

NRM 616 - Ecological Background for Resilience and Adaptation

Fall Semester, 2021

Course Information

Location: Online

Meeting Time: Friday 930am via Zoom.

Instructor: John Duffy, jduffy@alaska.edu, 907-830-7307; office and discussion hours by appointment.

Course Description

Course Description: Ecological Background for Resilience and Adaptation provides the ecological background that is necessary for understanding the role of ecology in complex systems involving interactions among biological, economic, and social processes. This course is designed for incoming students of the Resilience and Adaptation (RAP) Program that have not received training in ecology.

The course is comprised of discussions of assigned readings and videos as well as a set of short essay quizzes and final paper.

Prerequisites: Graduate student enrollment or permission of instructor.

Grading Policy: Letter plus/minus grades (+/-) determined from discussion, short essay quizzes and final paper.

Course Objectives:

This course is designed to achieve the following learning outcomes:

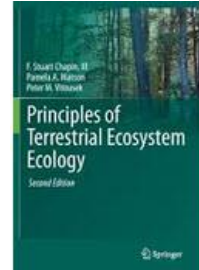
The ability to:

- develop enhanced critical thinking and writing skills by analyzing ecological and ecosystem issues and preparing written and oral recommendations/responses,
- develop an understanding of the key biogeochemical cycles and main ecosystem dynamics,
- develop an understanding of the role of ecology in complex systems involving interactions among biological, economic, and social processes, and
- develop the ability to understand the relationship of basic ecological evidence in sustainability and resilience thinking and policy.

Course Materials

Textbook: *Principles of Terrestrial Ecosystem Ecology*. 2002. F.S. Chapin III, P.A. Matson, and H.A. Mooney.

Videos: Some sessions will include one or more videos for review, links will be provided in the Materials Folder of Blackboard



Technology Requirements The course requires that you have a current/active UA Username and password. Visit the UAF Office of Information Technology for more information: <https://www.alaska.edu/oit/servicecatalog/#id=225>

The course also requires you to have a computer with internet connectivity and the most current versions of the following:

- Web browsers [Internet Explorer 10](#), [Chrome](#) and [Firefox](#)
- Operating System Windows 7 or higher
- Latest update of [Java](#)
- Review [Blackboard Collaborate for First Time Users](#), If MAC user, download [Blackboard Collaborate Launcher](#)

Blackboard & Distance Delivery

We will use the UAF Blackboard site for this course to send emails and post readings, assignments and other materials. Blackboard can be accessed at <https://classes.alaska.edu/> . Email notification through Blackboard will not work for a non-UAF email address. **If you principally use a non-UAF email service, (such as yahoo) go to your UAF account and forward your UAF email to that address. You are responsible for all emails sent to your UAF email account.** Blackboard resources, links and support information are available at the UAF Blackboard homepage.

Remote Access

Students in the course may be based in Fairbanks and other sites. We will connect with one another via Zoom and Blackboard. If you require remote access or are away from town without internet access, contact the instructor. For questions with Zoom connections, contact Steve Peterson: (907) 474 –7053, slpeterson@alaska.edu.

Safety in Online Environments

UAA will never send you an unsolicited e-mail asking you for your password or other personal information. If you receive such a message, please delete it. If you have any concerns, contact the IT Call Center at (907) 786-4646, menu option 1, or via email at helpdesk@alaska.edu. If you experience cyberbullying, cyberstalking, or other inappropriate conduct as part of your involvement in a UAF class, please notify your instructor immediately.

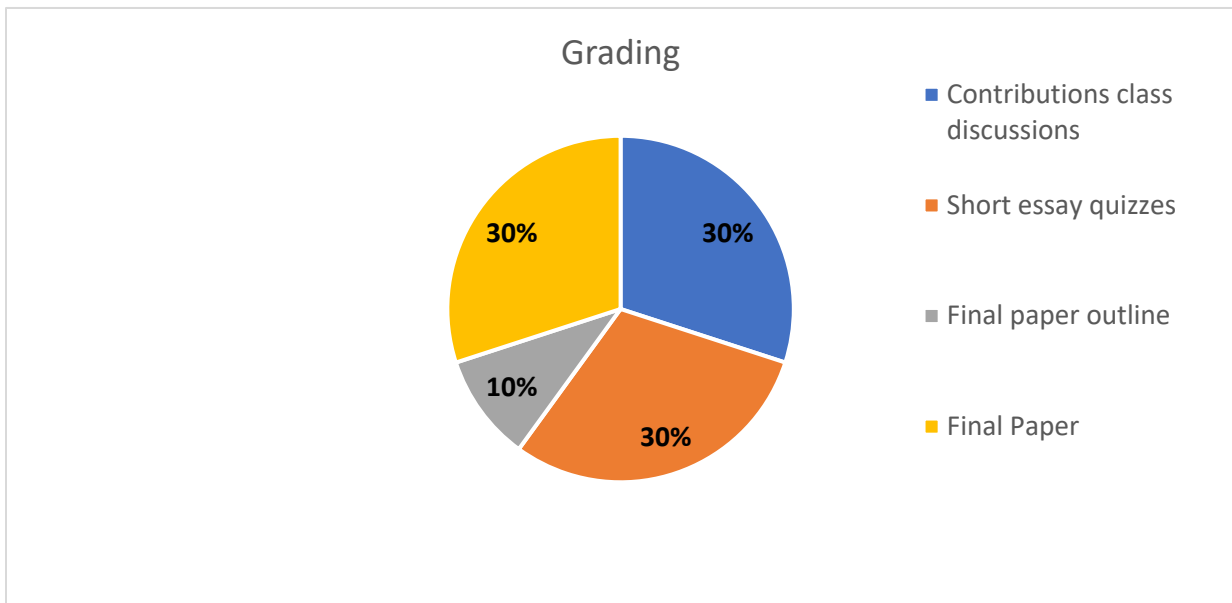


memegenerator.net

All materials for the course will be delivered via UA email. Weekly readings and videos will also be discussed via Zoom; the discussion will typically be initiated with a question or two from the instructor.

Assignments/Grades/Requirements

You are expected to complete all of the assigned readings in advance of the class for which they are assigned and to come to every class prepared to discuss these readings. You will be graded on a combination of your completion of each grading element.



- Contributions to ALL class discussions ----- 30%
- Short essay quizzes ----- 30%
- Abstract and annotated outline for final paper ----- 10%
- Final Paper ----- 30%

The following grading scale will apply for the course:

- A**:- 90 to 100 (A- 90-91; A+ 99-100)
- B** : 80 to 89 (B- 80-81; B+ 88-89)
- C** : 70 to 79 (C- 70-71; C+ 78-79)
- D** : 60 to 69 (D- 60-61; D+ 68-69)
- F** : < 60

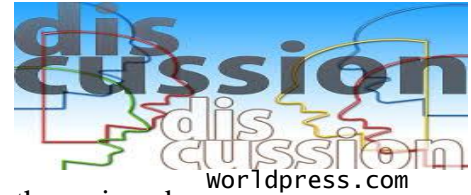
Assignments handed in after the due dates will receive reduced credit. The instructor reserves the right to modify the final grade in consideration of notable progress demonstrated by an

individual, or unforeseen and/or extenuating circumstances. In such cases, extra credit assignments and/or makeup work may be required and used at the discretion of the instructor.

Attendance

Students are expected to devote a similar amount of time to the Online as standard face-to-face classes.

Class contributions and participation The course relies upon your active participation and collaboration in discussing the various aspects of ecology and ecosystem dynamics in the lectures, videos and reading assignments. Contributions and participation will be assessed through regularity of contributions and submittal of relevant, insightful questions on the assigned readings and journal articles during our Zoom meetings.



Final project: The final project consists of the preparation of a Final Paper on a topic related to ecology and sustainability of the student's choosing. The paper should be written using the typical sections found in a peer-reviewed journal article and not exceed 3,000 words in length; shorter is better as long as the topic is covered sufficiently.



skarinehmasihi.com

You are encouraged to discuss the proposed final paper topic with the instructor prior to commencement. An abstract and annotated outline of the final paper is due **October 15th, 12p.m. Midnight**. The purpose of the outline is to "*get you thinking, as time marches on.*"



RSC Education

Every other week a quiz will be issued to gauge understanding of the material. Each quiz will consist of one or two questions requiring an essay type response, not to exceed 300 words each. The quiz is due 1 week after the issue date.

Style/citations: Use APA 7th Ed. See: <http://owl.english.purdue.edu/owl/resource/560/01/> All papers should have a title, author and use 1.5 line spacing, 1-inch margins and an Arial, Calibri, Georgia or Times New Roman font.

Course Outline and Schedule

Each Session consists of 1 week with one class meeting time. We will meet via Zoom on Friday of each week at 930am. Please consider this course outline as being fluid so that it may be responsive to your interests and to ideas that develop during class discussions.

Course Schedule, Readings, and Assignments

Session 1 Friday, September 3, 2021

Topic: Welcome, Syllabus, Introduction, Introduction to Ecology I

Readings & Assignments:

- Review syllabus
 - Review videos: Introduction to Ecology and Ecosystem ecology
 - General overview of ecology
-

Session 2 Friday, September 10, 2021

Topic: The environment and ecosystem ecology

Readings & Assignments:

- General overview of ecology
 - Chapter 1 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Introduction to Ecology and Ecosystem ecology
 - Quiz #1 issued
-

Session 3 Friday, September 17, 2021

Topic: Earth's climate system

Readings & Assignments:

- Chapter 2 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Biotic and abiotic factors as well as Carrying capacity
-

Session 4 Friday, September 24, 2021

Topic: Carbon input to ecosystems I

Readings & Assignments:

- Chapter 5 *Principles of Terrestrial Ecosystem Ecology*.
 - Review video: Biogeochemical cycles
 - Quiz #2 Issued
-

Session 5 Friday, October 1, 2021

Topic: Carbon input to ecosystems II

Readings & Assignments:

- Chapter 5 *Principles of Terrestrial Ecosystem Ecology*.
 - Review video: Photosynthesis
-

Session 6 Friday, October 8, 2021

Topic: Plant carbon budgets I

Readings & Assignments:

- Chapter 6 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Populations and r and K selection
 - Quiz #3 Issued
-

Session 7 Friday, October 15, 2021

Topic: Plant carbon budgets II

Readings & Assignments:

- Chapter 6 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Exponential growth and Logistic growth
 - Outline of Final Paper Due
-

Session 8 Friday, October 22, 2021

Topic: Nutrient Cycling

Readings & Assignments:

- Chapter 9 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Ecosystems and Biodiversity
 - Quiz #4 Issued
-

Session 9 Friday, October 29, 2021

Topic: Trophic dynamics

Readings & Assignments:

- Chapter 11 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Ecosystem diversity and Energy flows in ecosystems
-

Session 10 Friday, November 5, 2021

Topic: Species effects on ecosystem processes

Readings & Assignments:

- Chapter 11 *Principles of Terrestrial Ecosystem Ecology*
 - Review video: Response to external environments
 - Quiz #5 Issued
-

Session 11 Friday, November 12, 2021

Topic: Changes in the Earth's system

Readings & Assignments:

- Chapter 14 *Principles of Terrestrial Ecosystem Ecology*
 - Review video: How we know that the Earth's climate is changing
-

Session 12 Friday, November 19, 2021

Topic: Managing and sustaining ecosystems

Readings & Assignments:

- Chapter 14 *Principles of Terrestrial Ecosystem Ecology*
 - Review videos: Ecosystem change and Ecological succession
-

Fall Break November 24 – 28, 2021

Session 13 Friday, December 3, 2021

Topic: Course Review

Readings & Assignments:

- Final Paper Due
-

Session 14 Friday, December 10, 2021

Topic: Final Paper Discussion

Readings & Assignments: None required