

[University of Arizona](#) Summer Pre-session 2018 (15 May – 02 June, 6 credits)

Ecology and Natural History of the Sonoran Desert and Upper Gulf of California

Hands-on learning, community & context immersion, and individual field research projects with faculty & scientists.

What should I expect?

Hands-on, residential, **field-based exploration** of the Sonoran Desert, its Sky Islands, and the Upper Gulf of California. Students will be introduced to the ecological, taxonomic, and natural-history diversity of the region – all in a cultural and conservation context. To accomplish this ecological Sense-of-Place immersion, we will conduct several small independent research projects, visit with topical experts, foray into some of the most beautiful and iconic portions of the desert southwest, meet local residents and researchers, and learn first-hand about the important, exciting, and interesting ecological science to come out of the area. Be prepared to take notes, draw, think & reflect, explore, synthesize data, develop short presentations, and relay your findings to your peers and instructors. Students should be prepared for, and able to participate in, desert & mountain **hiking, camping, and boating**. Sleeping accommodations will vary from Biosphere 2 casitas, to shared tents, to sleeping mats on the deck at CEDO. Transportation will be in UA-fleet passenger vehicles.

What are the course objectives?

Students, contributing their own unique backgrounds, will learn ecological principles, methods of observing, sampling, and collecting data, local flora and fauna, examples of ecological interactions and processes, simple data analysis, as well as interpretation and presentation of research results. Conservation status of Sonoran Desert species and ecosystems will be one sub-theme of the course.

Another sub-theme will be the cultural context of this amazing diversity in the Arizona-Mexico borderlands region. Interactions among students, instructors, guests, and the many scientists and faculty we will work with, facilitate achieving our course objectives and allow for development of long-lasting professional relationships.

How will I be evaluated?

Pre-course assignments: 10%, Participation/Attitude: 25%

Field Journal: 30%, Research Projects: 35%

Final letter grades based on standard 90+=A, 80+=B, 70+=C, 60+=D.

I do not plan to allow students to take the course pass/fail or for audit credits.



What are the assignments?

- 1. Pre-course assignments:** 1) ecosystem/ecological process, 2) personal introduction
 - we will assign you the first one
 - for the second, prepare a short (3 min) introduction to what makes you unique
- 2. Participation & Attitude**
 - engaged, inquisitive, enthusiastic, helpful, considerate, etc.
- 3. Keeping a Field Journal**
 - notes, observations, drawings, maps, data, reflections, questions, short assignments
- 4. Independent & Group Research Projects**
 - including development of questions & study design
 - data collection & data analysis
 - presentation of results (visual, oral, and/or written)

How do I register?

Registration will be available late March via [UAccess](#). Course is [ECOL463](#) or [ECOL563](#). If you are not a UA student then please visit <http://summer-winter.arizona.edu/>. Click the 'admission' tab on the left, followed by the 'summer only' application link. Following your application submission a UA response email (takes ~ 2 days) will tell you how to enroll. For other questions, please contact the instructor or the [EEB](#) office. Expectations for graduate student (563) performance will be greater than for 463 students.

Can I receive Honors credit?

Yes! Please consult with instructor about contract expectations for an enhanced [Honors](#) experience. Mutually agreeable supplements and adjustments to the course appropriate for Honors credit will be determined prior to the course commencing.

What does it all cost?

- The [Arizona Board of Regents](#) approved the course fee of **\$1250**.
- Additionally, you will pay [UA precession tuition](#) for 6 credits. The costs are slightly greater for 563 enrollment. 2017 costs as a guide:
 - 463 Undergraduate 6 Credits: \$2,544 + \$175.41 fee = \$2719.41
 - 563 Graduate 6 Credits: \$2,844 + \$175.41 fee = \$3,019.41
- Expect to spend money for about 8 meals during the course, additional beverages, personal items, laundry (if needed), souvenirs, etc.
- UA application fee of \$50-100 may also apply.

What does my course fee and tuition cover?

All lodging and transportation during the course is included. Students can bring personal vehicles for some parts of the course – requires consultation by, and approval of, instructor. About 85% of meals are included; snacks will be provided as well. Entrance fees to museums, national parks, campgrounds, etc. will be included. Field research equipment will be provided. Institutional fees, visitor stipends, and contributing-scientist honoraria are also covered.

What is the schedule?

(18 days afield; subject to adjustment, updated 02 March 2018)

Tuesday May 15th – Meet at U. of Arizona mid-morning, then visit [Tumamoc Hill](#) for introductions & course overview. After lunch, drive south of Tucson for 2 nights camping at [Raven's Way Wild Journeys](#), in the Santa Rita foothills. Explore and study nearby grassland and desert habitats, meet resident species, and enjoy [Patagonia Lake](#).

Thursday May 17th – Drive to [Biosphere 2](#). Stay 2 nights at Biosphere 2 in casitas, with various excursions, visiting experts, hikes, and projects. Learn about the large-scale, controlled research opportunities in multiple biomes. Visit with [Arizona-Sonora Desert Museum](#) experts and resident animals.

Saturday May 19th – Move via Tucson, with stops at UA Tree-Ring Lab and Arizona State Museum, to campground on [Mt Lemmon](#) at 8,000' elevation. [Campground](#) has water, toilet facilities, and electricity. You bring tent and sleeping gear! Stay 5 nights at campground with activities and projects up and down this amazing sky-island mountain, at the [UA SkyCenter](#), at [Saguaro National Park](#), and with visiting scientists.

Thursday May 24th – To [Tucson](#) for 1 night off (or possibly in the [dorms](#) on the campus of the University of Arizona for out of town students). May visit additional UA campus venues, downtown attractions, Arizona-Sonora Desert Museum, local restaurants, laundromat if needed, stores, etc.

Friday May 25th – Meet right after lunch at UA and head to the [Tohono O'odham nation](#) where we will camp for 2 nights. This will be our hottest overnight locale, allowing us to learn about an amazing part of the Sonoran Desert and Indigenous human residents.

Sunday May 27th – Visit [Organ Pipe Cactus National Monument \(ORPI\)](#), then cross the border into Mexico at the Lukeville/Sonoyta crossing. We will pass through the [Pinacate Biosphere Reserve](#), with amazing volcanic craters and cinder fields. By evening we will be in [Puerto Peñasco \(Rocky Point\)](#) on the Pacific coast of the Gulf of California.

Monday May 28th – We will wake up in our sleeping bags on the deck at [CEDO](#) (Intercultural Center for the Study of Deserts and Oceans) for 5 days of coastal, intertidal, estuary, island, and marine ecology. Be ready for hiking, wading, swimming, snorkeling, kayaking, and boating. CEDO has been studying, protecting, and teaching about the Upper Gulf of California for more than 30 years.

Saturday June 2nd – Midday we will depart CEDO and Puerto Peñasco headed back to Arizona and Tucson. Course concludes.

What gear/equipment/supplies do I need?

Books etc.:

- field notebook (approx. 4" x 7" is a useful size), pen, pencil, sharpie
- A Natural History of the Sonoran Desert, 2nd Ed.* 2015. UC & ASDM Press (\$25)
[see also [Arizonensis](#) web resource]
- A Natural History of the Santa Catalina Mountains.* 2013. ASDM Press (\$25)
- Other shorter readings and PDFs will be posted online closer to the course start date

Optional Suggestions in addition to above Required resources:

- Dry Borders.* 2007. Felger & Broyles (approx \$35); *When the Rains Come.* 2009. Alcock (approx \$15)
- [ASDM](#) website; [Desert Ecology of Tucson](#), Brad Fiero, Pima Community College, web resource - great links
- [Sonorensis](#), ASDM (electronic), 2008, Jaguars; 2005, Conservation; 2004, Climate Change; 2002, Sea of Cortez
- The Log from the Sea of Cortez.* Steinbeck (approx \$10); *The Gulf of California.* 2010. Brusca (approx \$60)

Field Equipment:

- sleeping bag, sleeping pad
- headlamp (or flashlight, but hands-free preferred)
- hiking boots or other closed-toe shoes suitable for desert terrain
- refillable water bottles (2-3 liters total)
- wide-brim hat for sun protection
- backpack for day hiking and field exploration
- long pants, long sleeve shirt
- raincoat
- cup/mug, plate/bowl, fork, spoon, knife

To rent gear: [UA Outdoor Recreation](#)

Other:

- PASSPORT** or other Homeland Security approved documents for crossing US-Mexico border
- additional clothes including shorts, shirts, sweatshirt, underwear, socks, swimsuit
- \$ cash and debit/credit card
- toiletries & medicines, towel, eyeglasses/contacts

Highly Recommended:

- sunscreen & sunglasses
- digital camera with memory cards, charger/batteries
- sandals (e.g., Tevas/Chacos; not flip-flops)
- binoculars
- laptop/netbook/ipad – very useful for data entry & analysis, presentation preparation, photos
- extra batteries
- thumb/flash drive
- small duffel bag for leaving some gear behind at times
- 'ziplock' plastic bags

Optional:

- tent (or arrange to share)
- snorkeling gear – we can rent in Puerto Penasco for our group snorkeling outings, including wetsuit.
- ipod/mp3 player
- telephone
- GPS unit, compass, hand lens
- waterproof bag/box for boat outings

Is it safe to travel in these areas at this time?

Venturing out into desert, ocean, and foreign country for memorable educational and inspirational experiences comes with some manageable risks.

Inherent risks that come with hiking in the desert include heat stress and dehydration, venomous animals, painful plants, twisted ankles, etc. While studying the natural world you are exposed to the elements and to the defenses of the resident plants and animals. However, we will take responsible, prudent, and preventative steps to lessen the likelihood of any problems. This includes safe conduct and use of flotation devices when boating and kayaking.

Traveling by vehicle on highways, city streets, and remote roads also carries with it the slight risk of mechanical failure or accident. Again, we will take appropriate steps to reduce the likelihood of problems by using well-maintained fleet vehicles, distributing weight appropriately, driving safely, and traveling in caravans when warranted.

The Sonoran desert region is unfortunately an area of smuggling activity of both undocumented persons and illegal drugs. The demand for drugs in the US ensures a steady supply from south of the border and the constant, sometimes violent, struggle for control of this lucrative, but illegal trade. Immigrants looking for employment north of the border are also a source of revenue for people smugglers ('coyotes'). Violence is not unheard of in southern Arizona and northern Sonora. We will choose when and where to be, and with whom, to minimize chance encounters with any dangerous situation. Our CEDO lodging in Mexico is part of a beach-side subdivision called Las Conchas with 24-hr security and many hundreds of American vacation homes. Being keenly aware of our surroundings will further allow us to avoid problems. The only crimes I have experienced in more than 25 years of travel to Sonora and Puerto Peñasco are a stolen sleeping bag from an unattended tent (1991) and spray-painted graffiti on the side of a UA passenger van late at night (2006).

[For updates, visit [US Department of State, Mexico](#). See also [UA Risk Management](#) website.]

What do I need to do before class begins in May 2018?

Read through the material provided for you in this document. Ask questions of the instructor, department, and university if you are unclear about any aspect of the course; we will ask you to complete a liability waiver in May 2018 indicating that you understand the risks inherent in a field course of this nature. Gather together the gear and supplies you will need. Get/stay in shape. Do your background reading and prepare two short presentations described on first page of this document. Access the D2L course website. Be sure you are officially registered and have paid both tuition and the course activity fee. Find your valid passport or other appropriate border-crossing documents. Pack appropriately, but not excessively.

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