

California State University, Chico  
Department of Geological and Environmental Sciences

## **GEOS 352, Recovery of Altered Ecosystems, Spring 2022**

<b>Instructor:</b>	Dr. Kristen Kaczynski
<b>Physical Office:</b>	
<b>Virtual Office:</b>	
<b>E-mail:</b>	<a href="mailto:kkaczynski@csuchico.edu">kkaczynski@csuchico.edu</a>
<b>Student hours:</b>	Tuesdays 12-1:30 and Wednesdays 11-12:30 or by appt. I can meet in person or on zoom.
<b>Class days and times</b>	SYNCHRONOUS Lecture (online): Mon & Wed 9-9:50am Lab (in person) SCI 142: Mon or Tues 2-4:50pm
<b>Online meeting space:</b>	
<b>Prerequisites:</b>	GEOS 265; GEOS 315 and BIOL 350W can be taken concurrently

### **Course Description and Goals**

This course will examine both the natural recovery of ecosystems after disturbances, as well as human intervention into the recovery in the form of restoration. We will accomplish this through lectures, case studies, discussion and paper presentations, and activities where you examine actual data on recovery of various aspects of ecosystems.

### **Student Learning Objectives**

Upon successful completion of this course, students will be able to:

1. Demonstrate knowledge of the basic fundamental concepts in the field of restoration ecology
2. Explain and apply the scientific method when analyzing data
3. Utilize and analyze data and present in the form of tables, graphs and charts
4. Interpret data results and then communicate those findings
5. Demonstrate proficiency in reading scientific papers

### **Required Texts/Readings**

#### **Required Textbook**

None.

#### **Other readings**

All readings will be posted on the course Blackboard page.

#### **Other equipment/supplies requirements**

- A computer will be essential for both lecture and lab.
- You will be using Microsoft Excel for lab activities. You all have access to the program through Chico State. [See this website for info](#) on how to download MS Excel for your personal computer.
- Access to Google Drive class folder as well as the Blackboard course page

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- A smartphone with some specified apps will be really helpful – I will be giving you apps that you should download for lab activities

### Email Policy

Email is an official form of communication for this course. I will respond to your email inquiries within 24 h (48 h over weekends). Please plan accordingly, especially the night preceding when an assignment is due (i.e. if you email me a question only a few hours before an assignment is due, I cannot guarantee a response beforehand).

### Classroom Protocol

- **Blackboard Learn:** The course syllabus, deadlines, announcements, assignments, grades, etc. will be posted on Blackboard and it is each student's responsibility to be aware of exam dates, assignment due dates, grades, etc.
- **Google Drive:** There will be a google drive class folder. Within that folder you will have a personal folder, where you will turn in your weekly reflective journal assignments as well some lab assignments.
- **Late assignments:** Late work will not be accepted without prior arrangements. Please reach out if you need an extension. All late work is subject to a 10% automatic reduction in grade for each day late. Missing class is not an excuse for your responsibility for assignments.
- Do your own work and pull your weight in group projects
- Class participation is expected. The bulk of your grade will be from lab activities. Doing environmental science is the only way to really learn environmental science, so participation is required!

### Assignments and Grading Policy

1. Attendance & Engagement	10%
2. Discussion/presentation participation	15%
3. Weekly notebook/journal	20%
4. Lab Activities	40%
5. Virtual field trip presentation	10%
6. Peer feedback on virtual field trips	5%
<b>TOTAL</b>	<b>100%</b>

1. **Attendance & Engagement:** Given the unpredictability of this semester and the myriad of personal circumstances, I have altered my typical attendance policy. I will be noting who is present at our synchronous lecture times, but attendance will not factor into any grade. Instead, at various points in the semester I will check in with each of you one on one to talk about your overall engagement in the course. Engagement includes:
  - a. **Preparation** – reviewing readings before class
  - b. **Focus** – avoiding distractions during synchronous and asynchronous class sessions
  - c. **Asking questions** – in class/lab, on Pronto
  - d. **Synchronous presence** – verbally and non-verbally actively engaged during these activities

You will assign yourself an overall grade at the end of the semester for your Attendance & Engagement portion of your grade. More information on Blackboard.

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2. **Weekly discussion/presentation participation:** Nearly every Wednesday you should come prepared to work with a group to present some aspect of a paper which everyone will have read. You and your group will put together a slide to present to the class. You must do the reading before class. Readings will be posted on Blackboard.
3. **Weekly notebook/journal:** The weekly journal is a place for you to post things that you have learned as well as your reflections on what you have learned and experienced throughout each week. Between the course readings, presentations, and lab activities, you have gained knowledge to reflect on and then to write about. You should describe and synthesize what you've learned and write about thoughts and questions you may still have about things you've learned. Your journal will be through Google Docs, where it will be viewed by only you and myself. I may comment and/or respond to something in your posting or may only read them without feedback to you. See assignment overview on Blackboard.
4. **Lab Activities:** You will spend three hours each week in lab. Most all labs will be in-person, however some may be asynchronous and you will work on your own. See Blackboard Announcements for the most up to date info on labs. Most often you will be working in groups, collecting data, figuring out how to analyze data, and writing up/presenting your results to the class. There will be outside of class work for the lab, such as entering data or digging a little deeper into analyses and how to present and summarize the data. You will need to bring a laptop to lab. If you need to borrow a laptop, please let me know in advance so I can grab a department one for you to borrow for the lab period.

Some labs may be outdoors, so appropriate footwear and clothing is required. You should also be aware of the potential hazards of outdoor labs: wildfire smoke, rain storms, other people (so mask wearing is recommended) etc. so you should be prepared.

5. **Virtual field trip:** Each student must present to the class a virtual fieldtrip to an ecosystem that underwent or is currently under restoration. Presentations will be live on zoom and you should plan to have your camera on. They should be 10 minutes in length and should include a locator map and photographs. Presentations should be in PDF, google slides or Powerpoint form and should be emailed to me by midnight the day before the class. By Feb 2<sup>nd</sup> you will select a case study from: <https://www.ser-rrc.org/project-database/> and I will then assign you to a presentation date.

Information to include in your presentation:

1. What was the project's goal(s)?
  2. Who is affected by the restoration and how were they involved in decision making?
  3. What techniques were used to restore the site?
  4. How was the project monitored and what criteria were used to evaluate success in achieving the project's goal(s)?
  5. What lessons can be learned from this project to improve ecological restoration at similar sites or the practice of ecological restoration in general?
  6. Name one thing that you particularly liked about this project as well as one thing that you think could be improved.
6. **Peer feedback on virtual field trip:** You will provide comments, constructive criticism and questions you still have based on each student's virtual field trip.

## Study Suggestions

- Practice good time management – for more tips on this see: <https://www.csuchico.edu/keep-learning/tips-remote-work/index.shtml>
- Attend lecture and lab during the scheduled time period. Research shows that students with regular attendance receive (on average) one full letter grade higher than those who do not attend regularly.
- Ask questions! During lecture, during lab, through email and Pronto
- Take notes! You are responsible for the material presented and discussed in class, regardless of whether or not it is on the PowerPoint.
- We all learn differently. Find study methods that work best for you, and practice them.
- Meet with me if you are struggling. I fully recognize that these are some crazy times we are living in and I am here to help you or help you get the assistance you need. You are under no obligation to tell me anything personal. I will never require a doctors note or any other document to demonstrate why you need any sort of accommodations. Of course, if you want to just talk about environmental science, that's great too ☺

## University Policies and Campus Resources

### Dropping and Adding

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc., found in the [CSU Chico University Catalog](#). You should be aware of the new deadlines and penalties for dropping classes.

### Academic Integrity

Students are expected to be familiar with the University's Academic Integrity Policy. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found on the [Student Conduct, Rights and Responsibilities website](#).

### IT Support Services

Computer labs for student use are located on the first and fourth floor of the Meriam Library, Room 116 and 450, Tehama Hall Room 131, and the Bell Memorial Union (BMU) basement. You can get help using your computer from IT Support Services; contact them through the [ITSS web site](#). Additional labs may be available to students in your department or college.

### Student Services

Student services are designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. Students can find support for services such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. Student services information can be found on the [current students page of the CSU Chico web site](#).

### Americans with Disabilities Act

If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving

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and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

**[Accessibility Resource Center](#)**

530-898-5959

Student Services Center 170

[arcdept@csuchico.edu](mailto:arcdept@csuchico.edu)

**Student Learning Center**

The mission of the Student Learning Center (SLC) is to provide services that will assist CSU, Chico students to become independent learners. The SLC prepares and supports students in their college course work by offering a variety of programs and resources to meet student needs. The SLC facilitates the academic transition and retention of students from high schools and community colleges by providing study strategy information, content subject tutoring, and supplemental instruction. The University Writing Center has been combined with the Student Learning Center. You can also visit the [Student Learning Center web site](#).

**Chico State Basic Needs**

The Chico State Basic Needs is a collaborative effort of campus and community-based programs with the goal to improve student success through the provision of supplemental food, nutritious meals, CalFresh USDA SNAP food benefit assistance, research-based education, emergency housing, emergency grants and referral services for students experiencing food insecurity, hunger, displacement, homelessness and poverty. They are located in the Student Services Center, Room 196. You can also visit the [Basic Needs Project website](#).

**Blackboard ALLY**

Chico State is committed to providing you the best learning experience possible. With this goal we have activated Blackboard ALLY in your courses. ALLY is a revolutionary product that focuses on making digital course content more accessible to all students. You will now be able to download any content in this course in the format that fits best with your learning style. PDF, HTML, .EPUB and Audio files are now available for most content items. Here is a link to more [information on formats available](#) as well as what each format offers. Should you have any questions or experience issues while using ALLY please contact the Office of Accessible Technology and Services at [oats@csuchico.edu](mailto:oats@csuchico.edu) or 530-898-6532.

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Tentative Schedule for GEOS 352 Spring 2022 **\*\*Subject to change with notice**

Wk	Lecture Dates	Lecture Topics	Readings	Lab Activities: Monday or Tuesday 2-4:50pm
1	1/24 & 1/26	Overview, Land use choices, need for restoration	DeFries et al 2004	How to read a scientific paper & Intro to Excel
2	1/31 & 2/2	Ecological concepts - Disturbance & Succession; stability, resilience, change	Princeton guide to ecology – chapter on restoration ecology	Diversity indices lab activity
3	2/7 & 2/9	Human induced changes in ecosystems	McMullin et al 2017	Lichens and air quality data analysis – ArcGIS intro and go over field methods. Hopefully supplies in late in the week?
4	2/14 & 2/16	Invasion of exotic species	Epanchin-Niell et al 2010	Lichens and air quality data analysis – on your own field work. Due by Thursday noon so I can compile for Monday lab
5	2/21 & 2/23	Restoration in terrestrial ecosystems	Holmes et al 2011	Lichens and air quality data analysis – work in groups to identify questions and analyze data. Write up
6	2/28 & 3/2	Restoration in terrestrial ecosystems	Rottler et al 2018	TBD
7	3/7 & 3/9	Virtual field trips – (8)		TBD
8	SPRING BREAK			
9	3/21 & 3/23	Restoration in vernal pools	Marty 2015	Butte County Meadowfoam
10	3/28 & 3/30	Riparian restoration – Sac river.	Borders et al 2006	Butte County Meadowfoam
11	4/4 & 4/6	4/4 Impacts of dams 4/6 Virtual field trips – (4)	Stanley & Doyle 2003	Butte County Meadowfoam
12	4/11 & 4/13	4/11 introduce goat grazing project. 4/13 Virtual field trips – (4)	Nader et al 2007	Goats grazing
13	4/18 & 4/20	Wildfire	Cunningham et al 2006	Goats grazing
14	4/24 & 4/26	Mine remediation	Pilon-Smiths and Freeman 2006	Goats grazing
15	5/2 & 5/4	Environmental Justice	TBD	Environmental Justice
16	5/9 & 5/11	Environmental Justice	TBD	Environmental Justice
Final Exam date/time TBD after census date				