

# Ecological Forecasting (NRES 701a)

## Spring, 2023

### Course Information

#### Instructor Information

**Instructor:** Dr. Bob Shriver

**Office:** 218B

**Email:** [rshriver@unr.edu](mailto:rshriver@unr.edu)

**Office Hours:** By request (email me to schedule)

**Course Website:** <https://bobshriver.github.io/UNR-EcoForecast/>

#### Course Description

Environmental scientist and ecologists are increasingly asked to predict ecological processes to improve the sustainable management of natural resources and further basic understanding. This course will cover the fundamental concepts of the emerging field of ecological forecasting including: modeling approaches, representing and propagating uncertainty, model validation and updating, and adaptive management.

#### Course Pre-requisites

None, however prior programming experience with R is highly suggested.

Also suggested: NRES 746 or NRES 779

#### Required Texts/Course Materials

Required text: *Ecological Forecasting*, Michael Dietze, Princeton University Press

Suggested but not required: *Forecasting: Principals and Practice*, Robert Hyndman & George Athanasopoulos

Available for free at: <https://otexts.com/fpp3>

A laptop will be required for some in class activities,

#### Class Procedures/Structures

The class will be a mixture of lecture, lab, and discussion see schedule at:  
<https://bobshriver.github.io/UNR-EcoForecast/>

#### Student Learning Outcomes

- Describe motivations for environmental scientists and ecologist to develop forecasts.
- Develop ecological forecasts and validate models with observed data.
- Identify how different sources of uncertainty impacts forecast and ways in which uncertainty can be communicated.

- Identify the similarities and differences between ecological forecasting and other branches of forecasting
- Describe the relationship between ecological forecasting and the adaptive management cycle.

## Course Requirements

### Grade Breakdown

Attendance and Participation: 30%

Lab assignment: 30%

Leading discussion: 10%

Final Project: 30%

## Grading Criteria, Scale, and Standards

Sample letter grade assignment:

A: 93% - 100%

A-: 90% - 92.9%

B+: 87% - 89.9%

B: 84% - 86.9%

B-: 80% - 83.9%

C+: 77% - 79.9%

C: 74% - 76.9%

C-: 70% - 73.9%

F: <70%

## Late Work or Make-up Exams Policies

Students are expected to lead discussion on their assigned day. Students should consult with the instructor about any late lab assignments.

## Course Calendar or Topics Outline

See course website

## University Policies

### Statement on Academic Dishonesty

"The University Academic Standards Policy defines academic dishonesty, and mandates specific sanctions for violations. See the University Academic Standards policy: [UAM 6,502](#)."

### Statement of Disability Services

Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the [Disability Resource Center](#) (Pennington Achievement Center Suite 230) as soon as possible to arrange for appropriate accommodations.

**This course may leverage 3<sup>rd</sup> party web/multimedia content, if you experience any issues accessing this content, please notify your instructor.**

### Statement on Audio and Video Recording

Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

### Statement on Maintaining a Safe Learning and Work Environment

The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit the [Equal Opportunity and Title IX](#) page.

- **Statement for Academic Success Services:** "Your student fees cover usage of the [Math Center](#) (775) 784-4433, [Tutoring Center](#) (775) 784-6801, and [University Writing Center](#) (775) 784-6030. These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student."