Evolution (002:131) – Spring 2013
Workshop Syllabus

Workshop Instructors:

	Elizabeth Savelkoul	Emily Koury
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Office Hours:	Mon 2:3:30P, Wed 12:30-2P	Mon, Wed, Friday 9-10 AM

Sections

Section A01: Tuesday, 8:30-10:15 AM	106 BBE (TA Elizabeth Savelkoul)
Section A02: Tuesday, 10:30 AM-12:15 PM	106 BBE (TA Elizabeth Savelkoul)
Section A03: Tuesday, 1:30-3:15 PM	106 BB (TA Emily Koury)
Section A04: Thursday, 10:30 AM-12:15 PM	106 BB (TA Emily Koury)

Overall activities:

Introduction, DVDs, tutorials …
Workshop Lab Activity
Return & Discuss Homework Exercises
Student Presentations
Discussion ***The Beak of the Finch***
Exam Reviews, Return & Discuss Exams

Workshop Schedule (subject to change)

Week	Date	Activities
1	1/22, 1/24	Introduction DVD: Howard Hughes *Evolution* (Dr. Sean Carroll)
2	1/29, 1/31	Workshop Activity: Tree Thinking Summarizing & Critiquing a Scientific Paper + Example Presentation
3	2/5, 2/7	Return/Discuss Homework Exercise: **Estimating Molecular Variation** Return/Discuss Homework Exercise: **H-W** Presentation Assignments
4	2/12, 2/14	Workshop Activity: Computer Simulations: Selection, Drift [PopG] Exam Review
5	2/19, 2/21	Return Exam 1 Discussion: The Beak of the Finch (Ch 1-3)*
6	2/26, 2/28	Discussion: *The Beak of the Finch* (Ch 4-6)* **2/3 Student Presentations: Adaptation ****
7	3/5, 3/7	Discussion: *The Beak of the Finch* (Ch 7-9)* **2/3 Student Presentations: Sexual Selection/Kin Selection/ Cooperation****
8	3/12, 3/14	Exam Review Discussion: *The Beak of the Finch* (Ch 10-12)*
		Spring Break
9	3/26, 3/28	Return Exam 2 **2 Student Presentations: Genetic Variation/Selection****
10	4/2, 4/4	Discussion: *The Beak of the Finch* (Ch 13-15)* **2/3 Student Presentations: Molecular Evolution****
11	4/9, 4/11	Return/Discuss Homework Exercise: **Molecular Evolution** Return/Discuss Homework Exercise: **Phylogeny** Workshop Activity: Building sequence phylogenies [CLUSTAL, MEGA]
12	4/16, 4/18	Return/Discuss Homework Exercise: **Detecting selection by sequence analysis** Exam Review
13	4/23, 4/25	Return Exam 3 **2 Student Presentations: Species & Speciation****
14	4/30, 5/2	**2/3 Student Presentations: Human Evolution**** Discussion: *The Beak of the Finch* (Ch 16-18)*
15	5/7, 5/9	**2 Student Presentations: Evolution of Disease**** Discussion: *The Beak of the Finch* (Ch 19-20+epilogue) Exam Review

* For discussion of ***The Beak of the Finch*****,** formulate TWO discussion questions in advance. Type the questions and send/email them to your TA by the day previous to the discussion. These questions count for participation.
** For non-presenters, formulate one questions regarding each paper presented and give to your TA at the beginning of workshop session (e-mailing them is okay, but make sure you get a reply that they were received, otherwise bring a hardcopy). These questions count for participation.

Grading

Presentation:	40% of the total for the Workshop
Homework Exercises:	40% of the total for the Workshop
Participation:	20% of your grade in the workshop

Attendance is required.

Missing workshop sessions without proper justification will reduce final Workshop grade by 5% each session missed if you miss fewer than 4 sessions, and by 10% each session missed after that.

Workshop guidelines & requirements

Student Presentations of Scientific Papers

An oral presentation to your peers is the major graded single assignment for the Evolution workshop. You should devote as much effort as possible to giving a presentation with sufficient background and with a logical organization so that you able to convey the findings reported in a scientific paper. Most presentations will follow a theme corresponding to the topics covered in lecture. The goals of this assignment are to familiarize you with the scientific literature, to increase the class' exposure to current research in evolution, and to provide a forum for you to further develop skills in scientific communication.

Sources of Papers

1. Papers to be presented should be chosen among those papers in the list provided to you by the TAs and available in the course web site/ICON.

2. You can use additional papers to obtain the proper background information, context and significance, expand your knowledge on methods, etc. In general, look for papers from professional, peer-reviewed, literature, not from the popular press, and include *Nature, Science, Paleobiology, Journal of Molecular Evolution, Evolution, American Naturalist, Genetics, Evolutionary Biology, Animal Behavior, PLoS Biology/Genetics, Proceedings of the National Academy of Sciences* USA, and many more. Popular science magazines such as *American Scientist, Scientific American, Discover, BioScience, Natural History,* etc. or review articles can be also a good source of background, context and accessory material for your presentation. Other papers in the list can also help you in expanding information and/or context.

Not all papers in the list are equally good to be the center of your presentation; some are specifically included too provide supplementary material.

3. The type of paper you are looking for should have an interesting question, a synthesis of data to answer that question, and a conclusion. The paper chosen for your presentation does not have to be flawless (the conclusions drawn could be entirely wrong), as long as it presents an interesting question well.

4. The paper length should be between 4-10 pages. If the paper is longer, the material would have to be severely condensed, such that only salient material is presented. Shorter and simpler papers are better, as long as they are not too short or too simple.

5. **Avoid papers that are very technical and/or entirely theoretical, papers that are entirely reviews of other individual's work, papers without data, and papers without a good evolutionary idea.** An example of a paper you should avoid would be a paper that simply records the first appearance of taxon X in the fossil record, because it makes for a dull presentation unless it can be tied with an important theoretical point.

- When looking for additional material, the library network Oasis lists almost every paper published since 1983 by keywords. Just plug in some keywords you find interesting (e.g. "endothermy", "dinosaur", and "evolution") and then scan the listings. Ask the librarian for assistance if this process is new to you. Another good source is Google Scholar, especially its ability to list recent citations to interesting, but older papers.

- Remember that this paper should be interesting to you, since you will be investing a considerable amount of time on the topic for your presentation.

Presentation guidelines

1. ***Length*** of the presentation should be 15 minutes, followed by 5-10 minutes for questions and discussion. 15 minutes can be a surprisingly short time, so presentations should be well organized and rehearsed.

2. The ***level*** of the presentation should be relatively basic, but should also incorporate knowledge from the lectures whenever possible. Remember that your audience will have very little background knowledge about your specific topic, so explain it to them clearly and carefully. Too little information can seem insulting and too much information can lead to confusion. Be sure you understand the paper and material; keep the presentation simple and interesting.

3. The ***organization*** of the talk should most likely be ordered as the following: introduction with background and (scientific/historical) context, a description of the objectives of the paper, the methods used, and finally the results, conclusions and significance.

A presentation read straight from notes is tedious and suggests that the presenter may not know the material well. (Don't do it!) Notes (or note cards) that contain keywords instead of whole sentences are a good idea. One should be so rehearsed in the topic and familiar with it that one can talk to the audience instead of speaking at them.

List the author, year, title of paper, journal title, and volume number on your title slide.

Introduction-Develop an argument for why the particular area of science addressed in the paper is of interest from an evolutionary standpoint. Establish the big picture question from an evolutionary perspective and how the research you're about to describe relates to that question. When possible, add scientific or historical context (what was known at the time of the publication, etc.)

Description of the paper's objectives-After setting up the area of research and its relevance to evolutionary biology in the introduction, you can now explicitly state (even list) the specific objectives of the paper. For each objective, you should make it clear to your audience how it relates to the overall focus of the paper.

Methods-(does not necessarily have to be a separate section) Indicate the background information necessary and the methods used to address each objective.

Results-Describe the results in the paper with respect to stated objectives. Try to help your audience see the connections between the different results (explain and relate the Figures from the paper).

Conclusions-Summarize and interpret the results as a whole. What do they tell us? How do they relate to specific questions in evolutionary biology? Do the results of this study confirm or conflict with the results of other studies addressing the same or related evolutionary questions? In conclusion, try to interpret the broadest possible evolutionary perspective. What (if any) has been the significance (or influence in later research) of the results and conclusions published in this paper?

4. ***Visual aids*** and other supplementary material are a great idea. The overhead projectors are available for every presentation. If you would rather make handouts, you are welcome to do so. A PowerPoint presentation for the bulk of your talk is strongly recommended.

5. ***Submission Requirements***:
- Give a copy of the paper you will present to the TA at least 7 days prior to the day of your scheduled presentation (2 pts will be deducted from your presentation each day after this deadline). Useful background material may be put on reserve. **Please turn in all talk notes, visual aids, and other materials to your workshop T.A. after your presentation (they'll be returned).** If you do not provide the TA with the paper or if you do not give the presentation, you will be assigned a zero. Rescheduling your presentation is considered a late assignment, and therefore subject to a point deduction.

6. Non-presenters:
- Presented papers will be posted to the course website; y*ou are expected to have read the papers prior to class*. Formulate one question regarding each paper presented and give to your TA at the beginning of workshop session (e-mailing them is okay, but make sure you get a reply that they were received, otherwise bring a hardcopy). These questions count for participation.

Grading of Presentation

Your presentation will receive a maximum of 40% of the total for the Workshop. The grade for a talk will be given a few days after the talk. In general, grades will not be revised after the fact because they depend in large part on impressions formed during the talk, but not retained thereafter.

Major considerations used in grading your presentation will be (see **PRESENTATION PEER EVALUATION)**:
- the precision and completeness of the information in your presentation,
- the context and background information that you give for the paper
- the connection between the paper and the course material,
- the organization, visual aids, and delivery of your talk,
- the clarity of your main points to your audience, and
- how well you answer questions after the talk.

Also of importance will be the duration of your talk. As noted above, your presentation should be 15 minutesong. You won't be penalized for being a minute or two over or under 15 minutes. Be aware, however, that there will be **substantial reductions** in the grade of presentations that are especially long or short.
Deductions: Minutes Deductions
11-19 min. None
7 -10 min. or 20 – 23 min.-5 pts
≤6 min or ≥ 24 minutes -10 pts

Workshop Participation
Participation is 20% of your grade in the workshop. This includes being prepared for each session's activities and being involved in discussions, especially during presentations, submitting questions before book (***The Beak of the Finch***) discussions, etc. Falling asleep during presentations will result in point deductions. Three elements of participation will be evaluated;

1. Peer Evaluations-you will be required to submit evaluations of the presentations of two of your peers. The TA will assign two *anonymous* peer-reviewers for each presentation. Reviewers will be notified by email from the TA prior to the presentations. ***Within two days of the assigned presentations***, you will be required to submit (by email to the TA) a written evaluation of your colleagues' presentation. These evaluations will be shared with the presenter and carefully considered when presentation grades are determined. We will (and you should) keep your identity as a reviewer confidential. If you feel that you have a conflict of interest with another fellow-student, please advise the TA in advance.

2. Submitted Questions-at the beginning of workshop sessions where presentations are being given, you must submit TWO typewritten questions for EACH of the papers. Your questions can be on methods, results, or conclusions of the study. Questions about the significance of a paper are also good when put into the right context; avoid question that are too general (e.g., 'Why is this important?' for each paper). Good discussion questions incorporate multiple ideas or address how the paper affects broader issues. Bring **a typewritten copy** of the questions to workshop for you (and one for the TA if you have not sent them before). **If you are a presenter, you are exempt from preparing questions on your paper and for the other papers presented on that day.**

4. Submitted questions for discussion of ***The Beak of the Finch* (*TBotF*).** Formulate TWO discussion questions in advance for each day of discussion (same of different chapters). Type the questions and send/email it to your TA by the day previous to the discussion. These questions count for participation.

5. Active Participation-you should actively participate in the discussion of each paper. The TA will monitor how often you are asking questions and contributing to the discussions. It is expected that you will contribute to each workshop session.