

**San José State University**  
**College of Social Sciences/Department of Environmental Studies**  
**EnvS 187, Environmental Restoration, Section 1, Spring 2022**

**Course and Contact Information**

Instructor(s):	Dr. Katherine Ross
Office Location:	WSQ 115C
Email:	<a href="mailto:kate.ross@sjsu.edu">kate.ross@sjsu.edu</a>
Office Hours:	Wednesday 4:00-6:00pm and by appointment
Class Days/Time:	Monday/Wednesday 9:00-10:15am
Classroom:	Dudley Moorhead Hall 164 (First two weeks on Zoom)
Prerequisites:	EnvS 001, GE B2, 100W
Finals Day:	Friday, May 20, 7:15-9:30am

**Course Description**

Interdisciplinary art and science of restoring destroyed or degraded habitats. Emphasis on the interplay of ecological principles, planning, implementation and monitoring of restoration plans. Independent research required.

This course is designed to introduce you to the interdisciplinary field of environmental restoration. Scientific restoration efforts date back to prairie restorations in the 1930s at the University of Wisconsin Arboretum. Only recently has restoration been recognized as an important scientific, political, and public endeavor. Although the physical restoration of a site is based on our technical and scientific knowledge of ecological systems, successful restoration efforts also include economic, political, regulatory, and public participation elements.

Interest in restoration has been spurred by at least two developments:

1. Government regulations have required that project proponents compensate (“mitigate”) for damage they cause to the environment, and
2. the public has recognized that in order to preserve endangered species, protect ecosystem services, and improve our living environment, we need to restore habitats that have been degraded or destroyed.

This course is taught in three parts and will cover the following overarching themes:

- **Ecology:** the ecological principles that form the basis of the field of restoration
- **Theory:** the theoretical underpinnings of restoration and methods of practice
- **Implementation:** the process of restoration (design, implementation, and monitoring) using field methods and techniques

## Course Format

### In-Person and Online Courses

This course has in-person (initially synchronous online lectures), in-person field activities, asynchronous online activities, online assignments, quizzes and discussions, and two in-person exams. This course requires the daily use of a computer with Internet connectivity. Course materials such as the syllabus, assignment instructions, and exams are on the [Canvas Learning Management System \(Canvas\)](http://sjsu.instructure.com) course website at <http://sjsu.instructure.com>. You are responsible for regularly checking Canvas for announcements and emails from your instructor.

### Course Learning Outcomes (CLO)

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

- Understand and apply the ecological principles that are central to the field of restoration
- Understand the history of restoration science and how it has helped develop the body of ecological knowledge and influenced current restoration techniques
- Understand restoration theory and apply restoration practices to a range of habitats and restoration projects
- Learn methods and techniques for baseline assessment and monitoring project progress toward restoration goals

### Program Learning Outcomes:

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

PLO 1 (Qualitative Environmental Literacy): Write a logical analytical paper using good writing style and construction supported by appropriate research

PLO 2 (Quantitative Environmental Literacy): Determine, apply and interpret appropriate basic statistical or other quantitative analyses to environmental data

PLO 3 (Content Environmental Literacy): Develop proficiency in the interdisciplinary sustainability principles that are the foundation of environmental studies; they will know the key environmental challenges facing the planet, know relevant interdisciplinary information about these challenges, and be able to develop/identify feasible solutions

PLO 4 (Professional Skills: 4A): Productively conduct group/team work to deliver professional quality presentations and reports

PLO 5 (BS Competency): Demonstrate in-depth knowledge and skills in a science or technical field

## Required Texts/Readings

### Textbook

Greipsson, Sigurdur. 2011. *Restoration Ecology*. Jones & Bartlett Learning, LLC. Sudbury, MA. ISBN: 978-0-7637-4219-5. Text is available at the SJSU bookstore and from online retailers.

## Other Readings

Additional course readings are available on Canvas in the “Course Readings” module, arranged by week. Readings may also be assigned from the literature.

## Other technology requirements / equipment / material

This course requires daily access to a computer with Internet connectivity, word processing, presentation, and spreadsheet software.

## Library Liaison

Peggy Cabrera is our liaison for Environmental Studies. Reach her at: [peggy.cabrera@sjsu.edu](mailto:peggy.cabrera@sjsu.edu).

## Course Requirements and Assignments

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/ studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

This is a lecture and field course that requires extensive writing, reading, and research outside of the classroom. **This is a four-unit course, which means you are expected to devote 12 hours of work per week to this class through participation in lectures and field activities, homework, and independent study.** You must prepare for each class session by completing the appropriate readings or work before lecture. You will be working within the body of knowledge of the fields of ecology and restoration and will conduct and present independent research as well as work in a group to develop a report for a local restoration project. A final report is the culmination of this work. Finally, exams and quizzes will allow you to demonstrate your knowledge of the materials covered in class.

## Attendance

**YOU MUST ATTEND CLASS** to get a good grade in the class. You must also attend fieldwork days. Exam questions will be based on information covered during lecture and important information about assignments and activities will be given during lecture. **If YOU MISS an in-class assignment, such as a quiz, exam, activity, or a field site visit that is worth points toward your grade and do not have a University sanctioned excused absence, you will receive a 0 on that assignment.**

## Canvas Instructions

**For this class, all assignments are to be completed by the individual student unless otherwise specified.** All written take home assignments are to be submitted in electronic form through Canvas unless otherwise noted. If you have trouble with this, please come see me before the due date and time. **All assignments are due at 11:59pm on the due date listed in the course calendar.**

## Lecture Materials

Slides and other materials provided during class meetings will usually, but not always, be available on Canvas after the lecture. You are expected to work outside of class, attend class, and take notes.

## Assignments

A list of major assignments/assignment groups for the class is provided below in the table below. This class is fast-paced, time consuming, and difficult because it covers significant material in preparation for more advanced work in Advanced Restoration (EnvS 191) and your professional career. Your effort in this course and understanding of the material will be evaluated by a series of group assignments, quizzes & exams, case studies, and participation in classroom and field activities.

Assignments	Learning Objectives
<i>Individual Assignments:</i>	
Ecosystem Summary	PLO 1, PLO 3, PLO 5
Canvas Quizzes and Discussions	PLO 2, PLO 3, PLO 5
Online Activities	PLO 3, PLO 5
Field Journal	PLO 3, PLO 5
<i>Exams:</i>	
Midterm Exam	PLO 2, PLO 3, PLO 5
Final Exam	PLO 2, PLO 3, PLO 5
<i>Group Assignments:</i>	
Draft Report	PLO 1, PLO 4, PLO 5
Final Report	PLO 1, PLO 4, PLO 5
Case Study Presentation	PLO 4, PLO 5

## Formatting of Assignments

- Single-spaced with 1" margins
- Times New Roman, 12pt font
- Page numbers in lower right-hand corner of page
- Name, date, and course number in upper right-hand corner of first page
- Submitted to Canvas as a pdf

## Final Examination or Evaluation

Students are expected to demonstrate their knowledge of material presented in class. One final exam will be given to test your understanding of the material presented in the lectures, readings, and in-class activities. The final will be cumulative. The exam will constitute a large portion of your grade. Please do not miss the exam as

you will not have the opportunity to make it up. A make-up exam may be considered for legitimate and documented circumstances (i.e., medical emergency, death in the family) with proper documentation.

More details can be found in [University policy S17-1](http://www.sjsu.edu/senate/docs/S17-1.pdf) (<http://www.sjsu.edu/senate/docs/S17-1.pdf>) which states that “Faculty members are required to have a culminating activity for their courses, which can include a final examination, a final research paper or project, a final creative work or performance, a final portfolio of work, or other appropriate assignment.”

## Grading Information

Individual grades are assigned based on the student’s ability to demonstrate their knowledge of the material, provide evidence to support their work, and follow assignment instructions. Group grades are assigned based on the overall assessment of the group work. Final grades take into account assignment and exam scores and class participation. The breakdown for final course grades is as follows:

### Lecture:

- Participation and in-class assignments (15%)
- Canvas Quizzes, Discussions, etc. (10%)
- Ecosystem Summary (10 %)
- Group Case Study Report (10%)
- Group Case Study Presentation (10 %)
- Midterm Exam (15%)
- Final Exam (30 %)

### Activity:

- Participation in field/lab activities (60%)
- Field Journal entries (20%)
- Online Activities/Assignments (20%)

All writing assignments will be graded according to the following standards for assessing the quality of the content and the clarity of expressing concepts.

Grade	Criteria
A	Extremely effective organization of paragraphs and paper; interesting, varied sentences; good grammar (usage, punctuation); no spelling mistakes; excellent response with superior supporting evidence; logical analysis, reasoning, and explanation; clear mastery of concept; excellent citation form and use.
A minus, B plus	Very effective organization of paragraphs and paper; interesting, good sentence structure and variation; good grammar (usage, punctuation, etc.); few spelling mistakes; does not read like a first draft; good, solid response that uses strong supporting evidence; very good reasoning and explanations; great citation form and use.
B	Reasonably effective organization of paragraphs and paper; serviceable prose; numerous errors of grammar or spelling; reads like a first draft; solid response that meets minimum required by assignment; reasoning and explanations are adequate; okay citation form and use.

C	Structurally disorganized; paragraphs lack topic sentences or are not developed effectively; awkward sentence structure; poor grammar; poor spelling; response is accurate but cursory, and does not meet the minimum required for completeness; some inaccuracies or reasoning flaws; response is too general, lacks specific evidence; all sources cited but form is incorrect.
D	Structurally disorganized; paragraphs lack topic sentences or are not developed effectively; awkward sentence structure; poor grammar; poor spelling; response does not effectively address the question; response fails to support assertions evidence; major flaws in reasoning; explanations are unclear; displays inadequate understanding of content; lack of citation.
F	Response is missing or not submitted or does not address the question.

All presentations, discussions, and activities will be graded according to the following standards for assessing the level of participation and ability to conduct good science.

Grade	Criteria
A	<p>Presentation is of appropriate length; content is of excellent quality and goes beyond the basics; facts are accurate and well explained; flow of presentation is logical and well planned with clear practice and rehearsal between group members; pictures and text are well displayed and easy to read; presenter has a good speaking voice (volume and speed) and makes frequent eye contact with audience; does not use note cards; presenter is dressed in appropriate attire.</p> <p>Contributes freely to discussion; speaks clearly; ideas are presented in a thoughtful and logical manner; uses strong evidence to support reasoning; clear mastery of content and material being discussed; scientific language is used when speaking; asks questions and proposes reasonable solutions.</p> <p>Fieldwork is technically accurate; attire is appropriate for weather and terrain conditions; demonstrates enthusiasm for field experience and working collaboratively; asks questions and is helpful to others; clear mastery of scientific method and collection techniques.</p>
A minus, B plus	<p>Presentation is of appropriate length and good content; facts are accurate and very well explained; flow of presentation is logical and well planned with clear practice and rehearsal between group members; pictures and text are well displayed and easy to read; presenter has a good speaking voice (volume and speed) and makes eye contact with audience; does not use note cards; presenter is dressed in appropriate attire.</p> <p>Contributes often to discussion; ideas are presented in a thoughtful and logical manner; uses evidence to support reasoning; scientific language is used when speaking; asks questions and proposes reasonable solutions.</p> <p>Fieldwork is technically accurate; attire is appropriate for weather and terrain conditions; displays real interest in field experience and working collaboratively; asks questions and is helpful to others.</p>
B	<p>Presentation is of appropriate length and content; facts are accurate; flow of presentation is logical; pictures and text are easy to read; presenter has a good speaking voice (volume and speed) and makes eye contact with audience; presenter is dressed in appropriate attire.</p> <p>Contributes to discussion with good ideas; supports reasoning with evidence; some scientific vocabulary is used; asks some questions.</p> <p>Fieldwork is technically accurate; attire is appropriate for weather and terrain conditions; shows interest in field experience and working collaboratively; asks questions.</p>
C	<p>Presentation is of minimal length; content is adequate; facts are somewhat accurate; presentation is organized; pictures and text are readable; presenter uses notes and is challenging to hear; presenter is dressed in appropriate attire.</p> <p>Needs to be prompted to contribute to discussion; supports reasoning with evidence; some scientific vocabulary is used.</p> <p>Approaches field experience with adequate interest; some collaboration; depends on some direction and instruction from others; does not take initiative in a group setting; demonstrates an adequate understanding of the field methods.</p>

D	Presentation is too short; content is lacking basic information; facts are not all accurate; presentation requires organization; pictures and text are challenging to read; presenter uses notes; presenter is not dressed in appropriate attire.
	Needs to be prompted to contribute to discussion; does not supply evidence or more than a basic answer.
	Demonstrates little enthusiasm as if “just going through the motions”; little interest in collaboration; dependent on instruction; does not understand the field techniques or methods.
F	Clear lack of group participation in presentation.
	Missing or lack of any participation in discussions. Missing or unable to complete field methods.

<i>Grade</i>	<i>Percentage</i>
<i>A plus</i>	<i>98 to 100%</i>
<i>A</i>	<i>93 to 96%</i>
<i>A minus</i>	<i>90 to 92%</i>
<i>B plus</i>	<i>87 to 89 %</i>
<i>B</i>	<i>83 to 86%</i>
<i>B minus</i>	<i>80 to 82%</i>
<i>C plus</i>	<i>77 to 79%</i>
<i>C</i>	<i>73 to 75%</i>
<i>C minus</i>	<i>70 to 72%</i>
<i>D plus</i>	<i>67 to 69%</i>
<i>D</i>	<i>63 to 65%</i>
<i>D minus</i>	<i>60 to 62%</i>

### **Extra Credit**

If appropriate, there may be extra credit assignments for this course.

### **Penalty for Late or Missed Work**

Assignments are due on the date given as a due date on Canvas. Assignments turned-in later than the due date/ time will have 10% subtracted from the overall score for each day late (starting immediately after the time the assignment is due). If four or more assignments are turned in late you will not pass this class. If you are going to miss class, a presentation, or a field trip due to an excused absence, you must let the instructor know in advance of your absence (ideally a week in advance).

### **Classroom Protocol**

#### **Participation**

I expect all students to come prepared and actively participate in ALL scheduled class meetings. Preparation for the lecture involves reading the assigned material before coming to class. This will help you understand and remember the material that I go through in class, allow you to ask any questions over topics you are not clear on, be able to effectively participate in class activities, and do well on assignments and in discussion. It is extremely important for you to be prompt. I will cover announcements and other important information at the beginning of class. You are responsible for all announcements, information, and material that you miss. If a student is sick or knows they will be late to class or needs to leave early, email the instructor prior to class as a courtesy. It is the responsibility of the student to check with classmates about material covered during class.

Participation is an important element to learning. Questions and comments about the lectures are welcome and encouraged during class meetings. Please use office hours for questions about grades or personal concerns. Please use only your SJSU issued email address or Canvas to contact the instructor.

### **Acceptable Classroom Behavior**

Any behaviors that disrupt the classroom or show disrespect to the lecturer or other students will not be tolerated and will be reported to the University. I will ask you to leave the meeting if you cannot act with respect and discipline. **RESPECT STATEMENT:** A goal of this course is to create and maintain a learning environment that is respectful and open. All students are expected to value and respect the views, beliefs, and opinions of their fellow class members and to contribute to creating a positive learning atmosphere that is open to inquiry and communication. Strongly held views should be expressed in assertive terms rather than with accusation, blame, or judgment. Students should also be mindful of using inclusive language to create a classroom in which people with different gender, racial, sexual, ethnic, ability, and age identities are treated with equal value and respect.

### **Field Trips and Activities**

This course will include simulated field experiences, fieldwork, case studies, and additional activities that will be held in person in the field. All field trips are to restoration sites within the Bay Area. Field trips will take place on Mondays during class time. Field trips are an essential part of this course and where you will learn practical restoration techniques. Students who miss three field trips will not pass this course.

Some field trips are case studies, which are presented by student groups prior to and during the field trip. It is the student's responsibility to find time in their schedule to visit their case study site outside of school hours.

Field trips pose potential risks, including but not limited to:

- Driving to and from field sites
- Uneven terrain, unpaved surfaces
- Extreme weather (wind, rain, temperature fluctuations)
- Insects, animals, plants

Proper clothing and closed-toed shoes for walking and hiking must be worn for all field trips. It is also important to stay hydrated, bring snacks, and wear sun protection.

### **University Policies**

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other

resources) are listed on [Syllabus Information web page](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>). Make sure to visit this page to review and be aware of these university policies and resources.

### **Consent for Recording of Class and Public Sharing of Instructor Material**

Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. See [University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), <http://www.sjsu.edu/senate/docs/S12-7.pdf>.

Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

### **Academic Integrity**

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>. Instances of academic dishonesty will not be tolerated. **Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade on the assignment and sanctions by the University.** For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of both instructors.

### **Resources for Students**

There are many resources on campus available to you. Some examples include: SJSU Peer Connections Center, the College of Social Science Access Center, SJSU Writing Center, SJSU Counseling and Psychological Service, SJSU Student Health Center, the Academic Success Center, and many places to use or get help with technology. See the [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/> for more info or come see me.

### **SJSU Land Acknowledgment**

San José State University and Surrounding Region Thámien Ancestral Muwekma Ohlone Territory

The San José State University community recognizes that the present-day Muwekma Ohlone Tribe, with an enrolled Bureau of Indian Affairs documented membership of over 550, is comprised of all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region who trace their ancestry through the Missions Santa Clara, San José, and Dolores, during the advent of the Hispano- European empire into Alta California; and who are the successors and living members of the sovereign, historic, previously Federally Recognized Verona Band of Alameda County.

Furthermore, the San José State University community recognizes that the university is established within the Thámien Ohlone-speaking tribal ethnohistoric territory, which based upon the unratified federal treaties of 1851-1852, includes the unceded ancestral lands of the Muwekma Ohlone Tribe of the San Francisco Bay Area.

Some of the enrolled Muwekma lineages are descended from direct ancestors from the Thámien Ohlone tribal territory whose ancestors had affiliation with Mission Santa Clara.

The San José State University community also recognizes the importance of this land to the indigenous Muwekma Ohlone people of this region, and consistent with our principles of community and diversity strives to be good stewards on behalf of the Muwekma Ohlone Tribe whose land we occupy.

## EnvS 187 / Environmental Restoration, Spring 2022

This is a **tentative schedule** for the class and is subject to change. It is the student's responsibility to keep up to date with changes in the class schedule. **Assignments are due to Canvas by 11:59pm on the assigned date** unless otherwise posted. Any additional readings assigned throughout the semester will be posted on Canvas.

### Course Schedule

Week	Date	Topics	Readings	Major Assignments due
1	W 1/26	Introduction, Syllabus, & Course Logistics		
2	M 1/31	Biodiversity <i>Activity: Restoration Equipment</i> (online)	Ch. 1, Ch. 3.1-3.3	
2	W 2/2	Ecosystem Structure		
3	M 2/7	Plants and Trees <i>Activity: Plant ID</i> (online)	Ch.3.4-3.5	<i>Last Day to Drop a class</i>
3	W 2/9	Ecosystem Function and Disturbance	Ch. 2	
4	M 2/14	Succession <i>Field Activity: Stanford Conservation Program</i>	Ch. 4	<i>Last Day to Add a class</i>
4	W 2/16	Assembly	Ch. 5	Field Journal (in class)
5	M 2/21	Landscape Ecology <i>Field Activity: Byrne Preserve</i>	Ch. 6	Draft Ecosystem Summary
5	W 2/23	Keystone and Indicator Species	Ch. 12	
6	M 2/28	Invasive Species <i>Field Activity: BCR Volunteer Day</i>	Ch. 7	
6	W 3/2	Landform and Hydrology	On Canvas	
7	M 3/7	Soils and Erosion <i>Activity: "Dirt the Movie"</i> (online)	Ch.8	Final Ecosystem Summary
7	W 3/9	Phytoremediation	Ch. 10	
8	M 3/14	<b>Midterm Exam</b> <i>No Activity</i>		
8	W 3/16	Forest Ecosystems	Ch. 11	
9	M 3/21	Grassland Ecosystems <i>Field Activity: Bair Island</i>		
9	W 3/23	Aquatic Ecosystems	Ch. 13	Field Journal (in class)

<b>Week</b>	<b>Date</b>	<b>Topics</b>	<b>Readings</b>	<b>Major Assignments due</b>
10	M 3/28	<b>Spring Break</b>		
10	W 3/30	<b>Spring Break</b>		
11	M 4/4	Science communication <i>Activity: Meet with Instructor in Groups</i>	On Canvas	
11	W 4/6	Group Work on Case Studies		
12	M 4/11	Restoration Planning <i>Activity: Group Work</i>	Ch. 14.1, 14.2	
12	W 4/13	Restoration Implementation	Ch. 14.3, 14.4	
13	M 4/18	Student Presentation (Group 1) <i>Field Activity: Group Site Visit</i>		
13	W 4/20	Restoration Monitoring	Ch. 14.5, 14.6	Draft Group Report
14	M 4/25	Student Presentation (Group 2) <i>Field Activity: TBD</i>		
14	W 4/27	Legislation	Ch. 14.7, On Canvas	
15	M 5/2	Student Presentation (Group 3) <i>Activity: A California Call-to-Action (online)</i>		Final Field Journal (in class)
15	W 5/4	Paying for Restoration	On Canvas	
16	M 5/9	Student Presentation (Group 4) <i>No Activity</i>		
16	W 5/13	Restoration & Environmental Justice	On Canvas	Final Group Report
17	M 5/16	Wrap-up, Course evaluations, & Review <i>No Activity</i>		
	F 5/20	<b>Final Exam (7:15 AM-9:30 AM)</b>		