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REVIEW ESSAY:

An Island Studies Course at a Liberal Arts Institution: Pedagogy from a Natural History Perspective

David Sunderlin
Dept. of Geology & Environmental Geosciences
Lafayette College
Easton, PA, USA
sunderld@lafayette.edu

&

Lijuan Xu
Skillman Library
Lafayette College
Easton, PA USA
xul@lafayette.edu

Abstract: An intellectual treatment of islands and isolation lends itself to a foundation in a liberal arts education. The introductory undergraduate course on island studies can serve as a topical platform on which to develop critical thinking, research, analytical, and creative thinking skills for beginning college students. The paper analyzes the natural history perspective in island studies and its methods of inquiry as pedagogical strategies that enhance the development of academic curiosity. The success of this approach to early undergraduate education is documented in traditional assessment and the direction that student-driven inquiry followed throughout the course. A course in island studies is a natural fit into progressive curriculum design strategies that are currently under development at many colleges and universities.

Keywords: interdisciplinary education, island studies, isolation, liberal arts, natural history, pedagogy

Island Studies as a Portal to the Liberal Arts

Amongst its many goals, the liberal arts "ideal" strives to provide an education that prepares students to be responsible global citizens (Wriston, 1937). Such citizens think broadly about integrated societal systems and their synergy and/or conflict with natural systems; how, from one vantage, "nothing exists in isolation." One of the needs that the liberal education system, and nearly all of academe, has recognized is for interdisciplinary approaches to solving complex problems with no unique and solitary cause or effect. Curricula at many institutions of higher education have responded by providing a variety of connections among departments and/or

restructuring what it takes to obtain an intellectually viable and practically useful education. This approach is particularly visible in the rise of environmental studies/sciences undergraduate programs. Such curricula are designed to prepare future participants in the increasingly "connected" world where few problems are exclusive to, say, biology or geology or economics alone.

Coincident with the rise of island studies as a field of scholarly research, interdisciplinary educational programming in island studies is well underway at institutions of higher learning around the world. Individual courses and degree programs with regional emphasis (such as Pacific islands at the University of Hawai'i Manoa Campus, the University of Otago, and the University of Pittsburgh), topical focus (e.g. an island biology course at the University of California, Santa Barbara), and comprehensive curricula (e.g. island studies at the University of Prince Edward Island) are offered primarily at the advanced undergraduate or graduate level. Such educational opportunities and programs provide much needed training and preparation for considering a wide range of issues as they relate to human and natural island systems. The purpose of this paper is to offer another and, so far, successful course model for the inclusion of island studies coursework in an undergraduate curriculum that values interdisciplinary study but lacks focused expertise from the faculty in the area of island studies. To this end, this paper outlines a course with a unique pedagogical approach toward the topic from a natural history perspective; one that is, to our knowledge, novel both in the sequence of topical content and in the early placement of the experience in a post-secondary curriculum. We suggest that higher education generally, and particularly in interdisciplinary environmental studies curricula, could do well to consider the past, present, and future importance of phenomena having to do with islands and the fascinating and pervasive effects that transpire because of isolation.

Isolation, such as that on islands in both the literal and figurative sense, is behind many of the fundamental processes in natural and human systems. It has helped, and in many cases allowed for, the processes of change throughout history to unfold as they have. In this way islands and isolation become more than situations in space in our three-dimensional world (Baldacchino, 2004). They exist in the time dimension as well, so that throughout history and into the future an understanding of just what isolation might trigger becomes as intriguing as the question of whether it exists. This is the overarching theme of the first year seminar course we describe below; one that does not fall within one department at the institution but rather one that bridges many disparate subjects. Thus, island studies as a topic serves the intellectual ideal of a modern liberal arts education: whether within environmental curricula or not.

Curricular Context

'Islands & Isolation' (*hereafter* I&I) is offered to incoming, first year students in the liberal arts undergraduate program at Lafayette College. Lafayette is a small, private liberal arts institution in Easton, Pennsylvania, USA with an enrolment of some 2,300 students from predominantly urban to suburban areas of the northeast USA. In the spirit of a broad undergraduate training in the liberal arts and sciences, Lafayette College requires a core sequence of courses, one of which is called the First Year Seminar (FYS) (http://ww2.lafayette.edu/~fys/fyshome.html). I&I is one of what is typically 35-40 such courses offered each fall term. FYS courses enroll ~16 incoming students with varied academic interests that span the humanities to social sciences to natural

sciences to engineering. These unique courses are topically diverse with other recent courses constructed with foci having to do with, for example, nanotechnology, Asian-American assimilation, and even baseball in America. All of these entry-level courses are writing intensive and discussion-based while maintaining hands-on, experiential learning at any juncture possible. An FYS course occurs in the first semester of the first year of the Lafayette undergraduate experience and serves as a transition endeavour into developing and pursuing academic curiosity at the college level. Most FYS courses meet at least twice per week for a minimum of three contact hours in the classroom per week. Many of these classes conduct meetings or events outside of the classroom, and class time with some tie to the curricular goals of the course and the FYS program in general. Students typically take a total of three additional courses in their first semester at Lafayette where they may explore disciplinary tracks that may result in their eventual concentration ('major') discipline. Semesters at Lafayette College are 15 weeks in duration.

As a large part of the overall transition experience to university (college, in the US) academic life, the FYS course seeks to familiarize new students with the library and information technology as both a tool and a method of intellectual inquiry. To this end, the FYS incorporates information literacy exercises into the course plan where students gain research skills and a perspective on the utility of electronic sources of information (Xu & Silvestri, 2007).

The instructor for the I&I course at Lafayette is the first author of this paper. He is a professor and researcher in paleobiology and geology, and thus the course grows from a natural history focus and subsequent topics in the course are "co-investigated" by the students and instructor. Since there is no resident expertise at Lafayette College on the topics that students explore later in the course (such as political isolation and economic isolation), the focus then turns to research methods and interdisciplinary investigation across disparate traditional fields of study. The second author of this paper is a reference librarian with expertise in investigative learning pedagogy.

Course Goals, Pedagogy, and Structure

Goals

The published course description states:

> Islands are, almost by definition, unique. While being temporary homes to an increasing population of tourists they also harbour endemic biological oddities and some of the most fragile ecosystems on Earth. This seminar examines the situation of isolation across the fields of geology, evolutionary biology, human geography, and literature. Topics include the dynamics of isolated populations, historical importance of islands, and the effects of isolation on culture and the human psyche.

As alluded to above, the I&I course treats islands and the subject of isolation in a broad sense in essentially two modules throughout the semester. The first 7-week module is designed to investigate aspects of island biogeography and natural history as it relates to islands. A broad

summary of island biogeography's pervasive influence in ecology and evolutionary biology is offered by Powledge (2003), Berry (2007), Percy *et al*. (2007), and Berry (2007). The second module, of equal duration, is an investigation into how phenomena in the study of island ecology and evolution might carry over as informative theory and baseline in the understanding of disparate human phenomena including those in religion, language, medical, psychological, governmental, and cultural systems. Through a combination of pedagogical methods in discussion, writing, and presentation - as in Bean (2001) - the class becomes aware of where the effects of isolation and "island-like" scenarios impact the development of patterns in biogeography, human geography, and human history.
The course goals are:

- To grasp the importance of isolation (including that on islands) in the natural history of the world, its present state and patterns, and how it has influenced human history, humanperception and our sense of place and change.

- To develop the ability to ask interesting and important questions.

- To learn how to find information that speaks to those questions.

- To analyze data and consider answers to questions and how to communicate them effectively.

Pedagogy

Students enter the class with an idea of what it means to study islands, and this is often coloured by a student's individual travel experience or by popular media productions on such places as the Galápagos Islands and Easter Island. When asked in an entry questionnaire about what it is that constitutes the study of islands and isolation, students are likely to answer with cliché visions of environmental conditions of islands such as warm beaches and breaking surf. From this jumping off point, and with regard to the first course goal listed above, the course begins with an investigation of "islandness" (*see* Baldacchino, 2007; Royle, 2007). Young (1999) takes a natural history perspective on a suite of oceanic and continental islands and sprinkles in island lore, history, poetry, and aesthetic impressions of island life in what is the first assigned reading in the course. This collection of essays serves to begin a broadening conversation about the nature of islands as well as to encourage students to begin developing a geographic literacy. Among the themes in Young (1999) is that of endemism in island systems and the patterns of island natural systems as recognized by the study of island biogeography; the topic of the course's first module.

There have been many advances in the integrative discipline of island biogeography ever since Darwin (1884) and Wallace (1881). The work has included the recognition of pattern, process, and interrelatedness in the disciplines of ecology and evolution (*e.g*. Brown, 1971; Willis, 1974; Case, 1975; Riebesell, 1982; Millien-Parra & Jaeger, 1999). The pulse of this effort from the 1970's into the 1980's began after the discipline experienced a renaissance in the late 1960's with the publication of MacArthur & Wilson's (1967) *Theory of Island Biogeography*. Though heavy in mathematical modeling for the diversity of students in the FYS course, the themes of

MacArthur & Wilson (1967) provide a basis for understanding large-scale, macroevolutionary and macroecological processes in natural history and a window into how experimental and historical science is done on natural systems. This work and the model themes and insights drive our discussion of island ecology and evolution through the course's first module in natural history. Ever since the publication of "MacArthur & Wilson", other scientists have employed portions of the model with varying degrees of success in explaining phenomena in island-like systems around the world. The FYS course samples from these scientific case studies of island biogeography's rebirth by investigating bird data from the Channel Islands in Diamond (1969), beetle dispersal and colonization in Howden (1977), and the evolutionary ecology of Bahamian lizards in Schoener *et al*. (2005). Such readings help to develop students' scientific literacy and an understanding of process investigation and writing in the scientific literature (Montgomery, 2003).

A popular account of MacArthur and Wilson's work and its broad implications is David Quammen's (1996) *The Song of the Dodo*. After gaining some understanding of general themes and patterns in island biogeography from the early readings in the natural history module of I&I, students engage with this text in the context of extinction and ecosystem decay in the modern world. Island systems are notable for their obvious isolation, species rarity, and the uniqueness of their species. An interesting contrast can then be drawn when considering island and isolation as locations where "species go to die" *and* islands and isolation as major drivers in adaptive radiation and speciation as described in Jonathan Weiner's (1994) *The Beak of the Finch* where themes considered include the conditions for biological diversification and islands as diversity producers.

Switching gears only slightly from ecological phenomena involving levels above the individual (such as populations, communities and ecosystems), directed reading brings the class around to evolutionary phenomena among characters or individuals such as the "Island Rule" of body size increase or decrease in isolated vertebrate groups (*e.g*. Case, 1978; Angerbjorn, 1986; Roth, 2001). Species selection, genetic isolation, genetic drift, adaptive radiation, allopatric speciation, gigantism, dwarfism, and rarity dominate the conversations toward the middle of the course and much about the macro-ecology of natural systems comes to light by investigating ecological and evolutionarily isolated systems. The first module of the FYS course ends with concepts in process and pattern as well as causality and correlation.

But how can an investigation of island biogeography inform seemingly disparate disciplines including conservation biology, policy studies, medicine, linguistics, and anthropology? The second module of the course investigates this question as we begin the truly interdisciplinary journey through the liberal arts with process models driving our inquiry. We have chosen to enter this realm with a discussion of conservation biology. We do this first by examining island ecosystems and issues surrounding anthropogenic environmental change (as in Rapaport, 2006) and then a related analysis by examining Jared Diamond's (1975) work on the design of conservation efforts as they relate to island biogeography. The reason for this is that students have speciation and extinction processes freshly synthesized, and the application of these processes is seamless in conservation policy and logistics concerning the design of natural preserves and the impacts of human population expansion. The so-called 'SLOSS' (Single Large Or Several Small) debate (*e.g*. Simberloff & Abele, 1976) serves as a subject of discussion that

drives inquiry into the issue of land use and ecological conservation. This debate considers the efficiency of the preservation outcomes of one large tract of habitat versus many small tracts and students critically consider both sets of arguments. We then utilize simulations and computer modeling exercises that engage students in the utility of applying island biogeographic principles to the design of nature reserves by running experiments. For the computer simulation we use SimBiotic Software's EcoBeaker program (www.ecobeaker.com; 'Island Biogeography' module) to develop experimental design skills and then run those experiments with known parameters and over different time-scales. This transition into the "utility" of what they've learned sets the stage for a broadening view of island studies and how other systems may be viewed in this context.

A natural evolutionary/ecological transition is one where islandness and medical geography are considered. Here it is not primarily the evolution of species or populations that is treated in the island concept, but instead a disease and/or a medical condition and its prevalence in isolated human cultures. For this, the class discusses Oliver Sacks' (1997) *The Island of the Colourblind* and the anomalously high proportion of people on the island of Pingelap in the South Pacific with achromatopsia: a severe form of colourblindness that is accompanied by heightened sensitivity to light, such that those afflicted with the condition typically reduce their daytime activities and/or require special eye protection (Sacks, 1997). Though the prevalence of this condition on Pingelap is likely to be an artifact of the founder effect (Wiszniewski *et al*., 2007), its medical nature opens the discussion of issues in infection, dispersal, disease resistance, and quarantine and their parallels with processes of exotic species introductions and other, more natural, dispersals that have occurred throughout natural history.

The theme of medical isolation then relays into an intellectual treatment of Diamond's (1999) *Guns, Germs, and Steel,* of which the class reads book excerpts and views the *PBS* documentary (Lion Television, 2005). Jared Diamond has considered isolation phenomena through a broad swath of study subjects in natural history as the students have learned in the course's first module. Following the same research in his later research program is telling both of how scientific and historical research proceeds and also sheds light on the parallels and direct phenomenology Diamond draws from the history of the rise and fall of societies and their relation to isolation.

It is one thing to discuss science and social science of populations in an integrated way that revolves around islandness, but it is quite another to consider the effects of isolation on individual humans. For this perspective on island studies, the class turns to H.G. Wells' (1896) *The Island of Dr. Moreau* and thus into the realm of literature and social commentary. This book stimulates discussion on the psychological effects of isolation, the persistence and growth of ideologies in isolation, and the effects of isolation on truth and perception in the spoken or written story.

Structure

The second, third, and fourth course goals stated earlier seek to develop the students' ability to envision and articulate interesting points of view and communicate them in an effective way, and the structure of the course is built to provide training toward these ends. For this we outline the

course plan and the weekly logistics of the aforementioned discussions in Table 1 and discuss them here at some length.

Table 1: General schedule of topics and assignments in "Islands & Isolation" for a 15-week semester.

Week(s)	Topic	Assignment
1	Island definitions & lore	short paper
2	Historical study of islands	short paper
3 - 5	Modern study of islands	short papers
6 - 7	Computer simulations & analysis	short paper
8	Conservation/isolation connections	short paper
9 - 11	Cultural & medical isolation	short paper
12	Human isolation	begin final project
13 - 15	Final project work and reports	

Throughout the course, students develop short 2-4 page writing assignments associated with the reading assignments of the works mentioned above and incorporate class discussions of these topics into their papers. Lafayette College provides writing support to students with peer mentoring sessions involving a "writing associate" whom the college identifies among second through fourth year students. With feedback from both the instructor and the writing associate, students refine their papers with regard to their style, focus, and depth of analysis. The readings and in-class analysis also provided stimuli for students as they developed their research topics for the final paper in the course.

The final paper (10-12 pages) and presentation (10 minute oral) provides a capstone to the course. Students develop the topic and thesis from acquired interest through the earlier readings in the course and they have free reign in the selection of their focus so long as the project is an investigation of isolation in some sense. To help student grow as scholars, we laid out two information and workshop sessions where students first learn how to obtain and evaluate the validity of web/internet resources; and then learn research methods with the available library resources held in the college's collections and beyond (via interlibrary loan). These library exercises focus the students' paper topics while, simultaneously, teaching them skills they need to answer interesting research questions. Like the smaller papers, the large paper is a "process writing" exercise that is reviewed by the instructor or writing associate throughout its construction. As the paper develops, students are asked to prepare oral presentations of their work and findings for delivery more than a week prior to the paper due date. The purpose of these presentations is to engage everyone with everyone else's research and to allow students to provide critical and inspirational feedback to each of their classmates about the trajectory of their

project. Each student comments anonymously on a paper questionnaire that asks about the strengths, short-falls, and organization of each student's work. The presenter may use these comments to improve their final project. By doing this type of integration exercise, the students recognize the deep connections across each individual's study of islands or isolation and their own developing work. This project framework also directs students to write "for their peers" in a way that engages the whole class in each other's work and the whole enterprise encourages group research inquiry.

Assessment/Evaluation

Instructor Assessment

One measure of this course's general effectiveness for incoming students is seen in how students are able to improve their communication skills throughout the term. Another, and, to us, more important measure, is the degree to which the course utilized concepts within the discipline of island studies to foster intellectual curiosity and idea development in an interdisciplinary way right at the start of students' college education. These two goals were assessed in ways that were not entirely independent of each other.

Students were assessed on the progress of their writing ability and effectiveness throughout the term. As stated above, 2-4 page papers in response to directed questions on the reading were utilized to stimulate intellectual engagement with texts early in the course. Later on, students were asked to develop questions about the readings on their own and worked in groups to discuss and co-author answers to questions from their peers. With the later materials, students were asked to develop an interesting question on their own and utilize that question in the production of an intellectually stimulating thesis statement in mature college writing. The instructor gave individual grades for each assignment based on the thesis' conceptual merit as well as the effectiveness of the student in thoroughly addressing the thesis. An additional and more heavily weighted grade was given for the degree of scholarly progress that the student was able to achieve throughout the term on these short papers. It is clear from the increasing quality (structure, style, depth of analysis) of the short paper assignments that students improved their writing skills and effectiveness throughout the term. It is clear also that the progress in this arena was due, in part, to the exposure that students had to different literatures and stylistic conventions across the disciplines and under the umbrella of island studies.

The students' intellectual improvement and their grasp of island studies concepts were most notable in the quality of the topics that they identified for their own inquiry throughout the term. Students clearly came to recognize the pervasive influence of isolation and 'islands' in broad terms to the development of natural and human history. For a final large term project, students were asked to investigate a topic of their choosing as it relates to principles of island biogeography and broader island studies phenomena. By simply tallying the foci for these projects, it becomes clear that students were able to synthesize and develop an interdisciplinary way of thinking. Student-developed paper topic examples include: "*Isolation and the Cultural History of the Amish of Lancaster County, Pennsylvania*", "*The Origin, Evolution, and*

Extinction of Cults and Isolationist Ideologies", "*Does Isolation Beget Violence? Case Studies from Far-Off 'Islands*'" and "*Linguistic Isolation and Dialect Divergence*".

Student Evaluation

Students responded positively to the subject matter as a vehicle through which to explore the depths of a liberal arts education. After the 2007 course, which had an enrolment of 16 students, students were asked to provide feedback in a series of exit evaluation questions. On a scale of 0-5 with 0 being "Very Poor" and 5 being "Excellent", the average student assessment of the course content was 4.6, the course organization was 4.1, and the "Amount you learned in this class" was 4.6. Student responses to evaluation questionnaires score the course as a 7 in the Challenge & Engagement Index (CEI) decile ranking, indicating a well above average degree of student involvement and stimulation (methods reviewed in Guilford, 1965). Most telling though are student reflections on their intellectual growth from the course. Table 2 contains representative comments that speak to the impressions that students were left with about the course. Overall, students had overwhelmingly positive comments about how the various aspects of island studies were merged in a multidisciplinary course.

Table 2: Student assessment of course value and learning outcomes.

Question	Representative Student Responses/Assessments
How has a deeper investigation of islands and isolation in this course revealed previously hidden concepts?	"The course not only expanded my view & knowledge about islands but also taught me how to create my own original analyses..."
	"I came into this course thinking about a man going crazy being isolated on an abandoned desert island and I came away with a new understanding of isolation leading to interesting species relationships and intriguing cultural phenomena."
	"This course made me aware of other forms of isolation besides physical isolation (such as) cultural, economic, and social isolation."
	"Isolation can be applied to more aspects than I ever imagined"
	"...I have a much deeper understanding for what isolation is exactly and how it can be applied on a MUCH broader scale."
	"...one overarching theme is that isolation brings change, and usually a unique change."
	"Isolation everywhere ... results in deviations from the crowd; differences that no other phenomenon or situation could produce. That's why I'm making my parents read the books we read in this class!"

Conclusions

Emerging themes in island studies (*see* Baldacchino, 2004; 2007) have proven to provide an enormously useful and successful entry into a broad interdisciplinary investigation of seemingly disparate disciplines within the liberal arts ideal. The pedagogy from a natural history perspective and the "Islands & Isolation" course outlined in this paper can serve as a model of how an investigation of island systems and their evolution can foster intellectual growth in an age of increasingly interdisciplinary thinking. There is no doubt that alternative approaches to the study of islands from a public policy, history, or economic vantage, for example, could yield equally rewarding courses and investigations into island studies at the undergraduate level and provide students with problem identification and solving skills early in their post-secondary education.

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