



Organization for Tropical Studies

Participant Information and Orientation Packet

**Tropical Rainforest Ecology
RESEARCH EXPERIENCE FOR UNDERGRADUATES
LAS CRUCES BIOLOGICAL STATION
(REU)
2018**

June 4 – August 7

**¡BIENVENIDOS!
(WELCOME)**

Bienvenido y felicitaciones por su invitación para participar en el programa de REU de la OET en Las Cruces (OTS en español es Organización para Estudios Tropicales).

Congratulations on your acceptance into the 2018 REU program at *Las Cruces Research Station and Wilson Botanical Garden*. We are confident that this summer will be one of the most challenging and fulfilling experiences of your college career. You will have the opportunity to plan, develop, present, and write your own independent field project under the close supervision of an experienced research mentor, working at one of the world's premier tropical research stations. This summer will give you a chance to see amazing animals and plants, meet friendly people, work hard, learn a lot, and have fun!

Our group will consist of 16 students plus the OTS staff and REU mentors. The REU students and mentors are a diverse group, and we expect that, with sensitivity to other people's backgrounds and perspectives, you will learn a tremendous amount and develop many strong and lasting friendships. During the summer, you will also have formal and informal opportunities to interact with other researchers and professionals visiting Las Cruces Station.

Living and working in the rainforest presents a number of unique challenges. This Orientation Packet contains **very important information** to help you prepare for your summer of research in Costa Rica. **YOU SHOULD READ IT CAREFULLY, COVER TO COVER**, follow the recommendations and suggestions we provide, and bring it with you to Costa Rica. We are looking forward to having you on our program. If you have any questions, please contact us! Contact information is provided in this packet.

¡HASTA PRONTO!

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Map of Costa Rica

Location of San José (country's capital) and OTS research stations.



OTS Staff and Collaborators for the REU Program



REU Coordinator:

Scott T. Walter, Ph.D

scott.t.walter@gmail.com

Scott will be on site at Las Cruces and is responsible for direct coordination and oversight of all program activities. Contact him for most questions about the program.



Coordinator of Undergraduate Programs:

Adriana Baltodano, M.Sc.

adriana.baltodano@tropicalstudies.org

Tel: (011-506) 2524-0607 x 1520, cell (506) 8876-0725

Please contact her if you have any general questions about OTS Undergraduate Programs.



Administrative Assistant:

Kattia Méndez

kattia.mendez@tropicalstudies.org

Tel. (011-506) 2524-0607 x 1521, cell (506) 8425-5371

Ms. Méndez can be contacted for help with logistical issues during your stay in Costa Rica.

Research Mentors

The research mentors are responsible for direct oversight of your research project in Las Cruces. If you have not been in touch with your mentor, please contact him or her as soon as possible to begin coordinating the details of your project. Mentors will assist you in defining needs particular to your project such as what equipment to bring, what literature to read before coming, etc.

<i>Name and Institution</i>	<i>Contact information</i>	<i>Research interests</i>
Patricia Esquete	pesquete@uvigo.es	Tropical streams
Cristian Martinez	jmarti51@uic.edu	Tropical restoration
Justin Montemarano	jjmontem@gmail.com	Community-level effects on decomposition dynamics in aquatic systems.
Juan Moreira	juan.moreira@gmail.com	Bats
Breanna Putman	putman.bree@gmail.com	Forest fragmentation
Juan Rivero	juandac@gmail.com	Tropical birds,
Lindsey Swierk	lindseyns@gmail.com	Behavioral ecology: mate choice, mating competition, and social influences on reproductive strategies
Johana Goyes	goyes.johana@gmail.com	Behavioral ecology: parental care in glass frogs

Overview of the Program

Program Schedule* (Exact dates and activities subject to change).

Arrival of REU participants to Costa Rica	June 4
San Jose-Orientation	June 5
Travel SJO to Las Cruces – Orientation LC	June 6
Travel to San Jose, night in San Jose	August 6
Depart San Jose to Home	August 7

Sites to be visited:

Las Cruces Research Station and Botanical Garden:



Las Cruces. Las Cruces is a mid-elevation site located near the Panamanian border, on Costa Rica's southern pacific coastal range. Its location provides excellent opportunities for research in fragmentation biology and restoration ecology. The borders of Las Cruces extend through an elevation range of 1120 to 1385 meters and encompass more than 300 hectares of premontane rain forest. The grounds surrounding the buildings have 8 hectares of cultivated collections and 4 hectares of fallow and experimental plots. The region has been

undergoing conversion to coffee plantations since the mid-50s, resulting in extensive patches of forest fragments running along the ridges and bordering streams. The property includes a patchwork of forest remnants extending from Las Cruces, along the Paraguas Ridge, to the Guaymi Indian Reservation, some 15 kilometers away. Courses and researchers working out of the Station can take advantage of these ready-made experimental sites for studies in conservation biology.

The Station serves as the principal center in the region for teaching, research, and on-site public education. The Wilson Hall comfortably accommodates course groups with sleeping and study quarters, and a new dining room situated a short distance away can serve three meals a day to 80 or more persons. Spacious non-air-conditioned lab space is outfitted with basic equipment, including

dissecting and compound microscopes, balances, centrifuges, and leaf-area meter. Las Cruces is a very comfortable field site. Services available include phone, fax, email, laundry, and hot water.

Laboratory. The research lab area has bench and office space, with room for fragile equipment, and expandable researcher work areas. The laboratory is furnished with basic equipment and instrumentation to support the needs of the teaching and research most frequently conducted there. These include balances, microscopes (dissecting & compound), computers, a leaf area meter, a freezer, hotplates and ovens, standard glassware, and a variety of other commonly used items. A current inventory can be provided to prospective researchers and course coordinators upon request. Scientists and students are welcome to use these facilities with the understanding that they provide their own reagents and expendables, that they know how to use the equipment, and that they are prepared to assume the cost of any loss or damage caused by improper use. Researchers are encouraged to share in financing more specialized equipment. An instructive "Lab Use Policy" is available to course coordinators and researchers upon arrival.

Greenhouse and workshop. The greenhouses, tool house, potting rooms, shop, and other facilities are oriented primarily to the maintenance of the living collections but are also available for support of scientific projects. Gardening tools, machinery, etc. are detailed in the corresponding inventories available from the Station office, but researchers must provide their own.

Library. The present library, built mostly from donations, is very well stocked to provide students, researchers and staff with basic references. Through a grant from the Willowood Foundation, the contents of most periodicals received have been abstracted for the OTS OnLine bibliography.

Meteorological Station. A Class B station has been installed in Las Cruces. Instrumentation was acquired after consultation with other botanic gardens worldwide and the National Weather Institute. The station includes a barometer, maximum, minimum temperature thermometers, hygrometer, evaporimeter, anemometer, vane, irrometers (100 cm and 30 cm depths), and soil thermometers (100 cm and 30 cm depths). In addition to the traditional instrumentation, a computerized logger and sensors register all parameters every 2 hours.

Databases. Besides the records for the living collections, there are regularly updated lists of publications, research projects, and researchers related to the Las Cruces Biological Station and the surrounding areas. Information on the area and its communities, on research resources and opportunities, on issues as forestry, agroecology, and conservation biology, and on study sites and topics of interest for courses en route from San José are available through the Library, the main OTS offices at the University of Costa Rica, or through the station director and staff.

A Biodiversity Database of fauna and flora of the country in general, and Las Cruces in particular, is maintained by the station director. Meteorological data is also computerized. The Library is on computer using ISIS and ProCite software. Las Cruces shares several online databases with other institutions and research partner.

Week-by-Week Activities

Week 1 — Introductions, Field Orientation, Research Proposal. Students arrive by plane in San José, meet the REU coordinator to join other REUs at a hotel, and travel from there to Las Cruces by bus as a group. Students receive a detailed introduction to the site, including rainforest ecology and natural history, orientation to trails and GIS system, and basic risk management protocols. Students also turn in their pre-written research proposals (which should incorporate background

information, justification, and appropriate hypotheses and experimental design and be nearly completed prior to arrival) and finalize their proposal talks with their mentors. Mentors will present elements of their own research, and at the end of the week students present their proposals orally to the group during a morning symposium, allowing for both faculty and peer review of the proposed projects.

Weeks 2-3 — Begin Fieldwork; Mock Data Analysis; Introduction and Methods. Students and mentors begin the proposed fieldwork and conduct a run-through of the data analysis to ensure that methods are feasible and appropriate. After a workshop on scientific writing, students convert their proposals into the first two sections of their papers (Introduction and Methods). In conjunction with these activities, students begin a discussion series of case studies on ethical issues in tropical biology and a lecture series by active station researchers.

Weeks 4-7 — Fieldwork and Preliminary Analysis. Students devote approximately seven weeks to data gathering. During this time, *students are expected to work independently*, but they will also have regular meetings with their mentors, or communicate via email or Skype, to review progress and identify and resolve problems that arise during the execution of the project. Please be aware that the extent to which mentors will be available in the field depends on each individual mentor's schedule. *In order to determine during which periods you will be expected to work alone, please communicate directly with your assigned mentor.* Toward the end of this phase, students begin the statistical analysis of their data in preparation for the final week of the program.

Weeks 8-9 — Data Analysis and Independent Project Symposium. During the last two weeks of the program, students work with mentors either directly or via email or Skype to complete the final analysis of their results and write a final project report. Students also prepare an oral presentation of their project for a research symposium. *Students are required to turn in a complete and publication-quality written report to the coordinator before leaving Las Cruces and before receiving their final stipend check.*

Weeks 1-9 — Research Seminar, Ethics Workshop, and Cultural & Recreational Activities.

In addition to research, students will participate in the following:

- **Tropical ecology research seminar:** Researchers at Las Cruces will present their work and discuss some of the specific methodologies they use.
- **Ethics discussions:** Students will discuss factors important to tropical conservation and responsible conduct in research. Subjects covered may include honesty in data collection and analysis, understanding the publication process, the role of biology in conservation, and issues in intellectual and biological property rights.
- **Cultural and recreational activities:** may include Latin dance lessons, soccer and ping pong games with researchers and staff, chocolate plantation tour, an optional weekend trip (paid for by each student), and other activities.

Academic and Student Life

It is important to recognize that the OTS program differs from your typical on-campus life in at least four very important ways.

First, of course, you will be living in a foreign country. You will be a guest in Costa Rica, and consequently you will need to be sensitive to and respectful of Costa Rican customs and culture. In general, Costa Ricans ("ticos" and "ticas") are warm, friendly, and courteous. We encourage you to interact with many Costa Ricans, and we hope you will develop some good friendships. It is important to remember that certain behaviors that are acceptable among fellow classmates may not be acceptable when dealing with non-course participants. For example, Costa Ricans tend to be

conservative in their attitudes toward nudity and sex. Thus, states of undress that are acceptable and inevitable in dormitories in the US (including sunbathing and PJs) are offensive in public. Also, nudity on beaches, no matter how apparently deserted, could seriously jeopardize future program use of non-OTS sites. While we ask that you be respectful of Costa Rican ways and customs, we also understand that cultural norms can often be subtle, complex, and even counter-intuitive! If you would like some advance preparation regarding Ticos and their way of life, we suggest you read *The Costa Ricans* by Richard Biezan et al., or *Culture Shock! Costa Rica* by Claire Wallerstein, before coming to Costa Rica. There are also resources that provide suggestions for dealing with cultural differences in general, such as *The Art of Crossing Cultures* by Craig Storti. Also, please feel free to ask OTS staff any questions you have regarding cultural differences and norms.

Second, you will spend much more time in program-related activities than you do at your university. Our program is labor intensive. In addition to completing a full independent research project, you will be attending lectures, participating in occasional field trips, and completing a seminar series on ethics in tropical research. In the field, your typical daily schedule may look like this:

- 6:30a.m. – Breakfast. Rice and beans are a staple diet for Costa Ricans, and this is true even at breakfast! Most mornings will begin with gallo pinto, or rice and beans cooked together with onions, garlic, and other spices. This is generally accompanied by eggs, breakfast meats, toast, pastries, fruit and coffee, juice or tea.
- 7:30am – Field work for your independent project. Most field activities take all morning, and in many cases will continue late into the afternoon. If you plan to be out in the field past lunch time, you should request a bag lunch from the cafeteria. (Usually sandwich of your choice, fruit, cookies, and juice; and yes, bean sandwiches are an option!) This is the best part of the day; be prepared to get wet and muddy!
- 3:00pm – Return to the station. Shower/rest and begin entering your data on the computer, continuing your literature review, and/or consulting with your mentor about your project.
- 5:00pm – Free time. Most students use this space to go running, play soccer, rest, catch up on correspondence, etc.
- 6:00pm – Dinner. (You guessed it, along with other options, rice and beans!)
- 7:00pm – Research presentations and/or ethics discussion sections.

As you can see, most days are pretty well packed. This schedule could be quite different for students doing night field work. Weekends are generally considered the same as other days of the week, as the forest and its inhabitants do not know the difference. The good news is that much of your work is done in beautiful natural settings. The experience of actually working in a lush tropical forest is incomparable to the experience of simply reading about the rain forest in a campus library. Because the program is so time-intensive, individual travel is not permitted during the program. If you want to explore more of Costa Rica on your own, you should plan on traveling either before the program starts or after it ends.

Third, you will have limited personal space. Though you may have one or two roommates on campus, in Costa Rica you will live with seven other students, the REU Coordinator, and many undergraduate, graduate, and faculty researchers. This means that communication and respect will be crucial. All of us need to be as open, honest, and cooperative as possible. We also need to have sincere respect for one another, regardless of different opinions and lifestyles. This includes respect for privacy, respect for rules and regulations, and even respect for the fact that unpredictability is an

inherent feature of being in the field. Indeed, next to communication and cooperation, flexibility and a good sense of humor are the most important characteristics of a successful student in our program. By living and working with the same people for nine weeks, you will undoubtedly develop a number of very close friendships. The combination of uncomfortable (being wet, muddy, and tired), wacky (a bunch of gringos on the dance floor), and wonderful (watching iguanas sunning on the bridge) situations creates great images and memories that you will share with your fellow participants well beyond the end of the summer.

Fourth, you will be expected to work more independently than usual. As an REU student, you will bear most of the responsibility for successful completion of your project. While your mentor will be available to guide you in all aspects of your research, from the formulation of your hypotheses to the analysis and presentation of your results, you will have full responsibility for making sure the day-to-day tasks of your research project are completed and on time. At the beginning of the program, you should work closely with your mentor to establish a work calendar for the successful completion of your project, and stick to it. Throughout the research experience, you must not only be proactive in asking the questions (and finding the answers!) that are important to you; you must also be ready to share your own particular knowledge and experience with the rest of the group. Each one of you was asked to participate in the REU Program because we believe you have a unique background and special enthusiasm that will allow you to get the most from the experience, and will also greatly enrich the program for your classmates and mentors. Don't be afraid to give everything you have to these nine weeks!

Family Visits

Visits from friends and family will not be possible while the program is in session. If your family or friends would like to visit you in Costa Rica, please coordinate with them so the dates of their visit are either before or, preferably, after the program. If you have any questions about coordinating visits from friends and family, please contact us.

Academic Preparation

Program Goals

The OTS Research Experiences for Undergraduates (REU) Program is funded by the National Science Foundation (NSF). The program, based at Las Cruces, is designed for undergraduate students who show outstanding promise for careers in the field of ecology. The program is set up specifically to help students:

- Establish a clear understanding of the design of field experiments and the logic and application of statistical analysis.
- Build skills in the interpretation of the results of scientific experiments and the communication of these results to both technical and non-technical audiences.
- Through scientific study, learn about the importance of tropical ecosystems and enhance understanding of evolution and ecology.
- Have in-depth, direct exposure to career possibilities in field research and tropical ecology.

Your Research Mentor

If you have not done so already, please contact your research mentor to begin coordinating the details of your research project. Your mentor is responsible for providing you with an introduction to the

topic(s) you may study and helping you to develop a reasonable research project. Your mentor will also supervise your investigation, from initial set-up to the final interpretation of the data. Moreover should you produce a work of publishable merit, you will need to follow up with your mentor following the program in order to submit your manuscript. Throughout the REU experience, it is an important responsibility of both the student AND the mentor to establish and maintain consistent, open, direct and honest communication. Even when your mentor is not on site at Las Cruces, you will be expected to communicate with him or her regularly via e-mail and/or Skype.

It is important to contact your mentor now, in order to begin working out important details such as what kind of equipment to bring to support your specific area of field work. Equipment requests need to be submitted soon so that purchasing can be completed before the program begins. Your mentor can also provide guidance regarding background literature review for your project. Because library resources are limited at Las Cruces, it is important to begin a background literature review and write your research proposal before coming to Costa Rica. We also strongly suggest that you bring copies (pdfs or hardcopies) of research articles that are particularly relevant to the question(s) you would like to address and the system(s) you would like to study. Your research proposal will be due very shortly after your arrival at Las Cruces, so it is very important to start preparing early!

All of our mentors are dedicated researchers and teachers, and will likely spend a significant amount of time supervising you on your project. However, you are expected to take a very proactive role in this process. If you have any concerns, questions, or issues with the process of your research, you should bring them to the immediate attention of your mentor.

The REU Coordinator

The REU Coordinator will be on site at Las Cruces during the entire nine weeks of the REU Program. The Coordinator will support you in logistical aspects of your project, including securing supplies, managing risk in the field, and attending to medical emergencies. He is there to help keep you happy, safe, and healthy throughout the program, as well as enforce course deadlines and rules. He will provide an evaluation that incorporates comments from your research mentor to your academic advisor at your home university following completion of the program. The REU Coordinator is also available to mediate in the rare case that an important conflict arises between student and mentor. Students will be expected to meet individually with the REU Coordinator during the program to discuss their progress and any concerns that may arise. Although the REU Coordinator may be willing to help if students need advice on experimental design or the underlying theoretical issues of a project, in many cases these are issues that will need to be worked out between you and your supervising mentor.

The Independent Project

The independent project, completed in close coordination with your research mentor, is a great opportunity to be imaginative, work with scientific colleagues, and develop skills in experimental design, data analysis, and presentation of scientific results. Your independent project will undoubtedly be a challenging and memorable experience that could change the way you see ecology and nature, particularly in the context of the tropical rain forest.

Most independent projects will test a valid, justifiable and interesting hypothesis. Whether you choose to test this hypothesis through manipulative or observational experiments will depend on the constraints of time and the biological system with which you and your mentor decided to work. While it is always challenging to choose a specific project without knowing the resources available,

the more you organize your project ahead of time the more you will be able to take advantage of the experience while you are here. Research projects can take several forms, for example:

- A project that tests an idea in the ecological literature. For instance, it is widely argued that certain plants house ants in order to protect themselves against herbivores. An example of a hypothesis associated with this argument is that *Cecropia* trees with large ant colonies have less leaf area loss to herbivores than trees of the same species with small or no ant colonies. To test this hypothesis, one could manipulate ant colony absence or presence and test corresponding changes in herbivore load and herbivory. Alternatively, quantitative field observations could be done to determine whether a correlation exists between ant colony size/activity and observed levels of herbivory.
- A project based on an interesting observation in the field. Example: We noticed clumps of harvestmen (*Opiliones*) on some trees off the trail. What might be the advantage of such clumping behavior? In this case, you would almost certainly need to go back to the ecological literature to see what some of the proposed benefits of aggregation are. Then you could decide whether you can test any of these ideas (as well as some of your own!) using the opilionid system. This kind of project may also have an experimental manipulation component. For instance, it may be hypothesized that larger clumps reduce the risk of predation for individuals. In this case, you could establish clumps of different sizes and measure associated rates of predation during a set period of time.
- A project that addresses a specific environmental concern in Costa Rica. Example: Does phosphorus load affect important aspects of stream ecosystems? Alternatively: Using frogs as an indicator taxon, can we detect any differences in biodiversity between undisturbed forest and primary forest that has been selectively logged? Because of time and logistical constraints, it is sometimes difficult to set up an experimental design with proper replicates that for this type of question. Nonetheless, this is considered a valuable exercise and gives you a chance to think about ecological concepts in more applied situations.

With all independent projects, we encourage students to think about the larger picture of the systems they are studying. For example, in the case of opilionid behavior, it is not enough to ask whether clumping behavior exhibits certain dynamics; we must also ask why this might be the case in an evolutionary and/or ecological context. In the case of differences in biodiversity between logged and undisturbed forests, we must think carefully about what differences we expect and why we expect those differences.

To get the most out of the REU experience, your project should be closely related to the research interests of your assigned mentor. This does not mean that you have to work on your mentor's research program, but you should follow his or her advice closely when thinking about which systems to study and which questions to address. Again, if you have not yet been in contact with your mentor, please write or call him or her as soon as possible.

Preparing for Spanish

A knowledge of Spanish is not a requirement for successful participation in the REU program, but your stay will be much more enjoyable and fulfilling if you can learn at least the basics of this beautiful and fun language. If you would like to learn a bit of Spanish, or brush up on your Spanish, before the program begins, you may arrange independently to study Spanish intensively for 1-4 weeks before the program start date. You may want to check out Costa Rican language institutes on

the web, or arrange to study at your home campus prior to coming to Costa Rica. There are many options to choose from, so if you need help deciding feel free to contact the Undergraduate Program Coordinator.

You should probably bring your own Spanish-English dictionary (preferably one geared specifically toward Latin American Spanish), and you may want to think about bring a grammar workbook as well to practice during free time.

General Reading about Tropical Ecology and Costa Rica

The following books are recommended to help you learn more about tropical ecology and Costa Rica before and during your stay in Costa Rica:

- *A Neotropical Companion*, by John C. Kricher
- *Tropical Nature*, by Adrian Forsyth and Ken Miyata
- *Breakfast of Biodiversity*, by John Vandermeer and Yvette Perfecto
- *The Costa Rica Reader*, edited by Steven Palmer and Ivan Molina
- *Costa Rica's National Parks and Reserves* by Joseph Franke
- *The Green Republic: A Conservation History of Costa Rica* by Sterling Evans
- *Central America: A Natural and Cultural History* by Anthony G. Coates

You may also wish to purchase your own copy of the various field guides that are available for Costa Rican flora and fauna.

There are also several general guide books to travel in Costa Rica, including *The New Key to Costa Rica* by Beatrice Blake and Anne Becher; *Costa Rica: A Natural Destination* by Ree Sheck; and *The Central American Handbook*. The *Lonely Planet Guide to Costa Rica* is also an excellent source for general information about Costa Rica and provides detailed and reliable travel information. If you plan to travel outside the REU program, consider buying a recent edition.

Logistics

Passport and Visa Information

If you have not already obtained your passport, you should do so immediately! If you have not provided this information to the Costa Rican Office on your registration form, please email or call OTS with the information.

When you enter Costa Rican territory at the airport, you will automatically be granted a 90-day tourist visa. Remember that according to current immigration laws in Costa Rica, you **MUST** leave the country when your visa expires. Students planning to arrive in Costa Rica before the program starts or stay in Costa Rica after the program ends need to take this into account. Please consult OTS if you have any questions about this.

Airline Reservations

You must arrange for travel to and from Costa Rica on your own; the group will not meet in the U.S. prior to departure. In order for your round-trip ticket to be paid for by the REU program, make your reservation through the OTS travel agent:

Jeriann's Travel, Inc.
5613 Duraleigh Rd, Suite 111
Raleigh, NC 27612
1-919-571-7996 direct / 1-919-787-2511 or 1-800-633-9350 ext. 1712
jeriannday@aol.com

Make your flight reservations as soon as possible!

We will first meet in San José, where an OTS staff member will be waiting for you at the airport. Plan to arrive at Juan Santamaria International Airport (SJO) in San José by early Monday evening, June 4, at the latest. The last day of the program is August 7, which is the earliest departure date for all students. Please note that you will have to pay a \$29 departure tax at Juan Santamaria International Airport when you leave Costa Rica by cash (dollars or colones) or by credit card. OTS will pay your round-trip airfare from the US (least expensive flight itinerary with a reasonable travel schedule) for June 4 to August 7. If you choose to arrive earlier and/or depart later, you will be responsible for any difference in airfare, and we will not be responsible for your travel within Costa Rica before June 4 or after August 7, 2018.

Money

As part of the REU program you will be paid a stipend. The stipend is to support your educational experience and is not considered compensation for work performed. OTS will be in touch with you regarding coordination and terms of payment of the stipend. Because the check will be issued on a U.S. bank account, it will be difficult – if not impossible – for you to cash your stipend in Costa Rica. It is a good idea to arrange for direct deposit of your stipend into your home bank account. Do not expect to have direct access to your stipend while you are in Costa Rica.

REU stipends may be taxable, and you should report it in your tax filings. Unless you provided a W4 prior to the start of the program, no tax is withheld from your stipend payment. However, if you have other sources of income during the year, then you'll likely end up paying some income tax on it later.

If you receive more than \$600 in stipends during the calendar year, we are required by law to issue tax form 1099 (Miscellaneous Income) to you. A copy of this will also be sent to the US Internal Revenue Service. If you have any tax-related questions about your stipend, please consult your tax advisor or review IRS Publication 970, "Tax Benefits for Education." The IRS publication is updated each calendar year.

In addition to your stipend, your mentor will have access to a small budget for your equipment expenses. Any equipment you purchase with this budget will remain at Las Cruces as property of OTS. If there is some equipment (for example, binoculars) that you would like to keep for yourself, you should purchase this with your own funds. Contact your mentor to find out more about what kind of field equipment you may need to purchase.

The unit of currency in Costa Rica is the colón (plural: colones), and as of this writing (March 2018), the exchange rate is about 563 colones to the dollar.

There are various options for accessing money in Costa Rica. In general, it is much easier to change cash in Costa Rica than to change traveler's checks; this is true at both hotels and banks. If you bring traveler's checks, the most widely accepted are American Express; VISA and other name brands are

harder to change. But, in general, traveler's checks are heavily discouraged due to issues of accessibility. Cash advances on credit cards can also be obtained in banks, though a service charge may be imposed. In all cases, you must have your original passport with you in order to change money.

It is a good idea to have at least some cash on hand (US \$50-\$100) upon arrival. You may choose to exchange some of that at the booths in the airport, but the fees are higher than using a debit or ATM card to withdraw colones outside of the airport. Debit cards and ATM cards are a good option for obtaining cash in Costa Rica; the most widely available ATMs are Cirrus and Plus systems (includes Visa CheckCards). Most of these will issue money only in colones, but some will also issue dollars.

In addition to the \$29 airport tax, bring enough money for personal expenses. You will be required to pay for health care, personal effects, laundry, mail, sodas, snacks and souvenirs. (Film and batteries are expensive in Costa Rica, so you may want to bring them with you.) Also, it is customary to tip guides and tour bus drivers. It is hard to set a standard budget for personal expenses, but unless you plan to do additional traveling outside the program or buy lots of souvenirs, \$500-\$600 for personal expenses should be adequate. Frugal travelers can get by on \$300-\$400.

Laptop Computers

Our program will use PC based laptop computers. Some will be available for student use on a sign-up basis. However, there is limited availability of OTS laptops, so we strongly suggest you bring your own. It does not matter if your own laptop is a PC or a Mac. Students who have brought their own computers in the past have generally appreciated having them on hand, especially during crunch times when *everyone* has to analyze their data, finish their paper and write up their report. **Everyone should bring a memory card or USB storage device** to store and share photos, documents, PowerPoint presentations, etc.

If you bring your own laptop, make sure you have Microsoft Word, Excel and Power Point programs. You may want to consult with your mentor to determine if he or she has a preference with respect to statistical programs. Internet can generally be accessed either via cable or through a wireless connection. It is recommended that you use internet phone programs such as Skype, so you may want to bring a headset with a microphone.

Bring an extra plastic bag and silica gel desiccant to protect your laptop and computer accessories from humidity. While in Costa Rica, make sure you do not store your computer in humid places (for example, under the bed!). Also, do not leave your computer out in the open and unattended in public places. *OTS will assume no responsibility in case of loss or theft.* We strongly recommend that you insure your computer before bringing it to Costa Rica.

Health Care

Medical Services

If you do not already have health insurance, you need to arrange immediately for coverage during the semester. Make sure that your health policy covers medical expenses while you are overseas. If your health policy is based on reimbursement after medical treatment, you must bring a credit card with you to use in the event of an emergency. Contact the OTS offices at Duke University if you have questions or need any assistance in finding a policy.

Before coming to Costa Rica, make sure you are up-to-date on all your regular immunizations. You may wish to get additional immunizations for diseases particular to the tropics. Check with professional travel health consultants at your college or university for current recommendations.

Las Cruces maintains emergency first-aid supplies, and the nearby town of San Vito has a public medical clinic and pharmacy. However, you must bring adequate supplies of any prescription drugs that you need. If your doctor advises against taking a large supply of medication with you, he/she should provide a diagnosis and the suggested prescription to facilitate proper treatment by a Costa Rican physician. In addition, bring supplies of pain relievers or medication that you normally use if you are prone to headaches, ear aches, allergies, cramps, intestinal disorders, yeast infections, etc. Antifungal/athlete's foot cream and/or powder as well as hydrocortisone cream (for itchy bug bites) are highly recommended. Although most drugs are available in Costa Rica, do not count on finding your usual name brand. Traveler's diarrhea is a very common ailment. If you think you are susceptible to changes in "gut flora," you should bring something to combat diarrhea or relieve discomfort (e.g., Immodium AD). In addition, Costa Rica has lots of curvy, mountainous roads. If you are susceptible to motion sickness you should bring appropriate medication, such as dramamine.

In the event of a serious illness or injury, good medical care is readily available in Costa Rica. The health clinic in San Vito is about 15 minutes away from Las Cruces by car. In case of more serious accidents or illnesses, students may be transferred from the local clinic to hospitals in San Jose. Students requiring medical attention in San José generally go to the Clinica Biblica, considered the best medical center in the country. General practitioners at the Clinica Biblica who have attended OTS students in the past include:

Dr. John Longworth, tel. +011 (506) 2221-3064 or 2221-3922
Dr. Juan Perez Valverde, tel. +011 (506) 2221-3922 or 2257-5252

If you are in need of more specialized care, the phone number for the central operator at the Clinica Biblica is +011 (506) 2257-5252. S/he can direct you to specialized physicians. If you have any medical problems or questions about medical care in Costa Rica, please talk to a member of the OTS staff.

Counseling Services

Being in a new country on a new program inevitably exposes a student to unexpected stress that can detract from the overall experience. In Costa Rica, many types of support are available for dealing with stress and emotional issues within the context of study abroad. If you have any questions or concerns regarding the different options, please talk to a member of the OTS staff (Kattia Mendez kattia.mendez@tropicalstudies.org or Adriana Baltodano adriana.baltodano@tropicalstudies.org).

Please be aware that, in general, professional counseling services are available on a very limited basis while the program is in session. Because the program spends most of its time in the field, attending counseling sessions may involve two-to-three day absences from the program at a time, as most counselors have their offices located in San José. Given the intensity of the program, this can be an important obstacle for many students.

If you receive counseling services while in Costa Rica, you will be responsible for all associated expenses, including transportation, lodging (where applicable), and professional fees. If you have any history of mental health issues or believe you may need counseling support while the program

is in session, OTS strongly recommends that you consult with a mental health professional to assess your counseling needs *before* coming to Costa Rica. It is also important that you contact the undergraduate program coordinator (adriana.baltodano@tropicalstudies.org) to determine whether the program, schedule, location of field sites and your counseling needs are compatible or present logistical difficulties.

Immunizations

At least 4-6 weeks before coming to Costa Rica, you must check with your personal physician, Student Health Service, or a travel health consultant, for professional advice regarding immunizations. In addition, you should check the Centers for Disease Control's Traveler's Health website at <http://www.cdc.gov/travel/> for the latest updates on disease and vaccinations in Costa Rica and Central America. The following information may help orient you to some of the immunizations you might consider. *This is only an abbreviated list and cannot substitute for direct consultation with a qualified travel health physician.*

Booster Shots. Make sure you are up-to-date on all of your regular immunizations, including the following:

Tetanus/Diphtheria/Pertussis

Adequate primary series plus booster within the last 10 years (Tdap or Td). Those who have not received a previous dose of an acellular pertussis-containing vaccine in adulthood should receive a one-time dose of Tdap vaccine.

Measles Make sure you are up to date on your measles vaccine.

Hepatitis B Since you might be exposed to blood (for example, in medical care facilities).

Additional Vaccines. Other vaccines recommended for Costa Rica are as follows:

Typhoid

Two typhoid vaccines are available:

- 1) Typhoid Inactivated Typhoid Vaccine (Shot): One dose provides protection. It should be given at least 2 weeks before travel to allow the vaccine time to work. A booster dose is needed every 2 years for people who remain at risk.
- 2) Live Typhoid Vaccine (Oral): Four doses, given 2 days apart, are needed for protection. The last dose should be given at least 1 week before travel to allow the vaccine time to work. A booster dose is needed every 5 years for people who remain at risk.

Hepatitis A

For travelers, the vaccine series should be started at least one month before traveling to provide the best protection. Two doses of the vaccine are needed for lasting protection. These doses should be given at least 6 months apart.

Influenza

Flu (including 2009 H1N1) is transmitted throughout the year in the tropics, and all travelers are at increased risk.

Suggested Additional Vaccines. The following vaccines are recommended under certain circumstances:

Rabies There have been only 3 confirmed cases of rabies in Costa Rica since 1970 (WHO statistics): one from a dog bite and 2 caused by cats. However, it is OTS policy that students who wish to handle bats must be vaccinated against rabies and provide proof of the pre-rabies vaccination series. Keep in mind that vaccination does not guarantee that you will be handling bats. Also, a pre-rabies vaccination series does not eliminate the need for post-exposure treatment. It is important to avoid exposure to vampire bats by sleeping indoors or in a tent at night. In the unlikely case that students are bitten by bats, they must undergo the post-rabies exposure vaccine series.

Other diseases of concern.

Malaria Duke University Student Health Center suggests that you may consider taking antimalarial medication if you plan to travel to Limon province in Costa Rica and/or Panama. **Note that this summer program will not visit this area.** There are several different malarial prophylactics available. Consult with your physician about the appropriate prescription for the areas you plan to visit.

Dengue This unpleasant, flu-like disease has recently increased in Costa Rica, with localized, repeated outbreaks during the last several years. In 2005, the incidence of dengue rose dramatically with respect to previous years. However, as of this writing (January 2010), the incidence of dengue is on the decline. Mosquitoes carry the dengue virus, and no vaccine for the disease exists. Prevention consists of using insect repellent, wearing protective clothing, and avoiding being outside at dawn and dusk in risk-prone areas. Treatment consists of resting, drinking fluids, and taking acetaminophen (not aspirin). Dengue is usually not very serious in otherwise strong, healthy people but a rare hemorrhagic form that can develop upon second infection does require medical attention. Consult your doctor for more information.

Chikungunya Chikungunya is a viral disease transmitted to humans by infected mosquitoes. It causes fever and severe joint pain. Other symptoms include muscle pain, headache, nausea, fatigue and rash. The disease shares some clinical signs with dengue, and can be misdiagnosed in areas where dengue is common. There is no cure for it, and treatment is focused on relieving the symptoms. For protection during outbreaks of chikungunya, clothing which minimizes skin exposure to the day-biting vectors is advised. Repellents can be applied to exposed skin or to clothing in strict accordance with product label instructions. Repellents should contain DEET (N, N-diethyl-3-methylbenzamide), IR3535 (3-[N-acetyl-N-butyl]-aminopropionic acid ethyl ester) or icaridin (1-piperidinecarboxylic acid, 2-(2-hydroxyethyl)-1-methylpropylester). For those who sleep during the daytime, insecticide-treated mosquito nets afford good protection.

Zika Zika virus infection is caused by the bite of an infected Aedes mosquito, usually causing mild fever, rash, conjunctivitis, muscle or joint pain, and general malaise that begins 2-7 days after the bite of an infected mosquito. One out of four infected people develops symptoms of the disease. Among those who do, the disease is usually mild and can last 2-7 days. Symptoms are similar to those of dengue or chikungunya, which are transmitted by the same type of mosquito. Neurological and autoimmune complications are infrequent, but have been described in the outbreaks in Polynesia and, more recently, in Brazil. Zika virus is transmitted to people through the bite of

an infected Aedes mosquito, which is the same mosquito that transmits dengue and chikungunya. Treatment consists of relieving pain, fever, and any other symptom that inconveniences the patient. To prevent dehydration, it is recommended to control the fever, rest, and drink plenty of water. There is no vaccine or specific drug for this virus.

Traveler’s diarrhea

This can be caused by viruses, bacteria, or parasites that are found throughout the region and can contaminate food or water. Infections may cause diarrhea and vomiting. The most common form of traveler’s diarrhea is caused by strains of *E. coli*. There is no vaccine, and treatment generally consists of resting and drinking fluids.

Yellow fever

Yellow fever is currently not present in Costa Rica, but check with your local health department. If you enter Costa Rica from a country that does have yellow fever, for example, if you are coming from South America, you will need to provide proof of vaccination when you enter the country.

Cholera

Several years ago there was a small outbreak of cholera in Costa Rica. In general, be careful of what and where you eat when you are on your own in Costa Rica. Specifically, avoid unwashed vegetables and fruits from street vendors. Food and water at all of the stations we visit is clean and safe.

Communications

Important Places and Numbers

The primary administrative centers that support the NAPIRE Program are:

OTS North American Office (NAO) Duke University, Durham, NC	OTS Costa Rican Office (CRO) University of Costa Rica, San Pedro, Costa Rica	Las Cruces Biological Station San Vito de Coto Brus, Costa Rica
Organization for Tropical Studies Box 90630 Durham, NC 27708-0630 USA Tel. (919) 684-5155 Fax (919) 684-5661 undergraduate@tropicalstudies.org	Organización para Estudios Tropicales Apartado 676-2050 San Pedro, San José 2050 COSTA RICA Tel. 011 (506) 2524-0607 Fax. 011 (506) 2524-0608 kattia.mendez@tropicalstudies.org	Organización para Estudios Tropicales Apartado 73-8257 San Vito, Coto Bus COSTA RICA Tel. 011 (506) 2773-4004 Fax 011 (506) 2773-4109

Persons answering OTS numbers during office hours are usually bilingual. After office hours, Costa Rican phones may be answered by Spanish speakers only.

Telephone

Communication with the United States from Costa Rica will be greatly simplified if you bring with you a telephone credit card with an access number for Costa Rica (such as AT&T). International pre- paid phone cards are also available in Costa Rica, but usually are good for only 10 minutes.

You can call home collect, but this is expensive and may not be possible from all phones. Cell phones purchased in the United States will not work in Costa Rica, so don't bring a cell phone with you.

Las Cruces has public phones from which students can make calls. Incoming calls can be received during mealtimes or at pre-scheduled times.

Many long-term researchers prefer Skype, a voice-over-internet program. It offers low rates for calls to land lines and cell phones (about 2¢ a minute to the US), and it is free to call another Skype user. If you plan to use Skype, bring a headset with a microphone.

E-mail and Internet

At Las Cruces you will have access to internet and email, but you should anticipate that you might not be able to check your email daily. Tell your friends and family that they should not be surprised if you don't respond to their messages right away.

Letters and Packages

You can send or receive mail two ways: via the Costa Rican mail system or via a postal service called Interlink. Packages or boxes mailed to you must be sent through Interlink. Be aware, however, that *OTS strongly discourages mailing or receiving packages*. Packages are subject to heavy import taxes. Chocolate, candy, shampoo, clothes, stuffed animals, etc. are all considered taxable items. *Even small packages will cost you \$20-\$50 to receive. In addition, all packages sent to the country must pass through customs where they will often be held for several weeks or months.*

You must pay for the mail you send. Note that Interlink is more costly than the Costa Rican postal system (80 cents to mail a first class letter to the U.S.).

If you receive mail via the Costa Rican postal service, you need not pay any receipt charges. If, however, you receive mail via Interlink, you must pay receipt charges (sorry, but that's the way they work). On first-class letters (40 cents), Interlink will charge you 40 cents (both the sender and you pay 40 cents). OTS staff will keep track of your postal service expenses and charge you at the end of the program.

If all this seems complicated, don't worry! We will re-visit this topic when you arrive here.

For purposes of receiving mail, your addresses here in Costa Rica are:

<i>For Costa Rican Postal System:</i>	<i>For Interlink Postal Service:</i>
<i>Your name</i> Organización para Estudios Tropicales REU Summer Program Apartado 676-2050 San Pedro 2050 Costa Rica	<i>Your name</i> Organization for Tropical Studies REU Summer Program CRC341 7801 NW 37th Street Doral , FL 33195-6503

Risk Management in Costa Rica

Whenever you travel in a foreign country, you are bound to encounter certain risks. In order to have an enjoyable and productive travel experience, it is therefore important to continually take precautions to minimize risk. Although Costa Rica has a well-deserved reputation for being a secure place for foreign travelers, safety issues are just as relevant here as they are anywhere else in the world. We therefore urge you to review this document carefully and to follow its suggestions for minimizing risks to your person and possessions. If you have any questions at any time about risk and risk management in Costa Rica, please do not hesitate to talk with a member of the OTS staff.

Managing Risk of Crime and Theft

Pickpockets and petty theft are very common in Costa Rica. OTS students have lost money, passports, backpacks, and other possessions of both monetary and sentimental value to pickpockets, break-ins, unregistered taxis and street robbers. Historically, the incidence of violent crime in Costa Rica has been low, but unfortunately it has begun to rise in recent years.

Theft is a common reality of Costa Rican life, and as a foreigner you are a target for this type of activity. You should therefore always take basic actions to protect yourself. Here are some suggestions for reducing risk to your person and property:

- Carry a photocopy of your passport. Do not carry the original unless necessary.
- Pedestrians do NOT have the right of way in Costa Rica. Always check carefully both ways before crossing; cars will NOT slow down for you!
- Change money only in banks or at your hotel. Do not change money in the streets.
- Do not carry more cash on you than necessary. Do not display large amounts of cash in public.
- Keep a tight eye (and--even better--a tight hold) on your belongings at all times in public areas. Use pocketbooks with a secure closure; do not carry your wallet in a rear trouser pocket. Be aware that pickpockets often unzip backpacks. Never entrust your belongings to a stranger, even for a moment.
- Be alert to possible staged distractions by pickpockets.
- Always travel in a group, even if you are just going out for the evening. If you decide to stay out late, do *not* stay out alone.
- Always take *registered* taxis, especially after dark. Registered taxis are red with yellow triangles on the doors, and all have working meters (“*marías*”) and a two-way radio. Do not be too trusting of your taxi drivers. Always note the number and license plate of the taxi, in case a problem should come up.
- Do not engage in reckless or risky behavior (e.g., getting drunk, getting a ride home from strangers, riding on the back of motorcycles, swimming while under the influence, using illegal drugs, etc.).
- Carry the phone numbers of OTS staff wherever you go. Memorize at least 2 to 3 of these numbers.
- Always inform Course Coordinators where you will be during free time, rest days and especially if you go off station. If you change your plans while traveling, inform the Coordinators.
- Inform the Coordinators or other OTS staff immediately of any situation or person that causes you to feel in any way uncomfortable.

Please remember *you are just as much at risk in rural areas as in urban areas*. In the United States, we are accustomed to associating crime with urbanization; but in Costa Rica, many rural towns, particularly along the coast, are also targets for petty and violent crime. This is especially true in tourist hubs, where thieves and pickpockets will target foreigners for a quick buck.

OTS Stations have a 24-hour guard on duty, but nonetheless theft has been a problem in recent years. You will be provided with lockers to store your valuables. Be careful not to leave anything of value unattended in public areas.

Managing Risk in the Field

As part of the REU program, you will receive a risk management orientation to Las Cruces when you arrive, including an overview of the inherent risks of the site and the procedures to manage those risks. At Las Cruces, you will meet and should learn the names of 2-3 key people who are in the support staff, such as the station manager, director, the office manager, resident biologist, the guards, etc, within the first day or so. In the case of any emergency, these people are available to help you, as is the REU Coordinator. Make sure you know where the REU Coordinator is staying, so you can find her in the event of an emergency.

In general, please follow the guidelines below at Las Cruces:

- To greatly reduce the risk of venomous snakebite, always (ALWAYS!) wear rubber boots in the forest (no exceptions). In addition, always wear rubber boots and carry a flashlight with you after dark, even on paved sidewalks around the buildings.
- **Do not, under any circumstances, handle snakes of any kind.** Do not handle any animals that are potentially dangerous or venomous. This is a strict OTS policy.
- Do not handle any animals, no matter how apparently docile, without the supervision of an OTS staff member.
- Always pack water, a bit of food, and a flashlight with extra batteries when you go for a hike, even if you plan to come back early.
- Always inform the on-site teaching staff where you are going each day for field work or hikes and when you plan to be back. There will be a sign-out sheet in the lab for this purpose; be sure to use it and keep yourself safe.
- Avoid going into the forest alone. As a rule of thumb, the minimum group size for going into the forest is 3 persons. This way, if an accident happens, there will be one person to stay with the injured student and one person to run back to the station for help. If your research requires you to work alone in the forest, take a 2-way radio with you. (A limited number of two-way radios are included in the program equipment.)
- Familiarize yourself with the trail system, as well as trail markers that can help you orient yourself in the forest. If you will be off trail at all, carry a compass.
- If you get lost in the forest, stay where you are, wait, and radio. We will come find you.

Managing Health Risks

Physical Health and Wellbeing

In the event of illness or injury, please notify the OTS staff. We are not medical technicians, but we can facilitate adequate medical attention for most issues that come up in the field. Good medical care is available in Costa Rica. Las Cruces has clinics nearby for immediate medical attention, and

excellent hospitals are available in larger towns and cities for situations requiring longer-term attention. Students requiring medical attention in San José generally go to the Clínica Bíblica, considered the best medical center in the country.

While Costa Rica has excellent medical services, it is always best to take a few preventive measures to avoid getting sick in the first place. Some of these include:

- Water at all OTS stations is safe to drink. Drink lots of it to avoid dehydration and other medical problems.
- Do not drink more than a liter of water per hour of water without putting rehydration salts.
- Use sunscreen. Even on a cloudy day, the tropical sun is very strong and will burn.
- Use insect repellent, protective clothing, and mosquito nets to prevent insect transmitted diseases such as dengue. In recent years, dengue fever has been on the rise in Costa Rica and chikungunya virus incidence is rising in Central America.
- To reduce the risk of snakebite, always wear rubber boots or snake guards in the forest. In addition, always use a flashlight with you after dark.
- To reduce risk of bites from vampire bats, do not sleep outdoors unless you are in a tent. Students who are bitten by bats must undergo the post-rabies exposure vaccine series.
- Most beaches in Costa Rica have dangerous riptides that have claimed the lives of students, tourists and nationals. Before getting into the water at a beach, make sure the area is *not* prone to riptides. Do not swim alone. Do not swim after dark or under the influence of alcohol.
- If you get caught in a rip current, do not panic. Please take a moment to watch these videos and be better prepared in case you face one:
<https://www.youtube.com/watch?v=Fe26ZbFulno>
<https://www.youtube.com/watch?v=Ie3v8G5Z5Qc>
- Inform a member of the OTS staff if you have diarrhea that is severe or that lasts for more than 48 hours, or a cut or wound that is not healing.
- Do not get drunk. Do not use illegal drugs.
- Costa Rican society is promiscuous and sexually transmitted diseases, including AIDS, are just as much a risk here as they are in the United States. If you choose to engage in sexual relations, always use condoms. These are inexpensive and can be purchased at many stores and all pharmacies. If your partner does not like to use condoms, insist.
- Carry a credit card and your health insurance information with you for use in case of a medical emergency. Most hospitals require a credit card deposit as a guarantee for payment for emergency attention.

If you receive medical attention while in Costa Rica, you will be responsible for all associated expenses, including transportation, lodging (where applicable) and professional fees.

Emotional Health and Well being

Issues in emotional health also come up during a study abroad experience. Being in a new country can push us outside of our comfort zone, resulting in emotions that run the full gamut from excitement and enthusiasm to loneliness and depression. In addition, the REU Program is intensive and requires students and professors to live in close quarters under sometimes uncomfortable conditions for weeks on end. Given the logistical constraints of the program, it is impossible to meet the personal needs and living preferences of all of our students. This can lead to high levels of stress and make the program less enjoyable for some. If this happens to you, *please let us know!* Feel free to speak with the REU Coordinator at any time. We can help you identify and implement strategies to better manage the stress you are experiencing, or we can connect you to professionals who can

support you in the personal aspects of your journey while in Costa Rica. Please remember, we are here to make your stay as enjoyable and productive as possible.

In Costa Rica, many types of professional support are available for dealing with stress and emotional issues within the context of study abroad. If you have any questions or concerns regarding the different options, please contact Kattia Mendez (kattia.mendez@tropicalstudies.org).

Please be aware that, in general, professional counseling services are available on a very limited basis while the program is in session. Because the program spends most of its time in the field, attending counseling sessions may involve two to three day absences from the program at a time, as most counselors have their offices located in San José.

If you receive counseling services while in Costa Rica, you will be responsible for all associated expenses, including transportation, lodging (where applicable), and professional fees.

Alcohol and Illegal Drugs

Alcohol abuse (i.e., getting drunk) is strictly forbidden while the program is in session. Drinking to excess in any context is risky, but in the field-based, study abroad context the risks are greatly magnified. Alcohol abuse not only puts you at personal risk, it can interfere with your academic performance, with the safety and well-being of other students, and with the safety and reputation of the program. OTS simply cannot assume responsibility for students who engage in risky behavior. OTS staff will take jokes or comments alluding to alcohol abuse as an indication that you are drinking irresponsibly. First-time offenders will be placed on probation. Second-time offenders are subject to dismissal from the program.

Under no conditions should you consider bringing marijuana or any other illegal drugs into Costa Rica or buying any in the country. If you make jokes or comments alluding to personal drug use, OTS staff will take this as an indication that you are using drugs. Use or possession of illegal drugs while the program is in session is grounds for immediate dismissal from the program. Costa Rican anti-drug laws are severe and an arrest would be a disaster for you and for OTS. By current Costa Rican law, accused drug offenders are held in jail without bail until their trial date. Do not make this poor decision!

Rest Days and Free Time

Depending on your research schedule, you will occasionally have rest days and free time. Nonetheless, you will have much LESS time for rest and relaxation than in a typical on-campus semester. Sometimes OTS will offer an optional organized activity (such as an all-day hike) during a weekend.

Rest time and rest days have rules of conduct (for example, where you can go, when you must be back, etc.), established for your own safety, and these rules may vary depending on the circumstances. For example, if you go into the forest or off station during free time, you must inform the REU Coordinator where you are going and when you plan to be back. The REU Coordinator will advise you of additional free time rules upon your arrival in Costa Rica. If you have any questions about this, please ask!

Please be aware that free time and rest days will revolve around your research schedule and rarely coincide with weekends or state or religious holidays. If formal program activities are scheduled

during a religious holiday that you would like to observe, or if you need to request permission to be absent from the program for any other reason, please let us know in advance.

Female Travelers

The most frequent complaint of young women travelers in Costa Rica has to do with “*piropos*,” or catcalls, from Costa Rican men in the streets. Historically, *piropos* were short, spontaneous poems directed by men at passing women. Nowadays, *piropos* are much simpler and generally harmless comments, ranging from a simple hiss to an “Hola, macha” to somewhat more elaborate declarations. Some men may also try out their English skills with an occasional, “Hey, baby, where you go? I luv you! Good-bye.” However, *piropos* can occasionally be vulgar and inappropriate, and sometimes with limited Spanish ability it’s difficult to tell the difference. Moreover, since U.S. women are not accustomed to this type of attention and often find it offensive, *piropos* can make a woman traveler feel uncomfortable and at risk.

Many people, including Costa Rican women and men, view *piropos* as sexual harassment, and in some circles, people are looking for strategies to eliminate them. For others, *piropos* are part of the tradition and color of Costa Rican society and encourage a “friendly” and lively atmosphere in the street. The debate between these two points of view is unlikely to be settled during your short time abroad, so the best strategy we can offer with respect to *piropos* at this time is to ignore them.

More serious threats for women travelers do exist in Costa Rica. While past OTS students have not reported any problems, in recent years sexual assaults directed at U.S. women have occurred at beach resorts on both coasts and in San José. To minimize your risk as a woman, we advise that you travel in a group, preferably of mixed gender, and that you do not go out alone at night. It also is important to keep in mind that travelers have reported sexual assaults by taxi drivers. When using taxis, make sure they have working door handles, locks, and meters (called “*marías*”). *Do not ride in the front seat with the driver*, as such familiarity can be easily misinterpreted. If someone must go in the front seat, put the guy there.

Please keep in mind that body language, like spoken languages, is different everywhere you go. Watch your deportment and apparel in public places. What may pass as non-significant in social situations in the US may have different connotations in Costa Rica.

If you at any time feel uncomfortable about a particular person or situation while in Costa Rica, please bring this to the immediate attention of a member of the OTS staff. Remember that we are here to help you make your stay in Costa Rica as enjoyable and educational as possible.

Sexual Harassment

As part of its commitment to maintaining a healthy and productive work environment, OTS has a strong institutional policy regarding sexual harassment. Both overt and subtle sexual harassment is prohibited at all OTS facilities and during all OTS-sponsored activities. In addition, sexual relations between OTS staff and students are absolutely prohibited. If you have any questions or complaints or find yourself in need of any other assistance in this context during your stay in Costa Rica, you are strongly urged to contact an OTS staff member with whom you feel comfortable discussing your concerns. OTS staff can inform you of your rights in the case of sexual harassment and will orient you to the procedures for filing a formal complaint, if necessary. If for any reason you do not feel comfortable discussing these issues with your professors, we ask that you contact the Undergraduate Program Coordinator, M.Sc. Adriana Baltodano, in the Costa Rican Office at adriana.baltodano@tropicalstudies.org, tel +011 (506) 2524-0607, ext 1520.

Racism and Racial Stereotypes

Like in many countries, racism and racial stereotypes exist in Costa Rica. The good news is that power divisions between class, race, and gender are less pronounced in Costa Rica than in other Central American countries. Also, Costa Rica takes pride in being a strong advocate for human rights, and many sectors in Costa Rican society are working to eliminate traditions of racism and sexism. Nonetheless, you may confront issues of racism and racial stereotypes during your study abroad experience.

At OTS, we encourage you to be frank and open about your experiences with and perceptions of racism in Costa Rica. If you at any time feel uncomfortable about a particular person or situation while in Costa Rica, please bring this to the attention of a member of the OTS staff. Within OTS, harassment on the basis of race is strictly forbidden, and should you feel uncomfortable because of an OTS employee or student, please report this to the Undergraduate Program Coordinator, M.Sc. Adriana Baltodano, adriana.baltodano@tropicalstudies.org, tel +011 (506) 2524-0607, ext 1520. Remember that we are deeply committed to making your stay as enjoyable and productive as possible.

U.S. Embassy Support

In addition to the support of OTS staff and faculty, please remember that U.S. citizens traveling in Costa Rica can also find support and assistance on safety issues with the U.S. Embassy, located in Pavas just outside of San José. OTS routinely registers its students at the U.S. Embassy. Important phone numbers at the Embassy include:

- American Citizen Services and U.S. Consul General +011 (506) 2519-2000
- 24 hour Emergency +011 (506) 2220-3127

The U.S. State Department produces regular, updated information sheets on travel and safety in countries all over the world. This information is available on the Internet, and OTS strongly recommends you review the following sites pertinent to travel in Costa Rica:

- http://travel.state.gov/travel/cis_pa_tw/cis/cis_1093.html
- http://travel.state.gov/travel/living/benefits/benefits_1242.html
- <http://usembassy.or.cr/crinfo.html>

In addition, if you plan to travel to other Central American countries, we strongly recommend you review the consular information sheet for that country. All consular information sheets are available at the web site <http://travel.state.gov>

What to Bring

This section includes three check lists to help you in packing for your trip:

- Clothing and Personal Items
- Essential Field Equipment
- Optional Equipment

Please check through all these lists carefully. The “optional equipment” checklist includes some things that may be essential to certain students, such as asthma inhalers or bee sting kits.

As a general rule, travel as light as possible. Most REU students bring too much. Most airlines now limit luggage allowances to two bags per person, each with a maximum weight of 40-50 lbs. It is hard to “dictate” the optimal numbers and kinds of bags you should bring, but here are several useful hints. Remember that you will have limited living space, so try not to bring an excessive number of bags. In addition to the bags you use to bring things to Costa Rica you should also have a daypack (backpack) for the field and some sort of pack or duffel bag for our weekend trip. Please expect any bag you bring into the field to get dirty and wet. Leather luggage and bags tend to mold if unused for ten weeks, so hard plastic luggage or some sort of cotton or synthetic material would be best.

For clothes, use light-weight, fast-drying fabrics. All-cotton or blends that are mostly cotton are best for shirts and undergarments, while quick-drying nylon pants are recommended. Shorts are discouraged for the field, but recommended for down time at the station. Label all clothing with waterproof markers, sewn-in labels, or sewn-in distinctive insignia; laundry at Las Cruces frequently gets mixed up and field clothes tend to look alike. Except for your town clothes, most of your clothing will get muddy and receive rough treatment. Keep in mind that for a variety of reasons, the Las Cruces laundry machines have a tendency to make whites much less white over time, so do not bring your favorite light colored clothes.

Rubber boots are standard Las Cruces field gear and you will likely wear them more than any other footwear. You can purchase rubber boots in Costa Rica, but to ensure that you have comfortable boots that fit well, it is strongly recommended that you bring boots with you. Boots should be approximately knee-high and can be bought inexpensively at most farm-and-garden or department stores.

Plan on keeping some clothes for relaxation, so you can change into something comfortable and dry when you come in from the field. Include a sweatshirt or sweater to deal with the AC in the classroom and office; AC will seem quite cold once you adapt to the hot, humid climate. Also, bring a slightly more formal outfit for presentations. You may choose to bring a modest but more stylish outfit or two for social time. Do not bring expensive watches or jewelry. OTS provides bed linens and laundry facilities, with biodegradable laundry soap available for purchase on station. An extra towel might be useful if you plan to travel.

If you have any special dietary needs, please notify the OTS staff as soon as possible. You may want to bring any special foods or snacks that might not be available in Costa Rica, although a wide variety of snacks are available here.

Many toiletries, items of clothing, and supplies can be purchased in Costa Rica, but remember that your time in Las Cruces is limited. It's much more fun and productive to spend a day in the field than to spend a day in San Jose trying to find the perfect pair of field pants in the second-hand stores.

If you have any questions about what to bring, please contact the REU Coordinator, your mentor, or one of the Undergraduate Program Officers. Contact your mentor for specific recommendations for clothing or equipment for your project.

Check List #1: Clothing and Personal Items

Valid Passport – If you do not already have a passport you should get one as soon as possible.

- _____ Money. Bring enough to cover your personal expenses while in the country. Note that traveler's checks can be VERY difficult to change. It is a good idea to have at least a little cash on hand when you arrive in the country.
- _____ 3-4 light cotton button-down shirts (Long sleeves are much more comfortable in the field; usually a tank top or t-shirt goes under a long-sleeve button-down. Long sleeve t-shirts are another option that some researchers choose to wear in the field.)
- _____ 3-4 tank tops (Coolmax or cotton)
- _____ 6-7 cotton t-shirts to wear around the station (you may also choose to purchase some from the gift shop)
- _____ 1-2 long sleeved sweatshirt or similar warm layer for air-conditioned buildings
- _____ 2-3 pairs of lightweight field pants, nylon or similar quick-drying material
- _____ 3-4 pairs shorts (more if you plan to use them often, e.g. for running)
- _____ 7-8 pairs underwear (& bras for women; sportsbras work best in the field)
- _____ 7-8 pairs socks
- _____ swimsuit
- _____ 2 bandannas (multi-purpose)
- _____ washcloth or scrubber. Make sure it dries rapidly; things in the tropics take much longer to dry out, and get moldy quickly.
- _____ Towel. Towels are available at Las Cruces but it is nice to have an extra towel, especially for your weekend trip(s).
- _____ Ziploc bags (gallon size are best) for keeping your clothing dry and un-mildewed.
- _____ Umbrella. The best way to stay dry, and the larger, the better. You should either bring one or plan to buy one in Costa Rica upon arrival; they are essential for waiting out brief downpours in the field and for walking between the laboratory and the sleeping and eating areas. You might also want to bring a poncho or light, breathable rain jacket. Rain pants are not recommended. Many people find rainwear to be too hot to use comfortably while working in the field. Rainwear also becomes tedious for moving between buildings.
- _____ Rubber boots. Due to the risk of snakebite, *it is required that you wear good rubber boots or snake boots at all times while working in the field.* Rubber boots are available in Costa Rica, and you will have the opportunity to purchase them upon arrival (for \$8-10). However, if you wear boots smaller than size 7 or larger than size 10 ½, if your feet are particularly sensitive to issues like lack of arch support, or if you have any doubts about finding a good pair for you in Costa Rica, we **highly** recommend that you bring rubber boots or snake boots from the States (check outdoors stores or catalogs). Past students with particularly large or small feet that did not bring their own boots from the States have suffered countless blisters and chafing in attempts to find boots locally that suffice. Boots should be tall enough to reach between mid-calf and knee.
- _____ Sneakers or tennis shoes. Do not plan on buying sneakers while in Costa Rica; U.S. made products are very expensive. Bring 1 good pair of versatile sneakers. Fast-drying, synthetic materials are best. Avoid leather; it mildews rapidly.
- _____ Personal toiletries: toothbrush, toothpaste, floss; soap, shampoo, conditioner; hairbrush/comb (and feminine hygiene supplies). However, most items are readily and cheaply available in Costa Rica should your supplies run out. Women should bring a supply of tampons in case of an emergency.
- _____ Personal medical supplies. The program has a first-aid kit, but you should consider bringing a small supply of pain killers, antiseptic, hydrocortisone cream, moleskin, Band-Aids, and vitamins if you use them. Definitely bring a three-month supply of any prescription medication you use (including contraceptives). Also, bring foot powder as well as topical

antifungal medicines. Women who are subject to yeast or urinary tract infections should bring along proper medication.

_____ Extra eyeglasses or contact lenses and prescription, in case yours get broken or lost. You should also bring extra lens solution (expensive and many brands unavailable in Costa Rica).

_____ Sunglasses.

_____ High-rated sunscreen (30 or greater; tropical sun is dangerously intense).

_____ Sewing needles, strong thread, extra buttons, safety pins, extra shoe/boot laces.

_____ Paperback books; be prepared to swap with other students and researchers.

_____ Spanish/English dictionary and Spanish grammar workbook.

_____ Alarm clock (in case the howler monkeys don't do the trick). Breakfast is served from 6-7 AM precisely, and it's a long wait to lunchtime if you miss it.

Check List #2: Essential Field Equipment

Contact your mentor for a list of equipment needs that are specific for your project.

- _____ Flashlights (2) and headlamp. A good light is an absolute must and a headlamp is best because your hands are free. Headlamps are available in some outdoor/camping stores. In addition to a headlamp, bring 1 small flashlight to keep with you at all times and 1 spare in case you lose the other one. If you plan to work at night, bring a powerful flashlight or headlamp. Consider spending the money for good lights by PrincetonTec, Petzl, or Black Diamond.
- _____ Batteries. These should be either alkaline or rechargeable batteries (recommended). If you use rechargeable batteries, bring several sets (and your charger).
- _____ Wristwatch. This should be inexpensive and water-resistant. (It's essential for fieldwork—you need to know how much light you have left).
- _____ Pocket knife. The Swiss Army or Leatherman type with several functions is best.
- _____ Flagging tape. It's a good idea to bring a roll of flagging to mark your study sites, off-trail routes, etc. Bright orange or yellow is best (greens and blues tend to blend in with everything else).
- _____ A day pack (with water bottle holder) for daily field use.
- _____ Insect repellent and good anti-itch cream.
- _____ Extractor kit: in case of insect stings, NOT for snake bites. You can purchase them at most outdoor stores or online for about \$15.
- _____ Field notebooks, pocket size. Water-resistant Rite-in-the-Rain notebooks (www.riteintherain.com) are best.
- _____ Notebook(s) for classroom use, to take notes during orientations, seminars, and presentations.
- _____ Several pencils and ballpoint pens; small pencil sharpener. Pencils work best with Rite-in-the-Rain notebooks. You should bring at least one permanent pen for note-taking. Sharpies are very useful in the field. Bring several.
- _____ Water bottle/canteen, 1-liter size. You may want a spare in case you lose one.
- _____ A memory card for storing and moving documents and presentations from computer to computer. USB storage devices are most useful. If you bring a flash drive, Secure Digital, SmartMedia Card, or CompactFlash Card, be sure to bring your own card reader and appropriate driver.
- _____ Journal. We highly recommend you bring a journal in order to record and process important thoughts, feelings and personal events during your experience. Your journal will provide an important personal outlet during the summer, as well as a great source of memories in the future!

If you have trouble finding any of the above field equipment locally, try contacting the following suppliers:

Bioquip, tel. 1-310-324-0620 or www.bioquip.com

Forestry Suppliers, tel. 1-800-647-5368 or www.forestry-suppliers.com

REI, 1-800-426-4840 or www.rei.com

Shipping equipment orders takes time, so make sure you order early!

Check List #3: Optional Equipment

Your decision to bring the following items may depend on your personal interests and needs. *Please check this list carefully and consider your requirements. Pack light!*

- _____ Insect sting kit. If you are allergic to bee stings, bring an emergency adrenaline kit, such as “Anakit,” available by prescription. *Please inform the faculty of your allergy.*
- _____ Asthma inhaler. If you have any history of asthma, make sure to bring an inhaler and a backup. *Please inform the faculty of your asthma.*
- _____ Nice clothes for San José and flights, and for going dancing (jeans and nice shirts for men, dresses or skirts for women). Sometimes it’s good to have a break from your field clothes.
- _____ Nice shoes. Some students like to bring comfortable shoes or sandals for going out dancing, whether in San Jose or at Las Cruces.
- _____ Cleats, soccer shoes. Soccer is a popular evening activity at Las Cruces, all skill levels are always welcome and it’s a great way to get to know people. The playing field is often more mud than grass so a pair of cleats is worthwhile! Also consider running shoes if you are a runner, and exercise clothes.
- _____ Flip-flops or sandals are great for lounging around the cabin area. *Please be aware that for your own safety, you will not be allowed to wear sandals either in the forest or while moving from building to building at Las Cruces.*
- _____ “Shower sandals:” cheap plastic flip-flops can protect you from athlete’s foot and other hazards of shared showers. Highly recommended, but bear in mind they can be purchased in Costa Rica for about \$2.
- _____ Earplugs. The walls are thin, and light sleepers should consider bringing earplugs.
- _____ Camera. It’s a good idea to bring an extra lens cap and haze (skylight) filter to protect lens.
- _____ Flash or strobe for camera, and extra batteries (a flash is essential for rain forest sites and of course for night shots; it is dark in the forest even in the daytime).
- _____ Hand lens. An important tool for plant and insect taxonomy. The best way to carry a hand lens is on a shoestring tied around your neck; otherwise you are sure to lose it!
- _____ Binoculars. Even if you are not into birds, these can be useful for numerous field projects. Waterproof or water-resistant binoculars are best. The small portable pocket-sized binoculars are *not* recommended. Rather, go for something in the 7x30 to 10x50 range. If you are not sure about what you need, go to <http://www.binoculars101.com/> and read about what makes a pair of binoculars good versus bad. This site (under eagleoptics.com) is a great resource for buying good binoculars that you will enjoy using.
- _____ Watertight plastic bags or storage container for camera, flash, film, and calculator (Bring silica gel or drier-rite to prevent fungal attack, corrosion, etc.).
- _____ Ipod or cheaper water-resistant (Sport) mp3 player.
- _____ Compass. We will have enough for everyone in the course supplies, but you may want to bring your own. A compass is essential for working off trail as well as for setting up plots or transects.
- _____ Musical instruments. Guitar, mandolin, violin, flute, harmonica, or anything else that can be carried around easily, please bring it along! The Las Cruces research community usually includes lots of musicians and informal “music nights” are common.
- _____ Field guides. The library at Las Cruces has most Costa Rican field guides, but you may want to bring your own. Most of the best field guides are also usually available for purchase at Las Cruces but sometimes sell out.
- _____ Laptop computer and computer lock. See the cautions and recommendations elsewhere in this document.
- _____ Duct tape. Because it comes in handy.

Your Arrival in Costa Rica

1. Please let us know what your travel plans are as soon as possible and where will you be on the 4th of June, so we can facilitate your arrival. Make your flight reservations as soon as possible. In order for your ticket to be paid for by the REU program you must make your reservation through the OTS travel agent (see logistics section).
2. Be sure to arrive at your local airport early (2-3 hours) to avoid being “bumped” because of over-booking. Reconfirm your international flight 72 hours in advance.
3. Label your baggage, inside and out, with the OTS Costa Rican office address and phone number (included in this orientation packet).
4. Keep the following cell phone numbers handy in case you should run into problems or delays while you travel: REU Coordinator +011 (506) 8860-6474/ Undergraduate Program Coordinator +011 (506) 2524- 0607, ext 1520.
5. Watch to be sure that your baggage claim tickets are correctly labeled as to destination (SJO). If you have a long layover, you might consider transferring your luggage by hand to ensure safe arrival. This is perhaps more important if you are switching airlines.
6. ***If your luggage is lost, report it before you leave the Juan Santamaría Airport (San José) and give the name of your hotel, in San Jose, and the OTS offices in Costa Rica, tel. +011 (506) 2524-0607.*** Also, make sure you check your luggage upon arrival at the airport to insure it has not been violated. *We highly recommend that you secure your luggage with a TSA-approved padlock right after TSA Agents have checked your bags at your port of departure, and that you carry all items of value (CDs, cameras, passport, money, etc.) on the plane with you.*
7. Carry on your passport, money, medicine, your toothbrush, and a change of clothes, just in case your luggage gets lost, delayed or misdirected. Make sure you also have OTS phone numbers on your person, should you need to call us en route or when you arrive.
8. Your appearance is important upon your entry into Costa Rica. It will make dealing with Customs and Immigrations a lot smoother if you are clean and well-groomed.
9. Upon entry into Costa Rica you may be asked for a copy of your itinerary, so print one, and carry it with you.
10. Getting off the plane in Costa Rica. Here are the basic steps.
 - a. While in flight, fill out the customs declaration given to you by the airline host or hostess.
 - b. Upon deplaning, you will first go through “Migración” (immigration), where your passport will be checked and stamped.
 - c. Then, you will retrieve your baggage at the carousel. If your gear is bulky or heavy, grab a handcart for getting your stuff to the Customs area.

- d. At the “Aduana” (Customs), an official will inform you which way to go. You may be asked to press a button that operates a light. If the light flashes green, you may pass through directly. If the light flashes red, your bags will be checked. If you have any boxes, your bags will automatically be checked. Costa Rican customs officials tend to be more polite than their U.S. counterparts, so if your bags get checked just be patient and honest about your travel plans.
- e. An OTS Staff member will meet you on the sidewalk just outside of Customs. He/She will be holding an OTS sign that says “OTS - REU”. *It is possible that you will have to wait a short time for this person. If this happens, don’t go anywhere! Be patient and just wait!*
- g. Unfortunately, during the past year the incidence of crime has increased at the airport. Please watch your belongings closely when you exit customs. It is a good idea not to bring more than you can carry yourself.

We are sure this experience will be exciting, challenging, and rewarding. Congratulations again for being selected to participate in this year’s REU program.

See you in Costa Rica!