

BURCH SEMINAR IN GERMANY, DENMARK AND SWEDEN

A GLIMPSE INTO OUR FUTURE? SUSTAINABILITY IN GERMANY, SWEDEN AND DENMARK

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UNC Institute for the Environment

Summer 2013
6 weeks (Sunday, June 23-Sunday, August 4)

I. INTRODUCTION

American society currently seems uncertain about how to move forward in the face of widespread economic suffering and decades of political and cultural uncertainty about core national values and goals. There is growing debate, as the anti-Wall Street demonstrations show, about whether the path of neoclassical economics we have pursued over the past three decades is worth pursuing any further. We have reached a point at which old ideas and models no longer appear to be working very well. As many observers have noted the anti-Wall Street demonstration also reflect the fact that our society also lacks a coherent vision for an alternative future. When interviewed, Occupy Wall Street demonstrators are able only to list a series of grievances but seem unable to articulate a cogent vision for change. It is as if America has lost its ability to dream about what a better future would look like.

While Europe is also facing a series of strong economic challenges, a social vision—very much at odds with the ideas of neo-liberalism—has been growing in many regions of Europe during the past few decades. This social vision is one of creating a sustainable society. Sustainability is based on creating a balance between three pillars: the natural environment, economics and social equity. In Europe this vision has found important champions in Green Parties, but other advocates for this vision have come from many different quarters in European countries.

This program proposes to spend approximately six weeks in some of the places in Europe that are considered to be leading the way in sustainability. The cities of Freiburg (Germany), Copenhagen (Denmark) and Malmö and Lund (Sweden) are leaders in sustainability because of coalescence of leadership in the business and political sectors and because of a population that is willing to consider alternatives to earlier prevailing patterns that consumer resources, degraded the natural environment, threatened public health, and limited equitable access to goods, services and economic opportunity.

Four weeks will be spent in Freiburg, Germany—often referred to as the renewable energy capital of the world. Freiburg hosts a great deal of research in renewable energy as well as many businesses involved in various aspects of renewable energy. Furthermore, districts (large scale neighborhoods) in Freiburg such as Vauben and Rieselfeld are internationally recognized as models of green design and development. Freiburg is also famous for incorporating green design

and renewable energy into the architecture of not only new buildings but also redesigned older buildings. In the Freiburg region as in other parts of Europe, renewable energy has also become an important part of rural development strategies. Finally, Baden Württemberg, the state in Germany where Freiburg is located, just elected the first governor who is a member of the Green Party. Under Germany's parliament system this also means that the Green Party is the dominant party in the state's legislative body. Given the opposition of the Green Party to nuclear power and fossil fuels, it will be interesting to study the evolution of the energy policy in the major manufacturing region of Baden Wurttemberg.

Our next destination will be Copenhagen, Denmark. Copenhagen will provide us with an ideal laboratory to study what is widely regarded as one of the best examples of urban planning in the world. The so-called five-finger model provides residents of Copenhagen with ample green space and a wide variety of transportation options. While we are in Copenhagen, we will also examine the evolution of off-shore wind power. As Eastern North Carolina considers embarking on a future with a major emphasis on off-shore wind power there is a lot we can learn from Denmark's extensive experience. Denmark, Germany and Sweden also are ideal places to study the evolution of a new grid system. Both Germany and Denmark are already pushing the limits of what the traditional grid can absorb from distributed sources of renewable energy. For progress to be pushed further it will be necessary to promote the evolution of a smart grid. All three countries we will visit are making major strides in the implementation of smart grid development. In Sweden 100% of homes now possess smart meters. (Smart meters gather information on energy use on one hour or ½ hour intervals and communicate that information back to utilities and potential also to customers. Smart meters will allow for dynamic pricing systems to develop and when combined with smart appliances will allow customers to push off the use of certain appliances to times of the day when demand and the price of electricity are low. This will allow society to get by with less energy generation capacity.)

The final place we will visit is Malmö, Sweden; a twenty-minute train ride from Copenhagen. (Lund is fifteen minute train ride from Malmö so we will make one or two trips to Lund while we are in Malmö.) Malmö was one of the first cities to industrialize in Scandinavia and it remains one of the most industrialized cities in the region. However, like the cities in the US rust belt, Malmö started to suffer from a decline in employment in its manufacturing sector. Rather than accept its fate, Malmö set out to dramatically transform itself. The elements of the city's transformation include an emphasis on sustainability, mobility projects (most notably the Oresund Bridge that connect Malmö with Copenhagen), a new university, explicit committed support for the arts, and the courting of industry in cutting-edge fields such as information technology and renewable energy.

II. ACADEMICS

Students on this program will be enrolled in two academic courses for a total of six credits:

- HNRS 352: Environmental Infrastructure and Planning in Germany, Denmark and Sweden (3 credits)
- HNRS 352: Sustainability in Germany, Sweden and Denmark (3 credits)

Outline of academic coursework:

1. HNRS 352: Sustainability in Germany, Sweden and Denmark (3 credits)

Approaches: Social and Behavioral Sciences

Connections: Global Issues

Major credit: City and Regional Planning, Environmental Studies

Course summary

Sustainability is defined as being based on the three pillars of environment, economics and social equity. The goal of this course is to study how are three focus countries are actively working to reduce their environmental footprint, sustain a strong and large middle class, and build an economy that is more competitive and resilient. We will explore a wide variety of area including macroeconomics, environmental infrastructure, educational policies, city and regional planning, energy, and strategies for creating a more diverse employment base. The course will also introduce students to resiliency theory and its growing applications. One of the goals of the course will be to demonstrate that the three pillars of sustainability are compatible with the notion of creating a more resilient society.

Readings

Beatley, Timothy 2009. *Resilient Cities: Responding to Peak Oil and Climate Change*, (Island Press, Washington).

Fingleton, Eamonn. *Germany's Economic Engine: Why the German model has held up even as so many other major economies have collapsed* (American Prospect, March 2010).

Scheer, Herman 2006. *Energy Autonomy: The Economic, Social and Technological Case for Renewable Energy*, (Routledge)

Wilkinson, Richard and Pickett, Kate 2009. *The Spirit Level: Why Greater Equality makes Societies Stronger*, (Bloomsbury Press, NY).

Film: The 4th Revolution- Energy Autonomy

Topics

Unit 1: Resiliency Theory and the Sustainability as an evolving area of inquiry (Total contact hours for unit 1: 2.5)

- 1) Introduction to resiliency theory.
- 2) Introduction to the evolving paradigm of sustainability.
- 3) How resiliency relates to sustainability

Unit 2: Economics and Business – (Total contact hours for unit 2: 10.5)

- 1) Introduction to Macroeconomics and the missing goals of equity and environmental sustainability. - 1.5 hrs
- 2) Neo-classical economics and Keynesian economics: the implication of each for sustainability. 2.0 hrs
- 3) The forgotten and recently discovered Keynes: Behavioral economics and uncertainty. (Uncertainty and governments). 1.0 hr
- 4) More balanced economies: How Germany has remained a manufacturing powerhouse in a world of low-wage competition. - 1 hr (This will be matched with tour of look green manufactures in Freiburg)
- 5) The export orientations of our three focus countries and how this related to green tech. - 1hr
- 6) Linking manufacturing to university research, banks and government run apprentice programs. – 1 hr (plus field trip to Freiburg University)
- 7) Microeconomic tools to promote sustainability. -1 hr
- 8) Saving rates in our focus countries compared to the United States -1 hr
- 9) Contrasting Corporate models -1hr
 - o Germany's stakeholder vs. the US Shareholder model –implications for outsourcing and manufacturing and pay scale differences (This may be combined with an interview with a member of a workers' union.)

Unit 3: Environment: - (Total contact hours for unit 3: 16.5)

In this section we will focus on environmental policy and we will take a comparative approach in that we will make frequent comparison with the US. Environmental infrastructure will be handled in the second course. While we will cover a broad range of topics our focus will be on; climate change, energy, transportation, agriculture and water resource management.

- 1) Environmental policy in the EU: Important recent advances and its influence on national and local policies in our focus countries and cities -1.5 hr
- 2) National level environmental policies in Germany, Sweden and Denmark (3.0 hrs)
 - o Germany's Renewable Energy Act
 - o Political structures and environmental policy
 - Multiparty systems and proportional representation are there adaptive advantages to this structure in a complex world.
 - Impact of publically financed elections on sustainability
- 3) State and local level environmental politics (3.5 hrs)
Case studies and interviews with regional and local politicians and planners: State of Baden Württemberg, cities of Freiburg, Copenhagen, Malmo, Lund and Stockholm.
- 4) Citizens and their attitudes toward the role of government and how this affects environmental policy (2 hrs)
- 5) Higher rates of participation and fewer low-information voters. (2 hrs)
- 6) Comparative attitudes towards the science of climate change: Why the difference? (1hr)
- 7) Jobs vs. the Environment: Why do people make this linkage less in our study area than in the US? (1 hr)
- 8) See and discuss the film: The 4th Revolution- Energy Autonomy (2.5 hrs)

Unit 4: Equity and Quality of Life: (Total contact hours for unit 4: 8)

- 1) Introduction to economic inequality (1.5 hrs.)
 - The Gini Coefficient and other measures of inequality.
 - Inequality in our study area compared with the United States
 - Tax policies in our study countries and the US and their impacts on inequality
 - Introduction to the welfare state in our three focus countries
 - Inequality at the level of gross earnings: Comparison of our focus countries with the US
- 2) Health Care models (1.5 hrs.)
 - Costs, coverage and outcomes in our study area vs. the US
 - Impact on job creation and exports (our study area vs. the US)
- 3) Strategies for creating a diversity of decent paying jobs in our study area. (1 hr)
- 4) Educational strategies (3 hrs.)
 - Different approaches and better outcomes to primary and secondary education.
 - Financing mechanisms for primary and secondary education
 - Apprenticeship programs
 - Affordable higher education
 - Continuing adult education availability
 - How does education in our study area prepare individuals for employment in an increasingly globalized world?
- 5) Policies that strengthen communities and families (1.5 hrs)
 - References to unit in other course on city and regional planning.
 - Leisure and vacation time
 - Placing people over cars: The impact of pedestrian zones
 - Creating a good place to live
 - Germany: No shopping on Sundays courtesy of conservative political parties
 - Access to affordable daycare

Student seminars (12 * 40 minutes = 8 hrs)

Note that student seminars will also be woven into the syllabus. Since students will be assigned their topics six weeks before the start of the program, it is expected that students will do their presentations (of roughly 40 minutes) in the space on the syllabus that most closely matches their topic.

Field Trips:

- 1) Visits to renewable energy firms in Freiburg
Note that many of the field trips listed in the *Environmental Infrastructure and Planning* course are also relevant for this course.
- 2) A field trip to Stuttgart will also be incorporated into this course.

Course requirements and Assessment

- Class participation (a vital part of this Burch Seminar)25%
- Term Paper and seminar presentation..... 40%

Select a topic from a list that will be provided by the instructor. Your responsibility will include not only writing a paper but putting together a 40-50 minute seminar that you will share with your classmates. You are expected to do most of the research for this before you leave for Germany. It is also expected that you will have a nearly finished rough draft paper prepared. After you do your seminar, you are encouraged to go back and make revisions to your paper based on feedback you received from your fellow students and instructors. Please note that by giving a seminar you are also getting a taste of the German university system. Seminars, with major student involvement, are an important part of the academic scene in German universities. This paper should be 12-15 pages in length, and you can use references from the web, textbooks, etc. Papers will be due ten days after the end of the program.

- Final Exam (comprehensive).....35%

- 2. HNRS 352: Environmental Infrastructure and Planning in Germany, Denmark and Sweden (3 credits)**
 - Approaches: Social and Behavioral Sciences
 - Connections: Global Issues
 - Major credit: City and Regional Planning, Environmental Studies

Course description

Our three study countries are considered to be among the elite in the world in terms of environmentally superior infrastructure. Germany recently hit the milestone of getting 20% of its electrical power from renewable sources, with Denmark on track for the same target, and Sweden boasting 60% of renewable electricity generation—much of this generated from hydropower and biomass [<http://www.eia.gov/todayinenergy/detail.cfm?id=2530>]. Two of the places we will visit—Freiburg and Malmö—are among those most often cited as the greenest 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 a future that is possible for the United States—albeit expressed in uniquely American systems and policies, and likely achieved only after some degree of public debate and political struggle. 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 US is certain to face in the coming decades.

Academic schedule

The course will begin in Germany, with approximately four weeks spent in Freiburg, Germany. The course will then continue in Denmark and Sweden where we will spend approximately 16 days. 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.

Required Texts

- Beatley, T 1999. *Green Urbanism: Learning from European Cities*, Island Press, Washington DC.
- Fox-Penner, P 2010. *Smart Power: Climate Change, the Smart Grid, and the Future of Electrical Utilities*, Island Press, Washington DC.
- Gilbert, R and A Pearl 2010. *Transport Revolutions: Moving People and Freight without Oil*, New Society Publishers, British Columbia, Canada.

Articles and books from which selected chapters will be drawn (more articles will be added at a later date):

- European Union, *Renewable Energy: Progressing Towards the 2020 Target*, Communication from the Commission to the European Parliament and the Council, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0031:FIN:EN:PDF>.
- Green City Freiburg: http://www.fwtm.freiburg.de/servlet/PB/show/1199617_12/GreenCity_E.pdf
- Johnstone, R 2011. *Switching to Solar: What We Can Learn from Germany's Success in Harnessing Clean Energy*, Prometheus Books, Amherst NY.
- MacKay, DJC 2009. *Sustainable Energy—Without the Hot Air*, <http://www.withouthotair.com/>

Major topics—sub-topics defined with continued planning, relevant to current (2013) events – the hours next to each topic refer only to in class teaching hours. There will also be a large number of hours spent on field trips. All of our field trips will be led by local English speaking experts.

- 1) Urban/regional planning intro (then woven throughout the remainder of the course) 2 hours
- 2) Urban form 4 hours
 - Design
 - Infrastructure—water, sewer, telecom, other utilities, roads and ports, services
 - Building construction and operations
- 3) Transportation 8 hours
 - Interregional and local transit strategies
 - Interregional transportation/high-speed rail
 - Transit oriented development

- Planning for bicycles and pedestrian
- Accommodating but discouraging automobile travel
- Freight networks and operations
- 4) Energy 8 hours
 - Background—history and current context
 - Sources of Innovation: Decision-making in business and government
 - Smart grid development
 - Research areas in Freiburg
 - Renewables— current and potential, pros and cons
 - Wind
 - Solar
 - Biomass and waste
 - Hydro
 - Tidal energy
 - Nuclear energy in Germany—past, present and future
- 5) Water 8 hours
 - Supply—sources, infrastructure, access
 - Demand—by sectors of use; water consumption behavior
 - Quality—stormwater management, stress on resource, sources of pollutants
 - Regulatory environment and policy framework
- 6) Agriculture 4 hours
 - Family farms, industrial farming, agricultural policy in northern Europe and EU
 - Freiburg, Copenhagen, Malmo, and Stockholm—links to regional agricultural systems
 - Farmers' markets, community-supported agriculture, institutional networks, other urban-farm links
- 7) Back to urban/ regional planning: General goals in Germany, Denmark and Sweden 4 hours
 - Case studies: Freiburg, Copenhagen, Malmo, Stockholm and maybe Lund
 - City planning linked to public health goals
 - Vibrant cities: How do our host cities create a more livable, efficient and effective urban environment?
- 8) Wrap up 2 hours

Field Trips (All field trips will be guided by a local English speaking expert)

Freiburg

- 1) Mobility and Urban Planning field trip I - 6.5 hrs
- 2) Mobility and Urban Planning field trip II- 6.5 hrs
- 3) Renewable Energy and rural development – 8 hrs.
- 4) Renewable Energy and other sustainability technologies and strategies -6.5 hrs.
- 5) Visits to renewable energy firms -6.5

Copenhagen

- 1) Off-shore wind farm tour- 6 hrs

- 2) Lecture and tour of Copenhagen's famous five finger design (focus on open space and mobility). -6.5 hrs

Malmö

- 1) Renewable Energy tour – 6 hrs
- 2) Urban Planning and mobility – 6hrs

Course requirements and assessment

Class participation—vital for Burch Seminar and field studies	25%
Policy memos (two) and one seminar presentation	50%
Final exam	25%

Policy memos will be 5-8 pages long, including references from monographs, peer-reviewed and professional literature, popular press, and internet/web sources. Memos due 10 days after return.

III. PROGRAM LOGISTICS

a. Program Affiliations

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

b. Student Housing

Students on the program will live dormitories at the Studentendorf Vauban where they will share rooms with other students on the program. The houses are idyllically situated on park-like grounds surrounded by plenty of green and a number of old trees. All rooms have internet access. Students will also have the opportunity to participate in a week-long homestay which will be coordinated by the International Student Village Vauban.

c. Transportation

Students will fly to Frankfurt, Germany and then take the train to Freiburg, Germany, where they will spend the first four weeks of the program. Students will also take the train to go to Copenhagen and Malmö and then back to Frankfurt. Malmö is on the other side of the bridge from Denmark and Lund is a 15 minute train ride from Malmö.

d. Safety

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

e. Medical Care

Hospitals and doctor's practices in Germany, Sweden and Denmark have very 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.

IV. ELIGIBILITY AND ENROLLMENT

The program aims to enroll 12-16 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.

V. FACULTY DIRECTOR

Dr. Greg Gangi
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Phone: 919-962-9805

Dr. Gangi has taught a variety of experiential learning courses at UNC. He has taken students on summer programs to Siberia, the Galapagos and the Sierra Nevada. He also ran the Sierra Nevada, three times as a Burch program (2003, 2004 and 2008). Additionally, he teaches a course on coral reef ecology and takes students every spring for a ten-day trip to the Virgin Islands National Park. Hence he feels extremely comfortable leading students on off-campus programs.

As an undergraduate and graduate student he spent a total of three years in Germany. The idea of taking students to Germany to study environmental policy has been something that he has been germinating in his mind for a long time. This program will build on what he teaches students in my *Environment and Society* and my *Reimagining the American Landscape* class. In his *Reimagining the American Landscape* course he has been developing his own synthesis and approach to teaching about sustainability. He is looking forward to teaching as part of this program as he sees an opportunity to apply his diverse background to have an impact in the rapidly developing and evolving field of sustainability.

Course Instructor

Dr. Elizabeth Shay, for the Environment, UNC-Chapel Hill, eshay@unc.edu.

Dr. Shay directs the Sustainable Triangle Field Site at UNC-Chapel Hill, where she is a lecturer and researcher. The Field Site offers a cohort of 12-15 students the opportunity to earn the sustainability minor in a single semester and to participate in activities outside the curriculum, such as field trips, interaction with a Community Advisory Board, and research and service. In addition to Principles of Sustainability every spring and multiple capstones (senior team projects

for a client, required of all environmental majors) every semester, she has taught Urban Transportation Planning and a variety of sustainability seminars. She also serves as academic adviser for independent study and internships.

With a PhD in City and Regional Planning (UNC-Chapel Hill) focused on land use and transportation, she is particularly interested in the opportunity to visit sites that serve as vivid examples of the planning principles and practices we often discuss in class. With background in varied disciplines (master's degrees in information and library science, and in Russian studies; bachelor's in biology), she is comfortable and adaptable in international settings. With extensive work in experiential education, she is comfortable working with students, colleagues and community partners in formal and informal conditions.

Appendix – Excursions

A) Logistics already taken care of.

Freiburg

- 1) **Mobility and urban planning in Freiburg** – this field trip will explore the concept sustainable mobility and look at past and ongoing projects in the City of Freiburg.
- 2) **Green design and architecture in Freiburg** –during this field trip we will visit some of Freiburg’s famous green projects including: Sonnenschiff (a large comercial shopping center that gets a large percentage from renewable energy); Vauben (a district of Freiburg where 5000 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 cities 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.
- 3) **Renewable Energy Projects in and around Freiburg**- During this field trip we will visit various photovoltaic and micro-hydro projects in and around Freiburg.
- 4) **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.
- 5) **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.

Copenhagen

- 1) **Middlegrunden Wind Cooperative** – During this field trip we will visit an off-shore windfarm in the Copenhagen Harbor.
- 2) **A tour of Copenhagen five finger design** – During this field trip we will use public transit and we will also walk as we explore Copenhagen’s famous five finger urban design.

Malmö

- 1) **Western Harbor**- During this field trip we will explore how a former large scale industrial brownfield was converted into a globally recognized model of a low carbon community.

- 2) **Augustenborg** –We will explore water management in this area that was originally developed in the 1950s but then was redesigned in the 1990s as model of sustainable water usage. The buildings have green roofs and the landscape was reengineered to permit an ideal management of the area's storm water.
- 3) **Solar Region Skåne** –During this day we will explore how solar energy is becoming an important part of the built environment in many areas of Malmö

B) Logistics not yet resolved

- 1) Visit to Stuttgart to visit with a representative of the Green Party to learn about their plans for energy policy. Stuttgart is the capital of Baden Württemberg and the Green Party currently control the executive and legislative branch in the state of Baden Wurttemberg. While we are in Stuttgart we hope to visit with a union representative and representative from a large company in order to illustrate the difference between the German stakeholder model and the American shareholder model.
- 2) A possible visit to Tübingen to meet with individuals involved with energy research. We will also try to meet with individuals doing energy research at the University of Freiburg.
- 3) We would like to set up some visit with city planners in the city of Lund. We have some contacts in the planning department in Lund.