



ENVS-110: SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES

Effective Term

Fall 2026

BOT Approval Date

04/10/2025

Discipline

ENVS - Environmental Studies

Course Number

110

Course Title

Sustainable Management of Natural Resources

Short Title

Natural Resources

Credit Status (CB 04)

D - Credit - Degree applicable

Units**Lecture Units**

3.00

Total Units

3.00

Hours**Lecture Contact Hours**

48-54

Out of Class Hours Lecture

96-108

Total Contact Hours

48 - 54

Total Out of Class Hours

96 - 108

Total Student Learning Hours

144 - 162

Distance Education

Yes

Distance Education**Distance Education Type**

Both Fully Online and Hybrid Online

Fully Online Delivery Requirements:

a. Students must be notified via the college schedule of classes and the syllabus for the class if proctored tests are required for this course



b. Any planned face-to-face meetings, such as an orientation or study session, must be optional

c. The MSJC curriculum committee requires the use of accessible, asynchronous discussion as a component of every fully online course

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods:

- **Orientation** - Students must be oriented to the online and face-to-face portions at the start of the course.
- **Announcements** - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc.
- **Discussion Forums** - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction.
- **MSJC Communication** – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students.
- **Timely Feedback** - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS.
- **Scheduled Meetings** – Hybrid and synchronous courses will meet at regularly scheduled times. ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Catalog Description

This course focuses on sustainable management principles with application to the harvest and extraction of natural resources, particularly forest resources. Principles covered include human interactions with forest resources, forest ecology and management, renewable resources, market applications and current issues as they develop in the subject area.

Codes

TOP Code (CB 03)

0115.00* - *Natural Resources

CIP Code

03.0101 - Natural Resources/Conservation, General.

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Agriculture (Masters Required)	Or
Biological Sciences (Masters Required)	Or
Forestry/Natural Resources	Or
Ecology (Masters Required)	End

GE Information

Check GE Types Requested

AA/AS A - Natural and Physical Sciences

Learning Objectives

Learning Objectives

Learning Objective
1. Evaluate the methods of scientific inquiry, observation and measurement to real or hypothetical scenarios.
2. Analyze the methods of renewable resource monitoring as they relate to sustainable harvest strategies.
3. Apply the language of forestry terminology in written and oral communication.
4. Critique the characteristics of sustainable management and use of resources in forest ecosystems.
5. Assess the diversity and distribution of North American forest resources.
6. Debate the role of fire in the maintenance of a healthy forest ecosystem.
7. Evaluate the importance of the concept of a watershed in natural resource management.
8. Compare and contrast renewable versus non-renewable resources.
9. Appraise the relative benefits and negative impacts of resource management decisions on diverse cultures through the lens of environmental justice.
10. Compare and contrast silvicultural methods.
11. Relate the principles of wildland forestry to urban forestry.
12. Integrate basic principles to demonstrate an understanding of the state of forestry and renewable resource management on a global scale.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. The student will consider the impact of human actions on the environment.
2. The student will understand the relationship between the natural environment, resource extraction, and the economy.
3. The student will evaluate the history of humanity in relation to land use.

Content

Course Lecture Content

1. History of Forests and Resource Management
 - a. Human Interactions
 - b. Political Context
 - c. Development Pressures
 - d. Human Cultural Dimensions of Resource Management
 - e. Environmental Justice
2. Forest Regions of the World
 - a. Access and Environmental Justice
3. Goals, Objectives, Constraints
4. Forest Products
 - a. Commodities
 - b. Non-Timber Forest Products
5. Wildlife Habitat
 - a. Habitat types
 - b. Succession
 - c. Edge Ecology
 - d. Corridors
 - e. Threats
6. Ecosystem Services
 - a. Management trade-offs
7. Forest Recreation

- a. History
- b. Planning and development
- c. Access Inequities and Environmental Justice
- 8. Measurements and Data
 - a. Geographic Information Systems (GIS)
 - b. Aerial imagery and orthographics
 - c. LiDAR
- 9. Tree Anatomy and Physiology
 - a. Transpiration
 - b. Photosynthesis
 - c. Growth
 - d. Regeneration
 - e. Nutrition and tolerance
- 10. Forest dynamics
 - a. Community interactions
 - b. Gradients and niches
 - c. Gap dynamics
- 11. Forestry Practices
 - a. Preparation
 - b. Regeneration
 - c. Harvest
- 12. Harvesting Systems
- 13. Natural Resource Economics
 - a. Markets, efficiency and government
- 14. Disturbance and Health
 - a. Fire
 - b. Flood
 - c. Disease
 - d. Human impacts
- 15. Forest Policies
 - a. Certification
 - b. Carbon sequestration
- 16. Urban Forestry
- 17. Ethics
 - a. Land and conservation ethics

Methods of Instruction

Method

Group Projects

Integration

Students will work in groups to engage in critical thinking activities focusing on case study analysis of current challenges related to natural resource use. For example, students may be asked to work in groups to evaluate the challenges and obstacles to using prescribed fire as a management technique in urban edge environments. Students will explore whether access to natural resources and sustainable management activities are equally accessible to all, regardless of economic class and cultural community.

DE Adaptations for MOI

Groups will be formed within the course management system and collaborations will be achieved via asynchronous communication using the online discussion forum feature. Alternatively, students can meet through an accessible video conferencing application to interact and collaborate.

Method

Observation and Demonstration

Integration

Demonstrations of lab and research techniques typically employed in environmental monitoring and resource management will be provided by the instructor.

DE Adaptations for MOI

Demonstrations will be facilitated using a wide variety of accessible multi-media approaches, including short video clips, animations, and graphics. Emphasis will be placed on critical analysis of resource priorities in developing appropriate monitoring parameters for adaptive management. Instruction methods will be implemented in such a way that all accessibility requirements will be met.

Method

Lecture

Integration

Lectures will be presented using a variety of multi-media approaches to demonstrate major concepts relating to natural resources and their sustainable use. Content will highlight concerns relevant to a broad spectrum of diverse lived experiences, including case studies and examples highlighting disparate access impacts for various human populations.

DE Adaptations for MOI

Lectures will be delivered in an online environment using the Course Management System. Lectures content will be fully accessible and may include slide deck presentations, written narratives, or video lectures.

Method

Discussion

Integration

Large and small group discussions will focus on topical issues pertinent to the course, including climate change, fire suppression and management, and resource conservation. For example, students may be assigned articles relating to the relationship between climate change and wildfire severity and asked to discuss the manner in which politics and media coverage can distort pertinent issues. Students will explore the extent to which environmental concerns affect different genders and cultural groups differently.

DE Adaptations for MOI

Student discussion will be achieved via asynchronous communication using the online discussion forum feature of the course management system. All accessibility requirements will be adhered to when implementing this method.

Methods of Evaluation**Method**

Papers

Integration

Students will prepare essays based on case studies and current events as they relate to course content. An example is the investigation of case studies and the application of resource management concepts presented in the course. Students will be graded based on their ability to synergistically evaluate convoluted issues and present an assessment based on sound science and strong, well-developed arguments. The ability to apply scientific reasoning to a problem or issue and to apply the concepts of natural resource management in a cohesive manner will be emphasized.

DE Adaptations for MOE

Finished products will be submitted for evaluation through the assignments feature of the course management system, where timely feedback will also be provided. Papers will be scored against a clear rubric to ensure equitable allocation of grades and to enhance the value of the instructor's feedback. All accessibility requirements will be met in implementing this method of evaluation. Timely feedback will be considered two weeks from the deadline.

Method

Exams/Tests

Integration

Examinations will be used to assess the student's understanding and grasp of the course content. Examinations may be multiple-choice, written, or oral. A variety of assessment strategies will be integrated into the course in order to accommodate diverse learning styles and means of demonstrating fluency with the material.

DE Adaptations for MOE

Examinations will be given through the online course management system, and may consist of multiple choice, true/false, matching, or written essay questions. Feedback will be provided in a timely manner to allow students to develop proficiency as they proceed through the course.

Method

Group Projects

Integration

Group projects and discussions will involve students in critical thinking interactions and activities concerning current issues and topics related to the sustainable management of the natural environment. Students will be encouraged to highlight their unique perspectives and diverse experiences. Topics will explore issues that challenge the group to address global inequities in the use of and access to natural resources. Evaluation will be based on participation, demonstrated comprehension of the material, and understanding of the issues and arguments being discussed.

DE Adaptations for MOE

The instructor's valuation of group projects will be based on participation, demonstrated comprehension of the material, and understanding of the issues and arguments being discussed. Evidence of meeting these guideposts will be provided by the student interactions within the discussion forum. Feedback will be provided in a timely fashion (within two weeks) and should be available for students before the next iteration of the assignment, so that they may act on suggestions and improve performance. A clear rubric will be presented to guide students and establish expectations for participation. All accessibility requirements will be met in implementing group projects.

Assignments**Assignment Type**

Writing

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

For a typical mid-elevation conifer forest in southern California that has not burned in more than 40 years, work in groups of four to design an appropriate monitoring strategy directed at adaptive management and fire control. First, develop a list of parameters and indices that will be useful to measure in developing a management plan, then propose a monitoring strategy, including sampling techniques and monitoring frequency. Finally, justify your approach in a written report of the group's findings.

How assignment will be adapted in online format

Assignments will be posted in the course management system with clear instructions related to collaborating in a small group discussion forum. Completed essays will be submitted through the assignment feature of the course management system, where timely feedback will also be provided within two weeks of the deadline. All accessibility requirements will be met.

Assignment Type

Reading

In-class and/or outside of class

In-class

Formative or Summative

Summative

Assignment

Refer to published maps of the distribution and abundance of coastal sage scrub north and south of the US-Mexico border. Relate this spatial disparity to the assigned readings on the impact of fire suppression on ecosystem health. Prepare a short, one-page, written response addressing how fire management may impact ecosystem viability in different contexts.

How assignment will be adapted in online format

Students will engage with the maps and written materials online via the course management system. Students can engage directly with the instructor for guidance via asynchronous communication or real-time discussions using conferencing applications. Students will submit their work using the assignment feature in the course management system. A clear rubric as well as an example of a successfully completed assignment will be provided. Timely feedback will also be provided within two weeks of the deadline. All accessibility requirements will be met.

Assignment Type

Other

In-class and/or outside of class

Outside of class

Formative or Summative

Summative

Assignment

Choose one forest product (from a provided list or your own idea) and research its origin. From what part of the world did it originate? Research the resource management and harvest conditions in this region and prepare a poster presentation addressing the human dimension of the extraction process. Who are the stakeholders? Are there conflicts over land access and ownership rights? What are the working conditions? Are the traditional land stewards justly compensated for access to the resources? Finally, is the resource sustainably managed? The poster presentation should draw on a minimum of three peer-reviewed sources.

How assignment will be adapted in online format

Students will use web resources for preliminary research and rely on the college's online library databases to find citations. Posters will be prepared in a digital format using a slide deck application. Posters will be uploaded using the assignment feature of the learning management system. This is also where feedback will be provided by the instructor within two weeks of the deadline. All aspects of this assignment will adhere to accessibility requirements.

Assignment Type

Reading

In-class and/or outside of class

Outside of class

Formative or Summative

Summative

Assignment

Read the Summary of the most recent Intergovernmental Panel on Climate Change Synthesis Report (hosted on the IPCC website) and identify four key messages that you find particularly relevant to your local community. Synthesizing this information with the course readings on climate resilience, craft a short description explaining the impacts of climate change on your community

from your unique perspective. Post this narrative to the small group discussion for your peers to read before engaging in a class discussion.

How assignment will be adapted in online format

The IPCC summary report can be accessed online and will also be provided in an accessible format in Canvas. Students will access all additional readings through Canvas in an accessible format. Written submissions will be posted to the Discussion Forum where students will also engage with one another to discuss their ideas. Assignment scores and comments will be provided by the instructor within two weeks through the Feedback section of the Canvas Discussion Forum.

Course Materials**Textbooks**

Grebner, D.L. P. Bettinger, J.P. Siry, and K. Boston (2021). Introduction to Forestry and Natural Resources (2nd edition). Elsevier. ISBN: 9780128190029

Garza-Ocanas, F. (2023). Sustainable Management of Natural Resources: Diversity, Ecology, Taxonomy and Sociology. Springer. ISBN: 9783031333965

Class Size Information**Class Size**

40

Class Size Category

A - Lecture/discussion 40

Diversity and Inclusion

Course Design and Materials: Course will incorporate diverse perspectives, authors, and examples that reflect a variety of cultures, identities, and lived experiences. Instructional materials will be reviewed regularly to ensure representation, inclusivity, and alignment with equity-minded practices across disciplines.

Inclusive Learning Environment: Instructors will establish classroom norms and policies that promote respect, civil discourse, and belonging in both online and face-to-face classes. Clear expectations for communication and engagement will support a learning space where all students feel valued and heard.

Accessible Instruction: Course content will be delivered using accessible design. Materials will follow accessibility guidelines within the CMS, including captioned media, readable document formats, and multiple means of engagement to support diverse learning.

Equitable Teaching Practices: Instructors will use transparent and grading criteria, varied assessment methods, and timely feedback to promote fairness and student success. Opportunities for revision, reflection, and multiple demonstrations of learning may be incorporated when appropriate to the discipline.

Culturally Responsive Pedagogies: Instructional strategies will encourage critical thinking about diverse perspectives and systems of power relevant to the course content. Faculty will foster opportunities for students to connect course material to real-world contexts.

Ongoing Reflection and Improvement: Faculty will engage in continuous professional development related to IDEA principles and reflect on course practices using metacognition to identify opportunities for increased equity, inclusion, and accessibility.

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

This course addresses the sustainable use of natural resources and has a strong focus on how humans manage, and benefit from access to, the natural environment. Assignments invite students to explore environmental justice issues that affect marginalized communities both domestically and abroad. For example, students will consider barriers of access to natural environments, inequities in representation in the decision-making process, and the disparate impacts of management decisions on various cultural groups. Considerations of social justice are integrated into the content and students are invited to explore how the benefits of sustainability and the impacts of unsustainable management, impact cultures and genders in diverse and unequal ways.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Instruction is focused on eliminating structural barriers to success by incorporating open educational resources and presenting a diverse array of media to connect with a spectrum of learning styles. In addition, students are expected to interact with one another in discussions focused on contemporary issues and to share their perspectives and personal experiences while adhering to norms of inclusivity. Students are encouraged to challenge normative expectations of what it means to engage with issues centered on the natural environment and are provided with the tools to be active participants in global sustainability regardless of their chosen major or career path.

Interactions**Explain how the course will incorporate student-to-student interaction.**

Students will have frequent opportunities to interact with one another in online or in-person discussions focusing on issues affecting the natural environment and human society. These interactions will augment the other forms of content delivery employed in this course by exposing students to diverse perspectives held by members of their own communities. Students will be encouraged to develop and abide by norms of tolerance and inclusivity.

Explain how the course will incorporate instructor-to-student interaction.

Instructors will participate in and guide group discussions. In the distance education modality, these interactions may be either asynchronous, taking place in the discussion forum or via email communication, or synchronous, via video conferencing. For challenging assignments and projects, instructors will model metacognitive approaches, engaging with students to guide them through complex critical thinking processes. This may include demonstrations of map reading techniques, data interpretation approaches, or interactions with complex primary literature sources. Feedback will be provided either verbally, in writing, or in the course management system. Instructors will be available to answer questions and interact with students directly.

Explain how the course will incorporate student-to-content interaction.

Students will be provided with a variety of accessible forms of media for content delivery. These may include written narratives, journal articles, textbook materials, videos, or verbal lectures. To the greatest extent possible, Open Educational Resources (OER) will be employed to minimize barriers of access. A diverse array of approaches will be employed to accommodate a spectrum of learning styles. For the online modality, these materials will be posted in an accessible format in the course management system, with the lecture component being recorded and captioned. Students will work towards concept mastery through formative assessments, engage in deeper more reflective work through critical writing assignments, and will assess their assimilation of the content through summative assignments. Students will engage with content in active ways, bringing their schema to bear in interpreting the content they encounter in this course.

Explain how the course will incorporate student-to-self interaction (metacognitive).

Students will engage in critical thinking activities that require them to explore sustainability concerns that directly affect their lives. They will be encouraged to critically assess their ethical stance on contemporary resource management issues. Students will have the opportunity to reflect on any discordance between their subjective worldview and their understanding of objective science. Students will consider their own relationship to the environment and through a variety of analysis projects explore differences in the ways people around the world interact with their local resources. Through reflection, students will be immersed in the global context of the topics presented in the course.