



Program in Ecology, Evolution and Conservation Biology, University of Nevada, Reno

Dispersal Evolution and Ecology

EECB 752-01

Spring semester, 2011

Instructor information

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Course information

Call number / code: 79676
 Credits: 2
 Title: Dispersal Evolution and Ecology
 Meeting time / room: 10 AM–noon, Fridays / OSN-202
 Description: The problem of space is inherent in all biological systems. Organisms have evolved to overcome this problem through dispersal, which varies within and across taxa. The purpose of this seminar is to broadly examine the evolution and ecology of biological dispersal and movement. We will explore mechanisms and consequences of dispersal across all spatiotemporal scales, including how to measure, analyze, and interpret relevant data.
 Format: Weekly meetings will consist of group discussions.
 Text: No required text
 Assessment: Participation: 60%
 Discussion summary: 15%
 Paper: 25%
 Grading scale: A $\geq 92\%$
 A- $< 92 \geq 90\%$
 B+ $< 90 \geq 88\%$
 B $< 88 \geq 82\%$
 B- $< 82 \geq 80\%$
 C+ $< 80 \geq 78\%$
 C $< 78 \geq 72\%$
 F $< 72\%$

Assessment

Participation: Seminar format will be that of any standard discussion. This means that success of the class (group) is contingent upon each student (individual) coming prepared and eager to engage. To be explicit, being prepared means not only reading, but also fully understanding the reading to the extent that if called upon, one could recall the conceptual foundation, objectives, methodology, significant results, and implications of the paper in addition to stating one's own analysis of the strengths, weaknesses, and higher-level analogies (e.g., relating concepts to other areas of basic and applied science).

Of the papers that we read each week, at least one will be read class-wide (global reading), and supplemental papers will be assigned to individuals or groups (individual readings). A class-wide paper will attempt to ground the day's topic in the broader scope of dispersal, while the supplemental papers will add breadth to the topic.

The quality and the quantity of participation will be taken into account. That is, we encourage you to speak, but chattering and lethargic attitudes are unwelcome. Also, an egalitarian approach is encouraged to better facilitate exchange of ideas. We are uninterested in group members dominating discussion. If you are one that tends to monopolize discussion, try to engage others, as this is—at least—as important as the matter at hand and is a skill that is greatly underrated and can really boost the level of discussion. If you are one that does not participate, please realize that your input is important to all of us! We are all intelligent and insightful, and engagement and input by all is how we will better understand the topic.

OK, good cop: let's just have fun learning, which is presumably why we are all here. Having a fun time playing ideological ping-pong (not dodge ball) with each other will only harbour growth and learning. Dispersal can be an abstract, conceptual, theoretical, understudied idea that lends itself greatly to creative and alternative views and approaches. In addition, dispersal is a very applied topic; for instance, dispersal is how organisms deal with climate change and habitat fragmentation.

Synopsis: One individual will be assigned to write a synopsis of the each meeting. The purpose of this assignment is to summarize the main points of the discussion, similar to a court opinion. This will be an invaluable resource when later reflecting upon the class. This also supports the devolvement of an individual so the remainder of the group can benefit by not worrying so much about taking notes. The synopsis should be 0.5–1 page, and will be posted on the course website.

Paper: At the end of the semester, you will be assigned to write a short (~3 pages) paper relating dispersal to your thesis or dissertation. The movement of organisms is highly relevant in most studies, and this will help you relate what you have learned into your work, conceptually or otherwise. The penultimate meeting we will exchange papers with a peer, meet and discuss the paper outside of class (coffee or favourite fermented beverage best facilitate such a process), and turn the paper in before or during the final meeting.

Schedule (by week)

INTRODUCTION

Example topics

1. Organizational meeting / course overview

EVOLUTION OF DISPERSAL

2. Intraspecific interactions
3. Interspecific interactions
4. Habitat heterogeneity in time and space

Kin competition / cooperation, density dependence
 Mutualism, host/parasite interactions
 Colonization, metapopulation dynamics

ONTOGENY

5. Development
6. External condition
7. Pattern / population-level process
8. Migration

Genetic determinism, maternal effects
 Condition-dependence, habitat selection
 Gene flow, dispersal patterns (curves)
 Resource distribution, navigation, emergence

ECOLOGY OF DISPERSAL

9. Movement ecology overview
10. Modeling dispersal
11. Measuring dispersal
12. Population-level consequences
13. Species-level consequences
14. Community-level consequences

Cognition, optimal foraging theory, physiology
 Phenomenological and mechanistic models
 Genetic markers, telemetry
 Adaptation, maladaptation
 Life history, range limits, speciation
 Species assemblages, coevolution, neutral theory

Rules, regulations, and what to do when things go wrong (i.e. the fine print)

- If in doubt: ASK !!! Matt, Kevin, or Chris are happy to answer questions at any time.
- What do I do if I'm sick? If you feel that illness, injury, bereavement or other critical circumstances have prevented you from completing an item of assessment on time, or have affected your performance in a test or exam, you should see Ashley and bring along evidence of the circumstances. In the case of illness or injury, a medical certificate from your doctor is the usual evidence of the circumstance.
- What do I do if I have to miss something? In rare cases you may not be able to sit a test or exam because of involvement in representative sport or cultural groups. In such cases see Matt, and a course of action (usually the sitting of an equivalent test or exam at a different time) will be arranged. This should be done well in advance of the set date for the missed assignment.
- What do I do if I have a disability? The Disability Resource Center provides support for students with verified disabilities. The DRC support may include alternative testing, extra time, readers, note-takers, interpreters, etc. If you require the service of the DRC, contact them at Thompson building room 101 or on (775) 784-6044, and notify Ashley of the special circumstances and the DRC's recommendations for support.
- Academic dishonesty: The University has a very clear policy on academic dishonesty that is set out in the course catalog. It is important that all students are aware that plagiarism, including buying essays, is considered a very serious offence by the Academic community, the University, the College and the Biology Department. Plagiarism includes re-use of previous assignments or the unreferenced use of published material or material from the internet. If you are in any doubt about appropriate use of published material, please speak with Ashley or any other member of faculty. Likewise, any form of cheating, such as copying the work of another student (with or without that student's knowledge) or taking proscribed materials into tests or exams, will not be tolerated. Where there is clear evidence of such academic dishonesty (plagiarism or cheating), a student will receive a failing grade in the course.
- Where do I hand in assignments? All assignments should be handed in to Matt (at class time or at his office) or to the Biology Department administrative staff located in FA, room 147. Some assignments may be able to be submitted to Matt by email.
- What if I can't get it finished in time? Reports and assignments should be handed in on time, whenever possible. Extensions may be granted under reasonable circumstances. If an extension is required, you should request one, from Matt, with as much notice as possible. Please do this BEFORE the deadline for the assignment. In order

to be fair on those that have handed the work in on time, work that is handed in late without explanation or prior arrangement will not be marked.

How can I get help with basic study skills?

Writing: Most courses at University require written assignments, tests and exams. If you feel challenged in meeting the required writing standard, contact the UNR Writing Center at E.J. Cain Hall room 206 or on (775) 784-6030.

Math: This course, like many courses in the sciences, requires some familiarity with basic arithmetic, algebra, statistics, and graphing. If you need additional help, contact the UNR Mathematics Center at Ansari Business building room 639 or on (775) 784-4433.

What's the best way to give feedback?

Matt welcomes constructive feedback at all times—help him to make this a valuable course for you. He endeavours to remain approachable at all times. If you feel uncomfortable about approaching him directly, ask a classmate or friend to act as an intermediary.

What's the best way to complain?

If you feel you have not been fairly treated during this course, please raise the issue with Matt in the first instance. If you do not receive satisfaction from Matt, you should speak with the Biology Department Departmental Chair (Professor Guy Hoelzer).

How do I get more information on student support and services?

There is a whole lot more information on all services at the following webpage: <http://www.unr.edu/content/students.asp>

