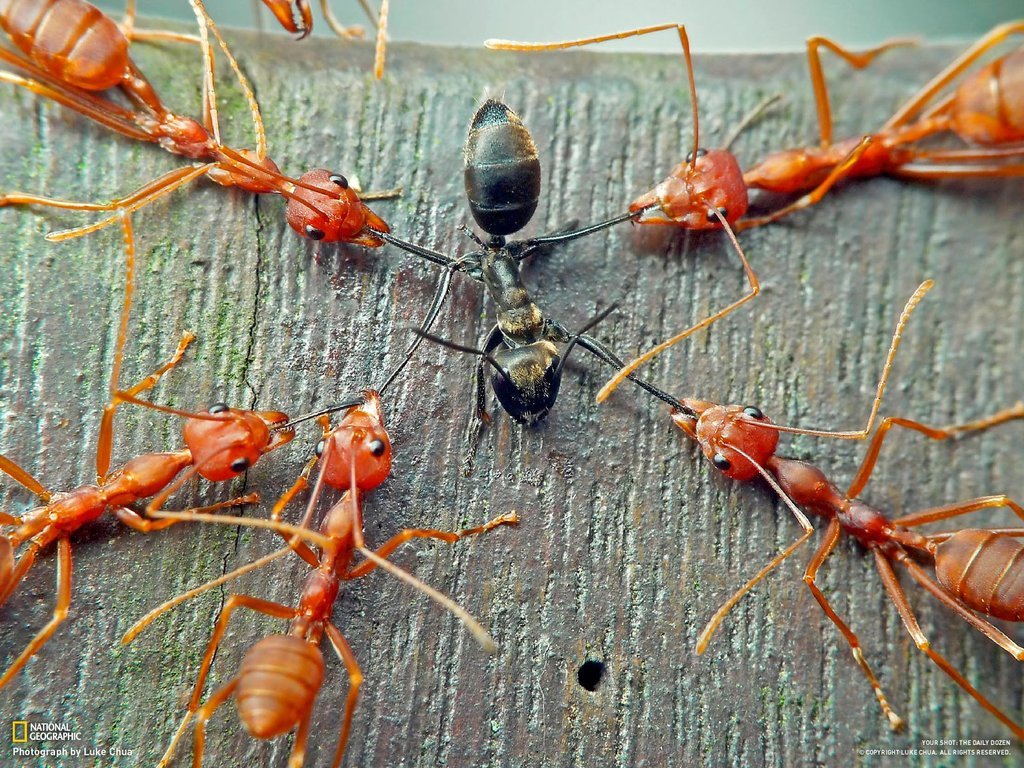
**Community Ecology**

**REWM 5400**

**3 credit hours**

**Fall 2019**



**Instructor Information:**

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| --- | --- |
| Instructor: Dr. Kevin Wilcox |  |
| Email: kevin.wilcox@uwyo.edu | Lecture: Tuesday & Thursday |
| Phone: 307-766-2280 | Time: 8:10-9:25 |
| Office: AG 2007 | Location: Agriculture Building 4021 |
| Office hours: Wednesdays 10 am -12 pm; Thursdays 11 am – 12 pm |  |

**Course Information:**

Class meets 8:10am – 9:25am T & Th

T meeting time will be lecture

Th meeting time will be a combination of lecture, discussion, and hands-on data analysis

**Texts:** *Required: Morin, P. J. 2011. Community Ecology. Wiley. Second edition.*

*Recommended: Gotelli N. 2008. A Primer of Ecology. Sinauer, Fourth edition.*

**Course Description**: Community ecology is the study of interactions within and among groups of species. Although to those that prefer to gloss over intricate details and the more interesting components of ecosystems, it may look like “a mess” (Lawton 1999), Community Ecology provides a critical link between populations and ecosystems. Additionally, to those that relish complexity in the world, Community Ecology is an exciting and rewarding field of research. This course will take students on a journey through (1) the major classical concepts and theories in Community Ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

**Course Intent and Expectations**: After taking this course, students should understand the major classical and contemporary concepts and theories present in community ecology. Second, students should be able to comprehend and intelligently discuss current research that is being done in the discipline. Third, students should be able to scale concepts prevalent in population ecology to those in ecosystem ecology using principles from community ecology. Lastly, after this course, students should be able to conduct community-type analyses using their own data.

**Disability Statement:** If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 109 Knight Hall, phone: (307)766-3073.

**Attendance/Participation Policy**: Students are expected to attend each lecture session. Excused absences need to be cleared through the instructor prior to the absence. Missed exams due to excused absences can be made up within a week of the original exam. If you need to miss a discussion section that you are leading, please arrange to switch weeks with another member of the class.

**Academic Honesty:** The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated. This includes plagiarism, cheating and fraud. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. See UWyo’s full academic honesty policy here: <http://www.uwyo.edu/regs-policies/_files/docs/section-2-regulations-july-2018/uw_reg_2-114_format_effective_7-1-18.pdf>.

**Classroom Conduct and Diversity:** We want to produce a positive, distraction-free learning environment for all students. For this reason, cell phones are not to be taken out during lecture. Students should refrain from other distracting behavior. All students should be treated with respect, regardless of age, country of origin, culture, disability, economic class, ethnicity, gender identity, immigration status, linguistic skill, political affiliation, race, religion, sexual orientation, and veteran status.

**Course Lecture**: Lectures will typically be held on Tuesday and will incorporate group-interactive learning. Interactive learning requires participation from everyone! I will also incorporate excel exercises into these lectures, so please bring a laptop to class if you can.

**Discussion**: Thursday class sessions will typically consist of paper discussions. Each week we will read two papers, one seminal work on the current subject matter and one contemporary paper. The idea behind this format is to provide the historical perspective of the subject as well as some insight into what is being done right now in the field. One to two students will lead each discussion and will be responsible for (1) choosing the contemporary paper, (2) writing discussion questions and providing related papers, and (3) providing a summary of each paper and facilitating discussion during class. I will provide the seminal paper for each topic. The contemporary paper will need to be chosen 2 weeks ahead of time -- students will send me their paper choice and I will either approve the paper or ask the student to choose another paper. Study questions and related references should be emailed to me, and I will post them online for students to think about as they are reading the papers.

**Participation**: Participation during all parts of the class is highly encouraged, and during paper discussions, participation is expected. To receive full credit for discussion participation, the student must contribute at least one comment during the session.

**Data Analysis**: Near the end of the course, we will have some time for hands-on data analysis. For this, students should bring data they would like to analyze and we will go through proper analysis techniques in R. If students do not have data, I can provide some. Students should bring lap tops to these class sessions. If there are particular analyses students would like to tackle that are not on the syllabus, let me know and I will look into them.

**Exam and Student Projects**: There will be one exam for this class. This exam will be a mock-up of preliminary exam questions where I will email everyone one to two questions at the beginning of the class period, and you will have the entire class period to write and send back your essay-style answers. These will be open book, note, internet, but the work must be done individually. You will need to know a wide range of information beforehand to be able to provide a complete answer. I strongly encourage studying together in groups for these exams as holistic understanding of topics is critical.

Student projects will be due at the end of the semester. These projects should encapsulate much of what we’ve learned over the semester and can include your own data (highly encouraged). You can also conduct a theoretical study (what this is should become clear as we go through the class). You will present your project with a 10 minute presentation in early December. An example presentation will be posted online.

**Out-of-class required work**:

Readings from our main text and of the discussion papers are required for this class.

**Grading Structure**:

Mid-term Exam – 100 points

Final Project Presentation – 100 points

Discussion – 100 points (50 points/discussion)

Discussion participation – 80 points (10 points/discussion)

*Total* – 380 points

A=90-100%; B=80-89%; C=70-79%; D=60-69%; F=0-59%

**Course schedule (subject to change):**

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Tuesday | Thursday | Morin Reading |
| 1 – Sept 5 | Overview of community ecology | What is community ecology? – Lawton 1999; Simberloff 2004 | Ch. **1** |
| 2 – Sept 10, 12 | Mechanisms of competition | Niche Theory – Hutchinson 1957 | Ch. 2, **3** |
| 3 – Sept 17, 19 | Predation and communities | Predation – Werner & Hall 1988 | Ch. **4**, 5 |
| 4 – Sept 24, 26 | Indirect effects and Mutualisms | Beneficial interactions – Bertness and Callaway 1994 | Ch. 7, **8** |
| 5 – Oct 1, 3 | Food webs | Food webs – Paine 1980 | Ch. **6** |
| 6 – Oct 8, 10 | Temporal patterns of communities & Succession | Succession – Cowles 1899 | Ch. **9**, 13 |
| 7 – Oct 15, 17 | Spatial patterns of communities | Leibold et al. 2004 | Ch. **11** |
| 8 – Oct 22, 24\* | Study for mid-term | Mid-term\* |  |
| 9 – Oct 29, 31 | Dominance | Keystone species – Power et al. 1996 |  |
| 10 –Nov 5, 7 | Causes of biodiversity | Simberloff and Wilson 1969 | Ch. **12** |
| 11 – Nov 12, 14 | Consequences of biodiversity | Naeem et al 1994 |  |
| 12 – Nov 19, 21 | Spatial dynamics II – theoretical models of coexistence theory (Dr. Lauren Shoemaker) | Analysis – Calculating diversity and RACs – |  |
| 13 – Nov 26, 28 | No Class | Thanksgiving Break |  |
| 14 – Dec 3, 5 | Multivariate analyses | Multivariate analyses. Analysis - multivariate |  |
| 15 – Dec 10, 12 | Analysis projects | Presentations of analysis projects |  |
| Final – Dec 13 | Final | Final |  |
| *\* Kevin is travelling*; **Bolded numbers indicate required reading in Morin** | | |  |