Instructions for the Qualifying Exam in
Ecology & Evolutionary Biology -- July 2011

The goals of the qualifying exam in this cluster are to address the fundamental concepts underlying Ecology and Evolutionary Biology, evaluate the student's knowledge of these concepts in written and oral forms, and assess the student's research potential in these fields.

Requirements:

1. Passing BIOL 65200 and BIOL 65300 with a grade of B (3.0 on the grade point scale) or better in each course. These two courses will expose students to all faculty members in the Ecology and Evolutionary Biology cluster.

2. Obtaining a grade of B (3.0) or better on a critical review (written and oral presentations).

Course requirement: BIOL 65200/65300

BIOL 65200 -- Advanced Ecology Discussion

Offered in the fall semester, 1 credit. Weekly meetings will evaluate and discuss topical papers in the field. Each participating faculty member will be responsible for one or two meetings during the semester. The faculty member organizing each week’s discussion will determine the readings. As in any discussion class, the students must participate rather than just attend for the experience.

On the last class meeting, students will be given an assignment to critically evaluate one paper from a selection of additional articles provided by the faculty. Each participating faculty member will supply one paper. The students will complete their critiques within one week of receiving the assignment. Critiques will be assessed on writing quality, content, originality, rigor, and clarity.

The student's final grade for the course will be based on seminar participation (50%) and paper critique (50%).

BIOL 65300 -- Advanced Evolution Discussion

Offered in the spring semester, 1 credit. Weekly meetings will evaluate and discuss topical papers in the field. Each participating faculty member will be responsible for one or two meetings during the semester. As in Biol 65200, the faculty member organizing each week’s discussion will determine the readings.

On the last class meeting, students will be given an assignment to critically evaluate one paper from a selection of additional articles provided by the faculty. Each participating faculty member will supply one paper. The students will complete their critiques within one week of
receiving the assignment. Critiques will be assessed on writing quality, content, originality, rigor, and clarity.

The student's final grade for the course will be based on seminar participation (50%) and paper critique (50%).

**Qualifier: paper and oral presentation**

Student must write and orally present a critical review of a topic of his/her choice. A grade of B (3.0) or better must be obtained to satisfy the qualifier requirements, with 30% of the grade determined from the quality of the oral presentation and 70% from the quality of the manuscript.

The qualifier paper should be a critical review of a fundamental idea (rather than a compendium of descriptions of studies) that is forward-looking. The goal is for the student (rather than the research advisor) to provide a thorough review with an emphasis on:

- explaining the state of the knowledge in one or more subdisciplines associated with the topic of the review,
- identifying where the gaps are,
- proposing novel questions or novel approaches to address an existing broad question, and
- suggesting how novel questions should be investigated.

A good critical review will both identify the scientific problems and outline ways we can address them.


Students are greatly encouraged to read examples of TREE review papers to get a sense of the scope, style, and degree of specificity involved.

The qualifier may even be within the general realm of the students’ intended thesis research area. However, the scope of the qualifier must be significantly broader than the student’s dissertation topic, and the qualifier must aim to merge at least one other subfield in ecology and evolutionary biology with any discussion related to the thesis topic. For instance, if the intended thesis topic is “mechanisms antbirds use to exchange information about ant colonies”, the qualifier might review mechanisms of cooperation and reciprocity across taxa.

We encourage students to consider the qualifier as an opportunity to expand their thinking on a biological issue and to integrate novel ideas that may potentially influence their dissertation (i.e., think outside of the box). The qualifier paper may also serve as the foundation for a publishable manuscript.
Qualifier exam steps:

**Fall semester 2011**

1. Each student is assigned a review panel by the qualifying exam convener. The review panel will consist of four faculty members, including the (intended) research advisor, that will evaluate the paper and the oral presentation. Each review panel will select its own chair (who cannot be the intended research advisor). The review panel will meet with the student at least twice (see below), but can also be convened for additional meetings at the student’s request. Students are strongly encouraged to meet with their panel, as a group or individually, frequently while they are developing their ideas.

2. Each student arranges an initial meeting with their panel to be held before or on October 14th, 2011. It is the student’s responsibility to arrange a meeting with their review panel by October 14th.

3. Each student must schedule the qualifier oral presentation for the following spring semester by September 30th, 2011. Students will present their qualifier in one of the Ecolunch slots in the following spring semester. This presentation should be scheduled with the faculty member organizing the Ecolunch series (Dr. Krista Nichols).

4. Each student submits a preliminary prospectus to their panel a week prior to the initial meeting. The preliminary prospectus is a properly referenced summary (with a maximum length of 1,000 words; references are not part of the word limit) of their proposed qualifier topic.

5. Each student meets with their review panel to present and discuss the preliminary prospectus. This meeting must take place before or on October 14th, 2011. During this meeting, students are expected to describe the rationale for their qualifier, the explicit subtopics that their qualifier will integrate, and plausible novel research directions. The intent of the meeting is to provide students with insightful feedback early in the qualifier exam process and to ensure that the committee is in agreement about the direction of the student’s qualifier. The presentation should be short (maximum 15 min) with or without PowerPoint. Student should expect a question and answer session with the review panel during this meeting.

6. Each student must submit a final prospectus to the review panel by December 1st, 2011. The final referenced prospectus (with a maximum length of 1,000 words; references are not part of the word limit) that outlines the student’s proposed qualifier should be submitted to all the members of the review panel.

   The review panel will evaluate the student’s prospectus, each member providing approval or disapproval of the topic by December 8th, 2011.

   There must be a consensus among the responding faculty that the prospectus reflects the student's independent achievement. In addition, the topic must not be merely an extension or restatement of previous work done by the student (e.g., the student's master’s degree or
undergraduate honors thesis research). The following additional criteria will be used to evaluate the final paper, so the prospectus should address them:

1. Clarity and logic of the rationale and theoretical concepts important for the topic.
2. Comprehensiveness of the literature review (the prospectus should provide a strategy).
3. Novelty of the questions or conceptual approaches to answer an existing question.
4. Logic of the proposed route from “where the field is now” to “where the field is suggested to go”.

If the topic is not judged suitable by the majority of faculty reviewing it, the review panel will advise the student as to what modifications are necessary for approval. Students are encouraged to wait until the prospectus has been approved before developing the rest of the paper.

7. The review panel provides its evaluation to the qualifying exam convener by Dec. 9th, 2011. If the panel does not unanimously approve the final prospectus, they will provide written comments and suggestions to the student. The chair of the review panel will also send these comments to the qualifier convener. The student will be allowed to revise the prospectus to incorporate these comments.

8. Students must have a final, approved prospectus by Dec. 16th, 2011. After the prospectus is approved by the review panel, students are expected to submit the final version of the prospectus to the review panel and the qualifier convener by Dec. 16th, 2011. If there are additional comments that the review panel would like the student to focus on during the preparation of the paper, these should be communicated to the student and the qualifier convener by the chair of the review panel.

**Spring semester, 2012**

9. Students are expected to meet with the qualifier convener by February 10th, 2012. The purpose of this meeting is to discuss the plans and timeline to successfully prepare the written and oral presentations based on the comments provided by the review panel.

10. Students prepare oral and written versions of the approved prospectus. Good ideas can be transformed into excellent ideas by sharing them with the scientific community and receiving constructive criticism. Consequently, consultation with peers (grad students/ postdocs) is encouraged. Consultation with faculty (not only their research advisors, but also other faculty within the cluster and elsewhere, even other Departments on campus) is also strongly encouraged. Such consultations will likely provide the student with a diversity of views and suggestions, some even contradicting others. It is the student’s responsibility to consider these suggestions and meld them with their own views on the subject to produce a paper that is the student’s own work (i.e., the written version should not be edited by the (intended) research advisor).

11. Each student provides a draft of the written review paper to both the qualifier convener and the review panel one week prior to the scheduled oral presentation. No grade will be given on this draft.
12. Each student provides a copy of his/her powerpoints to qualifier convener before the oral presentation (and no later than the day of the presentation). The convener will distribute the presentation to all faculty in the cluster, who will be encouraged to provide feedback and a grade to the convener within a week of the oral presentation. The convener will relay feedback to the student as quickly as possible.

13. Each student presents an oral presentation of their review at Ecolunch. The qualifier oral presentation (40-45 min presentation, 15-20 min questions) has two functions. First, the student is expected to provide a reasonably detailed overview of his/her ideas. The quality of presentation (clarity, organization, review quality, novelty of future directions, and ability to answer questions) will be considered in the overall grade. All faculty in the cluster present at the seminar may submit a grade for the presentation. Second, students should see this as a good mechanism for getting additional feedback on their project, which they can incorporate into the final paper.

14. Each student meets with their review panel immediately after their oral presentation in a private meeting. The purpose of this meeting is for the review panel to provide feedback to the student based on the written draft and the oral presentation.

15. Each student submits their final review paper to both the review panel and the qualifier convener no later than May 7th, 2012. Within one week, the review panel will evaluate and critique the oral and written versions of the qualifier, providing written comments and a grade for both the oral presentation (30% of total grade) and the written paper (70% of total grade). The oral grade is the average of all Faculty who submitted one. The written paper grade is the average of all faculty in the student’s review panel. These grades will be submitted to the qualifier convener, who will calculate the final grade.

Each student’s panel will meet to determine the final grade. If the student does not obtain a passing grade (B or 3.0), the review panel will provide written comments to the convener summarizing the changes required for a passing grade. The convener will pass these comments to the student, and the student will have the opportunity for one more round of revisions.

16. Paper revisions due by June 4th, 2012 (if applicable). If a revised paper is submitted, the students must attach the critiques that they received from the faculty on their initial version along with point-by-point responses explaining how they addressed the particular concerns (as is done when revising a manuscript for publication). The grade on the revised version will replace the previous grade for the written portion of the paper.

If a student fails to obtain a B or better grade in any of the requirements (discussion courses or qualifier), the student must retake and pass the relevant part(s) of the qualifying exam in the subsequent year to remain in the Ph.D. program.

The qualifier convener in 2011-2012 will be Esteban Fernandez-Juricic.