# Independent Study Project
## ISPR-3000 (4 credits)

## Panama: Tropical Ecology, Marine Ecosystems, and Biodiversity Conservation

*This syllabus is representative of a typical semester. Because courses develop and change over time to take advantage of unique learning opportunities, actual course content varies from term to term.*

**Course Description**
The Independent Study Project (ISP) is designed to be the culmination of the Environmental Research Methods and Ethics course (ERME), the program's two thematic courses, and the Spanish for the Natural Sciences course. Methods learned in ERME, topics discussed in the thematic courses, and language skills acquired during Spanish study should be considered during the research and selection of the ISP topic and applied throughout the ISP period. From the moment students arrive in-country, students will investigate and consult with the program staff and other academics potential topics of interest in order to gauge the feasibility and scope of the project. This course requires intense responsibility, commitment, and independent work from students. ISP is a unique opportunity for undergraduate students to conduct original, independent research.  Students earn four credits for the course.

**Learning Outcomes**
By the end of the course, students will be able to:
- Discuss in-depth their research topic and its importance as it relates to ecology and conservation in the Neotropics.
- Effectively implement appropriate research field methods and techniques for gathering field data.
- Demonstrate an internalized and continual consideration for the awareness, development, and incorporation of ethical standards for appropriate environmental research.
- Identify the fundamental challenges to conducting effective fieldwork and research in a culture and natural landscape other than their own.

**Course Requirements**

Research Preparation
In conjunction with their Research Advisors (RA), students will develop the different parts of their research proposal during the semester and leading up to the research period.  Students will meet with their RA periodically to review their progress and discuss next steps.  For this reason, it is very helpful that the student decide on their research topic as early in the semester

as possible.  Research preparation assignments include: Research Question, Research Outline, Articles and Contacts, Mini Literature Review, and Final Research Proposal.

Research Advisors

Research Advisor's Role
The role of the Research Advisor (RA) is to guide and direct the student through the research process. The RA will guide the student in defining their specific research topic, establishing realistic and achievable research objectives, and developing their research proposal.

Student's role
It is incumbent upon the student to fulfill their obligations in submitting their assignments on time, arriving punctually to meetings, in seeking out the resources recommended by the RA, reading the material recommended by the RA, in maintaining communication with the RA, and following the RA's advice.

Meetings with Research Advisors
Students will meet and communicate periodically with their RA.  The student and the RA will agree upon the time and the location of the meeting.  It is imperative that the student arrive prepared to the meeting.  Students are required to communicate with the RA once per week while conducting their field research.  The following are the dates and available time periods for the meetings.

| Date | Time and location |
| --- | --- |
| TBD | To be decided by student and RA |
| TBD | To be decided by student and RA |

Research Proposal
Students will work throughout the semester on their research proposals in conjunction with the AD and RA.  Final research proposals should include the following sections: introduction (including literature review), research objectives, research question, hypothesis, methods, research calendar, and budget.  Final research proposals are due by email in Word format on **(date TBD)** to the RA and Aly.

Field Research
Students will spend a total of 120 hours engaged in field work and research paper preparation. Field environments will vary widely from laboratory settings to local communities to national parks.  While in the field, it is imperative that students demonstrate the utmost respect for local norms and cultures as well as continuously reflect on and be mindful of the ethical consequences of their actions.  Likewise, it is vital that students make appropriate decisions regarding their personal safety while conducting their fieldwork.

Communication
Students are required to communicate with program staff twice per week while in the field. Additional information will be provided prior to the research period.  In addition, students are required to communicate once per week with their RA.

Research Paper and Oral Presentation
The final paper should contain an Abstract, Acknowledgments, Introduction (with literature review), Research Question, Methods, Results, Discussion, and Conclusion. However, it is not obligatory that this information be provided in this order or organizational structure.  The research paper draft is due to the Research Advisor on _____.  The Research Advisor will return the reviewed draft to the student on_____.  The final paper is due on _____.  The final paper should be sent electronically to Aly and to the Research Advisor.

The oral presentation should be approximately 20 minutes in length and discuss the research in which the student engaged.  Generally, students prepare power point presentations for the oral presentation.  Students should consult the document "Oral Presentation Requirements" provided at the beginning of the semester.  The oral presentations will take place on _____.

Potential Research Areas of Interest

Areas of particular interest to Research Advisors
i.   Mangrove zonation revisited: a functional basis for understanding mangrove species distribution in relation to salinity (site: Chame )
ii.  Herbivory mediated success of introduced exotic species in the tropics: quantification of leaf herbivory in exotic vs. native species (site: Gamboa)
iii. Xylem hydraulic limitation among fresh water swamp species (site: Gamboa)
iv.  Estado de las poblaciones del pez león
v.   Análisis de cobertura de coral
vi.  Situación de la pesquería de langosta
vii. Análisis de cobertura de pastos marinos
viii. Estudios de diversidad y ecología de especies marinas

Additional areas of interest
- Mega-projects: mining
- Mega-projects: Hydroelectric dams
- Alternative energy sources
- Effects of different land uses on coral reef health
- Potential for sustainable architecture and building in Panama
- Local perspectives on globalization and its effects on forest-dwelling communities
- Linking the global economy with rural livelihoods
- Stakeholder analysis of a World Bank funded hydroelectric project
- Continuous impacts of a ten year old oil spill on marine life in the Caribbean
- The interface between local communities and protected areas
- Alternatives to tropical deforestation
- Potential for increased community forestry
- Indigenous forest management and natural resource use
- Indigenous, autonomous lands of Panama and the challenges they face
- Wildlife use by local populations
- The resplendent quetzal population of Chiriquí: challenges to its prosperity
- Effects of exotic species on forest regeneration
- Efforts toward habitat restoration in Panama

3

- Use of medicinal plants across Panamanian society
- Soil quality and the effects of erosion
- Subsistence agriculture and globalization
- Effects of eco-tones in a Panamanian rainforest
- Fish populations
- Coral reef health
- Effects of selection and anthropogenic use of mature secondary forest
- Jaguar populations
- Changes in bird populations across land use regimes
- Shade and birdsong coffee: is it sustainable? Is it truly a just cup?
- Organic agriculture in Panama: challenges to success
- Environmental movements in Panama: successes and failures
- Resource use on the agricultural frontier
- Ecological Crime: details and consequences
- Linking availability of social services, poverty, and the natural resource base

**Evaluation and Grading Criteria**
An institution-wide grading rubric developed by SIT is used to evaluate the ISP paper and oral presentation (students will receive the rubric prior to the research period). The oral presentation is evaluated based upon the organization of the presentation, content, and depth.

Assessment:
| | |
|---|---|
| Paper | 50% |
| Proposal | 25% |
| Presentation | 25% |

Grading Scale
| | | |
|---|---|---|
| 94-100% | A | Excellent |
| 90-93% | A- | |
| 87-89% | B+ | |
| 84-86% | B | Above Average |
| 80-83% | B- | |
| 77-79% | C+ | |
| 74-76% | C | Average |
| 70-73% | C- | |
| 67-69% | D+ | |
| 64-66% | D | Below Average |
| <64 | F | Fail |

**Program Expectations**
Please…
- Safety while in the field – Students will be working independently in the field. It is expected that they take appropriate safety and security precautions to ensure their well-being.
- Meetings with Research Advisors – Please arrive to your meetings with your RAs prepared and on time. If, for some unforeseen reason, you will be late, call them.

- <u>Complete assignments on schedule</u>. This will help you keep up with your classwork and ensure you don't fall behind.
- <u>Calling in</u> –It is imperative that students adhere to the call-in schedule while they are in the field.  This is an institution-wide policy and must be followed.
- <u>Comply with academic integrity policies</u> (no plagiarism or cheating, nothing unethical).
- <u>Respect differences of opinion </u>(classmates, lecturers, local constituents engaged with on the visits). You are not expected to agree with everything you hear, but you are expected to listen across difference and consider other perspectives with respect.
- <u>Consider your place and position in all dimensions.</u>  Demonstrate culturally appropriate behavior and expression always.

**Student research** (Independent Study Project) is a product of field work and as such students have an obligation to assess both the positive and negative consequences of their field study. Ethical field work, as stipulated in the SIT Statement of Ethics, results in products that are shared with local and academic communities; therefore, copies of ISPs are returned to the sponsoring institutions and the host communities, at the discretion of the institution(s) and/or community involved. World Learning/SIT Study Abroad may archive, copy, or convert the ISP for non-commercial use, for preservation purposes, and to ensure future accessibility. World Learning/SIT Study Abroad may archive ISPs in the permanent collection at the SIT Study Abroad local country program office and/or at any World Learning office. World Learning/SIT Study Abroad has a non-exclusive, perpetual right to store and make available, including electronic online open access, to the ISP. Students retain all ownership rights of the ISP product and retain the right to use all, or part, of my project in future works. Please refer to the Student Handbook or the Access, Use, and Publication of ISP form.

If the research has been funded by a U.S. government agency, or if the student plans to take this research back to the home school or community for further dissemination, then the student may be required to follow standards from their home institutions in addition to the Local Review Board and those of the Office for Human Research Protections, with which SIT is registered. For applications that require a full review, the academic director will forward any questions or concerns that cannot be resolved at the program level (through the Local Review Board) to SIT's Institutional Review Board.

**SIT Policies and Resources**

Please refer to the [SIT Study Abroad Handbook](#) and the [Policies ](#)section of the SIT website for all academic and student affairs policies. Students are accountable for complying with all published policies. Of particular relevance to this course are the policies regarding: academic integrity, Family Educational Rights and Privacy Act (FERPA), research and ethics in field study and internships, late assignments, academic status, academic appeals, diversity and disability, sexual harassment and misconduct, and the student code of conduct.

Please refer to the SIT Study Abroad Handbook and SIT website for information on important resources and services provided through our central administration in Vermont, such as [Library resources and research support](#), [Disability Services](#), [Counseling Services,](#) [Title IX information](#), and [Equity, Diversity, and Inclusion](#) resources.