



ECOLOGY PROJECT INTERNATIONAL

Baja Educator Workshop 2024 Itinerary & Syllabus

Course Description

Ecology Project International's (EPI's) Baja Educator Workshop provides teachers with opportunities to connect students to the phenomena of Baja California Sur's marine ecosystem. Participants will engage with thought-provoking phenomena; participate in authentic research; use the Claims, Evidence, Reasoning model to create a NGSS-linked lesson and begin a storyline; and learn strategies and tools to inspire their students to observe, question, and problem-solve. Educators will participate in research, experiential learning, and collaboration with peers, all while exploring best practices, new ideas, and opportunities to enhance science education in the classroom.

Learning Outcomes

Participants will:

- Use online tools to access, identify, and understand components of the NGSS.
- Identify and select Performance Expectations for lesson development.
- Identify, analyze, and demonstrate how to use phenomena to drive student inquiry
- Experience a variety of field research and conservation methods
- Design, create, and share an original, standards-based lesson using phenomena from the field experience

Professional Development Contact Hours

Participants will receive 20 PD contact hours for participating in this course.

Optional College Credit

Interested participants can receive **2 graduate credits** through Hamline University for participating in this course. Separate registration and tuition fees are required.

Course Work

This course is being offered as a blended course. Online activities are self-paced, held in the Google Classroom, and designed to build the foundation for lesson development during the field experience. Participants will be invited into the Google Classroom approximately five weeks before the field experience. **Participation in the classroom is recommended for all participants but required for those seeking graduate credit.**

Course Communication

An EPI Field Experience Coordinator will provide all necessary information regarding logistics, packing lists, itinerary, payments, paperwork, policies, and program information including directions on how to register and receive graduate credit.

The EPI Professional Development Team is available to communicate with you by email for academic content. You may also post questions pertaining to the Google Classroom content to the Classroom Stream. Access to the Google Classroom may be hindered by using your school's email account if you have one. If you do not

receive an email inviting you to the Google Classroom at least a month before your course, please reach out to Laura@ecologyproject.org for help.

Announcements will be posted to the online Classroom and via email as needed.

Online Learning Topic Outline	
Module 1 3-Dimensional Learning	2 self-paced learning hours <ul style="list-style-type: none"> Learn about the components of the Next Generation Science Standards using an online interactive activity. Use the NGSS Read the Standards search tool to access and identify Performance Expectations appropriate your grade and subject area.
Module 2 5E Learning Model	2 self-paced learning hours <ul style="list-style-type: none"> Learn how using the 5E Model of lesson structure promotes collaborative, active learning. Describe engagement and assessment activities that support the standards you have identified.
Module 3 Ecology and Biology of Field Location	4 self-paced learning hours <ul style="list-style-type: none"> Learn about the biology, ecology, and culture of the field site you will visit through text, video, and independent research. Analyze the ecological threats, anthropogenic impacts, environmental threats, and conservation efforts specific to your field study location. Compare the characteristics of tourists and travelers and analyze their impacts.
Module 4 Building Community Partnerships	2 self-paced learning hours <ul style="list-style-type: none"> Learn about how to create positive partnerships to support environmental stewardship within your learning community through text, community networking, and online research. Analyze the benefits and barriers to partnering with conservation organizations and individuals to provide field experiences to students.

Principle Areas of Focus/Theme /Storyline for the Workshop

Health and Biodiversity of the Bay of La Paz: During this workshop, participants will engage in a variety of research/conservation activities, model student curriculum, and exploration centered on the Bay of La Paz.

Microplastics in the Environment: Plastic waste is a present and growing conservation issue. Plastics are ubiquitous in our lives and endure for hundreds or thousands of years in the environment. Plastic bottles and bags are obvious as they litter beaches worldwide and affect a variety of marine and terrestrial organisms. Microplastics are less obvious but affect organisms in any environment. As it breaks down, plastic doesn't go away and while it becomes smaller, its impact on the environment doesn't disappear either. Workshop participants will explore the present reality of microplastics on La Paz beaches and in the Bay, learn about the various impacts on species large and small, and consider ways to address this global conservation challenge.

Marine Biodiversity and Ecosystems: The Gulf of California teems with diverse and curious lifeforms. Through a Marine Life Census, participants will investigate who lives in the marine environment and what these organisms can tell us about the health of the ecosystem. To enhance this activity, participants will visit a coral restoration station and learn about efforts to conserve the reefs of the Bay of La Paz.

Monitoring Dolphins in La Paz Bay. Using hydrophones, educators will take part in dolphin data collection alongside cetacean experts at PRIMMA (El Programa de Investigación de Mamíferos Marinos), a marine mammal research program at the University of Baja California Sur. The data gathered will help researchers understand more about dolphin communication as well as dolphin families and individuals in the bay. Participants will also assist with taking photos of individuals to aid in photo identification of the species.

Optional Activity: The weather in Baja California Sur in the winter and early spring is unpredictable. Conditions could make boat travel and snorkeling activities untenable. If the activity isn't available, participants will instead be introduced to and explore EPI's work on its Urban Oasis Project with the watershed of La Paz, gaining insight into how community action within the city impacts the health of community members and the Bay of La Paz.

Core Course Activities and Lessons

Specific research and conservation activities are dependent upon the EPI field-course location. However, each course will utilize these key components each full field day of the course.

- **Research and Conservation Experiences:** EPI partners with research and conservation organizations to engage participants in on-the-ground research or conservation. Teachers will become community researchers and contribute to research and conservation outcomes while building knowledge and understanding of field research, conservation techniques, and the underlying ecological science principles.
- **Modeled Student Activities:** Participants will step into the role of students to broaden their knowledge of the environments, organisms, and cultures that are their classroom for their course as well as build the skills they'll need to engage in the authentic research and conservation experiences.
- **Pedagogy Workshop:** Through a mix of reflection, direct instruction, self-guided exploration, discussions, and practice, teachers will refresh and expand their understanding and capacity to deliver high quality 3-dimensional science lessons to their students. Research experiences and modeled student activities serve as an example and launching point for exploring pedagogy, science concepts, NGSS, the 5E learning model, and more.
 - Using Phenomena to Drive Inquiry
 - Claim-Evidence-Reasoning (CER) Process
- **Curriculum Writing Workshop:** Experiential learning is fundamental to all EPI experiences. Throughout the course, teachers will engage their creativity, knowledge, and skills in a guided curriculum building progression following the 5E learning cycle. Throughout the process, teachers will share what they know and learn from their peers. As time allows, teachers will share lesson ideas with their peers during the program sending each teacher home with new ideas and materials that they can apply in their classrooms. Following the course, teachers can use the online classroom to share finalized lesson plans, resources, photos, additional opportunities, and more.
- **Fundamental Group Facilitation:** EPI courses are dynamic events bringing together people from different backgrounds, skills, goals, and personalities. During the course, EPI will utilize a range of techniques to foster group understanding, cooperation, teamwork, cohesion, and health. These activities occur throughout the day and typically involve roughly one hour of time each day.
- **Have Fun!** Everything on an EPI course is fun, and participants will have ample time to learn from and enjoy the location, people, and experiences of this program.

Field Course Itinerary

Day of Course	Course Activities and Lessons
Pre-course	*Order and schedule of activities may vary due to specific course logistics, weather, location, availability of partners and other factors.
1-Travel Day Feb 15 TH	<p>*Workshop Participants are responsible for airfare to and from Cabo (SJD).*</p> <ul style="list-style-type: none"> EPI arranged transportation from airport to the EPI campus in La Paz Course introduction, orientation, teambuilding.
2-EPI Campus Feb 16 TH	<ul style="list-style-type: none"> Field activity: Monitoring dolphins in the Bay of La Paz. Using hydrophones, educators will take part in dolphin data collection alongside cetacean experts at PRIMMA. The data gathered will help researchers understand more about dolphin communication as well as dolphin families and individuals in the bay. Participants will also assist with taking photos of individuals to aid in photo identification of the species. Pedagogy Workshop: Using Phenomena to Drive Inquiry Curriculum Writing Workshop: 5E Lesson Plan format and curriculum brainstorm
3-EPI Campus Feb 17 TH	<ul style="list-style-type: none"> Field Activity: Collect Sediment Samples at the Bottom of the Bay of La Paz. These samples will be used for PRIMMA'S research on the presence and types of microplastics and how these impact dolphin habits. Pedagogy Workshop: Claim-Evidence-Reasoning (CER) Process Late PM: Explore La Paz
4-EPI Campus Feb 18 TH	<ul style="list-style-type: none"> Field Activity: Coral Restoration Tour. Educators will take part in a coral restoration project, where they will dive into the anatomy and biology of coral and coral reef ecosystems, explore the human-caused threats these organisms are facing, and investigate how researchers are working to address those threats. Curriculum Writing Workshop: Lesson concept expose Evening: Closing Activity
5-Departure Day Feb 19 TH	<ul style="list-style-type: none"> AM Departure: EPI arranged transportation to airport.

Required Course Materials

- Field Journal
- Two mechanical pencils with eraser
- Items on EPI field site packing list (found on your EPI course portal)