

Sibun Education & Adventure Lodge  
Instructor's Manual  
2<sup>nd</sup> edition  
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## **Educational Director's Intro**

In the summer of 2000 I had my first opportunity to visit the amazing world of the tropical rainforest. I spent 7 days traveling through Costa Rica with a friend. During our vacation we visited several of Costa Rica's national parks. It was then that I was first introduced first hand to the amazing biodiversity that can only be found in a tropical rainforests. A Bachelor and Masters degrees worth of biology classes did little to prepare me for the experience I had during my week in the tropics. Prior to my trip I had spent countless hours sitting through lectures and reading texts on the tropical rainforests and the biodiversity that can be found in the tropics. It wasn't until I was able to immerse myself in the sights, sounds and smells of the rainforest that I was able to begin to truly appreciate this amazing biome.

My interest and desire to learn more about the rainforests has only continued to grow since. Fortunately my wife suggested that we visit Belize on our honeymoon. When she first mentioned Belize I had the same reaction most people have "Were the heck is Belize?". My wife purchased the Lonely Planet Travelers guide to Belize for us to plan our honeymoon. Out of this guide we panned a vacation that would ultimately lead me to working with the Sibun Education & Adventure Lodge south of Belmopan. During our stay in Belize we spent time at Ian Anderson's Caves Branch Adventure Lodge. As fate would have it on our last day there I was given some information about the Sibun Education & Adventure Lodge. After touring the facilities I was determined to bring student groups to Belize to see the wonders of a tropical rainforest.

When I began my fulltime tenure track position at Lincoln Land Community College I was given the opportunity to teach a Marine Biology field course in Jamaica. During my first outing I was fortunate enough to shadow an instructor who had previously taught the course. This shadowing opportunity was crucial in allowing me an easy transition into the challenges of teaching field courses. After the first trip I was hooked. I then proceeded to develop a Biological Field Studies (Bio 209) course that would provide every professor a basic course template that would allow them to teach a general field studies course. My first Biological Field Studies course was to Costa Rica. After running the course in Costa Rica I decided to relocate the course to the Sibun Education & Adventure Lodge I had discovered in Belize. The staff at the Sibun Education & adventure Lodge made his transition a smooth and easy process.

The first ever Lincoln Land Community College Belize trip was conducted January 2- 7, 2007. I had a group of 23 students and 2 faculty. The success of the first trip to Belize has inspired me to continue to offer field courses to Belize using the Sibun Education & Adventure Lodge. The change I witnessed in the students that went on the field course was incredible. Many of them had never traveled outside of the U.S. while some had never even traveled outside of Illinois. Belize offered them an amazing opportunity to experience a new world. The students were exposed to a completely new ecosystem compared to the one in Illinois but they were also exposed to a completely different culture. The educational opportunities experienced by students who take study abroad courses will go well beyond the actual course itself. An increase in their level of confidence, maturity, changing their world view, and having a greater appreciation for the things we have in our lives are only a few of the changes I have witnessed in students

who have attended a study abroad course. The results of the Belize trip firmly convinced me to shift all of my field courses to the Sibun Education & Adventure Lodge.

Results of the first Biological Field Studies trip to Belize:

- a. several students enrolled in the Marine Biology course offered in May 2007
- b. several students came back the following year
- c. one student changed her major from Nursing to Biology as a result of the trip and the continued opportunities to travel to the tropics for her education
- d. one student applied to the University of Belize to earn Bachelor's Degree in Biology

This group helped blaze the trail for many of the ideas that are contained within this Instructor's Guide. It is my hopes that every year when I take a group(s) to Belize that I will be able to enhance the Instructor's Guide in order to make other professors lives easier. The Instructor's Guide is a collection of the materials necessary to help plan a trip to the Sibun Education & Adventure Lodge. It is my hope that faculty from all over the U.S. and Canada will see the benefits that field courses offer students. Students who have a global awareness and international traveling experience have a significant advantage over their counterparts when they leave college and enter the job market.

The facilities and resources at the Sibun Education & Adventure Lodge are vast and continuously developing. If you have a new idea that is not currently listed in the Instructor's Guide please contact me and I will do everything I can to accommodate your needs. There are as many different ways of utilizing the environment and facilities at the center as there are instructors. Within the following pages of the Guide you will find sample syllabi and a suggested itinerary for the Biological Field Studies Course I have offered here. I am constantly developing and running new varieties of courses through the center. My goal is that instructors will see the Sibun Education & Adventure Lodge as a mini extension of their home campus. Every department on a college campus has a course that could be taught in an international setting. My self and the staff at the Sibun Education & Adventure Lodge are dedicated to providing those opportunities for professors and their students.

Sibun Education & Adventure Lodge sits adjacent to the Sibun River in the heart of the Cayo district in Belize. It is approximately 1 hour and 45 minutes driving distance from the International airport in Belize City. It is perfectly situated in the center of the Cayo district giving easy access to several major towns, Mayan cultural sites, national parks and the pristine beaches of the Caribbean ocean. Coursing through the center of the 10 acre campus is a stream that tributaries into the Sibun River. There is also a small 1acre orange grove and a 1 acre citrus / tropical plant nursery adjacent to the main building. The main building was constructed in 2002. In 2003 an instructor's cabin was added and recently a new dorm facility and instructors house was completed. The station can comfortably accommodate anywhere from 30 – 40 people. The accommodations are dormitory style (4 – 8 students per room) with bunk beds and a bathroom. There is also an adjacent bath house with shower and toilet facilities. The main building was renovated in 2012 and boasts a large open aired 700 square foot classroom with

breathtaking views of the surrounding jungle and river as well as an observation deck and lounge.

The facilities can accommodate one large group or several smaller groups depending upon the ratio of males to females. Instructors will have access to the Instructors house that includes 2 separate bedrooms and private bathroom facilities. Laboratory equipment is available for groups to use (see equipment list). The classroom contains Internet access that is weather dependent. The bandwidth is limited. If you have several students accessing sites that require large amounts of bandwidth (Facebook, streaming videos, etc.) it will slowdown everyone's ability to access the Internet.

Three meals a day will be prepared by the staff of local Belizeans. The meals will include a mixture of traditional Belizean dishes as well as some standard "American" fare to help students make the transition to a different type of food. Bottled water, coffee and juice are available during the meals. Soft drinks and alcoholic drinks are available from a cash bar during dinner if the instructor desires. During full day trips lunch can be packed along to help avoid having to find a place to stop and eat. If you wish to take lunch along make sure you discuss it with the lead guide at the station at the beginning of your stay.

The ideal situation is that the instructor would be familiar with all of the places and activities that they are planning on doing while staying at the Sibun Education & Adventure Lodge. I invite any interested instructor to come along and "shadow" me when I am in Belize teaching a field course, running a community educational course or working at the center. Please contact me for the dates of upcoming trips (**Dave.Cox@llcc.edu**). However if an instructor is not familiar with the places they are planning on visiting or the activities they are planning on doing while in Belize they can rely on the guides to help ensure the course runs smoothly. Every instructor will have access to the Instructor's Guide and the sample list of activities, labs and activities that can be done through the center.

It is my goal to help simplify the process of organizing and running your course so that you can spend your time and energy teaching and having a tremendous impact upon the lives of your students. Please see the sections: How to teach a field course & How to plan your trip to the Sibun Education & Adventure Lodge for suggestions on how to simplify the process.

Sibun Education & Adventure Lodge is first an educational institution and secondly an adventure lodge. Every piece of equipment is available for your use and all of the facilities are geared towards maximizing your effectiveness as a teacher. Please feel free to contact me about any needs, concerns, requests or suggestions you have about the Sibun Education & Adventure Lodge and the resources available for professors and their students.

Dave Cox  
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217-786-4909  
**Dave.cox@llcc.edu**

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Springfield, Illinois 62794

Note: Lincoln Land Community College and Sibun Education & Adventure Lodge and their respective staff are not responsible for any liability incurred neither during travel to or from the Sibun Education & Adventure Lodge, nor during use of this facility by any class or group.





## Sibun Education & Adventure Lodge Mission Statement

The mission of the Sibun Education & Adventure Lodge is to offer a wide range of educational opportunities thru traditional curriculum delivery as well as adventure based activities. The staff is dedicated to making your experience at the Sibun Education & Adventure Lodge one that you and your students will remember for a lifetime.



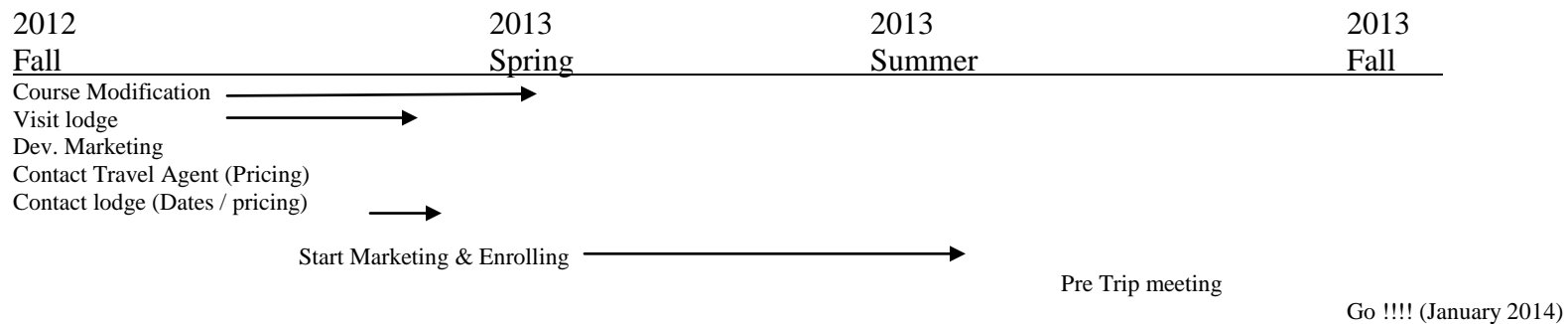
# How to Plan Your Trip

## Timeline for field course development & marketing

No course in existence at your institution



Course currently in existence at your institution





# Sibun Education & Adventure Lodge Rate Sheet 2012

**This sheet is designed to give instructors a “Ball Park” idea of cost. Rates are not guaranteed. Please contact me for the current pricing structure.**

Sample itinerary:

Day 1:

- Arrive Belize City late afternoon, shuttle to Sibun
- Arrive at Sibun Lodge at dinnertime
  - Evening: cultural presentation and safety presentation.

Day 2:

- Lost Mayan Trail native plant hike (morning)
- Late lunch back at Sibun
- Participate in Orchid Rescue program (afternoon)
  - Go to the citrus grove to rescue plants, and then back to Sibun to relocate them into the sanctuary.

Day 3:

- Mayan archaeological site at Xunantunich (morning) with a picnic lunch (opportunity for handicraft and souvenir shopping)
- Mayan archaeological site at Cahal Pech
- 2-3 hrs of free time in San Ignacio
- Dinner at a restaurant in San Ignacio (Hoade’s Place, participants pay for their own dinner)

Day 4:

- Community Baboon Sanctuary (morning) ([www.howlermonkeys.org](http://www.howlermonkeys.org))
- Take lunch with us and have a picnic
- Belize Zoo (afternoon) ([www.belizezoo.org](http://www.belizezoo.org))

Day 5:

- Neko’s Cave or Footprint Cave
  - Picnic lunch
- A brief tour of Caves Branch and the botanical area and facilities, opportunity to visit the gift shop

Day 6:

- Jungle trail hike from Sibun in morning
- Afternoon plant hike and free time at Sibun
- (This would be a float day, in case of adjustments needed by weather)

Day 7:

- Art Box for shopping on the way to the airport ([www.artboxbz.com](http://www.artboxbz.com))
- Shuttle to airport and depart Belize City

Other items:

1. Night hike one of these evenings

2. Morning bird walk
3. Go to the Hummingbird Bar (Carlos's place) one evening to see local Belizean culture

The rates for 2013 are **US\$155 per person per night** including transfers, trips, food, room and all taxes. This also includes the entrance fees to the Baboon Sanctuary, Belize Zoo, Xuantunich and Cahal Pech.

Sibun also provides a 12 pay get one free incentive to bring a group size of 13 or more.

Items not covered in the pricing structure:

- Tips to staff
- Airport departure tax
- Meals if they are offsite at restaurants. Packed lunches can be arranged and are included in the pricing structure.
- Alcohol, personal items, and souvenirs.
- Some activities may incur additional surcharges (i.e. snorkeling, diving, zip lining, ATM cave, Tikal trip, etc.). These surcharges will be indicated prior to the

# Lincoln Land Community College

## Trip/Tour Indemnification and Conduct Statement

1. Student conduct at the College or at any District sponsored activities is governed by federal, state and local statutes, as well as Board policy and rule.
  
2. The possession or use of illegal substances at the College or at any scheduled College or District sponsored activity is prohibited.
  
3. The possession or use of alcoholic beverages at the College or at any scheduled College or District sponsored activity is prohibited.
  
4. All trip/tour participants shall participate in all scheduled trip/tour activities.
  
5. Failure to participate in trip/tour activities or to follow Board policy, rule, federal, state or local statutes may result in immediate disciplinary action by the trip/tour advisor. The College or Board of Trustees may take additional disciplinary action.
  
6. The following lines are provided for the Trip/Tour Advisor to list any additional statements regarding a participant's conduct:

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The undersigned, an adult person, does hereby indemnify and hold harmless the Lincoln Land Community College Board of Trustees, its members, officers, agents and employees from and against any and all claims, demands, actions, complaints, suits, or other forms of liability (monetary or otherwise), including, but limited to attorney fees, court costs and interest that shall arise out of or by reason of any action taken by the District, the Board of Trustees, the Director of Student Life, the trip/tour advisor, and any other district employee for the purposes of guiding this trip/tour.

My signature indicates that I have READ and UNDERSTAND all trip/tour conduct statements listed above.

Printed Name	Signature	Date
Parent/Guardian Name if Under 18	Parent/Guardian Signature	Date
Student ID#	Emergency Contact	Phone
Please provide information regarding any medical condition(s) and/or medication(s) you are taking:		

# Equipment List

LCD Projector (available upon request)

LaboMed Dissecting Scope (N04960)

LaboMed Dissecting Scope (N04949)

Compound Microscope (#106800)

Spotting Scope with Tripod Mount (available upon request)

Box of slides and cover slips

Deep well depression slides

Pipets Forceps

Dissecting needles

Lab Scissors

Scapels

6 inch plastic rulers

HACH Water Quality Testing Kits

Plastic Quart Collecting Jars

Plastic Dropper Bottles

Plastic Funnels (Assorted sizes)

Pool Thermometer (30 – 122<sup>O</sup>F)

Plankton Nets with collection jars

Sling Psychrometer

Hand lenses

Petri Dishes

Waterproof Slates

Invertebrate Seine (36" x 36")

D-Net (1/2" mesh)

Insect Nets

Sweep Nets

\*\*\*\*\* Equipment availability and conditions cannot be guaranteed due to the tropical environment. It is always best to have a back up activity in case a piece of equipment is not functional. If you know you will have specific equipment needs in advance please contact me and I will do everything I can to assist you.\*\*\*\*\*





# Library List

1. Belize: and Northern Guatamala (Travellers' Wildlife Guides) by Les Beletsky, Daved Dennis, David Beadle and Pricilla Barrett
2. A Neotropical Companion: An Introduction to the Animals, Plants, and Ecosystems of the New World Tropics by John C. Kricher
3. Field Guide to the Wildlife of Costa Rica by Carrol Henderson, Alexander F. Skutch and Steve Adams
4. A Field Guide to the Amphibians and Reptiles of the Maya World: The Lowlands of Mexico, Northern Guatemala and Belize by Julian C. Lee
5. Neotropical Rainforest Mammals: A Field Guide by Louise H. Emmons and Francois Feer
6. Rainforest Remedies: 100 Healing Herbs of Belize by Rosita Arvigo and Michael Balick
7. Animals and Plants of the Ancient Maya: A Guide by Victoria Schlesinger
8. Macrofungi of Costa Rica: Volume 2 by Milagro Mata, Roy Halling and Gregory Mueller
9. A Guide to the Birds of Costa Rica by Gary Stiles, Alexander Skutch and Dana Gardner
10. Photographic Atlas of Botany and Guide to Plant Identification by James L. Castner
11. Photographic Atlas of Entomology and Guide to Insect Identification by James L. Castner
12. How to know the Freshwater Algae by G.W. Prescott
13. Field Manual for Water Quality Monitoring: An Environmental Education Program for Schools by Mark K. Mitchell and William Stapp
14. Pond Life Golden Books by George K. Reid
15. A Field Guide to Coral Reefs: Caribbean and Florida (Peterson Field Guides) by Eugene Kaplan

16. A Field Guide to Insects (Peterson Field Guides) by Richard E. White,  
Donald J. Borror and Roger Tory Peterson

17. Soil Science Simplified by Helmut Kohnke and D.P. Franzmeir

Various textbooks

Various taxonomic keys

Immature aquatic insects

Adult aquatic insects

Freshwater fishes of Belize

## **A Suggested Approach to Teaching a Field Course**

Teaching a field course can present many challenges. Depending upon the course, time of year, level of support from one's institution, etc. these challenges can be minimal or quite daunting. What I am presenting here is a simple strategy that I have found to be successful for the courses I teach. Everyone will need to "tweak" and modify their course to best fit their interests, students and institution.

One challenge that we will all be facing is how to deliver the equivalent of 16 weeks of material into a 6 day, 8 day or longer field course. The approach I have found to work well is to use a course management system in order to deliver a significant amount of the educational / informational material. When I run my January course I will allow students access to the course material starting in early September. I have them read several online lectures and complete a handful of quizzes prior to our trip. I have found that this method helps provide students with a base level of knowledge before we even set foot in Belize. It also keeps their interest and excitement level fairly high during the entire semester. If possible I would encourage instructors to include pictures from previous trips to Belize in their lectures. Having them read a lecture about a particular ecosystem and then showing them a picture of a section of the rainforest in which we will be studying helps prepare them for the real thing. There is significantly less anxiety when we are in country if the students feel somewhat familiar with the places and things they are going to encounter.

After they have completed their quizzes I have them work on the "Species Projects". I have compiled a list of species that we are "almost guaranteed" to encounter during our trip. I will assign each student 5 – 10 (depending on group size) species. They will research the species and write a one page report on the life history of the species (common name, geographic distribution, reproductive strategy, etc.). These Projects are to be turned in the night we have our Pre-trip meeting before we leave for Belize. I require 2 copies of the Projects to be turned in. I will then arrange these in a binder to create a "Field Guide" that the students can use while we are in Belize. During the course of the trip it is not uncommon to hear students exclaim "That is a ..... It was one of my species." They will often teach each other the 5 – 10 species that they did their research on. I have found this to be a very effective method of engaging students in the course. Everyone feels part of the group when they have information to share with the others.

Once we get to Belize I require them to start taking "Field Notes and Pictures". Each day we are there they will record basic field information (abiotic factors, activities participated in and species they encountered). They are also required to take 5 pictures each day we are there. This puts a certain level of responsibility on the student to participate in the daily activities as well as paying attention to what is happening with the weather. When they return to the states I will give them several weeks to develop their pictures and rewrite their journal. This is turned in as one of their assignments.

Something I have found to be very important is to have a timeline established for turning in assignments. This timeline needs to be presented very early on in the course and constantly reinforced. Some students tend to procrastinate and forget about completing their assignments. This often presents a bit of a dilemma for the instructor. Do you fail the student due to the lack of graded assignments or do you hunt them down

and try to get the assignments? This is an issue everyone will handle in a different fashion. Once we are back I will have them complete their Lab Exam online. During the course of the trip I will have taken hundreds of photos (or have the students take them) of various organisms. I have the students classify them and indicate a few key pieces of information about the species. This information is included on the picture and put into a PowerPoint format. I give the class a copy of the PowerPoint to use as a study guide and then build my Lab Exam from there. Lab exams can be given in Belize from the collection of specimens that is being built. After the Lab Exam they will have a written Final Exam that they have to come to the campus Testing center to complete. I will usually give the class a window of time in which they can take the exam. Once everything is completed grades are calculated and submitted to Registration. Depending upon the type of course that is being taught this approach may need to be modified or adjusted.

The challenge everyone will face is to determine how much information to present before the trip, during the trip and after the trip. Unfortunately, there is no magical formula that will work for everyone. Trial and error is most often the only way to determine which method is the most efficient and practical for an instructor. With the rapid increase in Online Education and every college has access to some type of course management system (Blackboard, Angel, WebCt, etc.) I would highly encourage the use of them. This has allowed me to disseminate information to a wider audience of students. If you limit yourself to only taking students from your campus your potential pool of participants may be quite small. For some larger colleges and universities this may not present a problem at all but for smaller institutions the larger the market you can reach the more likely you are to fill a course. Some small school may want to even consider partnering with another school to run a course. The larger the group the more discounts you can get through the lodge. Mandating that students come to campus 3 times a week for x number of weeks before the trip could potentially cause a trip to not make.

Another challenge we will face is trying to determine how many educational aspects to include vs. how many fun activities. The great thing about international travel is that we can easily incorporate educational and fun activities into the same experience. Hiking through the rainforest can be an amazing / fun activity for the majority of students. At the same time they will be learning about the ecology / biology of the rainforests. The guides will point out the local medicinal plants during the course of a hike. Students may have the opportunity to taste a termite if termite mounds are encountered. This leaves a lasting impression on everyone in the group. It is also a great time to discuss social insect behavior and the role that termites play in the rainforest. Every activity can be infused with educational opportunities. Hopefully instructors will be able to capitalize on these activities and use them to help design their curriculum for their particular course.

Other things to consider when running a field course:

1. Optimal length of course

How long do we stay? This is always a challenging decision to make. In general the airfare is the same if you stay 4 day or 10 days so the cost of the ticket isn't that much of a variable. The real variable is the cost per

night. Every night in country the cost of the trip goes up. Each instructor will have to determine their optimal length of stay for themselves. I prefer to run a 6 day 5 night course. This gives me enough time in Belize for the students to experience the wonders of the rainforest as well as see some of the cultural sites (see Sample Itinerary). This also keeps the total trip cost down into a range that will appeal to a larger market of students. If a trip cost is too high, no matter how many days you are in country, students won't be able to afford it. Now this will vary from institution to institution. The longer the trip the more likely it is that group cohesion will begin to breakdown. Traveling together, sharing close accommodations, minimal privacy, etc. can tend to wear on people. When exhaustion starts to set in tempers begin to flare.

2. When to offer the course:

After the fall semester and after the spring semester are the peak times for field courses. If this is the window you are interested in running your trip be sure to contact Sibun very early (9 – 12 months in advance) to secure reservations. December thru late March is peak tourist season. This means that airfare will be more expensive and potentially more difficult to obtain. If possible I would recommend running a trip in April (spring break) or during the summer (late May, June, July, or August). There is far less competition for space and airfare rates are usually lower. This difference in price could allow you to extend the length of the stay without increasing the cost of your trip.

3. How to decrease the instructors stress level:

The biggest piece of advice I can give in regards to decreasing stress is to plan well in advance for your trip. An international course isn't something that can be thrown together in a short period of time. If someone is interested in running a course in a very short time frame please feel free to contact me and we can discuss ways to shorten the time frame. At minimum I would recommend allowing yourself one academic year (3 semesters) to make sure you have enough time (see How to plan your trip). The biggest concern is allowing yourself enough time for the marketing component of the trip. If you don't market well in advance you won't give students enough time to pay for the trip as well as obtain their passport. Passports are required for everyone entering Belize. At the time of writing passports are taking 12 – 14 weeks to obtain. Hopefully the log jam of passports will be cleared in the near future and it will return to the normal 6 – 8 week window for obtaining one. The other piece of advice I give faculty who are new to international travel is to do a "Dry Run" of your trip before you go. Feel free to contact me and come along on one of my trips. I am more than willing to allow another faculty to "shadow" me during the course of a trip to learn the ropes. Your group will be looking to you for the answers to a hundred and one questions. While no one is expected to know all of the answers, the more questions you can

accurately answer the more confident your group will be in your leadership skills. This confidence will go a long way towards having a successful trip.

The teaching of a field course can be an incredibly rewarding experience for student and instructor alike. As an instructor you are helping your students experience wonders that they may never have experienced without you. This should instill a sense of pride in all of the instructors who are willing to step out and go beyond their normal classroom duties. Developing and running field courses will be more work than any class you may teach on your campus but the rewards can be much greater. Unfortunately, there may be years in which you have done everything right but the course doesn't have enough participants to make it go. This is something that can happen to the most experienced field instructor through no fault of their own. When gas prices spiked in 2005 I almost had to cancel my field course. Most students were not expecting their gas expense to increase the way it did. This devoured most of their disposable income and significantly reduced the number of students I had enrolled in the course that year. This is something the administrators at your institution need to be aware of. I have fought for a lowered cap on these classes due to the nature of the course as well as the amount of responsibility that is placed upon the instructor. Supportive administrators will recognize the intrinsic values of a strong and healthy International Program and hopefully be supportive of it, even if your numbers are not the best during one particular year. I encourage everyone to make sure that when you determine your budget, you account for all of your potential travel expenses. A huge pitfall of any course is to ask the students for more money at a later date. It is even worse to have to go to your Administration and ask them for funds to supplement your course. Most administrations want international programs to be revenue neutral. I would encourage everyone to talk to the key person involved with budgeting at your institution about how to be the most cost effective and keep the course revenue neutral.

Each of us will be faced with different challenges and hurdles when we develop and run our international course. Every campus will be unique in their challenges but with enough effort, support and persistence anything is possible.

## Sample Syllabus

### GENERAL COURSE INFORMATION

Instructor Name:	Dave Cox Phone number: 217.786.4909 Office: Sangamon 2037 Email: Dave.cox@llcc.edu Office hours: I will be available throughout the trip.
Course Number:	<b>BIO209</b>
Course Title:	<b>Biological Field Studies</b>
Semester:	Spring 2012
Credit Hours:	3
Prerequisite/co requisite:	Previous college biology course or instructor approval
Division and Discipline:	Biological and Physical Sciences
Course Description:	A travel-study course providing students an introduction to Biological Field Studies. Course destination may vary. This summer emphasis will be placed on tropical rain forests of Belize. This course will emphasize basic ecological principles, experimental design, field sampling techniques, human impact on the ecological systems being studied, and scientific communication. Students will spend a great portion of each day in the field and should be in good physical condition. When traveling to foreign countries, cultural and historical perspectives will also be emphasized. This course will involve working with local Belizeans, offering LLCC students the opportunity to meet people from diverse backgrounds.

### **COURSE AS VIEWED IN TOTAL CURRICULUM:**

This course will serve to develop thinking process, effective communication, cooperative learning, quantitative reasoning, ethical behavior, social and global awareness, and scientific inquiry skills. This course will transfer to most 4-year universities as a life science/biology course; however, this course would not generally take the place of general biology, biology 111, biology 112, botany, or zoology as required for the biology major or non-major. The student should always check with a counselor and the university to which they plan to transfer to ensure that the course will be accepted, as universities differ in their requirements.

### **TEXTBOOKS AND OTHER REQUIRED MATERIAL:**

**Moon Handbooks: Belize** by Chicki Mallan and Joshua Berman  
Available on Amazon

Biology 209 Field Manual  
Available in Lincoln Land Community College Bookstore



You will need a field journal. You can purchase a water resistant field journal or use a notebook. In the journal, you will be keeping a record of the specimens that you examine in the field. You will want to provide rich details, labeled structures, and features that taxonomically distinguish the organisms being studied. You will also need to provide taxonomic information that includes the scientific name of the organism (common name may be provided if relevant). You should also include any pertinent collection/habitat information and other informative details such as function of structures, life history, etc... The date, time, field site, weather conditions, water conditions, and other such parameters should be described. Further, you will use the field journals for data collection in several field problems. More detail on each assignment will be provided at each field site. You can purchase a field pen; however, a pencil will work just fine.

The cost of the course must be paid in advance of the trip by the established deadline. Many of your expenses are covered by the cost of the course, but you will need to bring some spending money for refreshments, food while traveling, and gifts you may want to buy. If you plan to bring more than a couple hundred dollars, then you should consider the advantages of traveler's checks. There is an ATM in San Ignacio. U.S. currency and travelers checks are accepted at the field station.

**INSURANCE:** You will be required to show proof of medical/health insurance.

**WAIVER:** You will need to bring a notarized waiver authorizing medical treatment in the advent of an emergency while you are on this trip and under the age of 18.

### **REFERENCES**

Online supplements will be utilized as well as current research articles. Large amounts of information will be obtained first hand while we are in the field in Belize. Local guides / experts will be available throughout the trip to gain information from.

### **INSTRUCTOR EXPECTATIONS AND CLASSROOM POLICY:**

I will require that students adhere to the policies regarding conduct and academic guidelines as set forth in the LLCC student catalog. I would emphasize that I will follow the policies set forth in the catalog regarding conduct, attendance, academic honesty, and plagiarism. You are adults in a college level class and consequently, I require appropriate adult behavior for participation in my course. There will be no warnings. And, any inappropriate behavior will result in your immediate removal from this course.

You will be expected to follow the rules and regulations of the biological field station and the country of Belize. Behavior is especially important as we travel to distant locations, as you are representatives of Lincoln Land Community College and the United States of America. This is a course of study, not a party, and work will be required of you. There will be some free time, and I would imagine a lot of fun, but I will be keeping you plenty busy and hopefully out of trouble's way. However, if you disgrace yourself, our class, and the campus with inappropriate behavior, you will fail this course and **you will be sent immediately home at your own expense.**

### **ATTENDANCE REQUIREMENTS:**

Attendance is required for the pre trip seminar, in addition to participation at all field sites and lecture meetings for the duration of the trip. Any absences must have instructor approval. If you skip out on any of the required field site and field lecture activities without the approval of your instructor, your grade will be lowered one letter grade for each unexcused absence.

### **OBJECTIVES/COMPETENCIES:**

The student will:

1. Show how human activity affects all life forms.
2. Understand principles of ecology including ecosystem organization, ecological interactions, and environmental issues.
3. Exhibit knowledge of ways in which organisms interact with their environment and implications of these interactions.
4. Identify major features and life cycles in the groups of organisms covered by the course.
5. State and apply major features of currently accepted organism classification.
6. Identify and classify various organisms in the tropical environment.
7. Compare and contrast the six taxonomic kingdoms.
8. Demonstrate biological concepts through field work and field problems.
9. Be capable of communicating experimental results orally and in writing.
10. Describe the process of asking and answering questions in science.
11. Design and conduct field experiments.
12. Explain the advantages and disadvantages of scientific names and common names with correct usage of scientific names.
13. Identify major sub disciplines of ecology.
14. Understand the levels of organization and emergent properties of life.
15. Generalize the importance of ethics in scientific research and application.
16. Understand the importance of stewardship and conservation of tropical rainforests.
17. Demonstrate knowledge on the care and collection of live organisms and the importance of public education.
18. Be able to demonstrate good record keeping in a field journal.

### **CORE ABILITIES:**

- effective communication
- thinking process
- quantitative reasoning
- scientific inquiry
- information processing
- social and global awareness

**METHOD OF INSTRUCTION:**

Instruction will involve a variety of formats including lecture, labs, transparencies, films, multimedia enhancement, and models, but the majority of instruction will occur in the field.

**METHODS OF EVALUATION:**

The amount of work required in the course is varied dependent upon the number of credit hours for which you enrolled. The required activities for the number of credit hours are indicated in the table; in addition, the percent of each activity towards your total grade is indicated.

Species reports	(100 points)
Quizzes 10 @ 10 pts	(100 points)
Digital Photo Collection	(100 points)
Individual Research Project	(100 points)
Final	<u>(100 points)</u>
	500 points

Grade will be figured on the following scale:

A = 90% and above

B = 80-89.9%

C = 70-79.9%

D = 60-69.9%

F = Below 60%

**COURSE DATES:**

January 3, 2012 to January 8, 2012

**NEXT COURSE IN SEQUENCE:**

This course is not a prerequisite to the other biology courses offered by this campus.

## Sample itinerary (weather dependent)

<u>Day</u>	<u>Morning</u>	<u>Afternoon</u>	<u>Evening</u>
1.		Arrive at Sibun, settle in and have dinner	
2.	Jungle Hike	Stream seining down by bridge	Study time Night hike
3.	Bird walk	River tubing / watershed ecology	Field experiments Study time
4.	Tour of Orchid greenhouse at Cave's Branch	Blue Hole / St. Herman's cave	Study time
5.	Trip to Xunantuninch/ Cahal Pech		Dinner in San Ignacio
6.	Stop at Belize zoo on the way to the airport		Depart for home

**This is just a sample schedule that I have used while in Belize. I recommend loading the first few full days (day 2,3 and part of day 4) heavy with the academic part of the trip. By the 4<sup>th</sup> day the students are usually getting tired. This is the perfect time to start introducing them to some of the cultural activities (Blue Hole, St. Herman's Cave, Cave's Branch, etc.). These activities have an educational value behind them while being less exerting than the jungle hike and tubing. I would suggest you customize your itinerary based upon the type of course that you wish to run. Refer to the list of Sample labs / activities and the Description of Tours for additional suggestions. Group itinerary will vary based upon the course (Biology vs. Anthropology), the time of year (rainy vs. dry season), length of stay (5 days vs. longer) and the familiarity of the instructor with what Belize has to offer. Please don't hesitate to contact me or the staff at Sibun about creating a customized itinerary for your group.**



## **Description of Educational Activities**

### **Stream Ecology:**

Stream ecology is a chance for students to learn how to sample a freshwater stream ecosystem. Study sites include the Sibun River as it goes underneath the Hummingbird Highway as well as the small tributary stream that runs through the Sibun campus. Studies can be done to determine the micro and macro organisms living in the stream that help indicate water quality. Abiotic water quality parameters can also be studied.

Plan for ½ to a full day for this activity.

Educational focus: Biology, Environmental Science, Community Health

### **Orchid Conservation:**

This activity is located in the Hershey Citrus grove along the Hummingbird Highway. Participants will have the chance to learn about how orchids and bromeliads grow, the symbiotic relationship with various pollinators as well as eminent destruction of these plants. After learning to identify specific species participants will have the opportunity to collect specimens and relocate them to the citrus grove on the Sibun campus.

Plan for ½ to a full day for this activity,

Educational focus: Biology, Botany, Horticulture, Conservation

### **Caves Branch Botanical Garden Tour:**

Have a guided tour of the botanical garden at Caves Branch that houses hundreds of orchids and bromeliads that have been saved from destruction. Learn about the ongoing conservation program and attempt to save these beautiful plants from certain destruction..

Plan for 2 – 3 hours for this activity.

Educational focus: Biology, Botany, Horticulture, Conservation

### **Iguana Project, San Ignacio Hotel:**

This activity is located in the San Ignacio Hotel in San Ignacio, Belize. A highly interpretive and educational exhibit has been developed on the hotel grounds. This will give participants a first-hand look at the life cycle of the green iguana, from egg to adulthood. Participants will have the chance to hold live iguanas in their hands as they learn about this important conservation project.

Plan for 1-2 hours for the tour. The trip to San Ignacio takes about 1.5 hours' drive. This is best done in conjunction with other activities in San Ignacio.

Educational focus: Biology, Conservation, Herpetology

### **River Cave Trip:**

The River Cave expedition is a combination of cave tubing and hiking to the upper chambers inside one large cave. Beautiful formations and artifacts are located in these chambers and guests are welcome to view them with care. This cave was once believed to be used by Maya for Bloodletting and other religious purposes. Participants will also learn about the various living creatures that inhabit the cave system.

Plan ½ to full day for this activity.

Educational focus: Cave ecology, Geology, History

**Waterfall Cave Trip:**

The Waterfall tour is one of the most adventurous tours offered to guests. This starts off with a short hike to the cave entrance, and then another 10 minute hike to the site of the waterfalls inside the cave. The guests then take the challenge of climbing through and over the waterfalls to the top where you then hike through the cave passage to the back exit of the cave.

Plan for a full day for this activity.

Educational focus: Geology

**Maya Ceremonial Cave Trip:**

Feel the presence of the ancient Gods as we explore spectacular and awe filled crystal chambers that hold 2,000 year old Maya ceremonial centers. Fire pits, charcoal and ash, pottery, bowls, relics, alters, wall carvings, glyph writings and actual skeletons of sacrificial victims are found in various ceremonial caves. These caves are dry caves, no cave tubing. This adventure starts off with a 40 minute hike through the jungle which is considered to be challenging. Once at the site of the cave entrance, you must be somewhat agile in order to enter the cave. All participants must be relatively fit.

During the hike to the cave entrance you will learn about the flora and fauna that exists within the tropical rainforest.

Plan for a full day for this activity.

Educational focus: Biology, Geology, History

**River Kayaking / Tubing**

Natural history guides will take you along a beautiful 8 mile stretch of the Sibun where you can take you time to stop and enjoy your surroundings throughout the day. Our local experts help you get the most from this Belize river kayaking experience. The Sibun twists and turns over its 100 mile length from its beginnings in the Mayan Mountains until it empties into the sea. It has a full variety of waters and is narrow enough to see all the birds and wildlife living at its edge.

Plan for a full day for this activity.

Educational focus: Biology, Tropical Ecology, Environmental Science, Conservation

**Jungle Night Safari:**

The Belize jungle is habitat for an incredible variety of fauna. Our wildlife adventures begin in the early evening. Departing from the Sibun Education & Adventure Lodge after dinner, local bushmen guides will lead you through the jungle in search of many of the elusive animals that feed under the cover of darkness such as howler and spider monkey, gibnuts, kinkajou, wild boar, deer, quash, armadillo, tarantulas, scorpions, leaf-cutter ants and of course snakes!

Plan for 1-2 hours for this activity.

Educational focus: Biology, Tropical Ecology



### **Early Morning Bird Watching:**



Whether you are a beginner or a seasoned birder, Sibun offers daily opportunities for viewing both local and transient bird populations. Many of the native Belizean birds are not found elsewhere in North America so be prepared for a treat.

These treks occur early in the morning, as this is a time when most bird species are feeding or are moving to new locations, making it ideal for viewing. As the night sky lightens and the jungle comes to life, you'll start your walk down our 1 mile drive offers a variety of habitats that are sure to be packed full of a large diversity of birds.

It is not unusual to spot over 100 species over a couple of mornings.

These excursions are truly a feast for any birding enthusiast and allow you to sample what bird watching in Belize can be. Morning bird watching runs from dawn to 8:00 a.m. (breakfast).

Plan for 1-2 hours for this activity.

Educational focus: Biology, Ornithology, Tropical Ecology, Conservation

### **Tikal Day tour:**

The tour to Tikal is one of the best Maya ruins tours that are available from Sibun Education & Adventure Lodge. This destination is one of the prime sites for seeing the remains of ancient maya civilization. This tour is a full day tour that leaves the lodge around 5:30am and will return around 7pm. On this expedition you will get to see the different ruin sites that comprise the ruins of Tikal and listen to your guide tell the fascinating stories that make this tour so realistic. Guests also get to see wildlife at the park and also on the way to the ruins.

Plan for a full day for this activity.

Educational focus: History, Biology, Tropical Ecology

### **Xunantunich/Cahal Pech:**

This guided day trip with experts on Maya takes you from the Sibun Education and Adventure Lodge to two of the major Mayan sites in Belize. First visit Xunantunich, also known as the "Maiden of the Rock" which is the second tallest Mayan ruin in Belize. It stands 130 feet high to give a panoramic view of the Cayo District, Guatemala and the Mopan River. The site has been largely excavated and is reminiscent of some of the largest Mayan temples found in Tikal and Copan and has a great on site museum. Then have a packed lunch at the ruins before proceeding to the Cahal Pech Mayan ruins, meaning "Place of the Ticks". Cahal Pech is located 15 minutes on the outskirts of San Ignacio, and was home to a Maya Royal Family.

Plan for a full day for this activity.

Educational focus: History, Environmental Science

### **Blue Hole National Park:**

The Blue Hole is a carst sink hole that formed when a section of the underground river system caused the roof of the cave to collapse. Exposed to sunlight, the edges of the river have undergone succession allowing the forest to regrow here. This is a great place to



discuss ecological succession as well as geology. Participants are encouraged to bring their swimsuits in order to take a quick swim. After swimming feel free to explore the 2 mile interpretive trail that leads to St. Herman's Cave. The park is located directly across from Ian Anderson's Cave's Branch Adventure Company on the Hummingbird Highway. Plan for 2-3 hours to a half day for this activity.

Educational focus: Ecology, Geology, Biology, Conservation, History

**Belize Zoo:**

The Belize Zoo contains over 125 native Belizean animals. The zoo was founded in 1983 to act as a home for a collection of animals that had been used in the filming of a documentary about tropical rainforests. The zoo offers a wide variety of educational programming from self-guided tours of the grounds to more formal educational presentations. Definitely a must see while in Belize. The zoo is located about 10 miles north of Belmopan. It is an easy activity to do on the way to the airport on the day of departure.

Plan for 2-3 hours of time for this activity.

Educational focus: Tropical Ecology, Biology, Conservation

**Community Baboon Sanctuary:**

The goal is to sustain the habitat of the Black Howler Monkey (called 'baboon' in the local Creole dialect) while promoting the economic development of the participating communities. The result has been an innovative project in sustainable ecotourism that protects the habitat for the endangered Black Howler Monkey and other species while offering a unique opportunity for visitors to experience the rainforest and witness Black Howler Monkeys in the wild. The sanctuary is located about an hour's drive from Belize City.

Plan for 1 ½ to full day for this activity.

Educational focus: Conservation, Tropical Ecology, Biology

Many of these activities can be done in close approximation to the Sibun Education and Adventure Lodge. Others are in different parts of the country. When developing an itinerary please don't forget to consider the additional time associated with off site activities (loading & unloading of vehicles as well as the travel time itself).

## Suggested Packing List

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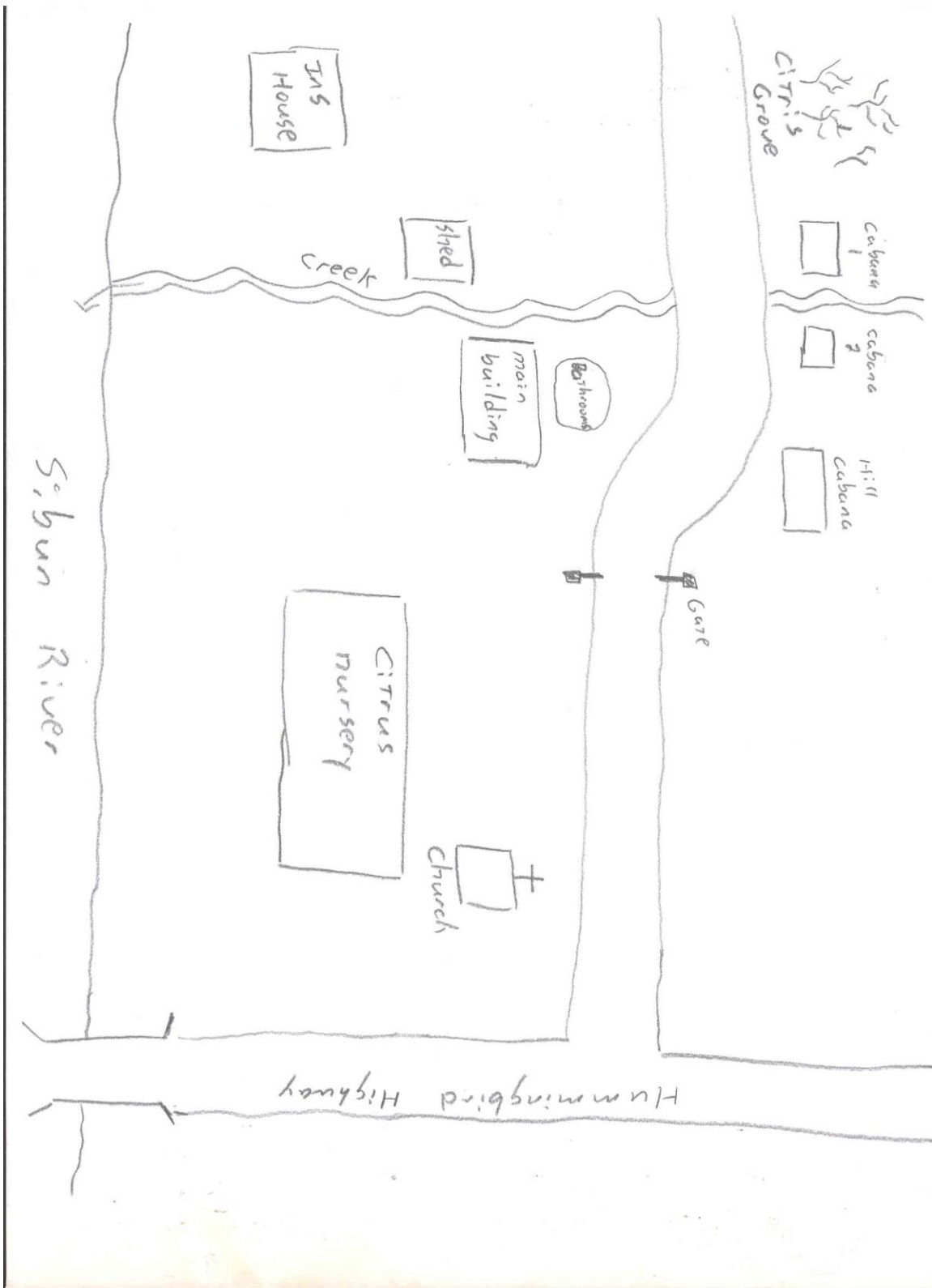
When you are packing your suitcase for Belize, you will want to review this check list to ensure that you are including these important items.

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- long pants [2 pair, light weight so they can dry]
- shorts [optional; don't plan on wearing them in the field unless you like to be scratched up; they're fine back at the station]
- short sleeved shirts [4-5; T-shirts are fine]
- long sleeved shirt [1 or 2; to protect your arms from sun & insects]
- hat [with brim; especially important for people with fair skin and/or glasses]
- field shoes [sneakers/running shoes are fine; don't bring fancy boots - unless they like mud]
- sandals [flip-flops, Tevas, whatever; to let your feet air out back at the station]
- socks [5 pr minimum]
- rain jacket or poncho [or an umbrella --- or just get wet!]
- bathing suit
- towel [for swimming -- towels are provided at the field stations]
- nice clothes for night out in San Ignacio
- sunscreen
- insect repellent
- sunglasses
- binoculars [not just for birders]
- field guide
- camera [ a MUST!] digital is great!!!!
- film [bring more than you think you will need --- you will use it and it's expensive to buy abroad]
- CDs, memory stick, jump drives, etc.
- personal items [shampoo, soap, deodorant, etc.]
- prescription medications [please let the instructor know if you must take medications]
- pens and pencils
- day pack / backpack required for in the field
- travel alarm clock
- portable computer [if you have one]
- flashlight
- water bottle
- Rite in the rain field journal
- required books
- spending money (dinner out and departure tax)
- insurance card/proof of insurance
- passport
- color photo copies of passport
- extra pair of glasses/contacts (if worn)

- batteries for camera/flashlight
- extra light bulb for flashlight
- calculator (for field work)
- ziplock baggies
- \_\_\_\_\_
- \_\_\_\_\_

\*Bring only things that can get wet, dirty, muddy, and stuffed into your luggage. Some people prefer to have two smaller bags rather than one large one (they fit easier into the bus).





# EMERGENCY INFORMATION

Complete this emergency information form. You **will not** be permitted to participate in the course if this form is not completed and on file before \_\_\_\_\_.

Please print.

Name \_\_\_\_\_

Home address \_\_\_\_\_  
\_\_\_\_\_

Person to contact in an emergency

Name \_\_\_\_\_ Relationship \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Phone number ( \_\_\_\_\_ ) \_\_\_\_\_ (day)

( \_\_\_\_\_ ) \_\_\_\_\_ (evening)

Insurance Company \_\_\_\_\_

Policy number \_\_\_\_\_

(Note: Check with your insurance company about coverage outside the US)

\*submit a photocopy of your insurance card with this emergency information form

Are you currently taking any medication?  Yes  No

If yes, what are you taking? \_\_\_\_\_

Are you allergic to:

- Hymenoptera stings (bees, wasps, ants)
- Penicillin
- Other drugs \_\_\_\_\_
- Other \_\_\_\_\_

Is there anything else we should know? \_\_\_\_\_

## Emergency Information

*Please bring this form with you and give it to the instructor on the first day.*

*You will not be permitted to participate in the course if this form is not on file.*

# **CONSENT TO MEDICAL TREATMENT**

Student and parent expressly authorize \_\_\_\_\_, the instructor(s), or chaperones to consent to any medical, dental, surgical diagnosis or treatment and hospital care, to be rendered to any minor student under the general or special supervision, and on the advice of, a competent and licensed practitioner. This authorization does not, however, create any obligations or duties on \_\_\_\_\_, the instructor(s), or the chaperones.

\_\_\_\_\_  
Student

\_\_\_\_\_  
Parent or Legal Guardian (If under 18 years of age)

## Suggested Guide to Tipping

Tipping for various services is a fairly standard norm in society today. Whether the services are provided by a waiter, cab driver or guide, many of these individuals rely on tips to provide an income. In some cases the majority of an individual's income will come from the tips they receive. This document is merely meant to help an individual / group leader budget for and disburse tips to the various individuals who assist us in the running of our study abroad courses. There is absolutely no obligation for an individual or group to tip but it is hoped that the services provided by the staff will be recognized.

When I set up my budget for my course I include \$40 – 50 per person in the advertised price that is used for tipping of the staff. Personally, I don't like to ask participants to donate to the tips for the guides at the end of the trip. This can produce an awkward situation, especially if you are working with students who may not have budgeted for this at the end of the trip.

The following is a suggest breakdown of how tips could be disbursed. The ratios are based on the amount of time the various individuals will most likely spend with your group as well as the status of their various professions (i.e. In the U.S. we tend to tip waiters more than the busboy).

Tier 1: Guides

Tier 2: Front of the house / kitchen staff

Tier 3: Bartender

Tier 4: Housekeeping & drivers (if different than the guides)

Option 1:

Sample breakdown: 15 people in your group:  $15 \times \$40 = \$600$  tip pool

Tier 1: 70 – 75% of the available tip pool      \$420 – 450

Tier 2: 15 – 20% of the available tip pool      \$90 – 120

Tier 3: 5-10% of the available tip pool      \$30 - 60

Tier 4: 2-5% of the available tip pool      \$12 - 30

Option 2:

Sample breakdown: \$40 per participant allocated to tips:  $15 \times \$40 = \$600$  tip pool

Tier 1: \$30 per participant towards the guides      =  $\$30 \times 15 = \$450$

Tier 2: \$7 per participant towards front of the house / kitchen staff =  $\$7 \times 15 = \$105$

Tier 3: \$2 per participant towards bartender      =  $\$2 \times 15 = \$30$

Tier 4: \$1 per participant towards housekeeping      =  $\$1 \times 15 = \$15$

Once the dollars have been allocated towards their respective categories it is up to the individual group leader to decide how best to give the money. Typically, you will be working with several guides and staff members. If one guide provides more leadership and service then you might consider tipping them a bit more than the other guides. During the course of our stay it is highly likely that many of the staff members will be staying on the property 24 / 7 in order to provide service to our groups. This means that they don't have a chance to spend evenings or any time with their families while we are



there. If they run consecutive groups, they may be gone from their families for several weeks in a row without a break. I like to think that everyone participating on a trip will take these factors into consideration and be willing to provide a small token of their appreciation to the staff they work with.

## **Suggested donations for the local communities**

This is a guide to help provide ideas for how our groups can make difference in the communities surrounding the station without visiting or doing community service projects.

1. Encourage your participants to bring down and donate clothing items that they no longer need. Most of us can easily fill a suitcase with extra shirts, shoes, etc. that we have outgrown or no longer need. These items can be put to a very good use in many of the local communities. Please do not bring down items that you would not use yourself. Belize doesn't need any items that will automatically go in the landfill. Gently worn items are appreciated and will go a long way in many of these communities. This will also give participants room in their luggage to bring back souvenirs at the end of the trip.
2. Collection and donation of children's books. The owners of Caves Branch are the founding directors of the Belize National Youth Chess Foundation. They provide chess camps for at risk children in Belize. As part of the program they provide children's books to the participants of the chess camps. The kids are given a book to read during the camp and then are allowed to take one home. Reading is the key to success in education and this is a small way to encourage these children to read. The ideal books to donate are ones that our children loved to read but have outgrown. Please do not donate books that our kids didn't enjoy. This will most likely turn off a Belizean child from reading instead of encouraging them. I have worked with several day cares in my community to do book drives for the Belize Program. This will often enable the day care to satisfy a community outreach goal of their mission statement. They are doing an outreach program with the college as well as a global outreach program.
3. Donation of OTC medication and general pharmaceutical products. Many Belizeans do not have access or the financial resources to obtain general medications (i.e. aspirin, antacids, etc.). Many of these products are used by the guides on a daily basis as they interact with our groups. A small donation of various products can help offset the cost of these products as well as ensure that they are available for your group should you need them.

The donations are in no means expected of any group. However, if you are willing to do any of the suggested donations please contact me prior to your trip so I can see what the greatest needs of the local communities are at that time your group will be traveling to Belize. It doesn't do much good if 3 groups in a row donate large amounts of clothing but the community is in desperate need of medical supplies. Unfortunately the tropical environment doesn't allow for long term storage of various supplies so they need to be refreshed as often as possible.