

**COURSE:** Fall 2011, FISH 6970, Special Topics in Fisheries and Allied Aquacultures & Biological Sciences

**TOPIC:** Ecological Genetics

**LECTURE:** Monday, 3-5pm (will meet one day for two hours every other week), Swingle 201A, 1 credit hour

**OFFICE HOURS:** Available by appointment

**REQUIRED PREREQUISITES:** Graduate level students, instructor approval

**INSTRUCTORS:** Dr. Alan Wilson and Dr. Dennis DeVries

**FIELD OF STUDY:** Ecological genetics integrates population genetics and community ecology to understand how within-species variation influences community and ecosystem dynamics.

**COURSE OBJECTIVE:** To train students how to understand and interpret ecological genetics papers.

**REQUIRED MATERIALS:** Articles from the peer-reviewed literature will be selected by the instructors and students and provided to the class at least one week prior to each class meeting.

**GRADING:** Course grades are based on each student's cumulative performance for the following assignments:

<u>Activity</u>	<u>Points</u>	<u>Grading scale</u>
Participation	50	A = 90-100%
<u>Discussion organization</u>	<u>50</u>	B = 80-89%
Total points	100	C = 70-79%
		D = 60-69%
		F = < 60%

**STUDENT EXPECTATIONS:**

The course grade will be based on participation in lecture and discussion leading of important papers in ecological genetics:

(1) PARTICIPATION: Discussion is vital to an effective learning environment and participation grades will reflect student attendance and involvement during classroom activities. In order to participate, you need to be at class on-time and prepared (i.e., perused readings).

(2) PAPER DISCUSSION: All students will be required to lead the discussion of articles from the peer-reviewed literature during one class period. The use of PowerPoint to guide the discussion is strongly encouraged. Each student will share relevant papers to their discussion topic with the class at least one week before the scheduled meeting. In addition to preparing questions to stimulate discussion, the student will prepare a discussion outline and reading list to share with the class following the discussion.

**FEEDBACK & EVALUATION:**

This course is for you to learn important fundamental concepts and ideas on which to build your understanding of ecological genetics. Course evaluations will be completed by students at the end of the semester so that course changes can be made to enhance the learning experience for this class and future classes. Finally, students are always welcome to schedule a meeting with the instructors to talk more about topics discussed in class.

### **COURSE CHANGES:**

Although we expect to cover all the topics described in the syllabus, course changes will likely occur - especially based on feedback from the students. Consequently, we reserve the right to modify the course to enhance the learning experience where we deem appropriate. Course changes will be described verbally during class and/or in writing via email and/or handouts.

### **ACADEMIC HONESTY:**

The Auburn University Oath of Honor (available at <http://auburn.edu/tigercub/>) clearly states *“In accordance with those virtues of Honesty and Truthfulness set forth in the Auburn Creed, I, as a student and fellow member of the Auburn family, do hereby pledge that all work is my own, achieved through personal merit and without any unauthorized aid. In the promotion of integrity, and for the betterment of Auburn, I give honor to this, my oath and obligation.”*

### **ACCOMMODATIONS FOR DISABILITIES:**

If you have a disability and/or a special need that requires accommodations, please inform us immediately so that we can develop a plan to work with you and arrange an appointment with a campus disabilities counselor.

### **POTENTIAL DISCUSSION TOPICS RELATED TO ECOLOGICAL GENETICS:**

- a. Types of genetic variation
- b. Sources of population genetic variation
- c. Measurement of traits, selection, and genetic variation
- d. Heritability
- e. Quantitative genetics
- f. Adaptation and evolution
- g. Consequences on intraspecific variation on community structure and ecosystem function
- h. Applied aspects (e.g., conservation, invasive species)

### **SCHEDULE**

<u>Period</u>	<u>Discussion leader</u>	<u>Papers</u>
8/22	Alan	Antonovics 1976; Hughes et al. 2008
8/29	Chris	
9/5	Labor Day	none
9/12	Michael	
9/19	Nicole	
9/26	Eric	
10/3	Del	
10/10	Dennis	

## SEMINAR GROUND RULES (Ecological Genetics - Fall 2011)

- I) Format of seminar:
- a) Attendance is mandatory.
  - b) Instructors / seminar leaders will not "teach" - rather we will all learn by discussing papers on each topic.
  - c) Typically 2 (or max 3) papers will be assigned per week (not more than 30 pp. of total reading material, please!). These papers will be selected by the seminar leaders, and advice can be sought from Alan and Dennis if needed.
  - d) Everyone will have access to the papers at least 1 week before the meeting at which they will be discussed, likely via email of electronic copies.
  - e) Students presenting papers that week will be seminar leaders. Leaders will:
    1. Prepare for the week's discussion; this includes selection of the papers to be read and discussed.
    2. Do additional background reading on the topic/paper for that week;
    3. Provide 4 to 5 additional references on their topic/paper (on a handout);
    4. Come to the meeting prepared to present a brief (not more than 10 min) summary of the papers selected (to refresh the memory of those who read the papers several days earlier).
    5. Generate and moderate discussion among the seminar participants, possibly using questions brought by other participants.
    6. Prepare and distribute a short summary of the topic and ensuing discussion for the rest of the participants due 1 week after they lead the discussion.
  - f) Everyone is responsible for reading the papers critically before the meeting, and for preparing 2 to 3 questions intended for generating discussion at the meeting.
  - g) Everyone is required to be a regular and active participant in the seminar: Silence is **NOT** golden (see III below)!
- II) Distribution of topics/schedule
- a) The date on which each of you will lead discussion will be assigned at today's organizational meeting.
  - b) For the week to which you are assigned, you are responsible for identifying the papers that you want to discuss. The topic is up to you.
  - c) Alan and Dennis may have some thoughts concerning papers to discuss if you get stuck.
- III) Grading
- a) This is a graded course-- it is NOT pass/fail. So you will be assigned a letter grade for the course at the end of the seminar.
  - b) Grading will be based on the time spent as seminar leader and as a regular participant, (i.e., evidence that papers have been read critically).
  - c) In short, grading is based on evidence of interest, preparedness, and participation.
- IV) Focus of discussion
- a) The focus of our discussions should not be centered on criticism of papers. Critical reading of the papers by each participant and some critiquing is necessary, but this will not be the primary focus of our seminar discussion.