

Burch Seminar in Germany and Spain

Moving toward a low-carbon future: Sustainability and environmental communication

Summer 2015

Monday, May 11-Friday, June 19

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Introduction

Last September, climate scientists in Stockholm issued a sobering warning. To avoid the most dangerous effects of climate change, they reported, the world must leave most of its supply of fossil fuels in the ground. The scientists warned that if people burn the remaining reserves of oil, coal and natural gas, releasing the heat-trapping gas carbon dioxide, they will dramatically increase the risk of collapsing ice sheets, rising seas, flooding, and blistering droughts – with attendant repercussions for the world’s coastal communities and food supplies (IPCC, 2013).

Thomas Stocker, co-chair of the report, said in a news conference that climate change “challenges the two primary resources of humans and ecosystems, land and water. In short, it threatens our planet, our only home” (McGrath, 2013).

Although most countries have not succeeded in reducing their emissions of carbon dioxide, Germany and Spain have emerged as world leaders in transitioning away from fossil fuels. In 2013, Germany produced about 20 percent of its electricity from renewable, low-carbon sources, such as wind, solar, and hydropower (Burger, 2014). Spain has undergone a similar energy revolution, generating some 49 percent of its electricity from renewables in 2013 (Murray, 2014). Nowhere is this more evident than the Navarra region, which in 2011 generated 55 percent of its energy from wind power alone (Government of Navarra, 2013). For comparison, about 12 percent of electricity generated in the U.S. comes from renewable sources. As such, both countries serve as possible models for other countries as they attempt to reduce their own contributions to climate change.

Given the enormous potential consequences of climate change, journalists and other communicators have an important role to play in helping the public make rational choices about national priorities. Communication scholar Robert Cox (2007) has observed that societal failures to respond to environmental crises are accompanied by failures in communication. “Like perturbations in biological systems, distortions, ineptitudes, and system pathologies occur in our communication about the environment,” he wrote (Cox, 2007, p. 10). In communication about climate change, such “system pathologies” include the complex nature of the science and policy debates, as well as the mass media’s tendency to either ignore the issue altogether or to produce ever-more-scary messages (Revkin, 2007).

Research suggests that such scary messages often induce maladaptive behaviors, such as denial of the threat, the belief that the problem will only affect someone else, a tendency to blame others, wishful thinking, a feeling of paralysis, or other counterproductive attitudes (Moser, 2007; Leiserowitz, 2007). Instead of focusing on catastrophe, Moser suggests, communicators ought to provide a realistic look at climate change facts and then examine options to remedy the problem.

In this program, a follow-up to the successful 2013 Burch Seminar in Germany, Sweden, and Denmark, students will visit Germany and the Navarra region of Spain. There, through experiential learning, students will learn about climate change and examine the political, social, and economic factors that facilitated the transition in those countries from fossil fuels to renewable energy. Through student-driven journalism projects, they will evaluate the costs and benefits of the transitions and consider potential lessons for North Carolina and the United

States. In short, this program will help students to both understand climate change in a global context and – by focusing on potential solutions – to communicate about it effectively.

Program details and goals

We propose spending six weeks with students as they learn about European regions that are pioneers in renewable energy. The program will spend two weeks in Spain and four weeks in Germany.

Before departure, the instructors will offer two Saturday afternoon workshops in order to orient students to the intellectual goals of the program (e.g., an introduction to energy supply and demand in Germany and Spain) as well as the fundamental skills that will help them succeed in the journalism class (e.g., how to conduct an interview, how to take compelling photographs).

Once in Europe, the students will spend the six weeks of the program visiting places that are leaders in carbon reduction, including: Munich, which is pursuing the ambitious goal of obtaining 100 percent of its energy from renewables by 2025; Wildpoldsried, a German town of 2,500 inhabitants that sold about \$7.8 million worth of renewable energy to the grid in 2012; Freiburg, Germany, the so-called renewable-energy capital of the world; and Sarriguren, Spain, a town of 11,000 that was built from scratch using renewable-energy and sustainability practices. Students will go on field trips, interview local citizens and experts, and then present the lessons they learn in the form of a class-run news website. The storytelling that students do will expand upon the work completed during the 2013 program, in which students kept a class blog, gathered photo journals, and produced a video about renewable energy and rural development.

This course is open to students from all majors who have an interest in sustainability and communication. Students will be recruited through the School of Journalism and Mass Communication, the Curriculum for Environment and Ecology, the Department of Communication Studies, the minor in sustainability, and other relevant campus units. In addition the program will be targeted at students in the new dual BA-MA in Environmental Studies and Journalism, which was approved in April by the UNC Graduate School and will accept students starting in spring 2015.

Germany: A leader in cutting carbon emissions

During the German portion of the program, the 2015 participants will revisit most of the speakers, field trips, and locations that proved highly enriching during the 2013 Burch Seminar in Germany, Sweden, and Denmark.

The German transition to renewable energy began in the 1980s in the wake of the Chernobyl disaster. After the catastrophic nuclear accident in Ukraine, ordinary Germans grew concerned about threats to their health and safety from nuclear radiation. In southern Germany, for example, citizens asked a utility to cease using nuclear power; when the utility refused, the citizens founded the country's first renewable-energy co-op, the Schönau Power Supply, in 1998. Today, the co-op sells electricity to about 180,000 customers (Gray Davidson, 2012). During the 2013 Burch seminar, students visited Schönau and met with the citizens who had launched the movement for renewable energy, an experience we plan to repeat in 2015.

One of the reasons why Germany became a leader of the energy transition was because it combined a strong grassroots movement with effective political champions at the federal level. In 1990, Germany passed the first national feed-in-tariff, a policy that offered stable financial incentives to individuals and businesses to become renewable-energy generators. Germany passed a major upgrade to the feed-in-tariff in 2000. Citing concerns about climate change, the government has announced plans to cut its carbon dioxide emissions by 80 percent by 2050 by continuing to invest in renewable energy and other carbon-reduction approaches (Gray Davidson, 2012).

The result of these investments is easily visible: In the German countryside and cities, solar panels plaster roofs everywhere. Near Hamburg, virtual forests of wind turbines tower over fields.

Yet the German story is not without complications. For example, following the Fukushima disaster in 2011, the German government began aggressively shutting down its nuclear reactors, which caused its reliance on coal to spike (Olsen, 2014). Meanwhile, a trade dispute between the European Union and China threatens to drive up the cost of solar panels, putting the still-fragile German solar installation market at risk (Stearns, 2013). As students learn about these issues through lectures, field trips, and interviews, those nuances will provide rich material for intellectual growth and storytelling.

Spain: A boom and bust story

Students in the 2015 program will travel to Spain, a change from the 2013 Burch seminar in Germany, Sweden, and Denmark. We are choosing to visit Spain because that country has also been a leader in transitioning to a low-carbon future, but its challenges in doing so offer an important contrast to the German example. In addition, the Navarra region, which will be the focus of our visit, is a hotspot for renewable energy research, with two national renewable energy centers and several experimental biomass and solar energy plants that will make for excellent field visits.

After Germany passed its feed-in-tariff policy to support renewable energy, dozens of other countries followed suit. By early 2013, 71 countries had adopted some form of the policy, including Spain (REN21, 2013). As in Germany, passage of the policy led to an explosion in renewable energy capacity.

However, the Spanish transition to renewable energy has been beset by significant obstacles. Unlike in Germany, Spanish policymakers tried to shield consumers from paying the extra costs of renewable energy. One result has been large deficits – by 2013 the total deficit caused by this approach had risen to €26 billion (\$35.8 billion) (Morris, 2013). Another difference between the German and Spanish models is that in Spain, the low-carbon transition has been led by utilities and large companies, rather than by citizens. As a result, grassroots support for renewable energy is weaker than in Germany.

Meanwhile, the economic crisis in Spain – which has seen unemployment rates above 25 percent – has created a perfect storm: declining demand for electricity and dwindling political support for low-carbon policies. Spain has cut its support for renewable energy and has enacted a tax on

solar-energy producers. As UNC's Dr. Greg Gangi puts it, "It is not exaggeration to say that the Spanish experiment has – at least for now – resulted in a disaster."

While in Spain, we will be based at the University of Navarra in Pamplona, where one of us (Sara Peach) has developed a relationship with the School of Communication. Dr. Bienvenido León, who teaches environmental journalism at the school, has offered to provide academic support as well as to identify an interpreter to work with the program.

In both Germany and Spain, the goal of the program will be to challenge students to think deeply about ways that countries can approach a transition to low-carbon fuels, as well as to learn to tell engaging stories about the lessons they learn.¹

Academics

Students on this program will be enrolled in the following academic courses:

- HNRS 350: Renewable Energy and Sustainable Community Design - Moving Toward a Lower Carbon Future (3 credits, with major credit in environmental studies)
- HNRS 350: Telling the Clean Tech Story in Germany and Spain (3 credits, with major credit in Environmental Studies and Journalism and Mass Communication)

HNRS 350: Renewable Energy and Sustainable Community Design - Moving Toward a Lower Carbon Future

Course description: This six-week course will provide students with an opportunity to study and compare two European countries--Germany and Spain--that have become world leaders in the production of energy from renewable sources and in reducing their carbon footprint. Students will learn first-hand from policymakers, planners, and producers in each country about the social, political, economic and technological changes that facilitated the growth in renewable energy and the move toward more sustainable development.

Several of the places we will visit are among those most often cited as the most climate-friendly cities in the world. Visiting these places and physically experiencing the landscape and urban systems within which residents conduct their daily lives, participating students will get a glimpse of models that could be replicated elsewhere—albeit expressed in ways unique to local systems, policies, and culture. Knowledge and skills gained and impressions made during this class and the extended academic trip may inspire them in new directions of academic achievement and career preparation, which will equip them to play a role in the changes that the U.S. is certain to face in the coming decades.

Required texts:

Green Energy Economies: The Search for Clean and Renewable Energy. Byrne, John and Young-Doo Wang, editors. 2014.

¹ For an example of the output that will be possible from the 2015 program, see this video created by three students from the 2013 Burch seminar, produced with guidance from Sara Peach:
http://www.youtube.com/watch?v=5WD4p_44C04

Green Cities of Europe: Global Lessons on Green Urbanism. Beatley, Tim. 2012.

Seven Rules for Sustainable Communities: Design Strategies for a Post-Carbon World. Condon, Patrick. 2010.

Note: for additional readings, please see the attached syllabus.

Academic Schedule

The beginning of the course will take place in Chapel Hill, NC. Students will then travel to Pamplona, Spain. Approximately two weeks will be spent in Spain and the remaining four weeks will be spent in Germany. Except on days when there are field trips, this course will meet 90 minutes each day. Furthermore, some of the field trips will be scheduled on Saturdays in order to be able to interact with residents of some of the communities we are visiting and also to conserve class time during the week.

Course requirements and assessment

Assignment or Exercise	Percentage
Class participation	10
Perceptions about climate change	15
Walking and biking audit	15
Field trip blog	20
Policy brief and seminar	20
Personal essay and reflection	20
TOTAL	100

Students will come to the course with different perspectives and perceptions about energy use, the built environment and climate change. Before departing for Germany and Spain, students will attend two Saturday afternoon workshops in Chapel Hill. The workshops will provide the foundation for improved understanding of these issues or topics and how they are linked, and prepare students to think critically and ask thoughtful questions when visiting sites in Germany and Spain. Thus, students will learn about energy use and supply, the links between the built environment (urban design, the transportation system and the type, mix and proximity of different land uses) and travel choices, and about climate change. We will then depart for Germany and Spain, where students will examine these same issues through a different lens.

Part of their learning will come from observations during their everyday experiences abroad, such as wayfinding and traveling from place-to-place. For example, in Europe, students will get around by bus, train, bicycle and on foot and they will come to learn how certain features of the built environment facilitate different forms of travel. Students will be required to keep a blog of their experiences and observations and to consider how certain practices in Spain and Germany might be transferred to the U.S. to reduce our energy use and carbon footprint. At the end of the course, students will reflect back on what they learned, highlighting areas of new knowledge and new understanding.

During the course, students will develop skills in observation, documentation, interviewing, writing and reflection. These will come into play during field trips, assignments, seminars and lectures. For example, during each field trip, students will interview key informants about a particular site or topic, and capture what they have learned in their blogs, seminars and policy papers. For the policy paper, students will select a topic from a list that will be provided by the instructors. Students will be responsible for writing a paper and leading a 30-minute seminar for their classmates on their chosen topic. They will be expected to do most of the research before leaving for Europe – an expectation that worked well during the 2013 Burch Seminar in Germany, Sweden, and Denmark – and incorporate examples from the sites they visit during the field trips. After completing their seminars, students will revise their papers based on feedback from the instructors and their classmates. By giving a seminar, students will get a taste of the German University system. Seminars, with major student involvement, are an important part of the academic experience in German universities.

HNRS 350: Telling the Clean Tech Story in Germany and Spain

Course description: This six-week course in Germany and Spain will offer students the chance to study and document European communities that are taking strong action to reduce their carbon dioxide emissions. They will see firsthand how cities and rural communities in the two focus countries are addressing the climate challenge, and report back on these little-known stories for a class news site.

This course will immerse students in the material and engage them with a mix of learning opportunities: field trips, guest speakers, and student-led reporting projects.

As students study the places they visit, they will consider which lessons might resonate with an American audience, and they will produce news-style stories about what they learn. In the early weeks of the course, they will learn the basic skills of journalism: research, interviewing, writing short articles, and gathering photographs. Then, the students will interview university professors, city planners, ordinary citizens, and others about local approaches to carbon reduction. For example, students might write a story about five lessons that American cities can learn from planners in Freiburg, Germany, about how to create a bike-friendly city, or produce a photo essay about the visual impact of wind farms on the natural landscape in Navarra, Spain. The students' stories will be published on a class news site that will report and reflect on the issues they uncover in these countries. Throughout the course, the instructor will draw on her own professional experience as an environmental journalist to help the students as they develop story ideas, conduct research, and execute their projects.

As research on adult learning has shown, students generally retain material better when they are asked to learn information in one format and then present it in another (Halpern & Hakel, 2003). This course will ask students to do just that as they learn to write and produce engaging articles and photos about class content. Because students will have the freedom to choose their own interview subjects and to report stories on the material that most interests them, the course will also foster student creativity and active learning.

In addition, the course will teach the students valuable communication skills. Learning the work of a journalist – sifting through vast amounts of information and distilling those facts into clear

and compelling stories – is essential to many careers in the public and private sectors. The goal of the course, therefore, is not just to teach students about issues related to climate change in a global context, but to help them to acquire skills to communicate about sustainability for a lifetime.

Required Texts

Covering the Environment: How Journalists Work the Green Beat, by R. Wyss (Lawrence Erlbaum Associates, 2007)

Clean Break: The Story of Germany's Energy Transformation and What Americans Can Learn from It, by Osha Gray Davidson (Kindle Single)

Note: for additional readings, please see the attached syllabus. Additional, time-sensitive news stories will be selected in early 2015.

Course Requirements and Assessment

Component	Percentage
Class participation	10
Exercise: Photo assignment	10
Exercise: Person-on-the-street story	10
Exercise: Field trip story	15
Exercise: Expert interview	15
Rough draft of feature story	15
Final feature story	15
Final exam	10
TOTAL	100

Program Logistics

Program Affiliations

The program will be affiliated with the University of Navarra in Pamplona and the Albert-Ludwigs-Universität Freiburg, where we will use classroom space and library access.

Transportation

Students will fly into Madrid, Spain and then take the train to Pamplona. Within Pamplona, students will travel by Pamplona City Transport, which offers bus service to Pamplona and the surrounding metropolitan area. From Pamplona the students will fly to Berlin and then once inside Germany students will move around using a German Rail Pass (good for unlimited travel in Germany on ten-days during a one month span). The train will be used to go from Berlin to

Munich and then from Munich to Freiburg. The train will also be used to go from Munich to Freiburg. For travel in and around Freiburg, a regional pass will be bought which will allow students unlimited mobility in the Freiburg region for the duration of their stay.

Safety

Germany and Spain are highly developed countries, with low crime rates and excellent health care. However, students should take the same precautions they would take while traveling in major cities in the US.

Medical Care

Hospitals and doctor's practices in Germany and Spain have modern facilities and medical equipment. Students will carry international health insurance through HTH Worldwide (http://www.hthworldwide.com/insurance_intstudents.html) and will receive information of doctors and clinics upon arrival. Students will be advised to bring all prescription medicines with them for the duration of the program.

Housing

In Germany, we plan to repeat the housing arrangements that were used in 2013. The students rated the German housing highly in an exit survey. In addition, the hotel owner in Freiburg told us that she appreciated how well-behaved the 2013 group was and that we would be welcome again.

In Spain, our contact, Dr. Bienvenido León, has recommended the Hostal Nekea in Pamplona, as housing for students. Dr. Tom Linden, who teaches at the UNC School of Journalism and Mass Communication, traveled to Pamplona in summer 2014 with a group of students, and he provided first-hand recommendations on housing. He suggested we look into renting houses and apartments near the campus.

Interpretation

One of us (David Salvesen) is a Spanish speaker. To provide additional translation support, we plan to work with contacts at local universities in Spain and Germany to hire local bilingual students. Working with local student translators will give the UNC students an additional opportunity to meet local people, and it will keep costs low because we will not have to pay airfare or hotel costs for the translator.

Faculty Director

David Salvesen, Ph.D., Center for Sustainable Community Design, Institute for the Environment, UNC-Chapel Hill
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Dr. Salvesen is currently the Deputy Director of the Center for Sustainable Community Design at the University of North Carolina's Institute for the Environment, where he directs the

Sustainable Triangle Field Site, manages the capstone courses (ENEC 698) and teaches Principles of Sustainability (ENEC 330). In addition, Salvesen has taught graduate courses in land use planning, natural hazards policy and dispute resolution. Salvesen's research focuses on land use policies, issues and trends and their impact on the environment and the quality and character of communities. He has over 15 years of experience in land use planning and analysis, with a particular interest in exploring how communities can grow in ways that are sustainable and grounded in processes that are inclusive, equitable, and collaborative.

Salvesen has worked with students on a variety of projects across North Carolina, including engaging a small, rural community in the process of developing a plan to revitalize its downtown, evaluating the impact of state policies on the location of schools, developing and testing indicators of community resilience to natural disasters, and identifying transportation challenges of disadvantaged populations in North Carolina, particularly in poor, rural areas.

Currently, Salvesen is working on a project to document stories or narratives on climate change from ordinary people such as fishermen, foresters, hunters and farmers who, through the course of their everyday activities, have observed changes in the climate. He has worked overseas on a variety of issues, including watershed planning in Australia, clean technology in Albania and Bulgaria and sustainable farming in Guatemala.

Salvesen received his BS in Natural Resource Management from Rutgers University, an MS in Urban & Regional Planning from the University of Wisconsin-Madison and a Ph.D. in City & Regional Planning from the University of North Carolina-Chapel Hill.

Course Instructor

Sara Peach, School of Journalism and Mass Communication, UNC-Chapel Hill, peach@unc.edu

Sara Peach is an environmental journalist who has taught at the School of Journalism and Mass Communication since 2010.

Funded by a course development grant from the UNC Center for Global Initiatives, she accompanied Dr. Greg Gangi, Dr. Elizabeth Shay, and students for three weeks during the 2013 Burch Seminar on Sustainability in Germany, Sweden, and Denmark. During this time, she participated in program activities, gathered information about the local cultures and program logistics, tested potential course assignments, and evaluated the program through in-person interviews with students and in a survey. In addition, she led a pre-departure photography workshop for the students, which supported a photojournalism assignment completed by the 2013 students.

For the past four years, Peach has coached participants in the School of Journalism and Mass Communication's award-winning "Powering A Nation" projects, mentoring student journalists as they travel across the U.S. to tell stories about energy and water issues.

In her teaching, Peach draws on her experience working as a journalist for the Associated Press and a variety of environment-focused publications. At the journalism school, she teaches a class, "Environmental Storytelling," in which journalism students collaborate with environmental

science students in order to report stories about environmental issues that affect the citizens of North Carolina. The course has been highly rated in student course evaluations. One student called it “one of the best and most innovative classes the J-school has to offer.”

In the past two years, two students under her direction have won first-place Hearst awards, an honor known as the Pulitzer Prize of college journalism. In addition, the 2012 “Powering A Nation” project was nominated for a national Emmy award.

Peach holds a bachelor’s degree in environmental studies and a master’s degree in journalism, both from UNC.

VI. Eligibility and Enrollment

The program aims to enroll 16-20 undergraduate students with at least sophomore status and a GPA of 3.0 or higher. No prerequisites are required, but ENST 201 is strongly recommended.

Appendix – Excursions

Freiburg

Note: In Germany, we plan to repeat excursions led by the Innovation Academy in 2013. The Innovation Academy tours were rated highly in a survey of the 2013 students.

- **Green design and architecture in Freiburg** –during this field trip we will visit some of Freiburg’s famous green projects including: Sonnenschiff (a large commercial shopping center that gets a large percentage from renewable energy); Vauban (a district of Freiburg where 5,000 inhabitants live; it is considered to be one of the greenest large-scale residential-commercial areas in the world); Rieselfeld (another famous green district in Freiburg that was built in an area that was once used for processing the city’s sludge); we will also visit some large buildings that show how passive solar features and photovoltaic production of electricity can be incorporated into the design of even relatively large buildings.
- **Renewable energy projects in and around Freiburg-** During this field trip we will visit various photovoltaic and micro-hydro projects in and around Freiburg.
- **Sustainability and rural development-** During this field trip we will examine how rural communities are becoming stronger by producing and exporting renewable energy and by focusing on the production of high value organic products for regional urban markets.
- **Green businesses in Freiburg-** We will visit several businesses that focus on the so-called “triple bottom line.” (The triple bottom line focuses businesses not just on the profits they generate but also on the environmental and social value they add or subtract.) At least one of the businesses we visit will be involved in the renewable energy field.
- **Research and innovation at the Fraunhofer Institute for Solar Energy** – We hope to repeat a 2013 visit that enabled students to spend two days learning about not only the role Fraunhofer Institute plays in the German innovation system but also to spend time

with individual researchers learning about their work on electric mobility, smart grid research and efficient solar panels.

- **Grassroots activism in Schönau** – In this excursion, students will meet with local activists who led the anti-nuclear protests in the 1970s and ultimately founded their own energy cooperative.
- **Black Forest trip** - Visit to solar-powered restaurant/brewery led by solar scientist who helped design it.
- **Solar Info Center** - tour conducted by its CEO, Professor Rolf Bushmann

Munich

- **BMW plant tour** – We hope to repeat a 2013 visit that exposed students to the company's apprenticeship program as part of our exploration of work force development in Germany. We were also given a plant tour and learned about BMW's plans to move into the area of electric cars.
- **Intersolar Expo in Munich** - held every year in early June and is the largest event of its type in the world
- **Schletter** – We hope to repeat a 2013 visit. Schletter is a company in the solar sector located in a small town near Munich. It also has a plant in North Carolina. The company makes the racking that is used to mount solar panels in Germany and around the world. While we were there, we were given a plant tour and lecture on electric mobility.
- **Wildpoldsried** – We hope to repeat a 2013 visit to this town of about 2,500 inhabitants near Munich that sold about \$7.8 million worth of renewable energy to the grid in 2012.

Berlin

- **The Reichstag Building** – this building was restored in way to demonstrate Germany's commitment to sustainability
- **Economic development in Berlin** – the group will also visit several businesses and meet with planners who are involved with trying to turn the Berlin region into a new Silicon Valley
- **The media and renewable energy in Germany** – during this field trip, we will meet with local journalists and journalism professors, who will discuss the media's role in shaping public discussion of renewable energy and sustainability in this country

Pamplona

- **The Spanish National Center for Renewable Energy**
- **Sarriguren** – during this field trip, we will visit a nearby town of 11,000 that was built from scratch using renewable energy and sustainability practices.
- **The media and renewable energy in Spain** – during this field trip, we will meet with local journalists, who will discuss the media's role in shaping public discussion of renewable energy and sustainability in this country

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Renewable Energy and Sustainable Community Design: Moving Toward a Lower Carbon Future

Summer 2015

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This six-week course will provide students with an opportunity to study and compare two European countries--Germany and Spain--that have become world leaders in the production of energy from renewable sources and in reducing their carbon footprint. Students will learn first-hand from policymakers, planners, and producers in each country about the social, political, economic and technological changes that facilitated the growth in renewable energy and the move toward more sustainable development.

In the wake of Japan's 2011 Tsunami and subsequent Fukushima nuclear disaster, German public opinion pushed the government to reduce the country's dependence on nuclear power and ramp up production of electricity from renewables. The country established an ambitious goal of increasing the share of electricity generated by renewable sources from about 25% currently to 40% by 2025. For comparison, about 12% of electricity generated in the U.S. comes from renewable sources, including wind, solar, biomass and hydropower.

Spain has undergone a similar energy revolution, generating some 43% of its electricity from renewables. Nowhere is this more evident than the Navarra region, where some 80% of energy comes from renewables. In fact, Navarra has become Europe's sixth largest producer of wind power. The region has become a worldwide leader in technological development and production in the renewable energy sector and is home to numerous renewable energy facilities as well as the National Renewable Energy Center (Centro Nacional de Energias Renovables de Espana or CENER)--a research and information center for renewable energy.

In both countries, the transition to renewable energy has been bumpy. In Spain, a financial crisis led the national government to renege on promised dividends or payments to people who invested in solar energy facilities. Many of the investors were of modest means, and the reduction in expected payments has caused them financial hardship. Over 60,000 people have been affected. In Germany, elected officials recently voted to reduce subsidies for renewable energy. Both Germany and Spain provide a cautionary tale about the promises and pitfalls of government initiatives to promote renewable energy. By studying the lessons learned in these two countries, students will come away with a better sense of what approaches might work in the U.S.

In addition to studying renewable energy policies and facilities in Germany and Spain, students also will study how energy use can be reduced through smart urban

planning and design. Both countries provide numerous examples of communities that make it easy for people to get around by transit, bicycle or on foot. This includes older, more traditional cities such as Bilbao, Pamplona and Tudela, as well as new eco-cities that have been designed according to principles of sustainability. Students will explore how the design of the built environment, along with a greater reliance on renewable energy, can help countries reduce their carbon emissions and mitigate the impacts of climate change.

Course Objectives

The objectives of the course are to provide students with the opportunity to learn about renewable energy technologies, examine first-hand and compare different energy initiatives and approaches in Germany and Spain, understand how the built environment influences travel choices, and explore the links between energy use, the built environment and climate change.

The goals of the course are to help students

- Become familiar with different types of renewable energy technologies being used today and see first-hand how they work
- Understand the promise and pitfalls of renewable energy
- Explore and compare different energy policies and initiatives in Germany and Spain
- Think critically about the role of government policies (e.g., subsidies) in promoting renewable energy
- Identify the key factors that influence travel choices
- Understand the links between the built environment, energy use and climate change
- Conduct primary research (interviews) on renewable energy and climate change, and
- Improve their skills in listening, observing, writing and communication.

This course is a companion to HNRS 350: Telling the Clean Tech Story in Germany and Spain, taught by Sara Peach. The two courses were designed to compliment each other. Thus, in completing the assignments for this course, students are strongly encouraged to draw on the interviews, photographs, observations and research conducted or prepared as part of HNRS 350.

The course is open to students from all majors who have an interest in renewable energy, climate change and sustainable urban design. Students will be recruited through the Curriculum for Environment and Ecology, the School of Journalism and Mass Communication, the minor in sustainability, minor in city and regional planning and from other relevant campus entities.

Course Requirements and Assessment

Assignment or Exercise	Percentage
Class participation	10
Perceptions about climate change	15
Walk and bike audit	15
Field trip blog	20
Personal essay and reflection	20
Policy brief & seminar	20
TOTAL	100

Sample Lesson Outlines and Assignments

Lesson: Introduction to the course

In class: Students will receive an overview of the course, including the goals and objectives, reading materials, course requirements, expectations, grading, travel schedule, field trips, and accommodations. We will discuss the following questions:

- What would you like to get out of this course?
- What is meant by renewable energy?
- Why are some countries transitioning from conventional to renewable sources of energy?

Assignment: Students will write a brief essay expressing their views on the potential for renewable energy in the U.S. as well as the benefits and costs. At the end of the course, students will be asked to reflect back at this initial essay and describe how their views (may) have changed and why.

Lesson: Overview of energy supply and demand in U.S., Spain and Germany

Students will examine the source and use of energy in the three countries. They will examine the mix of energy supplies (e.g., coal, oil, natural gas, nuclear and renewables) trends in energy use, and compare the energy consumption patterns and sources across the three countries.

- What are the main sources of energy in the U.S., Germany and Spain?
- What percentage of overall energy demand is met by renewables? How has the contribution from renewables changed over time?
- How can federal policies be used to shift the mix of energy supplies or sources?

Lesson: Designing streets for biking and walking

In class: Students will explore the key urban design features that encourage or discourage walking, biking and the use of public transit. Based on their research, class discussion, and their own observations and experiences, they will develop a set of criteria to assess the strength or efficacy of these design features.

Field trip: Students will visit several different towns/cities in Germany and Spain and learn how easy or difficult it is to get around without a car. Are there sidewalks and crosswalks? How wide are the streets? Is there a bike lane? Do you feel safe walking? Are major destinations within easy walking or biking distance? How convenient are the transit stops and schedules? Students will record specific urban design features that influence travel options.

Assignment: Working in small groups, students will apply the criteria they developed to assess the degree to which a particular street encourages or discourages walking, biking and transit use and will offer recommendations for improvement. That is, they will conduct a walking, biking and transit audit.

Lesson: Field trip to renewable energy facilities in Spain and Germany
Students will visit several different renewable energy facilities (solar, wind, biomass, and hydro) in Germany and Spain. The information gathered from these trips will be used to complete different assignments for the course.

Assignment: Students will keep a blog on each field trip.

Lesson: Climate change perceptions

In class: Students will discuss the different factors that influence people's perceptions about climate change and examine how views (about climate change) differ in the U.S., Spain and Germany.

Assignment: Through research and interviews with officials and "people on the street," students will describe how perceptions about climate change vary across the three countries and offer explanations for the differences. How do views vary by country, age, gender, political affiliation, income, race and education?

Lesson: Policy brief

In class: Students will discuss different energy policies adopted in Germany and Spain and the impact of those policies on the availability, reliability and price of energy. They will critically assess the energy strategies of the two countries.

Field trips: Students will visit various renewable energy facilities in Germany and Spain.

Assignment: Based on what they have learned from research, field trips and interviews with officials in Germany and Spain, students will write a policy brief describing the main benefits and costs of renewable energy, the key challenges, role of the federal government, and recommend whether or not the U.S. should adopt policies and incentives to promote greater reliance on renewable sources of energy. This policy brief will be written for the head of the U.S. Department of Energy.

Topics

Unit 1: Introduction to Renewable Energy Policies and Practices

- Introduction to the course, region and field trips
- Overview of energy supply and demand in U.S., Spain and Germany
- Introduction to renewable energy technologies
- Assess impacts of government policies on energy use
- Explore the promises and pitfalls of renewable energy
- Field trips: visits to renewable energy sites in Germany and Spain. We will meet with local policymakers, advocates, business managers and representatives from renewable energy companies

Unit 2: The Built Environment, Transportation and Energy Use

- Explore the factors that shape the design of cities
- Assess how urban design and land use affect how people get around
- Learn how streets can be designed for multiple users: pedestrians, bicycles and cars
- Explore how to integrate land use, urban design and transit (transit oriented design)
- Field trips: we will meet with local advocates, designers, planners and policymakers in Spain and Germany. In addition, students will take guided walking, biking and transit tours in select cities.

Unit 3: Climate Change

Introduction to climate change: causes and consequences

- Scientific consensus
- Different views and perceptions about climate change
- Mitigation and adaptation
- Compare awareness and perceptions about climate change in Spain, Germany and U.S.
- Field trips to climate adaptation and mitigation projects in Germany and Spain

Unit 4: Green Design for Buildings and Cities

- Overview of green design
- Sustainable stormwater management - Buildings, streets, parking lots, wetlands/floodplains, etc.
- Compare clean technology practices and policies in Spain, Germany and the U.S.
- Field trips: Tour of green or sustainable design facilities and places in Germany and Spain, including those facilities found in older, traditional cities and more modern "eco-cities." Specifically, we will tour places and facilities that use innovative and sustainable methods to manage stormwater, generate energy, minimize/recycle wastes, conserve/reuse water, protect or restore natural landscapes, and encourage walking, biking and transit use.

Required Texts

Green Energy Economies: The Search for Clean and Renewable Energy. Byrne, John and Young-Doo Wang, editors. 2014.

Green Cities of Europe: Global Lessons on Green Urbanism. Beatley, Tim. 2012.

Seven Rules for Sustainable Communities: Design Strategies for a Post-Carbon World. Condon, Patrick. 2010.

Additional Readings and Resources

Energy Use in Germany: Three Reasons Germans are Going Renewable 'At All Costs.' John Farrell. *Renewable Energy World*. October 23, 2013.
<http://www.renewableenergyworld.com/rea/blog/post/2013/10/3-reasons-germans-are-going-renewable-at-all-costs>

Assessing the Extent of Germany's Energy Dilemma. Alen Mattich. *The Wall Street Journal*. February 13, 2014.
<http://blogs.wsj.com/moneybeat/2014/02/13/assessing-the-extent-of-germanys-energy-dilemma/>

Germany Energy Minister Proposes Cuts to Renewable Subsidies, Industry Reacts. *Bloomberg News*. January 20, 2014.
<http://www.renewableenergyworld.com/rea/news/article/2014/01/german-energy-minister-proposes-cuts-to-renewable-subsidies-industry-reacts>

Renewable Energy in Spain Is Taking a Beating. Andres Cala. *The New York Times*. October 8, 2013. http://www.nytimes.com/2013/10/09/business/energy-environment/renewable-energy-in-spain-is-taking-a-beating.html?_r=0&pagewanted=all

The Cost Del Sol: Renewable Energy in Spain. *The Economist*. July 20, 2013.
<http://www.economist.com/news/business/21582018-sustainable-energy-meets-unsustainable-costs-cost-del-sol>

The Lesson in Renewable Energy Development in Spain. Toby Couture. *Renewable Energy World*. February 9, 2014.
<http://www.renewableenergyworld.com/rea/news/article/2013/07/a-lesson-in-renewable-energy-development-from-spain>

Cool Roofs Might be Enough to Save Cities from Overheating. David Biello. *Scientific American*. February 14, 2014. <http://www.scientificamerican.com/article/cool-roofs-might-be-enough-to-save-cities-from-climate-overheating/>

Hansen, James. 2009. *Storms of My Grandchildren*. Chapter 11, pgs 237-270. Bloomsbury Press. NY.

A Huge Solar Plant Opens, Facing Doubts About its Future. Diane Cardwell and Matthew Wald. *The New York Times*. February 13, 2014.

http://www.nytimes.com/2014/02/14/business/energy-environment/a-big-solar-plant-opens-facing-doubts-about-its-future.html?nl=todaysheadlines&emc=edit th_20140214&r=0

Podcast: The Science of Climate Change, Michael Mann: Professor of Meteorology, Penn State University: <http://rationallyspeakingpodcast.org/show/rs93-dr-michael-e-mann-on-the-science-of-climate-change.html>

Ted Talks: Jim Hansen: Why I must speak out about climate change. February 2012:

http://www.ted.com/talks/james_hansen_why_i_must_speak_out_about_climate_change.html

Ted Talks: Naomi Oreskes, Professor, History of Science. University of California, San Diego. *Merchants of Doubt*. NPR Talk of the Nation:

<http://www.npr.org/player/v2/mediaPlayer.html?action=1&t=1&islist=false&id=145732719&m=145732716>

Naomi Oreskes: TedEd, Alternative sources of energy:

<http://ed.ted.com/on/5xxqMF0j>

How to Talk about Climate Change. The Frameworks Institute, Washington, DC

http://www.frameworksinstitute.org/assets/files/PDF_oceansclimate/oceansnclimatemessagebrief.pdf

Global Warming's Six Americas. 2011 and 2012. Yale Project on Climate Change Communication and George Washington University Center for Climate Change Communication.

<http://environment.yale.edu/climate-communication/files/Six-Americas-March-2012.pdf>

Telling the Clean Tech Story in Germany and Spain

HNRS 350 | Summer 2015 | Instructor: Sara Peach
Email: peach@unc.edu

This six-week course in Germany and Spain will offer students the chance to study and document European communities and businesses that are participating in an emerging renewable-energy revolution. They will see firsthand how businesses, policymakers and ordinary citizens in the two focus countries are navigating a rapid transition from fossil fuels to renewable energy.

The Navarre region in Spain, for example, generates 80 percent of its electricity from renewable sources, while the German village of Wildpoldsried is able to produce five times the amount of energy it needs from wind, solar, biogas, and other renewable sources. Yet few Americans know about such European initiatives and continue to view renewable energy as “a boutique product, cool but otherworldly,” as *New York Times* writer Elisabeth Rosenthal has put it.¹

In this course, students will learn how European communities are approaching renewable energy and other sustainability issues and consider which lessons, stories, and ideas would resonate with a large audience. They will write news-style articles and gather photographs for a class news site that will report and reflect on the issues they uncover in these countries. The course is intended to equip students with communication skills that they can rely upon throughout their academic and professional careers.

This course proposal was developed with support from the UNC Center for Global Initiatives, which enabled Sara Peach to travel with the 2013 Burch Seminar in Germany, Sweden, and Denmark, to study how the impact of the seminar could be expanded through a course in communication.

¹ http://www.nytimes.com/2013/03/24/sunday-review/life-after-oil-and-gas.html?pagewanted=all&_r=0

Course requirements and assessment

Component	Percentage
Class participation	10
Exercise: Photo assignment	10
Exercise: Person-on-the-street story	10
Exercise: Field trip story	15
Exercise: Expert interview	15
Rough draft of feature story	15
Final feature story	15
Final exam	10
TOTAL	100

Required texts

Covering the Environment: How Journalists Work the Green Beat, by R. Wyss (Lawrence Erlbaum Associates, 2007)

Clean Break: The Story of Germany's Energy Transformation and What Americans Can Learn from It, by Osha Gray Davidson (Kindle Single)

Additional readings

“How wind displaced coal in Spain,” by Giles Parkinson, *Reneweconomy*, August 18, 2013
<http://reneweconomy.com.au/2013/graph-of-the-day-how-wind-displaced-coal-in-spain-47008>

“Catalonia declares energy independence,” by Clare Taylor, *The Energy Collective*, December 18, 2013
<http://theenergycollective.com/claretaylor/318031/catalonia-declares-energy-independence>

“The lesson in renewable energy development in Spain,” by Toby D. Couture, *Renewable Energy World*, July 30, 2013
<http://www.renewableenergyworld.com/rea/news/article/2013/07/a-lesson-in-renewable-energy-development-from-spain>

“Spain Ejects Clean-Power Industry With Europe Precedent: Energy,” by Alex Morales and Ben Sills, *Bloomberg*, May 30, 2012

<http://www.bloomberg.com/news/2012-05-29/spain-ejects-clean-power-industry-with-europe-precedent-energy.html>

Smart Power: Climate Change, the Smart Grid, and the Future of Electric Utilities, by Peter Fox-Penner (Island Press, 2010) (selected chapters)

Energy Transition: Energiewende

<http://energytransition.de/>

“Germany is right: there is no right to profit, but the right to work is essential,” by John Studzinski, *The Guardian*, February 5, 2013

<http://www.theguardian.com/commentisfree/2013/feb/06/germany-success-humanity-medium-firms>

German Mittelstand: Engine of the German economy, by the Federal Ministry of Economics and Technology, Berlin, Germany (PDF)

“Roundup: How U.S. media are covering the German rush for renewables,” by Sara Peach, *The Yale Forum on Climate Change & the Media*, April 30, 2013

<http://www.yaleclimatemediaforum.org/2013/04/roundup-how-u-s-media-are-covering-the-german-rush-for-renewables/>

“Trans-Atlantic exchange: Why California is to blame for the Energiewende,” by Paul Hockenos (Heinrich Boll Stiftung, January 2013) (PDF download)

“Germany’s solar-power success: Too much of a good thing?” by Andrew Curry, *Grist*, April 1, 2013

<http://grist.org/business-technology/germanys-solar-power-success-too-much-of-a-good-thing/>

“Is Germany killing the environment to save it?” *Der Spiegel*, March 12, 2013

Additional, time-sensitive news stories will be selected in early 2015.

Course objectives

No matter what kind of work students do during their careers, being able to communicate with a mass audience will help them stand out. Nonprofits, government agencies, eco-friendly businesses, universities and news organizations all look for employees who can effectively communicate complex information to a general audience.

My main objective in “Telling the clean-tech story in Germany and Spain” is to introduce students to the skills they need to communicate effectively with a general audience about clean-tech issues.

The goals of HNRS 350 are to help students:

- understand key approaches in Germany and Spain to addressing climate change
- improve their photography by helping them understand principles of composition, light and moment
- generate, select and develop written story ideas related to renewable energy and climate change in these countries
- choose credible sources who can speak fairly and accurately about highly controversial issues
- practice conducting interviews and engaging in cross-cultural communication
- improve their writing by using strategies such as rewriting and seeking help from others

The course is a companion to HNRS 350, “Sustainability and Corporate Social and Environmental Responsibility in Germany and Spain,” taught by Dr. David Salvesen. In developing stories for this course, students are strongly encouraged to draw on the concepts from Dr. Salvesen’s course. When seeking sources, they may also contact guest speakers, field trip leaders, and others they meet in Dr. Salvesen’s course.

This course is open to students from all majors who have an interest in sustainability and communication. Students will be recruited through the School of Journalism and Mass Communication, the Curriculum for Environment and Ecology, the Department of Communication Studies, the minor in sustainability, and other relevant campus entities.

Completing coursework

Because students will be recruited to the program from a variety of backgrounds, some students will not have completed any coursework in communicating with a mass audience, while others will have little starting knowledge in business or the environment. To complete the writing assignments, students will be divided into pairs: Students who have completed coursework in the environment or business will be paired with students who have taken a journalism or communication studies course. One will serve as the lead researcher, while the other will serve as the lead writer. This approach worked well during the 2013 Burch Seminar in Germany, Sweden and Denmark, in which a small group of students with different skill sets worked together to produce a short film.

Each exercise (“person-on-the-street” story, expert interview, “field trip” story) is designed to help the students complete their final feature story. Students will choose a topic to focus on at the beginning of the class. Then, they will gather material about that topic by interviewing ordinary people on the street about it, by conducting an interview with a relevant expert, and by writing

up information about a related field trip. They are highly encouraged to re-use this information to complete their final feature stories. For example, the final feature story may contain quotes from the expert interviewed for the “Expert interview” exercise.

Topics

Unit 1: Introduction to renewable energy and communication

- Introduction to the region, culture, and the course
- Introduction to journalistic writing
- How to find identify and select good stories
- Field trips: Introduction to untold stories related renewable energy. We will meet with local journalists, business leaders, and government officials to discuss potential topics for coverage during the class.
- How to use a content management system to publish material to the class website

Unit 2: Photography

- How to capture a photo that tells a story
 - Light
 - Moment
 - Composition
- Field trip: Capturing key moments of the renewable energy story in the field. Students will take photos and material for captions during an excursion and bring their top photos back to class for a photo workshop.

Unit 3: Reporting on renewable energy

- Introduction to interviewing
- How to find credible, charismatic sources
- How to find credible data to support your story
- Field trips: Reporting on renewable energy in the field. Students will attend lectures by local renewable energy leaders and write about lessons learned

Unit 4: Telling renewable energy stories for a mass audience

- Structuring a story to nab readers
- Narrowing a story topic
- Four writing workshops

Sample Lesson Outlines and Assignments

Note: These sample lesson outlines are meant to illustrate how learning and practicing communication skills can be woven into field trips and experiences similar to those of the Summer 2013 Burch Seminar in Germany, Sweden, and Denmark.

Lesson: Introduction to the region and the course

In class: Welcome to the region and overview of the course. We will discuss the following questions:

In your experience, what does the media get right about the environment? What do they get wrong?

Why might it be important to communicate effectively about the environment?

What do you hope to get out of this course?

We will conduct a cross-cultural communication exercise

Assignment: Post a first-person blog post on the course site introducing yourself. Due by 5 p.m. that day.

Lesson: Simple tips for better photographs

In class: Simple ways to make your photographs better using the principles of composition, light and moment. How to write a good caption. The kinds of photo opportunities you might have in this program and how to plan for those.

Field trip: Learn about one way this region is addressing renewable energy, for example by visiting the Vauban district in Freiburg, Germany, led by journalist Craig Morris.

Assignment: Take photographs during the field trip. Select your five favorite photographs from the day based on the principles you learned in class. Write complete captions for each of the five photographs and turn them in at the beginning of the next class. Be prepared to show your photos to the class.

Lesson: Photo workshop I

In class: Establish ground rules for class critiques. Display the favorite class photos. Ask students to walk around the class and to look at each photo. Then hold class critique/discussion of the photos. What's been done well? What can be done better in the future?

Lesson: Writing for mass audiences

In class: What is news? What makes a good news story on renewable energy? What do mass audiences look for in news about this issue? How do you find a good news story?

Field trip: Learn about one way this region is addressing renewable energy, such as an Innovation Academy tour of Freiburg's public transportation infrastructure.

Assignments: 1) During the field trip, listen for what you think are the most newsworthy aspects of what you learn. What would your audience most like to learn about? Come prepared to discuss your answer in the next class.

2) Reflect on your experiences so far in this program and browse local news sites, such as the English-language *Der Spiegel*, to brainstorm ideas for local stories that might appeal to your audience. Come to class with three ideas of stories you might want to pursue during this course.

Lesson: Intro to interviewing

In class: Come prepared to talk about yesterday's field trip, to share your three ideas for a story project and to give feedback to your classmates on their ideas. The instructor will provide you with written feedback on your story ideas.

Introduction to interviewing. How do you approach a source? What do you ask? How do you get good, accurate quotes? Should you use an audio recorder or not? What information (like name, occupation) do you need to collect so that you can identify your sources later?

Exercise in class: Interview each other in pairs.

Assignment: Choose a question about renewable energy that you would like to ask of people in this city. This question can be related to the story you're considering as a project for this course. Before the next class, go into the city and ask 10 people *you have never met before* this question. Record their answers. You may travel in pairs, but each of you should ask a question of 10 different people.

Take photographs of each of the people you interview and make sure you collect accurate caption information.

Due next class: Create a Word document with a list of the names and identifying information of each of the people you interviewed and the quotes that most interested you.

Lesson: Field trip

Field trip: Visit a regional news office and talk with local reporters about what they cover related to renewable energy and how they cover it. What are the untold stories of this region?

Lesson: Structuring a story to nab readers

In class: Debrief on person-on-the-street interviews. How did they go? What can you learn from those experiences?

Lecture: What are the main questions that every news story should answer? What are different ways of structuring a story? What is a lede, and how do you write one?

Exercise in class: Working with a partner, organize the quotes you collected from people on the street. Which information should be grouped together? In what order should you describe what you learned? What should be left out? Help your partner make these decisions as well. Then, write a lede for each of your stories.

Assignment due next class: Using the interviews you conducted on the street, write a 700-word story with a strong lede and appropriate structure about the views of local people on a clean-tech issue. Select your favorite three photos and include them in the story with captions.

Lesson: Writing workshop

In class: Come prepared to share your story with the class. We will have a friendly class critique and discussion of your stories.

Assignment: Revise your story based on class feedback.

Lesson: Finding expert sources

In class: Conducting a background interview. More tips on effective interviewing. How to find sources. Best practices for transcribing interviews.

Assignment: Conduct an in-depth interview with an expert source about the topic you're covering for your final project. Record the interview and transcribe it. Due in one week.

Lesson: Finding data

In class: What other sources and information will you need to write a well-rounded story for your final project? Learn how to find and evaluate information about the environment.

Exercise: Working in groups of three, create a list of additional sources you will need to complete your story.

Field trip: Innovation Academy tour: Renewable Energy and Rural Development.

Assignment: Imagine that you've been assigned to write a story about today's field trip. Write a lede for that story and turn it in to the instructor. Come prepared to talk in class tomorrow about what you've learned so far on your story topic.

Lesson: Narrowing your story

In class: You've done your research and you have a million ideas for your topic. How can you narrow it for one article?

Lesson: Editing Q&As

In class: Come prepared to share your interview transcript. In class, you will work in pairs to edit the transcripts.

Assignment: By 5 p.m., turn in an edited version of your Q&A, including a well-written lede.

Lesson: Troubleshooting your reporting

In class: What issues are affecting your stories? How can you solve them?

Assignment: On the next class day, come prepared to share a rough draft of your story with the class. The instructor will explain in detail what constitutes a "rough draft." You should also plan to bring in several photos that could illustrate your story. The class will help you make a selection.

Lesson: Writing workshop

The class will take a look at your rough draft and offer feedback on it.

Lesson: Writing workshop and wrap-up

How you can apply what you've learned to your career; resources for learning more.

Assignment: The final version of your feature story is due 10 days after the course concludes.

Week-by-week learning goals for Burch Seminar in Germany and Spain

David Salvesen and Sara Peach

*Contact hours are listed in parentheses. Note: For field trips, we divided contact hours by two.

Pre-departure workshops (Saturdays in Spring 2015)

Home base: Chapel Hill, N.C.

- **In class:** Introduction to climate change mitigation in the U.S., Spain, and Germany (4)
- **In class:** Introduction to journalistic writing (2)
- **In class** photo workshop: an introduction to the principles of composition, light and moment (2)
- **In class:** Analyze and critique renewable energy policies and practices in Germany and Spain (2)
- **In class:** Discuss and explore the links between land use, urban design, energy use and climate change (2)

Total contact hours in pre-departure workshops: 12

Weeks One and Two

Home base: Pamplona, Spain

- Arrive in Pamplona, check in, recuperate. **In class:** Overview of next two weeks. (2)
- **In class:** Introduction to the region, culture and the courses. Meet faculty, local planners & journalists at the University of Navarra. (8)
- **In class:** Generate, select and develop written story ideas related to renewable energy and climate change in Spain (2)
- **In class:** Introduction to interviewing in a cross-cultural context (2)
- Practice interviewing people in a cross-cultural context by conducting street interviews of ordinary Spaniards on a topic related to renewable energy. (1)
- Understand Spain's approach to mitigating climate change; identify promise and pitfalls. Deepen understanding of the social and economic context in which Spain's approach to climate change developed. Field trip: Meet state & local energy reps and nonprofit groups. (4)
- Assess attitudes and perceptions about sustainable development and climate change. As a class, interview Spanish officials, NGOs and residents of eco-cities. (4)
- Explore first-hand how urban planning & design shape transportation and energy use. Field trip: Walking tour of Pamplona, Tudela, Bilbao and Zaragoza. Practice photography by taking pictures during these and other field trips. (4)
- View and critique recent innovations in city planning and design (e.g., eco-cities). Field trip: Tour of three eco-cities in Spain. (6)
- Understand key aspects of renewable energy technologies used in Spain. Field trip: Tour renewable energy sites; interview state and local officials. (6)
- Develop skills in identifying the key features or factors that influence walking, biking and transit use. Field trip: Walk and bike tour of various cities, both old and new. (5)
- **In class:** Improve written skills by writing, editing, and revising "person on the street" story. (4)
- **In class:** Improve photography by workshoping field trip photos with peers (2)

Total contact hours in these two weeks: 48

Week Three

Home base: Berlin, Germany

- Arrive in Germany, check in, recuperate. **In class:** Overview of next four weeks. (2)
- **In class:** Introduction to the region and culture. Meet German journalists, planners and others. (8)
- Understand the policy approaches the German government is using address climate change. As a class, interview nonprofit and government leaders. (4)
- Explore first-hand how urban planning and design shape energy use. View and critique recent innovations in sustainable planning and design. Field trip: Tour Reichstag Building and other facilities. (4)
- Develop skills in identifying key features or factors that influence walking, biking and transit use. Field trips: Walking tour of Berlin. (4)
- **In class:** Generate, select and develop written story ideas related to renewable energy and climate change in Germany. (2)
- **In class:** Improve written skills by writing, editing, and revising "field trip" story. (4)

Total contact hours this week: 26

Week Four

Home base: Munich, then Freiburg

- Assess attitudes and perceptions in Germany about climate change. Interview planners, NGOs and others. (4)
- Deepen understanding of the social and economic context in which Germany's approach to climate change developed. Field trips: Visit renewable energy sites and businesses in and around Munich, such as Wildpoldsried, a village that is a leader in renewable energy. (8)
- Develop skills in identifying key features or factors that influence walking, biking and transit use. Field trips: Walking tour of Munich. (2)
- **In class:** Improve written skills by writing, editing, and revising "expert interview" story. (4)
- Travel to Freiburg.
- Develop skills in identifying key features or factors that influence walking, biking and transit use. Field trip: Tour of Freiburg with journalist Craig Morris. (2)

Total contact hours this week: 20

Week Five

Home base: Freiburg, Germany

- Understand the historical context of Germany's approach to climate change. Field trip: Tour of Schonau. Meet with the activists who started the anti-nuclear movement in Germany who now operate a renewable-energy utility. (4)
- Understand the role that businesses and government-business partnerships play in Germany's approach to climate change. Field trips: Fraunhofer Institute, Black Forest businesses, Solar Info Center. (10)
- Deepen understanding of a local-level approach to climate mitigation and sustainability through planning. Field trips: Freiburg mayor's office, Freiburg public transit, solid waste. (6)

Total contact hours this week: 20

Week Six

Home base: Freiburg, Germany

- **In class:** Improve written skills by writing, editing, and revising rough draft of feature story. (4)
- **In class:** Reflect on the social, economic and political contexts in which climate change mitigation has evolved in Spain and Germany. Why have the countries' two approaches followed such markedly different trajectories? What lessons might Americans take from these two cases? (4)
- **In class:** Improve written skills by writing, editing, and revising draft of final feature story. (4)
- **In class:** Exam review (2)
- **In class:** Exams (6)

Total contact hours this week: 20

Total in-class contact hours for two courses: 70

Total field trip contact hours for two courses, divided by two: 68

Grand total of contact hours for Burch Seminar in Germany and Spain (includes two courses): 148