

Course Syllabus

Ecological Background for Resilience and Adaptation (Fall 2020)

Course Number: NRM 616 / BIOL 616

Class time: Tu. & Th. 9:45 – 11:15 am

Module dates: 10/16/2020 - 11/1/2020

Room: Zoom

Instructor: Katie Spellman, PhD

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Phone: 907-388-5178

Office hours: Directly following class or by appointment

Office location: Home due to COVID19

Learning Goals of the Course:

- Develop an understanding of the basics of ecology concepts and methodologies.
- Learn to “speak” ecology and effectively communicate with ecologists.
- Address ecological concepts that will help RAP students with their interdisciplinary research.

Background: RAP provides training to help students with diverse academic backgrounds to communicate across disciplines and address complicated research problems that often require an integrated approach. The ecology module will be designed to foster this process. More specifically, this course will help students without advanced education in ecology to focus their learning on key ecological concepts that may accelerate their capacity to communicate and collaborate with ecologists. For students in with an ecology background, this will be an opportunity to “fine-tune” their understanding of concepts used during their research. Also, this will be an opportunity for ecology students to help their peers, with hopes that the favor will be reciprocated during other modules and throughout their RAP career.

Tasks and grading:

1. Assigned readings, participation, and discussion (50% of grade): Students will be expected to complete assigned readings and actively participate in discussions. Also, each student will be required to lead the discussion of one of the assigned readings during a portion of one class. The student will “break down” the paper to lead discussion on the core concepts, methodologies, and key findings presented in the paper. The presenter will have 30 minutes to present the paper and guide group discussion.

3. Learning Assessment (20% of grade): We will use pre- and post-course concept maps to assess the change in understanding of the concepts covered in this course. Grades for this assessment activity will be assigned using a standardized evaluation rubric to quantify pre-to post- changes in the concept maps, as well as a two page self-reflection on student learning using the concept maps to identify strong and weak learning areas during the course.

4. Asynchronous Field Work (30% of grade): Four Thursday sessions will be asynchronous field work conducted through the Winterberry Citizen Science program. You will mark and monitor 20 individuals of one of the focal berry species, and assess the berry number, phenophase, and condition using a standardized protocol weekly. All data must be entered into the Winterberry database to receive full credit for this portion of the course.

Grading Scheme: >90 = A; 80-89 = B; 70-79 = C; 60-69 = D; <60 = F

Online Course Material Access: UAF Google Drive will have required articles posted

Course Policies:

- Punctuality and attendance at the online zoom sessions is expected. Absences may be excused for legitimate reasons (e.g. sickness, time conflict with other required activities, etc.). Zoom sessions will be recorded. With prior approval of the instructor, a missed class may be made up by viewing the recording and completing a written reflection.
- Engaged participation and respect for instructors, guests and other participants, is expected in an online environment. Inappropriate behavior online will lead to being dropped from the Zoom session.
- **ADA Policy** The provision of equal opportunities for students who experience disabilities is a campus-wide responsibility and commitment. Disability support services are mandated by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. Additional information may be accessed at the UAF Disability Services office at <https://www.uaf.edu/disabilityservices/>.
- **Academic Dishonesty Policy.** Academic integrity is a basic principle that requires all students to take credit only for the ideas and efforts that are their own. Cheating, plagiarism, and other forms of academic dishonesty are defined as the submission of materials in assignments, exams, or other academic work that is based on sources prohibited by the faculty member. Academic dishonesty is defined further in the “student Code of Conduct.” In addition to any adverse academic action that may result from the academically dishonest behavior, the University specifically reserves the right to address and sanction the conduct involved through student judicial review procedures and the Academic Dispute Resolution Procedure specified in the University catalog. Plagiarism will not be tolerated and will result in failing grade being given to the student.

Course Outline:

| Date | Topic | Assignment Due (Student presenting paper in parentheses) |
|----------------|--|--|
| Aug 25 (Tues) | <ul style="list-style-type: none"> ● Course pre-assessment concept mapping ● Approve Syllabus ● Introductions and overview of instructional approach ● History and Dimensions of Ecology | <ul style="list-style-type: none"> ● N/A |
| Aug 27 (Thurs) | <ul style="list-style-type: none"> ● Fundamental Concepts: Process of Ecology, Phenology ● Introduction to Winterberry Citizen Science ● Synchronous Field work training | Training Assignment: https://sites.google.com/alaska.edu/winterberry/e-training Watch the following videos: <ol style="list-style-type: none"> 1. How to Video 1: Selecting a Site and Species 2. How to Video 2: Setting up your site 3. How to Video 3: Making Observations 4. How to Video 4: Entering |

| | | Data online |
|-----------------|---|--|
| Sept 1 (Tues) | <ul style="list-style-type: none"> Scientific method, quantitative research, and communicating with ecologists | Readings: <ul style="list-style-type: none"> Pace et al. 2010 (Gwen) |
| Sept 3 (Thurs) | <ul style="list-style-type: none"> ASYNCHRONOUS Field Work Tag 20 plants and make first observations | |
| Sept 8 (Tues) | <ul style="list-style-type: none"> Fundamental Concepts: Ecosystem ecology and the carbon story | Readings: <ul style="list-style-type: none"> Lara et al. 2018 (Kathleen) |
| Sept 10 (Thurs) | <ul style="list-style-type: none"> ASYNCHRONOUS Field Work Record second observations | |
| Sept 15 (Tues) | <ul style="list-style-type: none"> Fundamental Concepts: Community ecology and biodiversity Ecological foundations of resilience theory | Readings: <ul style="list-style-type: none"> McCann 2000 (Sebastian), Chapin et al. 2000 (Student TBD) |
| Sept 17 (Thurs) | <ul style="list-style-type: none"> ASYNCHRONOUS Field Work Record third observations | |
| Sept 22 (Tues) | <ul style="list-style-type: none"> Fundamental Concepts: Disturbance and temporal dynamics | Reading: <ul style="list-style-type: none"> Stewart and Konar 2012 (Cade) |
| Sept 24 (Thurs) | <ul style="list-style-type: none"> ASYNCHRONOUS Field Work Record fourth observations | |
| Sept 29 (Tues) | <ul style="list-style-type: none"> Fundamental Concepts: Interpretation and use of ecological data | <ul style="list-style-type: none"> All data entered through the Winterberry web portal |
| Oct 1 (Thurs) | <ul style="list-style-type: none"> Post-assessment concept mapping and self-reflection Course evaluations | |