

San José State University
College of Social Sciences/Department of Environmental Studies
EnvS 187, Environmental Restoration, Section 1, Spring 2020

Course and Contact Information

Instructor:	Metha Klock
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Email:	metha.klock@sjsu.edu
Office Hours:	Tuesdays 12:00pm – 2:00pm, or by appointment
Class Days/Time:	Mon./Weds. 12:00pm – 1:15pm, Monday Field Trips 3:00pm – 5:45pm
Classroom:	Lecture in Dudley Moorhead Hall (DMH) 164, Activity in DMH 234
Prerequisites:	EnvS 001, GE B2, 100W
Finals Day:	Tuesday, May 19, 2020, 9:45am – 12:00pm

Course Format

This course has classroom lectures, fieldwork, and online assignments, quizzes, and 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 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. Fieldwork and 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 often 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 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
- Understand the stages of successful restoration projects and evaluate the quality of projects from the perspective of planning and design, implementation, monitoring, and adaptive management
- Learn methods and techniques for baseline assessment and monitoring progress of a project 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 readings available on Canvas and as 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.

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 the classroom, field trips, 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 independent research as well as work in a group to present a case study of a local restoration project. A group presentation and 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 and during field trips.

Attendance

YOU MUST ATTEND CLASS to get a good grade in the class. Exam questions will be based on information covered during lecture and field trips, and important information about tests and assignments will be given during lecture. **If YOU MISS an in-class assignment, such as a presentation or exam 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

PowerPoint slides and other materials provided during lecture will not always be posted on Canvas. You are expected to work outside of class, attend class, and take notes.

Assignments

The table below is a list of assignments for the class. 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 in a series of group assignments, exams, case studies, and participation in the classroom and at field trips.

Assignment	Point Value		Learning Objectives
<i>Individual Assignments:</i>			
Ecosystem Summary, draft	50		PLO 1, PLO 3, PLO 5
Ecosystem Summary, final	50		PLO 1, PLO 3, PLO 5
Field Trips	125		PLO 3
Field Journal	100		PLO 4
Assignments, Quizzes, Participation	100		PLO 2, PLO 3, PLO 5
Restoration Volunteer Connection	30		PLO 5
Performance Review	10		
<i>Exams:</i>			
Field Practical Examination (Final Exam)	100		PLO 2, PLO 3, PLO 5
<i>Group Assignments:</i>			
	Group	Individual	
Outline with References	10	20	PLO 4
Draft Report	15	30	PLO 1, PLO 4, PLO 5
Final Report	30	70	PLO 1, PLO 4, PLO 5
Field Trip Case Study Presentation	30	70	PLO 4, PLO 5
Wetland Case Study	20	0	PLO 1, PLO 4
Estimated Total	860		points

Final Examination or Evaluation

The final exam is a field practical that tests your ability to identify plants or parts of trees, take accurate measurements, and demonstrate your use of restoration methods learned in this course. Any equipment, methods, or topics that are covered in the lectures and the field trips (or anything announced in class as potentially being on the field practical) could be on the final exam.

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.

Grading Criteria

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 field trips 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>

	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.
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	<p>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.</p> <p>Needs to be prompted to contribute to discussion; does not supply evidence or more than a basic answer.</p> <p>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.</p>
F	<p>Clear lack of group participation in presentation.</p> <p>Missing or lack of any participation in discussions.</p> <p>Missing or unable to complete field methods.</p>

Determination of Grades

<i>Grade</i>	<i>Points</i>	<i>Percentage</i>
<i>A plus</i>	<i>860-834</i>	<i>97 to 100%</i>
<i>A</i>	<i>833-800</i>	<i>93 to 96%</i>
<i>A minus</i>	<i>799-774</i>	<i>90 to 92%</i>
<i>B plus</i>	<i>773-748</i>	<i>87 to 89 %</i>
<i>B</i>	<i>747-713</i>	<i>83 to 86%</i>
<i>B minus</i>	<i>712-688</i>	<i>80 to 82%</i>
<i>C plus</i>	<i>687-662</i>	<i>77 to 79%</i>
<i>C</i>	<i>661-627</i>	<i>73 to 76%</i>
<i>C minus</i>	<i>626-602</i>	<i>70 to 72%</i>
<i>D plus</i>	<i>601-576</i>	<i>67 to 69%</i>
<i>D</i>	<i>575-541</i>	<i>63 to 66%</i>
<i>D minus</i>	<i>540-516</i>	<i>60 to 62%</i>

Extra Credit

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

Assignment Weights

Individual Assignments = 54%

Exams = 12%

Group Assignments = 34%

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), and assignments three or more days late will not be accepted or graded. If four or more assignments are turned in late you will not pass this class. There are no late quiz/exam allowances or extensions unless you have a University sanctioned excused absence. If you are going to miss class due to an excused absence, please let the instructor know as soon as possible and ideally a week in advance of your absence.

Classroom Protocol

Participation

I expect all students to come prepared and actively participate in ALL scheduled meeting times. 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 exams. 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 need 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 lecture are welcome and encouraged during the presentation. Please use office hours for questions about grades or personal concerns.

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 classroom 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.

Technology

TURN-OFF CELL PHONES when you enter the classroom. **If I notice you are otherwise engaged in texting or surfing the internet, you will lose 5 participation points for each incident.** Laptops may not be used for personal use but may be used to take notes or be used during class discussions and group work.

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 page
- Microsoft Word document

Field Trips and Activities

This is a field course with field trips and activities on Mondays. All field trips are to local restoration sites within San Mateo, Santa Clara, Santa Cruz, and Alameda Counties. Some field trips are case studies, which are presented by student groups prior to the field trip as well as in the field. This will require students to be familiar with their sites prior to their field trip in order to conduct successful lecture and field presentations. It is the student's responsibility to find time in their schedule to visit their case study site outside of school hours. Carpooling is critical for restricted parking at field sites. Other field trips are more active in order to give students hands-on experience with restoration techniques.

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.

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

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

Proper clothing and closed-toe 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.

Activities are hands-on learning sessions held on campus after the Monday lecture.

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 information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>. Make sure to visit this page, review and be familiar with 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.

EnvS 187 / Environmental Restoration, Spring 2020, Course Schedule

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.** Additional readings will be assigned throughout the semester and will be posted on Canvas.

*Indicates assignments to be completed individually.

	Date	Topics, Readings, Assignments, Deadlines	Readings	Assignments (due by 11:59pm)
1	M 1/27	Introduction to Restoration Ecology/Syllabus		
1	W 1/29	Ecosystem Structure	Ch. 1	
2	M 2/3	Ecosystem Function and Disturbance Activity: Field Trip Equipment	Ch. 2	
2	W 2/5	Biodiversity	Ch. 3	<i>Last Day to Drop Class (2/4)</i>
3	M 2/10	Field Trip: Ulistac Natural Area		
3	W 2/12	Succession	Ch. 4	<i>Last Day to Add Class (2/11)</i>
4	M 2/17	Plants and Trees Activity: Dichotomous Key	Assigned reading	
4	W 2/19	Assembly	Ch. 5	
5	M 2/24	Field Trip: Don Edwards		*Ecosystem Summary Rough Draft Due
5	W 2/26	Science communication		
6	M 3/2	Landscape ecology Activity: Group Work on Paper Outline	Ch. 6	
6	W 3/4	Invasive Species	Ch. 7	
7	M 3/9	Keystone and Indicator Species Activity: Work on Ecosystem Group Paper	Ch. 12	Ecosystems Group Paper Outline Due
7	W 3/11	Student Group 1 Presentation		
8	M 3/16	Field Trip: Group 1		*Group 1 Performance Review Due
8	W 3/18	Student Group 2 Presentation		Ecosystem Group Paper Rough Draft Due
9	M 3/23	Field Trip: Group 2		
9	W 3/25	Forest Ecosystems	Ch. 11	*Group 2 Performance Review Due
10	M 3/30	SPRING BREAK		
10	W 4/1	SPRING BREAK		
11	M 4/6	Soils and Erosion Activity: Dirt! The Movie	Ch. 8	
11	W 4/8	Student Group 3 Presentation		*Ecosystem Summary Final Paper Due
12	M 4/13	Field Trip: Group 3		*Group 3 Performance Review due
12	W 4/15	Grassland Ecosystems		
13	M 4/20	Aquatic Ecosystems Activity: Case Study	Ch. 13 & Case Study	
13	W 4/22	Restoration Planning	Ch. 14.1, 14.2	Case Study Write Up Due <i>50th Anniversary of Earth Day!</i>
14	M 4/27	Restoration Implementation Activity: Review for Field Practical Exam	Ch. 14.3, 14.4	
14	W 4/29	Group Work		*Restoration Volunteering Due
15	M 5/4	Field Practical Exam (Final Exam)		*Field Journal Due
15	W 5/6	Guest Speaker		Ecosystem Group Paper Final Draft Due
16	M 5/11	Restoration Monitoring	Ch. 14.5-7	
16	T 5/19	Final Exam, Tues., May 19, 9:45am-12:00pm		