

**Ceiba Foundation for Tropical Conservation
Winter Intersession Experiential Learning Course**

**WATER FOR LIFE:
SUSTAINABILITY AND COMMUNITY HEALTH IN ECUADOR**

SYLLABUS & COURSE INFORMATION

Program Dates: December 21, 2026 - January 17, 2027

Online Instruction: December 21 - 23; 28 - 30

Field Instruction in Ecuador: January 3 - 17

3 credits

I. PROGRAM DESCRIPTION AND TRAVEL INFORMATION

Program Staff:

Instructor: Mauricio Lascano, Ph.D. (mlascano@ceiba.org)

Teaching Assistant: TBD

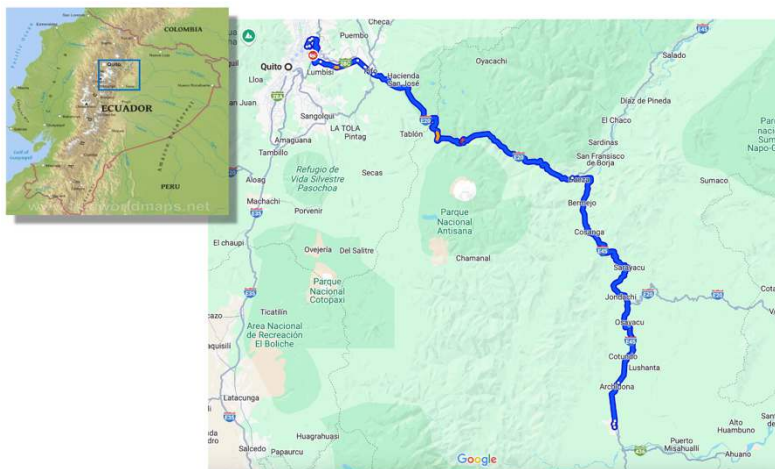


The Ceiba Foundation for Tropical Conservation is teaming up with the University of Wisconsin's Global Health Institute and communities of Tena County in the Ecuador Amazon region to offer this 3-credit service-learning opportunity. This course focuses on the emerging global water quality crisis, its linkages to human health, and solutions for sustainability. Course content will be first delivered online for 6 days prior to the departure to Ecuador, with a series of synchronous and asynchronous lectures and activities. Students must complete this portion of the course before departing for Ecuador. Once in the host country, we will visit the water sources that supply drinking water for the burgeoning population of Ecuador's capital city Quito. We will also travel to the Amazon to see how water quality issues affect impoverished rural populations there. We will examine connections between human use of land and health risks in water and contribute to a community-based water quality monitoring program with local people. We will visit a health center and talk with doctors about water-related health problems. Through this program, you will learn field and laboratory research techniques for

assessing health risks from water and enhance your awareness of the social and environmental realities that underlie the global water quality crisis from a developing country's perspective.

Location:

Once in Ecuador, the program begins in the town of Tumbaco, just outside the capital city Quito, where you will be introduced to the country of Ecuador. While in Quito, you will be housed in a hotel and spend the first few days familiarizing yourself with the culture and environment of Ecuador. We will take group excursions to Quito's colonial district, and the páramo ecosystem in the Andes that provide Quito's fresh water. We will also see how a large urban area like Quito gets and treats its drinking water. There will be introductory lectures and laboratory activities on water-related diseases on the campus of the Universidad San Francisco de Quito. On the fifth day, we will descend the eastern flanks of the Andes by bus, to arrive at Tena, capital of Napo province in the



Ecuadorian Amazon, where you will be housed for the remainder of the program. Once in Tena we will examine the challenges to water sustainability in a rural setting, talk with local health providers, and work with researchers (Universidad Ikiam) and local communities to assess the quality of their water supplies. There also will be free time to relax and explore the surrounding area, including forest hikes, rivers, nearby towns, etc. (see map).

Lodging



For the first few days, we will stay at a hotel in the valley of Tumbaco, in the outskirts of Quito. Once in the Amazon, you will be housed at a hotel in the city of Tena. The hotel will provide a safe and cozy place for resting and eating meals and is located about 10 minutes by car from Ikiam University. Students will be placed in shared rooms. There is a dining area where meals will be shared, and a classroom space. Electricity (110V) is available at the hotel, so you can charge your phones, cameras, laptops, and other electronic equipment.

Health and Safety

The health and safety of participants in our program is of primary concern, and we take every precaution to ensure that the potential for illness and accidents is minimized. However, you will be living and traveling in an environment that may feel very unfamiliar and it is up to each individual to exercise caution, good judgment, and common sense. The following information is provided to enhance your safety and enjoyment during your time in Ecuador. As a developing nation, Ecuador does not have the same high standard of sanitation we enjoy in the U.S. and Europe, and there are certain diseases and ailments that are more common in developing tropical countries against which one must take proper precautions. If basic precautions are followed, however, it is very unlikely that you will become seriously ill.

Personal Safety: Although Ecuador is part of the developing world, you will find Quito to be surprisingly modern. Like in any large urban area, street crime is all too common, and as a relatively wealthy “gringo” you are a target. Although you will be with the group most of the time, the following precautions should always be heeded. Being alert and exercising common sense are essential. Avoid travel after dark, and if you must, travel only in groups, avoiding poorly-lit or isolated areas. Do not display large amounts of cash or jewelry, be careful with phones, cameras, and backpacks, and do not accept invitations of any kind from strangers. If you feel endangered, enter the nearest business and ask them to call a taxi, or the police to escort you. Whenever you go somewhere, let a friend know where you are going and when you expect to be back. Pickpocketing is the most common form of crime, so when traveling on buses and other public transportation, do not let your possessions out of your sight, or better yet, keep them on your person. These are all precautions that any seasoned traveler, or resident of any large U.S. city, will already have adopted. This advice is not intended to scare you; Quito is a wonderful city full of warm, generous, and honest people; the Ecuadorian countryside also is a terrific place to travel, and you will find the locals you meet everywhere are friendly and polite. However, as in your own city or town, knowing the risks and how to manage them is the first step to staying safe.

Vaccinations: The best way to prevent the most serious illnesses is by getting vaccinated prior to traveling to Ecuador. You should check that your vaccinations against tetanus, typhoid fever, and hepatitis A and B are up to date. It is recommended that you take anti-malaria pills. Malaria and dengue -both insect-borne illnesses- are best prevented by avoiding contact with the mosquitoes that transmit them, so wear long pants and sleeves and apply insect repellent. Other vaccines such as Covid19 and yellow fever are also recommended. For any and all medical advice, please consult your doctor or public health service for the most recent information regarding vaccinations for travel to Ecuador.

Altitude: While we spend only the first few days here, the city of Quito is at 9,350 feet (2,850 m) of elevation, and the páramo field sites we visit are as high as 14,000 feet. Altitude sickness, your body's natural response to lower oxygen concentration at high altitudes, can affect anyone and is characterized by headache, fatigue, dizziness, trouble sleeping, and occasionally stomach upset. If you know you are prone to altitude sickness, consult your physician. Prescription drugs are now available to mitigate the negative effects of altitude when taken before traveling to high elevation. In any case, you can minimize the symptoms of altitude sickness by drinking plenty of water before and after your arrival, avoiding alcohol and caffeine, taking aspirin and iron supplements, and avoiding overexertion.

Motion Sickness: If you are prone to motion sickness during bus travel, you may want to bring motion sickness medication. The road descending the Andes from Quito to the Amazon is very curvy.

Medical Insurance:

All participants are required to have active medical insurance that covers them during their stay in Ecuador. Ceiba does not provide any medical insurance coverage to program participants, however all participants will receive insurance through the UW from CISI (Cultural Insurance Service International), which covers emergency medical and evacuation costs. In any case, you should make sure your current health insurance provider covers you while you are overseas. Bring your insurance card(s) with you to Ecuador. Participants are responsible for paying their own medical and/ or evacuation costs should the need arise. Health care is inexpensive in Ecuador and we recommend you carry \$50-100 in addition to your spending money, in case you require services of a local clinic or pharmacy for minor illness or medication.

What to Bring

This list includes **required (*)** and recommended gear and clothing for your trip to Ecuador. If you have any questions, please contact the instructor.

Bed net (big enough to cover a full-size mattress/bed)
Binoculars (lots of birds and other stuff to look at!)
Biodegradable multipurpose soap
Camera and plenty of film or memory cards
*Daypack or fanny pack
Dressy/decent clothes to wear in Quito
Flashlight
Hat or cap
Insect repellent (25% DEET is sufficient)
*Notebook and pens/pencils
*Lightweight, long-sleeved shirts for field work and at night
*Lightweight, long pants for field work and at night (cotton is best, synthetic works but is hot)
Motion sickness medication (e.g., "Dramamine," for bus travel)
Pocket knife
*Raincoat or poncho (you WILL get rained on!)
*Rubber boots (you will have time to purchase these in Ecuador for about \$14/pair)
Sandals or flip flops
Silica gel packets
*Small, personal first-aid kit (Band-Aids, antacid/anti-diarrhea, antibiotic ointment, insect bite relief)
Socks (plenty!) long enough to tuck your field pants into
Spare batteries (these can also be purchased in Ecuador, but are more expensive)
Spare prescription glasses or contacts/contact lens solution, if you wear them
Sturdy walking/hiking shoes
Sunglasses
Swimwear
Sunscreen (SPF 30 or stronger)
T-shirts - plenty!
Towel(s)
USB memory stick
Warm clothing for Quito and high elevation sites (temperatures may dip below freezing at high elevation!)
*Water bottle (at least 1 liter)
*Small field journal (waterproof Rite-in-the-Rain or engineering field notebook is best)
*Wristwatch (preferably water-resistant, battery-operated, with stopwatch & alarm)
Ziploc bags (for protecting binoculars, cameras, snacks, etc.)

Background Information on Ecuador

You will receive a Frequently Asked Questions sheet prior to departure that will help you prepare for your trip to and arrival in Ecuador. Below are some other resources we recommend for additional information on Ecuador:

Books

- Albiston, I. 2018. Ecuador and the Galapagos Islands. Lonely Planet Publications.
- Kuffner, S. 2019. The Rough Guide to Ecuador. Rough Guides.
- Striffler, S. 2009. The Ecuador Reader: History, Culture, Politics. Duke University Press.

Articles

You will be sent a list of articles to read as background before the program begins. Your instructor will also send you other materials to help you prepare for the course and your stay in Ecuador.

II. COURSE SYLLABUS

Course Structure

This course is short, and therefore it is intensive; there will be online synchronous and asynchronous program activities (December 21st - 30th) before departing to Ecuador on January 3rd, and activities every day while in the country. Online content will be delivered via Zoom meetings and on a course platform. UW adopts the Carnegie standard of 45 hours of learning activities and student engagement per credit. You can expect to spend ~35 hours of activities during the online portion, and the remainder hours while in Ecuador. You will have plenty of time to work on the online activities and assignments around the holidays. The group will live, travel, and work together. This program is primarily field-based and many of our activities will take place outdoors. There will be a combination of lectures and discussions, as well as hands-on field and laboratory work, and activities in the community.

Course Content

Topics will be broadly applicable, yet presented in a local context, and include:

- Working with communities: asset-based community development, participatory planning, involving people in water-quality testing and conservation.
- Basic hydrology (the water cycle), watersheds, and water resource issues.
- Land use sustainability and water quality.
- Sources of and pathways to water contamination (including sewage, manure, fertilizers, garbage, and pesticides).
- Water quality indicators and field methods for assessment (including biophysical, chemical, and microbial water sampling and analysis techniques).
- Best practices for protecting water quality.
- Water-borne diseases: sources, life cycles, impacts, and prevention.

Students will spend time working hand-in-hand with community members to collect data on water quality.

Specific activities of the service component are:

- Field data collection and analysis with community “citizen scientists”.
- Participating in community education programs on water quality and sanitation.
- Working with local teachers and students on water quality monitoring protocols.

Learning objectives

- Characterize the emerging global water quality crisis and articulate its underlying causes.
- Identify multiple factors (biological, social and economic) that impact the sustainability of water resources.
- Describe the potential health impacts of unsafe drinking water.
- Apply field methods to assess water quality and evaluate associated human health risks.
- Be aware of the social, economic, and environmental challenges to sustainable water resource management.
- Articulate best practices for protecting water resources and explain the role of wastewater treatment in protecting public health.
- Engage collaboratively with local communities and demonstrate cultural competence skills.
- Conduct basic microbiological laboratory analyses of water samples and interpret results in terms of human health risk.
- Describe the connections between tropical ecosystems and freshwater provisioning, and evaluate how land use change affects downstream water quality.
- Design and execute a community-based mini research project on water quality, including data collection, analysis, and presentation of findings to a public audience.
- Integrate perspectives from local health providers to connect clinical evidence of water-related illness with field observations and water quality data.
- Critically reflect on daily field and community experiences to connect course concepts with observed realities and articulate personal growth in global health awareness.

Course Expectations and Grading

The instructor will set grades. "A" quality work is expected of every student. If you actively engage in all activities, complete the assignments, and carry out your research project in the best possible way, you most likely will earn a good grade. Students are expected to:

- Attend every class meeting.
- Complete all readings and assignments to the best of their ability.
- Participate in daily lectures and class discussions, field activities, community events, and group reflections.
- Be well-prepared to contribute effectively to program activities.
- Communicate effectively and with cultural sensitivity with instructors and community members.

Grades will be based upon the above expectations, as well as your performance on:

Course Activity	% of Total Grade
Assignments (including asynchronous)	10%
Online quizzes	10%
Research Project	40%
Project Proposal	10%
Project Participation (including peer evals.)	10%
Project Presentation (online 5% and final 5%)	10%
Project Final Write-up (with recommendations for communities)	10%
Field Journal	10%
Final Quiz	15%
Participation (online and field)	15%
TOTAL	100%

Grades will be assigned according to the following scale:

- A = 92 - 100%
- AB = 88 - 91.9%
- B = 82 - 87.9%
- BC = 78 - 81.9%
- C = 70 - 77.9%
- D = 60 - 69.9%
- F = <60%

Readings & Assignments

There will be several required readings and assignments for this course. Your instructor will send you a list of course materials prior to the start of the course. **This will include some readings and assignments to do prior to arrival**, in the first week of online instruction, so you don't have to spend as much time in-country listening to lectures or reading articles!

During the program you will be required to keep a journal, participate in field and laboratory activities, and conduct a short research project which you will write up and present to your peers and local collaborators.

Norms for Classroom and Group Reflection Discussions

- Be present
- Assume positive intentions
- Engage respectfully
- Listen attentively
- Provide evidence
- Aim for equal participation
- Respect boundaries
- Be okay with silence
- Start & end on time

Statement on Diversity & Inclusion

Diversity is a source of strength, creativity, and innovation. At the Ceiba Foundation we value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the program and broader community with whom we interact.

Academic Conduct

Since Ceiba is a UW-Madison affiliated and accredited program, we abide by the same rules governing academic conduct. All homework, quizzes, tests and written assignments require your own thought and effort. Any student found to have submitted plagiarized material, or have otherwise obtained information falsely, will be subject to rules governing UW Academic Misconduct. Consequences of academic misconduct may range from failure on the assignment, failure in the course, or (in extreme cases) expulsion from the program without refund. Finally, please bear in mind that you are a foreigner in Ecuador and a representative of the Ceiba Foundation: we ask you to act at all times in a cordial, professional, and respectful manner.

TENTATIVE COURSE SCHEDULE Winter 2026-2027 – WATER FOR LIFE

Please be aware that this schedule is tentative and serves as an example of the way the course is structured and the kind of activities you will be engaged in each day. Specific activities day to day may shift in response to community events, logistical constraints, and opportunities that arise. A weekly detailed schedule of course content and activities will be shared with program participants when the course is running.

Date	Content / Topics	Activities
Mon, 12/21	The Global Water Quality Crisis; Land Use Impacts on Water Quality	Course Overview & Introductions; Lectures; comprehension quiz; guided case study analysis.
Tue, 12/22	Basic Hydrology	Lectures; assignment.
Wed 12/23	Community-Based Water Quality Monitoring	Lectures; workshop, assignment.
Mon 12/28	Tropical Diseases; Social and Economical Determinants of Water Access	Lectures; seminar; journal entry.
Tue 12/29	Barriers to water sustainability; water-borne diseases	Online discussion board; prepare presentation.
Wed 12/30	Literature review and knowledge check	Complete the course readings; choose a personal topic of interest; pre-departure knowledge check.
Sun, 1/03	<i>Arrival in Quito, Ecuador</i>	
Mon, 1/04	Introductions; Our Global Water	Visit Quito Water Treatment Plant. Excursion to Quito Old Town.
Tue, 1/05	Water Resource Management for Urban Areas	Day trip to Laguna Papallacta (Quito's water source). Sample collection, Termas de Papallacta.
Wed, 1/06	Microbiology review of water pathogens in Ecuador. Microbiology Lab.	San Francisco de Quito University campus lecture. Begin Microbiology Laboratory activities.
Thu, 1/07	Water Resource Management for Rural Areas	Visit Wastewater Treatment Plan in Quitumbe. Finish Laboratory Activities.
Fri, 1/08	Environmental Changes and Water Quality	Travel to field site: Tena; hike at San Isidro Cloud Forest en route.
Sat, 1/09	Biological and Physical Indicators of Water Quality	Visit local communities and land uses. Community Training Workshop: Community-based Water Quality testing
Sun, 1/10	Free day	Visit water park.
Mon, 1/11	Health Risks from Water: Sources	Tena Public Hospital Visit; Plan projects.
Tue, 1/12	Health Risks from Water: Methods	Field data collection and analysis.
Wed, 1/13	Health Risks from Water: Solutions	Finish data collection and analysis; Prepare presentations.
Thu, 1/14	Presentation of field research data	School Water Quality Day. Farewell to communities. Water Quality Research Presentations.
Fri, 1/15	Final quiz	Travel to Otavalo, spend the night there.
Sat, 1/16	Program wrap-up, evaluation	Visit Otavalo market; travel back to Quito (stop at Mitad del Mundo). Farewell dinner.
Sun, 1/17	<i>Depart from Quito, Ecuador</i>	

SCHEDULE FOR ONLINE SYNCHRONOUS ACTIVITIES (LECTURES, DISCUSSIONS, ETC.)

**Tentative; subject to change to accommodate topics, activities, etc.*

Please note: Virtual lectures are scheduled in Wisconsin time (Central Time).

DATE	TIME	ACTIVITY
Dec 21, 2026	8:00 - 9:00 am	Live kick-off session: course overview, introductions, and lecture
	9:00 - 10:00 am	Virtual tour and orientation to Ecuador: geography, culture, language basics, and program logistics overview
	10:00 - 11:00 am	Assignment discussion: Read 2 background articles on global water quality and discuss in session (articles sent by instructor in advance)
Dec 22, 2026	8:00 - 9:00 am	Lecture and discussion: Basic Hydrology
	9:00 - 10:00 am	Guest speaker from Ecuador (via video call). Student Q&A
Dec 23, 2026	8:00 - 9:00 am	Lecture and discussion: Community-Based Water Quality Monitoring
	9:00 - 11:00 am	Research project workshop
Dec 28, 2026	9:00 - 10:00 am	Lecture and structured discussion: Tropical Diseases
	10:00 - 11:30 am	Seminar-style discussion: Social and Economic Determinants of Water Access

*** You will be responsible for completing asynchronous activities as well on these dates (Dec 21-23, 28-30). The list of activities and instructions will be provided by the course instructor prior to the start of the program.**