

Short-Term Study Abroad Program Information

Please provide the following information:

Study Abroad Program Name: Insects and Animals of Ecuador and the Galapagos
 Study Abroad (SABD) Course ID: SABD 1147
 Study Abroad (SABD) Course CRN: 57957
 Semester Program will be Offered: Maymester 2017
 Program Leader/Contact Name: Marianne Shockley
 Program Leader/Contact Phone Number: 706-542-1238
 Program Leader/Contact Email Address: entomolo@uga.edu
 Program Start Date (First meeting with enrolled students): 5/13/2017
 Program End Date (Last meeting with enrolled students): 5/31/2017
 Travel Start Date: 5/13/2017
 Travel End Date: 5/31/2017
 Anticipated Number of Total Students Participating in Program: 15
 Anticipated Number of UGA Students: 15
 Anticipated Number of Transient Students: 0
 Anticipated Number of Undergraduate Students in the Program: 15
 Total Number of Credit Hours Taken by Each Undergraduate Student: 7
 Anticipated Number of Graduate Students in the Program: 0
 Total Number of Credit Hours Taken by Each Graduate Student: NA

Please list each course offered through the program on a separate row below:

Course Title	Course Prefix	Course Number	CRN(s)	Course Type	Credit Hours	Instructor(s)	Department of Instructor(s)	Course Start Date	Course End Date	Total Lecture Hours	Total Field/ Lab Hours	Total Contact Hours*
Insect Natural History	ENTO	3140-3140L	57435/57436	Lecture	4	Marianne Shockley	Entomology	5/13/2017	5/31/2017	40	60	70
Field Animal Behavior	BIOL	3720L	55082	Supervised Lab	3	Robert Matthews	Entomology	5/13/2017	5/31/2017	26	77	64.5

*Total Contact Hours = Total Lecture Hours + (Total Field Hours / 2)
 Courses require 12.5 contact hours for each credit hour earned

Please also complete the Academic Itinerary found on the second worksheet of this document.

For questions, please contact the Office of Curriculum Systems at currsys@uga.edu or 706-542-6358.

Academic Itinerary

Study Abroad Program Name: Insects and Animals of Ecuador and the Galapagos

Study Abroad (SABD) Course ID: SABD 1147

Program Start and End Dates: May 13 - May 31

Instructors and Courses Taught:

<u>Instructor</u>	<u>Course(s) Taught</u>
Marianne Shockley, Robert W. Matthews	ENTO 3140-3140L and BIOL 3720L

Initial academic itineraries are understood to be tentative and subject to change. Please be as specific and accurate as possible.

For questions, please contact the Office of Curriculum Systems at currsys@uga.edu or 706-542-6358.

ENTO 3140 & 3140L

Date	The Day's Plan	Discussion Question	Assignments Due
Athens	<p>Start 9:00am</p> <ul style="list-style-type: none"> ◦ Ice breakers ◦ Syllabi for ENTO 3140 and BIOL 3720L ◦ Presentations <ul style="list-style-type: none"> ◦ Intro to Ecuador ◦ Taxonomy ◦ Get Collecting Stuff together <p>Lunch 12:00-2:00</p> <p>Collecting at Botanical Gardens (2:00-5:00)</p>		
Athens	<p>Start 9:00am</p> <ul style="list-style-type: none"> ◦ Presentations <ul style="list-style-type: none"> ◦ Morphology ◦ Orders of Insects Pt 1 ◦ Intro to Med Ent/Vector Specificity ◦ Medically Important Orders/Families/Species ◦ Pinning and Mounting <p>Lunch 12:00-2:00</p>		Night Collecting Reference List

	Collecting at Lake Herrick (2:00-5:00)		
	Group Night Collecting Project (8:00-11:00)		
Athens	<p>Start 9:00am</p> <ul style="list-style-type: none"> ◦ Presentations <ul style="list-style-type: none"> ◦ Insect Development ◦ Orders of Insects Pt 2 ◦ Labeling <p>Lunch 1:00</p> <p>Library Project (2:00-5:00)</p>		<p>Sight ID Quiz</p> <hr/> <p>Assignments:</p> <p>Med Ent Question 1 (Due 10:00am)</p>
Athens	<p>Meet at UGA (12:00pm)</p> <ul style="list-style-type: none"> ◦ Deta Flight 6:00pm ◦ Discussion while waiting in the airport. 	<p>1) What are you expecting about your experience in Ecuador regarding the courses, culture, insect, plants, and/or biodiversity? Is there anything you're nervous about?</p>	<p>Assignments:</p> <p>Med Ent Question 2</p> <p>(Due 10:00am)</p>
Athens	<p>Start 9:00am</p> <ul style="list-style-type: none"> ◦ Orientation ◦ Flight to the Galapagos 		<p>Reading:</p> <p>NC Ch 1 (Tropical climates/ecosystems)</p>

Quito	<ul style="list-style-type: none"> ◦ Dinner 7:00pm ◦ Basic Ecology of the Rainforest Presentation 8:30pm 	2) what are you expecting about your experience in the Galapagos ?	<p>Assignments:</p> <p>Med Ent Question 4</p>
Galapagos	<p>13-May Start 9:00am</p> <ul style="list-style-type: none"> ◦ Stubborn Plants Part 1 Student Myiasis Presentation (8:30pm) 	3) Find a plant you think is particularly adapted for living in the Galapagos. Jot down a brief description (and maybe a sketch). Be prepared to talk about why you think this plant is particularly adapted for the rainforest and its challenges based on the “basic ecology of the rainforest” presentation	<p>Assignments:</p> <p>Med Ent Question 4</p>
Galapagos	<p>14-May</p> <ul style="list-style-type: none"> ◦ Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Tour ◦ Free time [Work on assignments] (12pm) ◦ Lunch 1:00pm ◦ Research Project Discussion (2pm) ◦ Insect Photography and Identification (3pm) ◦ Insect Physiology (5pm) ◦ Dinner 7:00pm ◦ Evolution (8:30pm) ◦ Group Night Collecting Project (10pm) 	4) Find an insect today and sketch it. What structures help it maintain water balance, how does it intake air, and what sensory organs does it have?	<p>Reading:</p> <p>NC Ch 2/3 (rainforest structure/function)</p>

Galapagos	<p>15-May</p> <ul style="list-style-type: none"> Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Tour ◦ Free time [Work on assignments] (12pm) ◦ Lunch 1:00pm ◦ Meet with instructors about research project methods (6pm) ◦ Dinner 7:00pm ◦ Living Together – Symbiosis (8:30pm) ◦ Blacklighting/Identification (10pm) 	<p>5) Think about things that make you sick. Do you think you have a symbiosis with them, and if so, what kind? Why or why not? What challenges do you think arise from relationship, both from your side and the pathogen/parasite's side.</p>	<p>Reading:</p> <p>NC Ch 13 (pgs 325-33)</p> <p>(Bestiary –invertebrates)</p> <p>NC Ch 4 (Evolutionary patterns)</p>
Galapagos	<p>16-May</p> <ul style="list-style-type: none"> Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Tour ◦ Free time [Work on assignments] (12pm) ◦ Lunch 1:00pm Insect Communication (5pm) ◦ Dinner 7:00pm ◦ Student Dengue/Yellow Fever Presentation (8:30pm) ◦ Black lighting/Identification (10pm) 	<p>6) Sketch three insects and annotate your sketches with how you think these animals communicate within the species or to other species. What do you think this communication is saying and to whom?</p>	<p>Reading:</p> <p>NC Ch 5 (Coevolution)</p> <p>Assignments:</p> <p>Med Ent Question 5</p> <p>Assignments:</p> <p>Assignments:</p>

			Pitch research project idea (2pm)
Galapagos	17-May Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Tour ◦◦ Lunch 1:00pm ◦ Student Chagas presentation (8:30pm) ◦ Blacklighting/Identification (10pm)	7) Do you feel that most Ecuadorians are concerned with or aware of vector-borne diseases? Why or why not?	Reading: NC Ch 12 (Neotropical Birds)
			Assignments: Med Ent Question 6
Galapagos	18-May ◦ Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Hike ◦ Lunch 1:00pm ◦ Work on research project, assignments ◦ Dinner 7:00pm ◦ Student Leishmaniasis presentation (8:30pm) ◦ Blacklighting (10pm)	8) Reflect on your time in the Galapagos. Describe two experiences that stand out to you.	Readings: Med Ent Ch 14 (Triatomine bugs)
			Assignments: Entomological Arthropod Observation
Galapagos	19-May ◦ Bird Watch 6:00am ◦ Breakfast 8:00am ◦ Natural History Hike ◦ Work on assignments (12pm) ◦ Lunch 1:00pm ◦ Work on assignments (2pm)	9) What did you think of the hospital we	Reading:

		<ul style="list-style-type: none"> ◦ Insect Growth and Development (5pm) ◦ Dinner 7:00pm ◦ Student Onchocerciasis Presentation (8:30pm) 	<p>visited? What are some of the challenges the local people may face? What sorts of challenges do you think the establishment faces?</p>	<p>Assignments:</p> <p>How do Insects Work?</p>
Galapagos Maqui	20-May	<p>Travel to Maquipacuna</p> <p>Orientation</p> <p>Dinner 7:00pm</p> <ul style="list-style-type: none"> ◦ Group Night Collecting Project (10pm) 	<p>10) Have you personally been bitten or affected by any medically important insects or arthropods on this trip? What control measures have you been using?</p>	<p>Reading:</p>
Maqui	21-May	<ul style="list-style-type: none"> ◦ Bird Hike 6:00am ◦ Breakfast 8:00am ◦ Natural History Tour ◦ Free time [Work on assignments] (12pm) ◦ Lunch 1:00pm ◦ Research Project Discussion (2pm) ◦ Insect Photography and Identification (3pm) ◦ Insect Physiology (5pm) ◦ Dinner 7:00pm ◦ Sacrifices for Flight Presentation (8:30pm) 	<p>11) Find three immature insects and sketch them. Annotate your sketches (does it have a well-defined head, can it move, does it have legs? [etc...]) What order of insects do you think each belongs to and why?</p>	<p>Reading:</p>

		<ul style="list-style-type: none"> ◦ Group Night Collecting Project (10pm) 	Assignments:
Maqui	22-May	<ul style="list-style-type: none"> Bird Hike 6:00am ◦ Breakfast 7:00am ◦ Hospital (8am) ◦ Toucanopy (10am) ◦ Lunch on the road ◦ Mariposas de Mindo (1pm) ◦ Chocolate Tour (2:30pm) ◦ Meet with instructors about research project methods (6pm) ◦ Dinner 7:00pm ◦ Metamorphosis of Color (8:30pm) ◦ Blacklighting/Identification (10pm) 	<p>12) Do you expect to observe any differences in the medically important insects and arthropods on the coast versus in the cloud forests?</p>
			Reading: NC Ch 14 (Deforestation and Conservation) Med Ent Ch 5 (Sand flies)
			Assignments: Mystery Writing Assignment
Maqui	23-May	<ul style="list-style-type: none"> ◦ Breakfast 7:00am ◦ Hike to Santa Lucia and back ◦ Lunch at Santa Lucia 	<p>13) How would you define ecotourism? Is it</p>
			Reading: Med Ent Ch 4 (Black flies)

	<ul style="list-style-type: none"> ◦ Dinner 7:00pm ◦ Student Myiasis Presentation (8:30pm) (8:30pm) ◦ Blacklighting/Identification (10pm) 	<p>your opinion that it has become more popular in recent years? What are some of the main advantages and disadvantages of ecotourism?</p>	<p>Assignments:</p> <p>Med Ent Question 7</p>
Maqui	<p>24-May</p> <ul style="list-style-type: none"> ◦ Bird Hike 6:00am ◦ Breakfast 8:00am ◦ Natural History Hike ◦ Work on assignments (12pm) ◦ Lunch 1:00pm ◦ Work on assignments (2pm) ◦ Insect Growth and Development (5pm) ◦ Dinner 7:00pm ◦ Student Onchocerciasis Presentation (8:30pm) 	<p>14) What are some major differences between the cloud forests of Maquipacuna and the coastal area of Esmeraldas?</p>	<p>Reading:</p> <p>Med Ent Ch 2 (Anopheline)</p> <p>Assignments:</p>
Esmeraldas	<p>25-May</p> <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Travel to Esmeraldas ◦ Lunch on the road ◦ Dinner 7:00pm ◦ Student Malaria Presentation (8:30pm) 	<p>15) What are some important roles mangroves have? How do you think this ecosystem compares to the wetlands in the US? Do you think they serve some of the same functions? What do you think are some of the challenges a mangrove plants or animals have to deal with?</p>	<p>Reading:</p> <p>NC Ch 11 (Costal Ecosystems)</p> <p>Med Ent Ch 3 (Clulicine)</p> <p>Med Ent Question 8</p>
	<p>26-May</p> <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Mangrove Boat Tour ◦ Lunch on the road 		<p>Reading:</p> <p>NC Ch 8</p>

	<ul style="list-style-type: none"> ◦ Maquipucuna Research Project Presentations (6:00pm) ◦ Dinner 7:00pm 	<p>16) What benefits do you think the river brings to the ecosystem? What kinds of animals do you think depend on the river?</p>	<p>(Rivers through Rainforests)</p> <p>Med Ent Ch 10 (Flies and Myiasis)</p> <p>Assignments: Med Ent Question 9</p>
<p>Esmeraldas</p> <p>Playa de Oro</p>	<p>27-May</p> <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Travel to Playa de Oro ◦ Lunch on the road ◦ Dinner 7:00pm ◦ Group Night Collecting Project (10pm) 	<p>17) After spending time in the village what do you think about the culture? What are some of things that surprised you most about the village or the people that live here? What do you think about the educational system here? What do you think it would be like to be completely dependent on the community and community leader to be able to survive?</p>	<p>Readings:</p> <p>Med Ent Ch. 11 (Fleas)</p> <p>Med Ent Ch 12 (Lice)</p> <p>Med Ent Ch 13 (Bedbugs)</p> <p>Med Ent Ch 15 (Cockroaches)</p> <p>Med Ent Ch 18 (Ticks)</p> <p>Med Ent Ch 19 (Scabies Mites)</p> <p>Med Ent Ch 20 (Typhus Mites)</p> <p>Assignments: Design a Sign</p>

			Med Ent Question 10 & 11
Playa de Oro/ Otavalo	28-May <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Community Project ◦ Lunch ◦ Community Project ◦ Insect Identification ◦ Dinner 7:00pm ◦ Insect Sociality (8:30pm) 	16) What differences in the insects and plants did you notice in the altitude changes? What are some of the advantages or disadvantages of living in the clouds, lowlands, or dry forests? What do you think are the main ways these ecosystems get enough moisture to sustain life?	Reading: Assignments: Med Ent Question 12
Otavalo	29-May <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Travel to Otavalo ◦ Lunch on the Road ◦ Dinner 7:00pm ◦ Stubborn Plants Part 2 – Living in Dry Climates (8:30pm) 	17) What are some main differences you've noticed about the vegetation in Otavalo vs along the beach and at Maqui? What sorts of abiotic factors do you think contributed to the difference in vegetation morphology? How do you think the change in vegetation affects the animals (including insects) you find in these ecosystems?	Reading NC Ch 10 (Savannahs and Dry Forests) Assignments: Scavenger hunt Night collecting research paper
Quito Atlanta	30-May <ul style="list-style-type: none"> ◦ Breakfast 8:00am ◦ Lunch ◦ Old Town Driving/Walking Tour ◦ Dinner ◦ Delta Flight 680 – Fly to Atlanta (11:30pm) 	18) Jot down one experience that you thought was particularly memorable from our trip. Why does this stand out to you?	Reading: Assignments:

			Digital Insect Collection
Atlanta	31-May ◦ Breakfast 8:00am ◦ Lunch ◦ Old Town Driving/Walking Tour ◦ Dinner ◦ Delta Flight 680 – Fly to Atlanta (11:30pm)	18) Jot down one experience that you thought was particularly memorable from our trip. Why does this stand out to you?	Reading: Assignments: Digital Insect Collection

	Lecture	Field
Total Contact Hours	40	60

Academic Itinerary

Study Abroad Program Name: Insects and Animals of Ecuador and the Galapagos

Study Abroad (SABD) Course ID: SABD 1147

Program Start and End Dates: May 13 - May 31

Instructors and Courses Taught:

Instructor	Course(s) Taught
Marianne Shockley, Robert W. Matthews	ENTO 3140-3140L and BIOL 3720L

Date	Location	Activity	Lecture Hrs	Field Hrs	Assigned reading
Wednesday May 10	Athens	Course overview Intro to Behavior Behavior sampling methods lab	1 1	3	Dawkins chapters 2 & 5 Ploger 2003
Thursday May 11	Athens	Design field study - Human vigilance Data collection in field	1	3	Scheib et al. 2003
Friday May 12	Athens	Intro to Tropical Biology/Ecology Duck behavior study, Memorial Park Discuss Human Vigilance data	2 1	3	Forsyth, chapters 1 & 2 Resident expert paper
Saturday/Sunday May 13/14	Athens/Ecuador	Travel time			
Monday May 15	Maquipucuna	Orientation to tropical cloud forests Early morning bird hike Intro to experimental design	1	2 2	Dawkins, Chaps. 4,6 & 8 Tillberg, et al. 2007
Tuesday May 16	Maquipucuna	Early morning bird hike Design field study - hummingbird foraging Data collection in field	1	2 3	
Wednesday May 17	Maquipucuna	Data analysis - Excel tutorial lab Design field study - leaf cutter ants Data collection in field	1	1 3	Tillberg, et al. 2007
Thursday May 18	Maquipucuna	Early morning bird hike Design field study - butterfly puddling Data collection in field	1	2 3	
Friday May 19	Maquipucuna	Early morning bird hike Discuss lab reports Writing the scientific paper - hands on tutorial	1	2 2	Matthews & Matthews 2010
Saturday May 20	Travel to Otavalo	Discuss lab reports Toucanopy/Mariposas de Mindo - food choice Ecological & Evolutionary Traps	1 1	1	Schlaepfer, et al. 2002
Sunday May 21	Travel to Yanchana	Intro to lowland rainforests Design field study - optimal foraging Data collection field	1 1	2	Forsyth, chapters 3 -5 Tillberg, et al. 2007
Monday May 22	Yanchana	Data collection in field Early morning bird hike Review Maquipucuna field studies	1	3 2	

Tuesday May 23	Yanchana	Early morning bird hike Design field study Symbiosis/Mutualism Queen of Trees Video	1 1	2 1	Fig wasp paper
Wednesday May 24	Yanchana	Data collection in field Early morning bird hike Design field study - termite tunnel repair	1	3 2	
Thursday May 25	Yanchana Travel to Quito	Data collection in field		3	
Friday May 26	Travel to Galapagos	Discuss lab reports Design field study Hike to observe boobies, frigate birds, iguanas Group Snorkle	1 1	3 2	
Saturday May 27	Galapagos	Introduction to Galapagos/Darwin's insights Design field study - Iguanas Group Snorkle Data collection in field	1 1	2 3	
Sunday May 28	Galapagos	Design field study - flamingo vigilance Group Snorkle Data collection in field	1	2 3	
Monday May 29	Galapagos	Darwin's finches lab Design Field Study - Giant tortoise spacing Group Snorkle Data collection in field	1	2 2 3	HHMI
Tuesday May 30	Galapagos Travel to Quito	Data collection in field Guided tour Charles Darwin Research Station Discuss lab reports	1	3 2	
Wednesday May 31	Travel to Atlanta	Course wrapup	1		

Total Contact Hours	26	77
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