Syllabus--- Summer 2008

An Island Apart: Culture and Natural Resources of Madagascar

Sponsored by the College of Agriculture and Natural Resources; arranged through the Office of Study Abroad

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Objectives: To learn and think critically about the biodiversity of Madagascar, relationships between the Malagasy people and their natural resources, and programs aimed at balancing conservation with human needs.

Courses:
FW 480 International Studies in Fisheries and Wildlife (3-6 cr.)
ANR 475 International Studies in Agriculture and Nat. Resources (2-6 cr.)
ISB 202 Applications of Environmental and Organismal Biology (3 cr.)
ZOL 490-754 Independent Study in Zoology (1-4 cr.)

All students must enroll in at least three credit hours of FW and/or ANR credit, and the normal course load is 6 credits.

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**Required Course Readings:**
PDFs will be provided for downloading or printing on the ANGEL course website.

**Planned itinerary** (changes are possible):

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Lodging</th>
<th>Details</th>
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<tbody>
<tr>
<td>10-May</td>
<td>Antananarivo (capital)</td>
<td>Hotel Shanghai</td>
<td>Phone: 011 261 22 314 72/675 13; Fax: 011 261 22 315 61</td>
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<td>11-May</td>
<td>Ranomafana National Park</td>
<td>Domaine Nature Ranomafana</td>
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<td>17-May</td>
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<td>18-May</td>
<td>Ankarafantsika National park</td>
<td>Gite Ampijoroa</td>
<td>Phone: 011 261 62 226 56; Expect electric lighting but no power outlets; communal facilities; mosquito nets. Facilities recently upgraded so may be better now.</td>
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<td>Mahajanga</td>
<td>Chabauz</td>
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<td>25-May</td>
<td>Nosy Be Island</td>
<td>Hotel Bellevue Nosy Be</td>
<td>Phone: 011 261 86 613 84; hot water; some rooms with AC, others with fan</td>
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<td>29-May</td>
<td>Andasibe-Mantadia National Park</td>
<td>Hotel Orchidée Andasibe</td>
<td>Phone: 011 261 56 832 05; shared bathrooms, hot water</td>
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Planned presentation/discussion topics and readings:

Pre-trip topics:
- Adaptive Radiation and Convergent Evolution in Madagascar
- Introduction to Culture and People of Madagascar
- Introduction to Forest Management in Madagascar: A Historical Overview
- Why is Madagascar’s Biota so Unusual? (Geology, Climate, Regions, and Paleontology)

Topics During Trip (subject to adjustment; order of topics to follow course readings):
- Lemur Diversity and Conservation
- Cultural diversity
- Global Patterns of Biodiversity and Madagascar’s Biodiversity
- National Parks and Reserves as Tools of Conservation
- Agriculture and Deforestation
- Coevolution
- Birds of Madagascar and introduction to surveying birds
- Community Conservation of Durrell Wildlife Trust
- Ecological Monitoring Participatory
- Mammals of Madagascar
- Invertebrates of Madagascar
- Conservation of Madagascar’s Turtle and Fishes
- Fishes of Madagascar
- Water Management and Aquaculture
- Impacts of Exotic Species in Madagascar
- Coral reef ecology and threats
- Amphibians and Reptiles of Madagascar
- Ecology of Madagascar’s Forests
- Natural resources management
- Globalization and Madagascar’s environment
- Sustainable development and tourism in Madagascar

Course requirements:

1) Pre-trip assignments:
   1a) Students will carry out a short project prior to the course. This will be an enquiry-based research exercise using the Animal Diversity Web (ADW, [http://animaldiversity.ummz.umich.edu/site/index.html](http://animaldiversity.ummz.umich.edu/site/index.html)) search engine, and is part of a pilot NSF-funded educational research project on which Dr. Rasmussen is a collaborator. The ADW is an online database of animal natural history, distribution, classification, and conservation biology with thousands of species accounts. The assignment will be to use this database to answer scientific questions related to the primate fauna of Madagascar. We will provide a list of potential questions (1 question per student) and the procedures for addressing the questions. We have chosen to focus on lemurs for this exercise because ADW accounts exist for many species in this group. The written assignment will be turned in at the start of the course and each student will share their results orally to the rest of the students during the course in a 15-minute presentation followed by group discussion. Below are examples of the types of questions students will be addressing further details and refinements, and directions to be provided soon):
1a.1) What is the relationship between sexual dimorphism and mating system in Malagasy primates (lemurs)? Compare to the relationship found in mainland African primates or another group of mammals (Cervidae, Phocidae)

1a.2) What is the relationship between diet and activity period (nocturnality vs. diurnality) in lemurs? Does the same relationship hold in primates in South America? Asia? mainland Africa? What are the possible competitors of primates?

1a.3) What factors correlate with degree of endangerment in lemurs? Explore correlation between IUCN category and body size, reproductive data, activity period, sociality, and diet.

1a.4) What is the relationship between diet and body size in lemurs? Compare this to the same relationship in New World and mainland African primates and another mammalian group and explain the observed patterns.

1a.5) Is there a relationship between investment (amount of parental care) in offspring and number of offspring per year? Compare this to patterns in the family Leporidae (rabbits). Explain the observed pattern and what factors might contribute to that pattern.

1a.6) How do communities of lemurs partition resources to minimize competition? Are there differences in habitat use, activity period, diet, body size? Because the diversity of lemurs is so high, the first step in this query will be to choose 2 areas for comparison and then compile a species list for that area. Then compare the species that co-occur in an area.

1b) A short assignment to encourage students to practice using binoculars will be given prior to the course (attached to website). Arriving in Madagascar with the skill to be able to quickly locate an animal in the canopy of a forest with a pair of binoculars will make the experience much more enjoyable and valuable. We will lend binoculars to each student who doesn’t have their own (but lost, stolen, or damaged binoculars would need to be replaced in kind). A good pair of binoculars will greatly enhance your experience during the course; let Dr. Rasmussen know if you want a recommendation for binoculars.

2) Field Notebook & Journal:
2a) Notebook. Each student must carry a small field notebook (preferably waterproof—for example www.waterproof-paper.com/waterproof-field-book.html) on each excursion for note-taking. When we are in the field observing birds, mammals, fishes, and other forms of biodiversity, record details of each important sighting such as time of day, habitat, viewing details, how you identified each individual, etc. Observations about Malagasy people’s interactions with their environment must also be logged. When appropriate, make sketches and/or take video/photos, which should be logged in your field notebook as to date, locality, and species in question. Your notebook should be turned in to Drs. Rasmussen & Gore at the end of the last day of the trip.

2b) Journal. Students must also take notes every day of the program in a bound journal (guidelines to be provided). There must be a date and location for each entry, along with
the name of the speaker (whether guide, instructor, or guest lecturer). Notes for each day should be factual and should record what you saw and learned. At the end of each day, record your reflections of what you saw and learned that day and how it was relevant and significant to course objectives. You should also pick four of the topics in the course readings packet and discuss these thoroughly in your journal. Your journal should be turned in to Drs. Rasmussen & Gore at the end of the last day of the trip.

We will collect your notebooks and journals around the end of the first week to give feedback on the appropriateness of its content so you may take corrective action as needed. Students may choose to keep a personal diary separately, which will not be turned in. All notebook and journal content should be of a scholastic, not personal, nature. Students are strongly encouraged to discuss how seeing certain wildlife/national parks, people, etc. make them feel, and what they think about when they see what they see. See ANGEL website for an example of appropriate field notebook and journal entries.

3) Field exercises:
Several field projects will be conducted during the program on a variety of topics using various field techniques. These exercises will focus your thoughts and activities, and provide practical experience with real-world scientific data collection, quantitative and qualitative analysis, and written and oral communication of results. Examples of field exercises include:

3.1) Lemur behavioral observations. On multiple occasions, students will record lemur behavior to address questions and test hypotheses related to ecological variables that shape behavior, variation in behavior among species, and dominance hierarchy.

3.2) Avian behavioral observations. On multiple occasions, students will record bird behavior to address questions and test hypotheses related to mixed flock species composition, foraging strategy and height, and inter- and intra-specific interactions.

3.3) Avian visual and auditory surveys. Students will learn to conduct avian diversity surveys using point-count and line-transect methods and using remote recording devices. Students will assess species richness and diversity in relation to habitat type and elevation. Each student will also be responsible for recording, properly documenting, and identifying vocalizations of at least 5 bird species, and preparing and analyzing sonograms (diagnostic image of pitch vs. time produced by reflected sound waves) of recordings.

3.4) Stakeholder identification observations. Students will learn to identify different stakeholders (and stakes) for a variety of conservation and management issues. Students will assess who the stakeholders are, what stakes they hold, and identify opportunities and challenges for stakeholder collaboration.

4) Take-home final
This will be an open-book final, posted online by 6 June and due by 13 June. (We can accommodate special needs re the due date; let us know). Please e-mail it to both instructors (gorem@msu.edu and rasmus39@msu.edu) by the due date. If you prefer to write the final out by hand, e-mail us both well in advance so we can make secure arrangements for you to turn it in.
5) **Final paper/project:**

Students may choose EITHER to prepare a final paper/project on a cultural/natural resources topic OR to research and write an Animal Diversity Web (ADW) species account (for ZOL 490 credit). This will be completed after returning from the course, and will be due by midnight on 20 July 2008. It is the student’s responsibility to email BOTH Drs. Rasmussen and Gore their final paper/projects by the due date.

5a) **Cultural/Natural Resource Topic.** Students will produce a college-level research paper or project. The topic of the paper is up to you, but must be related to your experience in Madagascar, and include both a biological and human dimension. A paper outline must be submitted to Dr. Gore for approval by 2 June. We recognize that some students prefer to express themselves in ways other than in writing, so we are prepared to accept proposals for a final project in lieu of a final paper. The project must result in a substantive product related in some way to the student’s course of study or special skills/interests. Each proposal will be considered on an individual basis. If you do not submit a proposal for a project before leaving Madagascar, you will forfeit your opportunity to do so and instead will be required to write a research paper as described above. This should be a 12-20 page, double-spaced, in-depth paper on your approved topic (see above). It must be fully referenced, using primary, peer-reviewed literature, and can be supplemented by information from websites, course lectures, guest speakers and guides, and your field notebook. The proper citation format will be posted on the ANGEL website for this course. Interested students may have their papers/projects posted on Dr. Gore’s webpage, which they may note on their resume.

5b) **Animal Diversity Web species account.** The student will select a species that lacks a text account in the ADW database, and that we encountered during the course. Many gaps exist in the ADW database for species occurring in Madagascar, especially for birds and other small animals, but also for lemurs and other mammals. We encourage you to tentatively choose a species before we go so you can concentrate on it while there. It’s best to choose a species for which at least a moderate amount of information is known, otherwise there will be little for you to write about! Please discuss your choice with Dr. Rasmussen before you spend too much time on it. Species accounts will include geographic range, habitat, physical description, reproduction, lifespan/longevity, behavior, home range, communication and perception, food habits, predation, ecosystem roles, economic importance for humans (negative and positive), conservation status, and references. Each student will submit drafts to the instructors for editing, and multiple drafts may be needed to bring the account to submission status. Students then submit the species account to the ADW database, and if the editors consider it accurate, original, and complete, they will publish it online. For many of you, this can be the first “publication” to add to your resume! Detailed directions to get you started are attached, and further directions are online.

6) **Class participation, professionalism, and cultural sensitivity:** Students with excellent attendance and timeliness at all course activities, and a positive attitude should have no difficulty with this aspect of the course. Points will be assigned in the grading process to reflect seriousness of purpose, professionalism, and special efforts (or lack thereof)
regarding group dynamics and cultural sensitivity. Students are required to carry and make an honest effort to use their binoculars and field notebooks on all excursions unless specifically stated otherwise (this is part of your participation grade). Each evening, students must meet with the instructors (unless otherwise specifically stated), minimally for briefing on the next day’s activities. Non-excused tardiness, absence, excessive complaining, or other disruptive behavior will result in docking of a portion of this credit, and in serious cases the instructors reserve the right to take actions necessary to ensure the quality of the course is not impacted (including sending a student home).

Grading:

1) Pre-trip assignment: 10%
2) Field notebook and journal: 20%
3) Field projects: 20%
4) Exams: 20%
5) Final project: 20%
6) Class participation: 10%

Expectations and Responsibilities
Study Abroad is an academic experience, in which academic responsibilities take precedence over personal interests. We will be doing a considerable amount of hiking, and on certain days we will be on the trails very early because that is when wildlife activity is at its height. Lectures by Malagasy naturalists will be given mainly during hikes, and instructors will present lectures in the afternoons, evenings, and during bus rides. Your on-time attendance at each program event is expected. For field trips, you must have your binoculars out and you must make every effort to use them when we sight wildlife. Guest speakers, guides, and naturalists should be treated with the same respect as program faculty. Please remember that your conduct will reflect not only on yourself but also on your fellow students, instructors, university, and country. At the start of the program students should identify behaviors that are acceptable, and should decide on actions to take to ensure these behaviors are followed by all. Remember to be polite and listen to each other; respect classmates, leaders and local people; honor diversity within the group; attack problems not people; and look for compromises. Remember you are in another culture, with different norms---consider how locals will view public displays of affection. We should also inform students that homosexual behavior is technically illegal in Madagascar. Use of banned drugs is strictly not allowed (zero-tolerance), and alcohol abuse is grounds for dismissal from the program.

Facilities
We will be staying at a wide variety of facilities, from inexpensive city hotels to rustic bungalows in national parks and villages. All facilities normally have running water, working toilets, electricity, and showers, but there are no guarantees that these will all be functioning optimally at any given place and time. Students will share rooms with 2-3 same-sex students. Some rooms may have the equivalent of a double bed instead of separate twin beds. We will not be camping. Clothes can be sent out for washing.

Malagasy Time
Madagascar time is UTC/GMT +3 hours. This is 7 hours ahead of US Eastern Standard Time. (Madagascar does not observe daylight-savings time.)
Life in Madagascar is much slower than it is in the US. Appointment times to many Malagasy people are a mere suggestion, not a commitment. Public transportation is slow and unreliable, and the people of Madagascar are accustomed to these inconveniences. Should a local bus break down, it is not considered a crisis. Everyday transactions in Madagascar generally take longer than they do here. It might take a bit longer than expected to get your meal at a restaurant, especially when we are eating in a group.

Also, be prepared for the unexpected and realize that quick solutions may not be an option in Madagascar. As your instructors, we are prepared to remedy problems we may encounter, but in so doing, we may be forced to make changes to the itinerary as described above. Breakdowns and flight delays in Madagascar can result in wonderful unexpected side trips, which is part of the adventure of Madagascar. We will do our best to stick to the itinerary, but if changes are necessary, we will endeavor to make decisions that are in your best interest.

Accommodations

If you need an accommodation based on the effect of a disability, you should contact Dr. Rasmussen or Gore as soon as possible. We utilize the services of MSU’s Resource Center for Persons with Disabilities (www.rcpd.msu.edu) to verify the need for accommodations and to develop an appropriate accommodation strategy to the extent possible.

Academic honesty

Academic honesty is fundamental to the activities and principles of the university. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences. When in doubt about plagiarism, paraphrasing, quoting, or collaboration consult one of us for guidance. To learn more about plagiarism and how to avoid it, visit www.library.ualberta.ca/guides/plagiarism.

Miscellaneous

You can plug in computers and digital camera with the proper adaptors, but not 110V items such as hair dryers. (And anyway, hair dryers are likely to blow a fuse, so please refrain from bringing them.)

Use bottled water to brush your teeth, and beware ice cubes in your drinks and unwashed fruits and vegetables. In general, it is best to avoid eating raw vegetables (especially lettuce) and fruits without a peel.

We will have a satellite phone for emergency use only. When in towns you may buy a calling card for international calls with cell phones we will have with us. Normally, we will be able to check e-mail at least a few times during the program (mainly in Tana and Nosy Be)
All students must read this!

The CIS for Madagascar was last updated on October 26, 2007. The last OSA Review was on April 9, 2007. You can read the full text at http://travel.state.gov/travel/cis_pa_tw/cis/cis_957.html

ENTRY/EXIT REQUIREMENTS: A passport and visa are required. Visas are available at all airports servicing international flights, but travelers who opt to obtain a visa at an airport should expect delays upon arrival. Visas obtained at the airport cannot be extended.

SAFETY AND SECURITY: There are random police vehicle checkpoints throughout Madagascar, so all visitors should carry photo identification (i.e., U.S. passport) in the event of police questioning. These check points are routine in nature, and should not result in vehicle and/or person searches as long as valid identification is shown.

CRIME: The major concerns for visitors to Antananarivo are crimes of opportunity such as pick pocketing, purse snatching, or theft from residences and vehicles.

MEDICAL FACILITIES AND HEALTH INFORMATION: Standards of healthcare throughout Madagascar are well below U.S. standards. Medical care outside of Antananarivo is generally well below the care available in the capital city. Caution and good judgment should be exercised when seeking hospital and medical services. The Embassy maintains a list of hospitals and specialists.

Some medications, generally of French origin, are available in Antananarivo. If you need to refill a prescription from home, it is important to carry a prescription from your doctor listing the medicine's generic name. There is limited availability of both prescription and over the counter medications, and outside of Antananarivo, medications may not be available. Malaria is prevalent, particularly in the coastal regions. Using preventive measures and malaria prophylaxis is strongly recommended. Rabies is endemic and there are many street dogs.

SPECIAL CIRCUMSTANCES: Madagascar is primarily a cash-driven economy. Although some high-end establishments catering to tourists accept credit cards, normally only Visa-logo cards, most shops and restaurants are cash only.

REGISTRATION / EMBASSY LOCATION: The U.S. Embassy is located at 14-16 Rue Rainitovo, Antsahavola, Antananarivo. The mailing address is B.P. 620, Antsahavola, Antananarivo, Madagascar; telephone [261] (20) 22-212-57; fax [261] (20) 22-345-39. The Embassy’s web site is located at http://www.usmission.mg/.
Student Instructions for preparing Animal Diversity Web account (final project)

Thank you for contributing to the Animal Diversity Web. We think that researching and writing about an animal species can be a valuable learning experience and are happy to help with any problems you encounter.

The first thing you’ll need to do is to register in your course workspace. Go to this url: http://animaldiversity.ummz.umich.edu/workspaces/ and select “new user.” This will take you to a page where you enter some information, including selecting the right course from the pull down menu. This is very important, you must select the correct course workspace or your instructor will not be able to see your work. Some semesters we have multiple courses from the same institution (so, 3 MSU courses, for example) – make sure that you’ve selected the right course and do not fill in the course on your own. Once you've successfully registered, you'll have a login id and password. You can change your password at any time.

Next, return to this url: http://animaldiversity.ummz.umich.edu/workspaces/ and login. This will take you to your course workspace. You’ll see some help materials, including brief instructions and links to the full set of guidelines for contributors. You will only be able to see your own work when you login.

There are several options for signing up for a species. Before you try this, you should understand that the ADW only accepts signups for valid species that we do not already have on the ADW (with some exceptions, explained below). We do not accept signups for subspecies. Start by doing a little research, you want to make sure that: 1) you can actually find reputable resources with natural history information on the species you’re interested in. There is very little known about some species, making it difficult to complete a good species account. 2) you are willing to write about several species, in case your favorite species is already taken.

From your course workspace, select “new signup.” You’ll then see two options for selecting a species:

Option 1: Sign up by scientific name.
There are two considerations when using this option: spelling and whether or not we already have the species in our database. If we already have a well-written and researched account for a species, any new signup for that species will be rejected. Also, if the species name is incorrectly spelled, the signup will be rejected. In some cases (we're working on our taxonomic databases almost constantly!) the species is valid (it’s a real species), you’ve used the correct spelling, and there is no ADW account for that species but the signup still gets rejected. This usually means the name isn’t in our database yet. Send an email to ADW staff via the help email address provided in your workspace, we’ll check the name and give you instructions on how to proceed.

Option 2: Sign up by wish list.
Look for the “select a name from the wish list” option. Select the higher taxonomic group in which your species belongs (birds, amphibians, fish, insects, arachnids, etc.) and then click on “go.” Then select the button next to the species you would like to write about and select “continue” at the bottom of the list.

Species on our wish list are ones: a) for which we have an image or sound but no taxon account, b) that have been placed on our wish list for other reasons, or c) for which we have an account but would like to replace that account with one that is better written and more fully researched (these are highlighted in red on the wishlist).

Once you’ve selected a species in either of these two ways you’ll immediately find yourself on a page entitled: Animal Diversity Web Policy on Plagiarism. You must acknowledge having read this policy before you can continue. Once you’ve acknowledged the plagiarism statement, you are forwarded to the “help” tab associated with your species account. This tab includes instructions on how to proceed, as well as links to our complete set of guidelines.

Last important point: Notice the copyright release statement (it is a tab on your account and is linked via the help tab). If you want the ADW to be able to publish your account online, you must release your copyright to the University of Michigan. You are not under any obligation to release your copyright, and this will not affect your grade in the course for which you're writing an account. However, we cannot publish your material if we don’t have permission to do so.