us soon. Please request that the Counselor for Students with Disabilities sends a letter verifying your disability.

Crises happen. If you are having problems that are interfering with your ability to do the work for this class, please let us know promptly. We are always willing to make special arrangements when the need is real and when you have done your best to address the situation in a timely manner. The University of Oregon Crisis Center, a student funded organization, provides students with confidential telephone crisis intervention 24 hours a day, 7 days a week. The hotline number is 346-4488. Students often believe that their issues are not severe enough for them to call, but at the Crisis Center, no problem is too small.
Policy on Academic Dishonesty

Academic dishonesty, which includes cheating and plagiarism, is a serious offense. The university has a good resource on proper practices for quotation and attribution ([http://library.uoregon.edu/guides/plagiarism/students/index.html](http://library.uoregon.edu/guides/plagiarism/students/index.html)). Always err on the side of excessive attribution, and bring any concerns over proper conduct to me. The Administration and we will treat any academic dishonesty according to the guidelines in the Student Conduct Code ([http://conduct.uoregon.edu](http://conduct.uoregon.edu)). This does not mean that you should develop your ideas in isolation from other students. It means that when you write something or choose a project topic, it must be your own work.

Student Responsibilities 1: Readings, Pre-Class Writing Assignment, Reading Quizzes

This is an upper-level, project-based course. This course requires a substantial amount of background reading for each class. Each day of class we will meet to discuss the assigned readings, and use them as a starting point for solving scientific problems. The success of these activities will depend on your engagement. As such, it is vital that you keep up with the readings. Be sure to read the material thoroughly prior to each class. Don’t be discouraged if you don’t understand everything prior to class. The point of our discussions is to use our combined intellectual powers to figure out exactly what the authors meant, and to determine the readings’ implications for the larger issues that we are exploring.

To help us discuss these readings, you will submit a critique of one or more arguments from one or more of the readings assigned for each class. While these do not need to be polished works, you must do more than restate what the authors wrote, or simply say that you did not understand what the authors meant. Take care to use proper English and clear language. The purpose of these assignments is to give you more opportunities to develop your ideas and discussion skills as the course progresses. We will also use the feedback from your assignments to direct our work in class each day. With this in mind, the submission deadline for each critique is noon on the day prior to the class for which the reading is assigned. This means that critiques for readings on Mondays will be due by noon on Sunday. You are always welcome to submit work early. Late work will earn no credit. These assignments are not due for the first week of the quarter. Note that the assigned reading for “lecture” is separate from the assigned reading for the “discussion.” The critique of the assigned reading for Wednesday “lectures” is due by noon on Tuesday, as is the critique of the assigned reading for the
Wednesday “discussion.” If a class session does not have required reading, critiques must focus on literature you are citing for your research proposals, or your research proposals themselves.

**Student Responsibilities 2: Online Discussion**

After class, we will post what we consider to be the best of these critiques (not necessarily those with which we agree) on Canvas, anonymously. If you do not wish to have your submission published on the course’s Canvas page, you must notify me in advance. Each student will be required to post five comments on these critiques over the duration of the course. Students may post more often if they like. A maximum of one comment from each student per week will be eligible for a grade. Students who submit more than five comments for a grade will be able to use the five highest scores they receive on their comments.

**Student Responsibilities 3: In-Class Participation**

Most classes will emphasize work in groups to propose solutions to scientific problems related to different aspects of evolutionary biology. We will use iClickers and our classroom observations to assess your participation in learning activities. Three points are possible for each class session (“lectures” and “discussions”): one each for attendance, effectively using your iClicker, and other modes of active participation.

**Student Responsibilities 4: Metacognitive Reflections**

You will submit a reflection on how your learning is progressing each Friday by noon. In 200 words or less, describe what you did to effectively learn the material for the course, anything that you did that did not work well, any changes that you think you should make to improve your learning, anything that you think you are missing in your preparation for class. If you have made changes based on previous reflections, how well have those changes worked? Is there anything that you still find confusing about the material we are learning? Is there anything that you think you learned well, or that you found interesting, that never came up in class? As with the critiques, take care to use proper English and clear language in writing your reflection. Your nine highest scoring weekly reflections will count toward your grade.

**Student Responsibilities 5: Presentations on Assigned Readings**
While we are all responsible for contributing to a productive discussion, each student will also be responsible for collaboratively presenting one reading assignment and leading the discussion. We will sign up for these presentations during the first discussion section, on the morning of Wednesday, September 30th.

The use of PowerPoint, Keynote, Google Docs, or something similar, is strongly encouraged. This is to allow you to focus our attention on key figures, tables, and passages.

Presentations on scientific articles should follow this format:

- **Introduction**
  - What was the purpose of the study?
  - What questions were the authors trying to answer?
  - Why is this interesting and important?
- **Methods**
  - Explain the methods of each experiment. Walk us through the tables and figures showing the results.
  - Mention any problems or possible areas for improvement in the experimental design or interpretation.
  - Raise questions about things you didn’t understand.
- **Evaluation**
  - What is the author’s overall claim? Do the experiments support this claim?
  - What are the lessons for science, people, and the environment?
  - Identify unresolved issues, and how they might be resolved.

Presentations on politics, policy, philosophy, or sociology should follow a format like:

- **Introduction**
  - What issue is the author addressing?
  - Why is it important?
  - Is there relevant historical or political context that we should know?
- **Thesis – State the main thesis**
- **The Argument**
  - Identify each major sub-argument (there are usually 2-4)
  - Define key concepts or terms.
  - Present the argument *in good faith.*
- **Implications – What are the major implications of the work?**
- **Evaluation**
- Are there flaws in the author’s argument?
- Are there major issues that the author ignored?
- Are there unfounded assumptions? Errors in logic?
- Could the author’s argument be extended further?

If your presentation includes more than one reading, identify connections between the readings. Practice your presentation in advance to be sure that it flows well, that you’re familiar with the material and your treatment of the material, and that the presentation isn’t too long. Uninterrupted, a presentation should take about 15 minutes. To meet this time limit, you will have to choose which material is important. An effective presentation highlights the most important parts of a reading to illuminate the argument and facilitate productive discussion. You do not need to become a world expert on your presentation materials, but you do need to ensure that you are in a strong position to lead the discussion.

You are welcome to meet with us to ask questions about your presentation, or to practice it in advance.

**Student Responsibilities 6: Research Proposal**

Each student will collaborate with up to four other students to produce a written research proposal, and to present this proposal to the class. Proposals may cover any component of evolutionary biology that we cover in this course. Your project must include the following:
- What is the motivation for exploring this component of evolutionary biology? What are you hoping to achieve?
- A description of what is known about the organisms and the environment you are investigating
- A description of the field setting for any field work you propose
- Descriptions of the tools and techniques needed to implement any field work you propose
- Descriptions of the tools and techniques needed to conduct any laboratory work for your proposal
- Descriptions of the types of data your project will generate, and qualitative and quantitative analyses you will perform to demonstrate your findings
- Figures and tables to communicate your ideas
- A realistic timeline for completing your proposed research
• An honest reflection on the most difficult or problematic components of your proposed approach, and how alternative approaches might obviate these problems
• A thorough and complete set of references in Council of Science Editors (CSE) Name-Year (N-Y) format. You must include at least 25 peer-reviewed publications.

Along the way to writing this paper, you will produce several intermediary documents:
• A list of at least ten potential topics for your project generated and submitted as a group, due by noon, Friday, October 7th
• An outline of your proposal, with all required sections detailed and assigned lead authors, and properly-formatted citations listed, generated and submitted as a group, due by noon, Friday, October 28th
• A complete first draft of your proposal, with tables and figures, and lead authors’ contributions signed, due by noon, Friday, November 11th
• A final draft, due by noon, Friday, December 2nd

The paper should be formatted with the following sections:
• Abstract: a concise paragraph explaining the project, the work you intend to do, and what you expect to discover
• Introduction: describe what is known about your biological systems, as it pertains to your investigation of evolution in that system
• Field research design (if needed): What are you planning to do? Where? How many personnel will you require? What tools will you need? How long will it take?
• Laboratory research design (if needed): What are you planning to do? How many personnel will you require? What facilities will you need? Will you need to culture or raise any organisms? What tools will you need? How long will it take?
• Backup plan/extension: What will you try first if your approach doesn’t work? Or, if it works perfectly the first try, how would you try to extend your work?
• Honest reflection: What might not work? What are the weak points? What aren’t you sure about? Be forthright about what you know and what you don’t, and how your proposed research might fall short.
• References: CSE N-Y format. Here is one online resource.

Within your group, assign a lead author to each section. You must decide among yourselves how to equitably distribute the work. While all group members must contribute to all parts of the proposal, it is the lead author’s responsibility to make sure that the work for each section comes together. Each page should have its lead author indicated at the bottom.
You will work together to deliver a presentation of your research proposal to the class. The presentation will be 20 minutes long, and allow 5 minutes at the end for questions from the audience. As with the presentations on reading assignments, we highly encourage you to use some type of presentation software to organize your work. You will practice your presentation and receive feedback from your classmates during weeks 7 and 8. Final Presentations will be during the final two weeks of the course, which will allow you time to revise your paper based on feedback from the class.

Have fun with this, please! You don’t have to actually do this project - there is no review board that will fire you if your project isn’t funded. All you have to do is be creative and think your way into the future of scientific research. If you do this well, 5 years from now you are likely to read a scientific publication on this work. You may even be the one who writes it.

**Course Assessment of Student Learning**

Attendance, participation, and clicker participation (3 points per class session for each of your 23 best class sessions) 69

Pre-Class Critiques (due noon on the day before the class, 5 points per assignment, not required during week 1) 135

Online Discussion (10 points possible for each of 5 best comments) 50

Weekly Reflections (due noon on Fridays, 5 points for each of 9 best reflections) 45

Presentations on Assigned Readings (weeks 2-6, date assigned Sept. 28) 200

Research Proposal

Potential Ideas (due noon, Friday, October 7th) 25

Outline (due noon, Friday, October 27th) 25

First Draft (due noon, Friday, Nov. 11th) 50

Presentation (weeks 9 & 10, date assigned Nov. 7th)

  Overall 120

  Personal Contribution 80

Final Draft (due noon, Friday, Dec. 2nd)

  Overall 120

  Personal Contribution 80

Being a human and completing the course 1

**Total** 1000
I will provide grading rubrics for the Assigned Reading Presentations, and for the papers and presentations associated with the Research Proposal. Course grades will be based on the following scale.

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<th>Points</th>
<th>Grade</th>
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<tr>
<td>965-1000</td>
<td>A+</td>
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<tr>
<td>935-964</td>
<td>A</td>
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<tr>
<td>895-934</td>
<td>A-</td>
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<tr>
<td>865-894</td>
<td>B+</td>
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<tr>
<td>835-864</td>
<td>B</td>
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<td>795-834</td>
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<td>765-794</td>
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Grade thresholds will not increase.

**Tips on How to Succeed in This Course**

- Read the material thoroughly before class and skim the materials again just before class
- Attend all of the class sessions, listen actively, and participate to the greatest extent possible using your most constructive behaviors
- Ask questions during presentations if there are terms or concepts you don’t understand
- Meet with students outside of class to review, discuss, and work
- Meet with instructors outside of class to address your ideas, questions, and concerns as early as possible
- Ask yourself how what you are learning matters. If you don’t have a good answer, come talk to us or your classmates

**Texts (available at the UO Duck Store)**


**Other Readings available on Canvas:**


