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# Using Iceland as a Model for Interdisciplinary Honors Study

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## **INTERDISCIPLINARY INSTRUCTION: VALUES AND CHALLENGES**

**I**nterdisciplinarity is a well-established educational approach that speaks directly to our understanding of what knowledge is and, more specifically, what practical knowledge is. Despite its long history, the concept of interdisciplinarity continues to raise essential questions: whether knowledge is anchored in particular fields of investigation separate in nature or can be found in a breaching of disciplines, across fields of investigation; how we might attain such cross-reference; and whether it is even possible to achieve a synthetic, interdisciplinary understanding or if knowledge is invariably anchored in separate disciplines occasionally informing each other. The term has not just epistemological value but practical interest for educational systems that aim to achieve educational value through interdisciplinary studies.

Since Plato's and, to a lesser degree, Aristotle's invocation of the philosopher as the synthesizing procurer of all knowledge, a variety of thinkers have pursued the notion of knowledge as a holistic state of mind. For example, Hegel's nineteenth-century ideal of "absolute spirit" is probably the most significant vision of a unified consciousness, but, long before Hegel, the concept of the Renaissance man, or "Uomo universale," set the stage for an educational ideal that became central to Western educational systems, not least in general education and honors programs. At the same time, the opposite of this ideal is evident in the many disciplines to which school children are exposed in elementary and high school systems, where the ideal is for the student to become a whole person at the end but by taking a set of rather dissociated, kaleidoscopic paths to get there.

In modern times, the ideal of interdisciplinarity has become contentious. Julie Klein expresses it well in terms of higher education:

As the modern university took shape, disciplinarity was reinforced in two major ways: industries demanded and received specialists, and disciplines recruited students to their ranks. The trend towards specialization was further propelled by increasingly more expensive and sophisticated instrumentation within individual fields. (. . .) Although the "Renaissance Man" may have remained an ideal for the well-educated baccalaureate, it was not the model for the new professional, specialized research scholar. (21)

In educational systems, the notion of "real-world significance" (Repko, et al., 2013) is paramount to our educational enterprise from first grade onwards, pedagogically tuned to the different stages of ability. Students must obtain an education that prepares them well for real life in addition to attaining the technical particulars of their chosen discipline as they complete their undergraduate education. The holistic enterprise has here been reduced to the general education mission of adding breadth to education, typically in a series of general education requirements that elicit limited enthusiasm from students who are focused on their major. In a sense, the ideal is interdisciplinarity while the method is, in effect, a cementation of disciplinarity.

Let there be no doubt about the relevance of disciplines for K-12 and higher education, yet we undoubtedly experience some "nostalgia for lost wholeness" (Klein 12) if ever there were such a thing. More than nostalgia, the need for experiencing a sense of wholeness seems to be a fundamental human condition that consequently ought to be cultivated in education as a response to inevitable existential questioning along with attainment of a

specialized trade. Perhaps we are now finding ourselves in a situation where the spectrum of academic fields and their specialized knowledge has become so dominant, so efficient, that we must look to interdisciplinary studies with renewed interest in order to reestablish something lost. Interdisciplinary approaches do not merely satisfy an abstract longing; in post-educational life—especially in our secular, Western, post-modern culture—young people must confront complex issues that transcend any one discipline. Educational systems accordingly have a duty to offer frameworks for understanding this complexity that go beyond any single discipline. In this sense, interdisciplinarity promises a very practical tool kit.

For example, consider the clash of belief systems as it unfolds between traditional religious practices and the scientific understanding of evolution. These two systems of thought take no prisoners, and we need not give examples of how the antithesis unfolds locally, nationally, and internationally, inside and outside educational systems, and with the most practical and deadly ramifications. We cannot understand this conflict through only one lens. An interdisciplinary course encompassing, e.g., theology, science, history, sociology, and psychology would seem a promising framework for practical understanding and real usefulness as postgraduates navigate their lives.

Setting aside a discussion of when in the educational sequence an interdisciplinary experience is optimal (perhaps it ought to be integrated at every level), a number of questions arise. If we use a standard definition of interdisciplinarity such as “inquiries which critically draw upon two or more disciplines and which lead to an integration of disciplinary insights” (Haynes 17), the interdisciplinary project must begin by determining which disciplines to include, how the integration will happen, and which insights should be achieved. In the Washington State University Honors College, we have developed a productive interdisciplinary model geographically centered on Iceland and incorporating four academic angles, or disciplines. We have taught this upper-division honors course, *Interdisciplinary Iceland*, three times (in the fall of 2010, 2011, 2012) with an average of twenty-five students. In addition, a faculty-led trip to Iceland during the summer of 2012 (also involving Norway) provided valuable experience. In hopes that our course might serve as a practical model for other honors programs, we describe how the course came about, the content areas of the course, the student accomplishments and reactions, and the benefits and complexities of our particular model.

## **INSTRUCTOR INTEREST**

We chose Iceland as the theme for our interdisciplinary honors class after we discovered at an informal social gathering that we shared a deep interest in the country. Iceland had been in the news at the time (2009) due to its economic problems, but the country attracted our interest for a number of reasons. Andersen is Danish, was educated in Denmark, and has for years taught the Danish language as well as Scandinavian literature and culture, including Icelandic sagas. He is thus familiar with Iceland, which historically has had close ties to Denmark, and from a cultural standpoint finds the Icelandic sagas and language especially appealing. Thorgaard's initial interest in Scandinavia stems from his Norwegian ancestry. However, his research area is the genetics of fish, making Iceland an appealing topic both from a genetics standpoint, since much work has been done on the genetics of the human population of Iceland, and also from a fisheries standpoint because Iceland has some of the most productive and efficiently managed fisheries in the world.

In approaching this interdisciplinary course, we saw the focus on Iceland as providing a geographic filter for identifying topics of historical and contemporary relevance (Greenough). In the development of an interdisciplinary course, a primary challenge is finding a natural means to limit the content while at the same time finding a theme that has coherence. Focusing on a specific geographic region is an excellent way to provide a natural focus that at the same time offers significant content areas. Iceland is especially appropriate in that regard: as an island; its borders are distinct and unambiguous; it provides diverse windows into a range of disciplines; and it offers a distinct cultural history. The island was settled mainly by Norse immigrants after CE 871 (Sverrisdottir et al.), and since then Iceland has achieved stature for its commitment to science and sustainability. Socially, Iceland also provides a useful avenue for exploring contemporary economic issues. Given all these options, we identified four topics to focus on in our class: culture, environment, genetics, and economics.

## **TWO TRIPS TO ICELAND**

Neither of the instructors had visited Iceland prior to deciding to teach the interdisciplinary course, so we needed to develop first-hand familiarity with the country. We made two trips to Iceland: the first was an exploratory visit before the course was taught, and the second, two years later, was in conjunction with a study abroad experience for undergraduate honors students.

The exploratory visit lasted three days and provided us with a brief but helpful introduction to the country. Arriving at the Keflavik international airport in the morning, we visited the “Blue Lagoon,” a geothermally heated pool, on our way the capital city, Reykjavik. During our visit we walked around the city center and visited the National Museum as well as museums related to the sagas and the settlement of Reykjavik. We also took a “Golden Circle” bus tour that included the geological fault site where the European and North American plates meet and which is also the historic site of the Icelandic parliament. The bus tour also visited a large geyser and a dramatic waterfall. A ride on Icelandic horses through the rugged countryside was a high point of our first visit.

Our second visit, lasting six days, was conducted with eight undergraduate students as part of a trip that also included eight days in Norway. After extensive pre-planning and interaction with Icelandic experts in various fields, we designed activities that included visits to the biotechnology company DeCode Genetics, the National and Settlement Museums, the Arni Magnusson Institute at the University of Iceland for the preservation and promotion of Icelandic culture and language, the Icelandic Innovation Center, which fosters start-up companies, and the freshwater fisheries management agency. The visits were highly interactive and provided opportunities for the students to ask questions of the Icelanders they met. The students also had ample time to explore on their own. They kept a log of the trip and prepared a paper on an issue related to Iceland or Norway. This visit deepened our own background about Iceland and appreciation for it.

## **FOUR DIMENSIONS**

Focusing on culture, environment, genetics, and economics enabled us to address these topics across the history of Iceland and thus bridge the present to the past. This holistic dynamic of present conditions examined in light of past history underpinned our interdisciplinary course to a high degree and reflected the vivid relationship that Icelanders have with their past. Sustainability versus depletion of the environment has particular relevance to the Icelandic past and present (Diamond 197–210), and the geographical isolation of Iceland has been beneficial to modern genetic research that in turn has provided insights into the demographic of the original settlers. Finally, the Icelandic financial crisis of 2008 may be examined in the context of the nation’s socio-political history. In the following two sections we sketch the content areas of these four topics and some cross-cutting issues.

## **CULTURE: THE UNIQUE BEGINNING OF ICELAND**

The history of Iceland begins in CE 871, as documented in an interesting exhibit at The Settlement Museum (Sverrisdottir et al.). A wall fragment found below a layer of tephra deposited around 871 confirms information from other sources about the settlement of Iceland by a Norwegian exodus in the late ninth century. The settlers were people uncomfortable with the nationalistic (and taxation) ambitions of Harald Fairhair, the Norwegian king who managed to unify Norway around 872. Iceland was a promising North Atlantic island with a fair climate and plenty of unspoiled resources on land and at sea only a couple of days sailing from the west coast of Norway. It was by and large empty, ideal for a Norse lifestyle, and soon the Golden Age of the Icelandic Commonwealth began.

This Golden Age embodied the equality of individualistic, free farmers and is celebrated in the unique Icelandic saga literature depicting early Iceland and written down in the thirteenth century by presumably Icelandic Christian monks in a cultural environment apparently eager not to forget the flamboyance of the Golden Age, including its pagan mythology. The early Icelanders took land and lived on unfortified farms with their farmhands, servants, and slaves, spread-out across the island that within a few decades became fully settled (Vesteinsson 164–174). Apart from a vivid picture of love, intrigue, raids, and the social mores of an early medieval society, the sagas describe the legal disputes that were often settled at the annual Althing, the all-island gathering in June when laws were revisited and lawyers argued cases. The Icelanders paid no taxes, and the absence of an executive police force meant that judgments had little finality; the involved parties still had room to maneuver post-judgment, resulting in either monetary compensations or revenge killings with feuds to follow. In CE 1262, the gravity of this legal situation had escalated to a point where five powerful families had the potential of causing destruction at a socially unsustainable level. The decision was made to subject the island to the rule and protection of the Norwegian king, conveniently located across the Atlantic (Byock). This political decision brought an end to the Golden Age; Iceland's national trajectory now became embedded in continental political dynamics in which it had little or no influence so that it eventually became a poor and exploited entity at the outskirts of European civilization.

In contrast to the other Scandinavian languages, Icelandic is a conservative language that, given Iceland's historical and geographical isolation, has undergone relatively little change since the Golden Age and hence is close to

Old Norse, the language spoken by most Scandinavians a thousand years ago (Leonard). This unique linguistic situation provides contemporary Icelanders with a direct cultural, if not emotional, insight into their origins. As we attempt to bridge culture with the environment, genetics, and economy, we need to consider how the cultural past manifests itself in modern Icelanders as they face contemporary social issues.

## **ENVIRONMENT: THE PHYSICAL SETTING**

The environment as a broad theme provided a number of interesting issues to explore related to Iceland. Iceland geographically is much warmer than might be expected from its northern latitude due to the effects of the Gulf Stream. It is also a unique setting geologically, being located on the mid-Atlantic rift where the European and North American tectonic plates meet, so it is one of the most volcanically active countries in the world and provides a natural means of exploring a central paradigm of modern geology: continental drift. Iceland's geological setting also has implications for its energy production; it is a world leader in harnessing geothermal energy and is very active in training people from other countries in this technology (Andresdottir). Much of the heating capacity in the country is based on geothermal energy. Iceland also has exceptional hydroelectric resources that are economically important and lead to the potential for large-scale production of hydrogen gas, which can be used as a fuel source for cars, buses and boats (Arnason and Sigfusson), affording our class an opportunity to discuss the pros and cons of various energy sources (Muller), to explore issues related to energy alternatives and sustainability, and to discover ways that our country can learn from the Icelandic experience.

Another major Icelandic environmental theme, in addition to the physical setting and its implications for energy production, is the abundance and management of fisheries. We opened the discussion by reading the classic 1968 paper "The Tragedy of the Commons," which addresses resource management and economics (Hardin). The main theme of the paper is that if a resource is held in common, a common path is toward overutilization and degradation. Such was the path that Icelandic fisheries appeared headed down until the country adopted an ITQ (individual transferable quota) system for management of its ocean fisheries (R. Arnason; Eythorsson). The positive result was deterrence of overfishing as harvest was limited to individuals who had a right to a defined quota (percentage) of the fishery, with the total harvest defined by professional fishery managers. The negative result was related

to social equity: new participants in the fishery were limited because of the high cost of purchasing ITQ rights from existing fishers. Consequently, the ITQ system could have either positive or negative effects on small fishing communities depending on the availability of ITQs. The ITQ system represents one general approach to addressing the “tragedy of the commons.” Iceland’s freshwater fisheries (especially harvest of sea-run Atlantic salmon) are based on a similar property rights approach since landowners adjacent to river fisheries control access and harvest (Ingólfsson). Iceland thus offers multiple opportunities for our country to learn from the Icelandic experience in managing common-property resources.

## **GENETICS: DNA MARKERS**

A third major course emphasis was human genetics, for which Iceland is a unique laboratory. The present population is largely derived from those early settlers from Norway and the British Isles starting in around CE 871, with little immigration in the last thousand years (Gulcher et al.; E. Arnason et al.). The ancestry of present-day Icelanders is unusually well-documented, creating a distinctive opportunity for associating traits in the present-day population with particular markers that have been inherited from the founder population. With a common ancestry, the likelihood is greatly increased that a shared DNA change (mutation) is responsible for a specific disease in the population that is influenced by genetic factors. The interpretation of this genetic legacy provided an opportunity to expose the class to a number of modern methods in human genetics.

The reconstruction of what occurred around the time of settlement is an interesting area of study in which researchers have analyzed the patterns of genetic markers on the mitochondrial DNA (which is present in both males and females, but inherited through the female) and the Y chromosome (which is present in and inherited only through the male). Differences in frequencies of markers for both types of DNA exist between humans in Norway and the British Isles. The results in the present Icelandic population indicate that the majority of the male founders were from Norway while the majority of the female founders were from the British Isles (Helgason, Sigurdardottir, et al.; Goodacre et al.). Analysis of ancient DNA from the remains of early settlers demonstrates that frequencies of genetic types were quite different in the founding population from the present population, likely reflecting chance genetic changes in the small populations present around the time of and after settlement (Helgason, Lalueza-Fax, et al.).

Associating DNA markers with traits in the present population is of both theoretical and practical interest. Such studies provide the potential to develop a better understanding of and ability to predict disease states (e.g., Peltonen et al.; Stefansson et al.) and might lead to the development of improved drugs for treatment of disease; understanding the biochemical basis of disease can provide insights into potential approaches to treatment. This potential and the unique opportunity presented by the well-defined Icelandic population led to the founding of DeCode Genetics, a company based in Iceland that had the goal of using human genetic studies to improve medical treatment. The company hoped to partner with pharmaceutical companies in developing treatments for widespread diseases having a genetic basis. The history of the company, from founding and rapid growth through subsequent bankruptcy and development under new ownership, provides an interesting case study in biotechnology and economics as well as numerous examples of excellent modern science in human genetics (Specter; K. Stefansson, 2010).

Some important issues in biomedical ethics have arisen as the analysis of the present-day Icelandic population has proceeded (V. Arnason). DeCode Genetics for a time was granted access to DNA samples and medical records of all Icelandic people under a “presumed consent” rule adopted by the Icelandic government. This approach quickly met resistance and raised serious ethical questions that ultimately led to the rule’s being overturned (Specter). Thus, in addition to fundamental issues in science and economics, the Icelandic genetics experience provides opportunities for discussion of important ethical issues (Annas).

## **ECONOMICS: DRAMATIC SWINGS RAISE QUESTIONS**

The fourth area of emphasis of the course was economics, more specifically the Icelandic financial crisis of 2008 and our discussions of how this crisis might affect the culture and its decision making. The crisis revealed an extreme contrast between the level of affluence that immediately preceded it and, in historical perspective, the relatively modest living standards that had characterized Iceland in modern times after the abject impoverishment of the late Middle Ages (Lacy). Iceland gained a questionable notoriety in the economic crash of 2008 (Lewis). From 2003 to 2007, the Icelandic banking sector had become completely privatized, setting in motion an apparent recklessness in financial services in which the conduct of Icelandic bankers has been likened to the pirating behavior of their ancient compatriots (Jónsson 18). A scheme of reckless lending at low interest rates had many Icelanders

engaged in national and international business ventures and lifestyle improvements (the sale of SUVs notoriously skyrocketed) by obtaining loans mainly in foreign currencies, made possible by an artificially high Icelandic krona. The consumerist feast was financed by an extreme influx of foreign currency from investors in mainly the UK and the Netherlands, lured to the investment bank *Icesave* by the promise of exceptional returns. These commercial dynamics brought Iceland's external debt, mostly held by the banking sector, to fifty billion euros, more than six times Iceland's gross domestic product. In conjunction with the international crisis, the Icelandic bubble burst, and within days all three of Iceland's commercial banks collapsed, leaving the Icelandic government and population in a state of shock and embarrassment but, worse, with a magnitude of debt.

As the dire situation became clear and the parameters of the near-national bankruptcy were understood, severe public protests ensued. Investors in the UK and the Netherlands and their governments were not amused either. The UK briefly invoked terrorist legislation to seize Icelandic assets, to the serious consternation of Icelanders. Eventually Iceland secured bailout loans from Scandinavian countries and the International Monetary Fund (IMF). However, in two national referenda in 2010 and 2011, the Icelanders overwhelmingly rejected taking responsibility for the losses of foreign investors. Negotiations are ongoing, complicated by the desire of many Icelanders to join the EU and hence the need to act responsibly as perceived from an international perspective (Halpern 6). The result of Icelandic austerity policies, however unpopular, has been economic improvement according to standard measurements as reported by IMF (International Monetary Fund). The country is still ranked at the top of the most developed countries in the world with one of the lowest rates of income inequality in the world (Weiner 141–184). However, the effects of the crisis will doubtless be felt for years if not decades to come in personal economies and have already resulted in a sizable number of Icelanders choosing to emigrate (Nordic Centre for Spatial Development).

Time will tell if the Icelandic response to solving the social and economic problems was wise. For the purposes of our course, Iceland proved an excellent pedagogical laboratory for a discussion of the international financial crisis and its effects on real people, with the defined cultural and geographical nature of Iceland enabling an intimate look into the crisis from economic, political, and personal perspectives. A number of key players in the Icelandic crisis—investment bankers, government officials, high-level politicians, and ordinary Icelanders—were depicted in excellent films and documentaries

with all their anger, confusion, and disagreements. Furthermore, our students learned a lesson about how different political forms of organization leave governments with a different set of possible responses to the same crisis. For example, a comparison of Iceland to Greece, Portugal, and Ireland demonstrates that confinement to the euro left these other countries with fewer options than Iceland. In turn, Iceland's serious courtship of EU membership must be explained by parameters other than the merely economic. Overall, the ongoing economic debacle provided our classroom with a social reality that constituted a productive basis for exploring the overlapping confines of history, culture, genetics, and environment.

## **CROSS-CUTTING ISSUES**

In addition to dealing with a range of disciplines (culture and literature, environment, genetics, and economics), our course specifically dealt with issues at the interfaces of these disciplines. We introduced the students into the real world of complex issues that overlap between the humanities and the social and natural sciences. This approach also had the benefit that the diverse population of students in our class stayed engaged in the course since issues close to their own specialties arose throughout the course (see discussion of student projects and course evaluations below).

## **CULTURE AND ECONOMICS**

It has been suggested that the cultural conditioning of the Icelandic character—beyond mere greed—contributed to the misère of the Icelandic financial crisis. The argument is that centuries of external political and economic dominance released a counter-explosion of hubris, a kind of *carpe diem* akin to the opportunism of the Viking ancestors, or a recklessly liberated optimism following centuries of repression by outside dominance (Jónsson 10). Essentially, the perspective is that this psychology enables an entrepreneurial spirit just lying in wait for the right circumstances and perhaps little concerned with the consequences. Regardless of the value of such psychologizing of national character, difficult to pinpoint, Icelandic society definitely celebrates a narrative of their Viking origin much more than they do the following centuries of dependence.

After the return to Norwegian protection in CE 1262, the history of Iceland is a dismal exercise in exploitation and dominance by foreign powers on top of a seriously deteriorating climate that intensified existential hardships.

First a protectorate under Norway, Iceland then became a part of Denmark along with Norway during the Middle Ages. Icelanders remained subjects to Danish rule following the split of Denmark-Norway after the Napoleonic wars but were granted home rule in 1874 by Denmark. Finally, after a national referendum in 1944, Iceland granted itself independence from Denmark, as a republic, while Denmark was occupied by Germany. It could be argued that Iceland's declaration of independence contains an element of opportunism, given the inability of Denmark to object, as opposed to a continuous and more radical revolt for the sake of national freedom; nationalistic sentiments had been in vogue in Iceland (and everywhere) since the early 1800s but took the form of civilized, intellectual debate. A more productive reasoning would rather link the overextension of the financial recklessness of 2008 to participation in the general international greed paired with a lack of institutional oversight of financial instruments. The extent to which Icelandic bankers overcompensated for a national inferiority complex is a matter for anecdotes and speculation. All nations, big or small, could be made into exhibits of inferiority one way or the other, and Iceland showed plenty of gumption during the 1970s cod wars with Britain and the unilateral 200-mile extension of its fishing rights.

Clearly, the issue of how culture informs economic and political events is an explosive subject of great educational value; it was an occasion for our students to cross-cut all aspects of the course, including fishing rights, personal genetic information, saga characteristics, and environmental sustainability, to mention but a few.

## **CULTURE AND ENVIRONMENT**

A second example of interfacing disciplines was between culture and the environment, including an additional overlap with economics. The discussion of the "tragedy of the commons" provided an avenue into this interconnection. Icelandic fishery managers have improved the operation of ocean fisheries from a biological standpoint by restricting the number of fishers ("limited entry") and the amount caught per fisher, thus avoiding overharvest of the stocks and appearing to have significantly improved the health and abundance of the ocean fish stocks near Iceland. However, this policy has raised serious questions of equity: those holding the licenses to fish are a small, privileged subgroup of Icelanders which others are largely restricted from joining except at a very high cost. Our students were able to see in this example the analogies with American society when exclusive licenses and privileges are granted.

## **CULTURE AND GENETICS**

The disciplinary interface between culture and genetics allowed us to consider two types of evolution: cultural and biological. The study of language and cultural practices both place Iceland as a Scandinavia-dominated society. Icelandic is a modern language very close to Old Norse and basically the same as the language spoken by the settlers over a thousand years ago. Its present form has changed much less than the Norwegian dialect from which it was derived. Since language undergoes mutations over time much as DNA does, the Icelandic language can be said to have a low mutation rate in comparison, for instance, to continental European languages, including the other Scandinavian languages. Similarly, most Icelandic cultural practices are Scandinavia-derived. In contrast, genetic inheritance in Iceland is decidedly mixed, with a majority Norwegian male ancestry and British/Gaelic female ancestry. Consideration of the history and cultural factors leading to these contrasting outcomes was a good introduction to genetics for the students.

## **ECONOMICS AND ENVIRONMENT**

Within a few generations of Iceland's settlement in the late ninth century, its forests had been cut down, and the exhaustion of this all-valuable resource for heat, ship repair, and house building meant that the population had to readjust in order to achieve a sustainable existence on the largely volcanic island (Diamond 197–210). The sense of physical limitation brought about by these conditions—geographical isolation and lack of natural resources—undoubtedly brought Icelanders together by necessity and prepared them for the political welfare state of equality and access that characterizes twenty-first-century Iceland. The notion of “commons” takes on particular importance for a country whose interior consists of barren lava fields and whose entire border faces the imposing Atlantic. In this sense, Icelanders have nowhere to go (save emigration) and thus need to sustain the available resources for the common good. This fundamental attitude as a cultural reference point marks every Icelander and largely shapes decisions involving the community, including management of fishing resources, the fishing industry, sports fishing rights, and geothermal energy, to mention some of the more important elements in the national GDP. Obviously, as the financial crisis demonstrated, not every decision has been made in this light, or perhaps a negative feedback loop of communal sentiments caused everybody to jump on a bad investment bandwagon. However, when the damage was done, Icelanders characteristically

pulled together in protest, and the responsible politicians quickly did their part, for the protection of the Icelandic investor and Icelandic society, to place into receivership the three private, commercial banks that caused the near-total collapse of the Icelandic economy.

Due to the rich availability of geothermal water and experience processing it for heating private housing gratis, Iceland is a world leader in geothermal energy and regularly consults with representatives of other countries on sustainable energy. In this technological sense, Iceland is a role model. Whether other cultures can or want to replicate the Icelandic social model, which attempts to be sustainable as a political “commons” model, is another question, and these were questions that introduced our students to the complexity of societal issues in the crosshairs of economy, environment, and culture.

## **ECONOMICS AND GENETICS**

The saga of the Icelandic biotechnology company DeCode Genetics provided an exceptional opportunity to examine issues at the interface of economics and genetics. Since it was founded in 1996 with the vision of studying the Icelandic population in order to better understand the genetic basis of human disease and thus improve therapy, the company has been a focus of attention and, in some cases, criticism. The scientific model under which it was founded was affirmed by the excellent research the company conducted, but its economic promise failed in the collapse of its stock value and subsequent bankruptcy. It ultimately survived in a reorganized form and was purchased by the U.S. pharmaceutical company Amgen (Baker). Recently it spun off a subsidiary whose goal is to market methods for deciphering medical information from human genome sequence data (Dorey).

The DeCode experience also raises questions about the appropriate role of government versus private industry in conducting fundamental research. The early history of the company, when the Icelandic government for a time allowed the company access to samples and medical records of the Icelandic population under a “presumed consent” policy, is controversial, allowing our class to address the broad issue of defining appropriate boundaries for privacy related to genetic issues.

## **ENGAGEMENT AND EVALUATION**

The success of any course stands and falls with student engagement. An honors course of twenty-five students seems particularly well-suited for

interdisciplinary perspectives since at the outset students represent a variety of disciplines from foreign language and history majors to life sciences, nursing, physics, mathematics, fine arts, and engineering. The interface of such different outlooks on our four chosen topics—culture, environment, genetics, and economics—is bound to constitute a fertile foundation for discussion provided students get on board with the meaningfulness and usefulness of the course.

## STUDENT ENGAGEMENT

As a complement to the four topic areas, we decided to take risks pedagogically. We employed different techniques with the deliberate aim of presenting variation in delivery. Both instructors attended all classes, with one often taking the lead in presenting a subject with the other injecting his voice with commentary and questions relative to student participation. This system alone provided an interesting cross-cutting of perspectives as when the literature professor interjected social concerns derived from the Sagas about the field of contemporary Icelandic sports-fishing management and sustainability. For example, if individual Icelandic landowners hold all fishing rights to the rivers flowing through their land and consequently charge rich foreigners astronomical fees, is this exclusion of outsiders a violation of the concept of the “commons”?

Likewise, the molecular biologist, demonstrating genetic factors that have determined in part the cultural heritage of the Icelandic population, would ask, for example, if the influx of Celtic females in the early Icelandic population favorably influenced the artistic literacy that resulted in the Sagas. The interplay between professors served as a productive bridging of academic cultures, showing students first-hand how different academic backgrounds may fruitfully benefit and relate to each other. The questions raised in these kinds of interplay demonstrate the potential of interdisciplinarity.

More often than not, our discussion format consisted of group discussion of assigned readings in small groups that then reported to the class. This set-up was effective in involving all the students as much as possible and in distilling the knowledge we gleaned from each text in a student-centered manner. As for written assignments, part of the final grade was a group research project on a topic chosen in conjunction with the instructors. Groups of two or three students (occasionally individuals) would pick a fairly defined topic such as “Geothermal Technology in Iceland,” “Genetics in Iceland: The Past, Present and Future,” “A Whale of a Tale: The Culture of Whaling in Iceland,”

“Translating Globalization: The Icelandic Language,” “Understanding Ancient Iceland through the Sagas,” or “Incestuous Iceland?” and weave in the cross-cutting perspectives that are so important to interdisciplinary study.

## STUDENT EVALUATION

The students were generally satisfied with the course; 71.21% of all students having taken the course one of the three semesters it was offered responded “Outstanding” or “Above average” to the question “What is your overall rating of this course?” on the WSU Honors College’s extensive online course evaluation survey. More significantly for the interdisciplinary structure, 90.55% of all respondents agreed that “I realized connections between areas of knowledge that I hadn’t appreciated before” and “I learned to relate course material to the real world.” In other results, 94.87% indicated they had learned “A great deal” or “A fair amount,” which 81.47% attributed to the readings, 84.98% attributed to in-class discussions, and only 57.74% saw as a result of the group project.

Most importantly, 100% agreed that the course taught students how to “develop informed global perspectives and apply them to issues confronting societies” and helped them “understand how science and cultural and social factors shape global issues,” these being the major aims of our interdisciplinary approach. As for the benefits of the course to the individual honors student, 92.86% agreed that, as learning outcomes, they “saw how my values or ethical system shaped my inquiries and actions,” and 100% agreed that the course helped them to “consider new ideas and perspectives.” In ranking the level of difficulty, 90.54% found the course either “Challenging but manageable” or “Just right.”

More important than numbers were the constructive comments we received on the online evaluations, which generally mirrored the numbers-based survey responses:

- I had come in with very little previous knowledge of Iceland, but I have learned a lot about culture, both ancient and contemporary, as well as current economic and sustainable strategies.
- I liked that it was cross-disciplinary and we studied more than just the culture or science angle. Being a liberal arts major, I naturally enjoyed the cultural aspects more, but found the connections to science fascinating upon occasion. I especially enjoyed the guest speaker on volcanism.

- I liked learning about aspects of Iceland that had very concrete real world applications—how they use renewable energy, how they handled the economic crisis, etc. I also liked learning about their culture in a modern context—loved talking with the Icelandic guest speaker.
- I really enjoyed that this class incorporated dozens of viewpoints focused on one subject: [. . .] flexible (in terms of topics covered) honors course that I have taken.
- It seems like such a narrow focus, but really brings in a lot of different topics and forces you to think about how they all interact.
- I knew almost nothing about Iceland but now I know a lot.
- This is one of the best courses I've taken while in college. It captures the spirit of the WSU Honors College and has made me a better thinker.

Some students remarked on the value of the dual-professor format:

- It was interesting to learn about Iceland from more than one perspective. The professors did not always agree on certain analysis and this encouraged students to speak up as well.
- The ability to learn about a different country, all aspects of it, and be able to discuss the similarities and differences with the professors and my classmates.

While such comments warm a professor's heart, not every student was satisfied with all components of the course:

- Some readings were lengthy and uninteresting.
- It was difficult jumping back and forth between literature and science.

## **MAKING IT BETTER**

One of the main challenges of the course was to make the fascinating but distant, little-known country of Iceland seem real, both for the instructors and the students. The instructors' three-day visit prior to the first course transformed the country from an abstraction to a reality for us, exposing us to dominant features of the environment, such as geothermal activity and geologic instability, as well as important cultural facets in major museums. Relating our experiences to the students helped make the country real for them as well.

From our experiences during the first year, we concluded that having a native Icelander visit with us would be an important addition to the course; such people are rare in a small American town. There is only about one Icelander for every thousand Americans, and most of them are still in Iceland. However, we were able to identify a native Icelander who kindly agreed to visit our class for a question-and-answer session during the second year. We held this session about two thirds of the way through the course to insure that the students had a good background about the country by the time she visited. The visit was a great success and an important step toward making Iceland real for the students. Although she was not able to join us during year three, we believe that having a native Icelander visit the class was a high point that should be included if at all possible.

Two other mechanisms that made Iceland seem less abstract were having guest speakers who had direct experience with the country and showing movies based in Iceland. A geologist who had worked in Iceland, for instance, provided a fresh picture of the country that the students appreciated, and several recent documentaries presented a current picture of Iceland and its people: “God Bless Iceland,” “The Future of Hope,” and “Maybe I Should Have.” The films all dealt in different ways with the economic crash and its aftermath, and some of the best class discussions followed the viewing of these films.

We believe that using a geographic region as the theme, a “geographic filter,” is a good model for interdisciplinary instruction, providing a natural and organic boundary for the scope of an interdisciplinary course. Iceland presented a particularly good focus for our set of backgrounds and interests, but Hawaii, for instance, would be another obvious candidate of a remote island community. Furthermore, issues at the interface between Hawaii and Iceland (e.g., language, genetics, sovereignty, environment, and geology) could provide interesting dynamics. What matters is engaging the students and making the location real for them.

## **CONCLUSION**

Almost always, honors programs and colleges include a significant focus on interdisciplinary coursework in their curricula. Our honors course, Interdisciplinary Iceland, shows one way that we as educators may engage more narrow disciplines from a holistic perspective. Interdisciplinary teaching always focuses on disciplines as well as the connections between them, the “disciplinary” being balanced by the “inter.” What is sought is another

consciousness, a practical understanding liberated from disciplinary perspectives. In the field of economics, the concept of “heterodox economics” has increasingly gained attention as a correlate to traditional, mainstream economic theory’s emphasis on individualistic rationality. In contrast, “heterodox economics,” as an umbrella term for different economic theoretical approaches, develops a holistic perspective, insisting upon “. . . commitment to an ontological analysis that takes social reality to be intrinsically dynamic or processual, interconnected and organic, structured, [and that] exhibits emergence, and includes value and meaning and is polyvalent” (T. Lawson, ctd. by Davis 23). This approach to social reality seems to hold promise for heterodox educational practices in honors, encouraging modes of teaching, learning, and understanding that transcend disciplinary outlooks.

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