

Environmental and Urban Studies

Department Website: <http://environmentalstudies.uchicago.edu>

As of academic year 2017–18 the Environmental Studies major has become the Environmental and Urban Studies major. This title reflects the addition of a third thematic track, focused on human interaction with place, space, and the built environment in urban regions.

Program of Study

The program encourages interdisciplinary approaches to the complex entanglements and intersections of urbanism, environment, and humans by incorporating frameworks, theories, models and methods from the humanities and social and natural sciences. Students can choose to focus on one of following three tracks:

- ***Environmental Economics and Policy Track***
- ***Socio-natural Systems and Frameworks Track***
- ***Urban Environment Track***

Students in other fields of study may also complete a minor in Environmental and Urban Studies with an emphasis on one of these tracks. Requirements for the minor follow the description of the major.

Note: The BS in Environmental Science that is offered by the Department of Geophysical Sciences may be more appropriate for students who intend to pursue postgraduate studies or professional careers in the natural sciences. Students who matriculated before July 2006 and have questions about Environmental Studies courses that they have already taken should contact the program director of Environmental and Urban Studies, Sabina Shaikh (773.834.4405, sabina@uchicago.edu (sabina@uchicago.edu)), to devise their program of study.

Program Requirements

Students in the Class of 2020 and beyond will follow new requirements for the Environmental and Urban Studies major, described below. Students in the Class of 2019 can continue under the earlier Environmental Studies requirements and receive the old major name on their transcript, but may opt into the Environmental and Urban Studies major by completing the updated requirements. These students may request to switch to the updated Environmental and Urban Studies major requirements, if they align with the student's interests and fit within the student's graduation plan.

Students in the major must complete thirteen courses:

Environmental and Urban Studies Core Sequence

Students are required to take the two-course core sequence in Environmental and Urban Studies (ENST 21201 Human Impact on the Environment-ENST 21301 Making the Natural World: Foundations of Human Ecology). These courses provide an overview of contemporary environmental issues and the theoretical and empirical approaches used to understand and address them.

Thematic Tracks in Environmental and Urban Studies

Students complete a total of six courses: four courses within the track they have selected as their area of emphasis and two complementary courses from one of the remaining tracks. Lists of approved courses can be found on the department's website.

- ***Environmental Economics and Policy Track:*** This concentration emphasizes issues such as environmental law, development, globalization, and policy studies. This track has a more applied focus and is inclined more toward present-day issues and strategies in the context of politics, law, and economics.
- ***Socio-natural Systems and Frameworks Track:*** This concentration emphasizes environmental history; landscape studies; human ecology and demography; and environmental ethics, philosophy, and representation. Included in this track are courses on cultural and historical constructions of the natural and the human. This track emphasizes intellectual frameworks as well as the use of substantive information from the social sciences, sciences, and humanities.
- ***Urban Environment Track:*** This concentration emphasizes theoretical and practical perspectives on human interaction with the urban, physical environment. The track encourages a spatial and place-based urban perspective, meaning that built form and environmental context provide the conceptual core through which the social, economic, and political understanding of urbanism is pursued. The track approaches the nature and dynamics of cities by capitalizing on the growth of interest in urban planning, urban sustainability, and urban design.

Quantitative Analysis Requirement

One course must be taken to demonstrate competence in quantitative analysis. Students may choose to take either STAT 22000 or an equivalent.

Environmental Sciences and Geographical Studies Course Work

Students must take a total of three approved courses in environmental sciences and geographical studies, as broken down below. Lists of approved courses can be found on the department's website.

- Students in the **Environmental Economics and Policy Track** and the **Socio-natural Systems and Frameworks Track** must take two environmental sciences courses and one geographical studies course.
- Students in the **Urban Environment Track** must take two geographical studies courses and one environmental science course.

BA Thesis

Students are expected to develop significant independent research projects in close consultation with their preceptor and faculty adviser. In consultation with Environmental and Urban Studies preceptors, students prepare a topic page that is due eighth week of Spring Quarter in their third year. At this time, students are also required to secure a faculty adviser. The thesis adviser may be chosen from among the faculty teaching in Environmental and Urban Studies and related fields. The preceptor serves as a second reader on all theses. Where appropriate, outside scholars, scientists, or policy experts may be added as additional readers with the approval of the program director.

In Autumn Quarter of their fourth year, students register for ENST 29801 BA Colloquium I, which is designed to teach research skills and more generally to aid the research and writing process. The final version of the BA thesis is due by the second Friday of the quarter in which the student plans to graduate. Students wishing to build additional time for research or writing into their schedules may speak with their thesis adviser about potentially taking ENST 29900 B. A. Thesis (Reading and Research).

This program may accept a BA paper or project used to satisfy the same requirement in another major if certain conditions are met and with the consent of the other program director. Approval from both program directors is required. Students should consult with the directors by the earliest BA proposal deadline (or by the end of their third year, when neither program publishes a deadline). A consent form, to be signed by the directors, is available from the College adviser. It must be completed and returned to the College adviser by the end of Autumn Quarter of the student's year of graduation.

Internship or Field Studies Program

In addition to course work, students will be required to participate in an approved internship or field studies program with significant links to their program of study. Completion of the Chicago Studies Certificate Program will satisfy this requirement. See below for details.

Summary of Requirements for the Major

ENST 21201	Human Impact on the Environment	100
ENST 21301	Making the Natural World: Foundations of Human Ecology	100
Four courses in the thematic track of emphasis §		400
Two courses in the supporting thematic track		200
STAT 22000	Statistical Methods and Applications (or equivalent)*	100
Three courses in environmental sciences or geographical studies +		300
Internship/field studies experience		
ENST 29801	BA Colloquium I	100
Total Units		1300

§ Students may use a maximum of 200 units of supervised individual reading and research credit (ENST 29700, 29701, 29702, or equivalent) toward their primary track requirements in the major.

* Credit may be granted via examination.

+ Must come from approved lists, found on the department's website.

Advising

Application for admission to the Environmental and Urban Studies program should be made to the program preceptor, who explains requirements and arranges a preliminary program of study. Admission to the major or minor is complete when a program of study has been approved by the program director. This program of study, which the student formulates in consultation with both the program preceptor and the program director, should be in place by a student's third year. The contact information for the current program preceptors is available on the program website at pge.uchicago.edu.

Environmental and Urban Studies majors and minors must submit the Intent to Graduate form no later than the second week of the quarter in which they intend to graduate. The form is available online and must be submitted electronically. See environmentalstudies.uchicago.edu/content/program-forms for more information.

Students will need to formalize their declaration of the major on my.uchicago.edu and provide regular documentation of any program approvals from the department to their College adviser for the requisite processing.

Grading

Students who are majoring or minoring in Environmental and Urban Studies must receive quality grades in courses taken to meet the requirements of the program.

Honors

Eligibility for honors requires an overall GPA of 3.0 or higher, a GPA of 3.5 or higher in the courses taken to meet the requirements of the program, and a BA thesis that is judged to be a high pass by the faculty and preceptor readers.

Minor Program in Environmental and Urban Studies

Students who are not Environmental and Urban Studies majors may complete a minor in Environmental and Urban Studies. Such a minor requires that six courses be taken according to the following guidelines:

ENST 21201	Human Impact on the Environment	100
ENST 21301	Making the Natural World: Foundations of Human Ecology	100
Four courses in one of the three thematic tracks *		400
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Total Units		600

* Must be chosen in consultation with the program director.

Students who elect the minor program in Environmental and Urban Studies should meet with the program director before the end of Spring Quarter of their third year to declare their intention to complete the minor and select appropriate courses. The approval of the program director for the minor program should be submitted to a student's College adviser by the deadline above on a form obtained from the adviser.

Courses in the minor (1) may not be double counted with the student's major(s) or with other minors and (2) may not be counted toward general education requirements. Courses in the minor must be taken for quality grades, and at least half of the requirements for the minor must be met by registering for courses bearing University of Chicago course numbers.

Experiential Learning Opportunities

The Environmental and Urban Studies major offers experiential learning opportunities through practicum courses, the Chicago Studies Quarter and the Chicago Studies Certificate Program. Students in all tracks, and in particular the Urban Environment track, are encouraged to enroll in these programs, which offer immersion in the academic, experiential, interdisciplinary study of Chicago and its region. For more information about these programs, please see the listing in this catalog or visit chicagostudies.uchicago.edu.

Chicago Studies Quarter

Each spring, a small cohort of students studies the culture, politics, and history of the city through a curriculum of three interrelated courses with a common theme through the Chicago Studies Quarter. Admission to the program is competitive. Courses are taught by Chicago specialists from a variety of disciplines and join classroom instruction with weekly excursions and co-curricular activities.

All courses in the Chicago Studies Quarter will have an Environmental and Urban Studies course number. They are also listed in all three tracks of the major and can therefore be taken to satisfy requirements either within or outside the student's primary track.

Chicago Studies Quarter: Calumet

Since 2012, the Calumet Quarter has offered a one-quarter, intensive, experience-based program focused on human land use in the Calumet Region just south and east of the city. As of 2017–18, it has merged with the Chicago Studies Quarter and is officially known as the Chicago Studies Quarter: Calumet. It features integrated courses, projects, field trips, guest lectures, and presentations, and integrates perspectives from the sciences, humanities, and social sciences in the study of local environments and communities.

Chicago Studies Quarter: Calumet is offered every other year. The next offering will be in Spring Quarter 2020. Courses taken as part of this program can be used to satisfy requirements in all three tracks of the major.

Chicago Studies Certificate

The Chicago Studies Certificate, launched in 2017–18, is designed for students who wish to integrate their academic inquiry with positive impact in Chicago through sustained community engagement, urban scholarship, and creative expression. The certificate is overseen by the University Community Service Center in collaboration with the Environmental and Urban Studies program, which supervises the program's academic requirements.

Completion of the *Chicago Studies Certificate* will satisfy the internship/field study requirement for the Environmental and Urban Studies major.

Environmental Studies Courses

ENST 10001. Getting to Green: The Business Case for Sustainability. 100 Units.

ENST 10010. Architecture and Urban Design Towards Sustainable Cities. 100 Units.

ENST 12100. Chemistry & The Atmosphere. 100 Units.

Not offered in 2018-19

Terms Offered: Not offered 2015-16

Equivalent Course(s): PHSC 13500

ENST 12300. Global Warming: Understanding the Forecast. 100 Units.

This course presents the science behind the forecast of global warming to enable the student to evaluate the likelihood and potential severity of anthropogenic climate change in the coming centuries. It includes an overview of the physics of the greenhouse effect, including comparisons with Venus and Mars; an overview of the carbon cycle in its role as a global thermostat; predictions and reliability of climate model forecasts of the greenhouse world. This course is part of the College Course Cluster program, Climate Change, Culture, and Society. (L)

Instructor(s): D. Archer, D. MacAyeal Terms Offered: Autumn Spring

Prerequisite(s): Some knowledge of chemistry or physics helpful.

Equivalent Course(s): PHSC 13400, ENSC 13400, GEOS 13400

ENST 12402. Life Through a Genomic Lens. 100 Units.

The implications of the double helical structure of DNA triggered a revolution in cell biology. More recently, the technology to sequence vast stretches of DNA has offered new vistas in fields ranging from human origins to the study of biodiversity. This course considers a set of these issues, including the impact of a DNA perspective on the legal system, on medicine, and on conservation biology.

Instructor(s): A. Turkewitz, M. Nobrega Terms Offered: Winter

Prerequisite(s): BIOS 10130. NO BIOLOGICAL SCIENCES MAJORS OR NON-BIOLOGY PRE-MED STUDENTS, except by petition.

Equivalent Course(s): BIOS 11125

ENST 12520. Climate Change in Literature, Art, and Film. 100 Units.

If meteorological data and models show us that climate change is real, art and literature explore what it means for our collective human life. This is the premise of many recent films, novels, and artworks that ask how a changing climate will affect human society. In this course, we will examine the aesthetics of climate change across media, in order to understand how narrative, image, and even sound help us witness a planetary disaster that is often imperceptible. Our approach will be comparative: what kind of story about climate change can a science fiction novel about a dystopian future tell, and how is this story different than, say, that of an art installation made of melting blocks of Arctic ice? Do different media tend to emphasize different aspects of ecological crisis? Readings and discussions will introduce students to some of the ways that humanities scholarship is contributing to climate change research. The syllabus may include Jeff VanderMeer, *Annihilation* (2014); Margaret Atwood, *Oryx and Crake* (2003); John Luther Adams, *Become Ocean* (2014); George Miller, *Mad Max: Fury Road* (2015); and Amitav Ghosh, *The Great Derangement* (2016). (Fiction, Theory). This course is part of the College Cluster program: Climate Change, Culture and Society.

Instructor(s): Benjamin Morgan Terms Offered: Autumn

Equivalent Course(s): ENGL 12520, SIGN 26014

ENST 13113-29720. Prairie Ecosystems: Lessons of Sustainability in the Past, Present, and Future; Reading and Research: Calumet.

ENST 13113. Prairie Ecosystems: Lessons of Sustainability in the Past, Present, Future. 100 Units.

Warm coat and ability to walk five miles required. This course looks at the Midwest prairie as a model ecosystem. How and when did grasslands evolve? And where and when did they become established? How many species and biotrophic levels are interconnected in a regularly disturbed environment? Are there keystone species? What are the ecological forces that maintain, destroy, and restore balance? Glacial retreat, fire, deep-rooted perennial grasses, large herbivores, deforestation, industrial agriculture, and biofuels are covered. We then apply what we have we learned from the grasslands to live sustainably.

Instructor(s): J. Borevitz Terms Offered: Spring

Prerequisite(s): BIOS 10130

Equivalent Course(s): BIOS 13113

ENST 29720. Reading and Research: Calumet. 100 Units.

The Program on the Global Environment will be hosting many interesting guest speakers during the Calumet Quarter, and this readings course will be dedicated primarily to the discussion of relevant articles written by the speakers.

This will acquaint students with literature on a variety of topics ranging from food security to wetlands ecology to conservation theory. Students will be expected to discuss the articles, drawing on knowledge gained in the three core Calumet courses. Students will also attend the guest presentations and write short responses to the lectures.

Instructor(s): Staff Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 13300. The Atmosphere. 100 Units.

This course introduces the physics, chemistry, and phenomenology of the Earth's atmosphere, with an emphasis on the fundamental science that underlies atmospheric behavior and climate. Topics include (1) atmospheric composition, evolution, and structure; (2) solar and terrestrial radiation in the atmospheric energy balance; (3) the role of water in determining atmospheric structure; and (4) wind systems, including the global circulation, and weather systems.

Instructor(s): D. Abbot Terms Offered: Spring

Prerequisite(s): MATH 13100-MATH 13200

Equivalent Course(s): GEOS 13300, ENSC 13300

ENST 20540. The Chicago Climate Change & Culture Institute-I. 100 Units.

Climate change is arguably the greatest environmental, political and cultural challenge of our times. We are already beginning to feel its impacts in changing weather patterns and rising temperatures. In the years to come, Earth scientists tell us that climate change will impact every human being on the planet. We need to become informed and engaged about what awaits us and what we can do to avoid worst - case scenarios. This 3 - week intensive course of study focuses on three key questions: Why did climate change happen? How is it impacting different communities across the world? What can be done to prepare the world for a more environmentally secure future? The 4CI program features lectures by leading experts on climate change from the Social Sciences, Earth Sciences, Humanities, Art and Architecture. Seminar discussions and site visits to a variety of local initiatives working toward clean energy and sustainability goals round out the program. 4CI will give you the answers you want about climate change and the tools you need to start making a positive difference, whether that is on your campus, in your community or at your workplace. The program leverages the intellectual resources of one of the world's most prestigious research universities and will acquaint you with a city that proudly stands on the cutting edge of sustainable urbanism.

Terms Offered: Summer. Summer 2018

Equivalent Course(s): ANTH 20540, ANTH 30540

ENST 21201. Human Impact on the Environment. 100 Units.

Students will analyze the impact of the human enterprise on the world that sustains it. Topics include human population dynamics, historical trends in human well-being, our use of natural resources-especially in relation to the provision of energy, water, and food-and the impacts these activities have on the range of goods and services provided by geological/ecological systems. Students will read and discuss diverse sources and write short weekly papers.

Instructor(s): Alison Anastasio Terms Offered: Autumn

Note(s): ENST 21201 and 21301 are required of students who are majoring in Environmental Studies and may be taken in any order.

Equivalent Course(s): NCDV 21201

ENST 21301. Making the Natural World: Foundations of Human Ecology. 100 Units.

Humans have "made" the natural world both conceptually, through the creation of various ideas about nature, ecosystem, organism, and ecology, and materially, through millennia of direct action in and on the landscape. Students will consider the conceptual underpinnings of contemporary notions of ecology, environment, and balance through the examination of specific historical trajectories of anthropogenic landscape modification and human society.

Instructor(s): Alison Anastasio Terms Offered: Winter

Note(s): ENST 21201 and 21301 are required of students who are majoring in Environmental Studies and may be taken in any order.

Equivalent Course(s): ANTH 21303

ENST 21440. (Re)constructing Nature: Restoration Ecology in a Time of Climate Change. 100 Units.

Restoration ecologists, environmental professionals, and average citizens all participate in the process of habitat restoration. How does this interdisciplinary practice balance the priorities of ecosystem function and services, conservation of imperiled species and habitats, aesthetic appeal, and human use in a dynamic climate? In this course students will gain a broad overview of the field of restoration ecology and approach it from scientific, practical, and humanistic perspectives using scientific literature, case studies, and planning documents.

ENST 21500. Environmental Justice. 100 Units.

The effects of environmental pollution are not evenly distributed and are more likely to be experienced by low-income and minority communities. The location of toxic waste sites (both manufacturing plants and dump sites), the persistence of brownfields locations, and a lack of parks and open space are some of the conditions that have led to an ongoing effort to expand the focus of environmental advocacy to the pursuit of equitable and just outcomes in disadvantaged neighborhoods. This course will examine the history of the environmental justice, the efforts to pursue more equitable outcomes, and the prospect for such efforts in the face of global challenges such as climate change. The course will include class visits to sites in Chicago where environmental justice efforts are being undertaken as well as speakers from environmental justice organizations.

Instructor(s): Raymond Lodato

Equivalent Course(s): PBPL 21501

ENST 22209. Philosophies of Environmentalism and Sustainability. 100 Units.

Many of the toughest ethical and political challenges confronting the world today are related to environmental issues: for example, climate change, loss of biodiversity, the unsustainable use of natural resources, pollution, and other threats to the well-being of both present and future generations. Using both classic and contemporary works, this course will highlight some of the fundamental and unavoidable philosophical questions presented by such environmental issues. Can a plausible philosophical account of justice for future generations be developed? What counts as the ethical treatment of non-human animals? What do the terms "nature" and "wilderness" mean, and can natural environments as such have moral and/or legal standing? What fundamental ethical and political perspectives inform such positions as ecofeminism, the "Land Ethic," political ecology, ecojustice, and deep ecology? And does the environmental crisis confronting the world today demand new forms of ethical and political philosophizing and practice? Are we in the Anthropocene? Is "adaptation" the best strategy at this historical juncture? Field trips, guest speakers, and special projects will help us philosophize about the fate of the earth by connecting the local and the global. (A)

Instructor(s): B. Schultz Terms Offered: Autumn

Equivalent Course(s): HMRT 22201, PLSC 22202, GNSE 22204, PHIL 22209

ENST 22300. South Side Ecologies. 100 Units.

In this project-based course, students will engage with local habitats and communities on the ground to explore the entanglements of humans and nature. Topics in human, social, natural, and political ecologies on the South Side of Chicago will be highlighted each year.

Instructor(s): Alison Anastasio Terms Offered: Spring

ENST 22506. The Natures of the Factory Farm. 100 Units.

This course looks at the culture, technology, politics, and ecology of industrial agriculture through the lens of the animal-based "factory" farm. Over the quarter we will trace key steps along the process of manufacturing industrialized animals from life to death in order to think about the factory farm's logic, value, and consequences for rural environments (primarily) within the United States. By emphasizing the historical and cultural conditions of possibility that enable the modern-day factory farm, this course illustrates how mass-producing life forms is more than just a matter of technology, profit-making, or necessity. Instead, we will see how legal definitions of the "farm" versus the "factory," ideological notions of animal (and human) "nature," labor law, animal confinement, and the corporate ownership of genetic breeds contribute to its growing ascendancy as a global norm of animal production. But the factory farm has also led to new ideals for rural life that go far beyond classic forms of American agrarianism. As such, we will look to a series of case studies that take up the ecological politics of heritage-breed animals, raw milk production, and recent (Europe-based) projects that try to redeem certain elements of industrial agriculture. Along the way, students will receive an introduction to the analysis of food chains, applied ethology, animal studies, agrarian studies, and rural environmental politics.

Instructor(s): A. Blanchette Terms Offered: Not offered 2017–18

ENST 22708. Planetary Britain, 1600-1900. 100 Units.

What were the causes behind Britain's Industrial Revolution? In the vast scholarship on this problem, one particularly heated debate has focused on the imperial origins of industrialization. How much did colonial resources and markets contribute to economic growth and technological innovation in the metropole? The second part of the course will consider the global effects of British industrialization. To what extent can we trace anthropogenic climate change and other planetary crises back to the environmental transformation wrought by the British Empire? Topics include ecological imperialism, metabolic rift, the sugar revolution, the slave trade, naval construction and forestry, the East India Company, free trade and agriculture, energy use and climate change.

Equivalent Course(s): HIST 22708, HIPS 22708, CHSS 32708, KNOW 32808, KNOW 22708, HIST 32708

ENST 23100. Environmental Law. 100 Units.

This lecture/discussion course examines the development of laws and legal institutions that address environmental problems and advance environmental policies. Topics include the common law background to traditional environmental regulation, the explosive growth and impact of federal environmental laws in the second half of the twentieth century, regulations and the urban environment, and the evolution of local and national legal structures in response to environmental challenges.

Instructor(s): R. Lodato Terms Offered: Winter

Prerequisite(s): Third- or fourth-year standing, or consent of instructor

Equivalent Course(s): LLSO 23100, PBPL 23100

ENST 23289. Marine Ecology. 100 Units.

This course provides an introduction into the physical, chemical, and biological forces controlling the function of marine ecosystems and how marine communities are organized. The structures of various types of marine ecosystems are described and contrasted, and the lectures highlight aspects of marine ecology relevant to applied issues such as conservation and harvesting.

Instructor(s): T. Wootton Terms Offered: Winter

Prerequisite(s): Three quarters of a Biological Sciences Fundamentals sequence and prior introductory course in ecology or consent of instructor.

Equivalent Course(s): BIOS 23289

ENST 23505. Environmental Ethics. 100 Units.

This course examines foundational issues of environmental ethics. What kind of values (economic, aesthetic, existence) are important? What kind of value do individual biota, humans, other species, ecosystems, humans, or inorganic entities have? What is the relationship of humans to the rest of the world? What should it be? Do religious and philosophical traditions contribute to or help address environmental degradation?

Instructor(s): S. Fredericks Terms Offered: Winter

Equivalent Course(s): RLST 23505

ENST 23550. Urban Ecology and the Nature of Cities. 100 Units.

Urban ecology is an interdisciplinary field derived from the academic discipline of ecology. How well does classical ecological theory, typically formed from reductionist views of nature without humans, describe and predict patterns in human-dominated landscapes? Students will learn fundamental concepts in ecological theory, examine how these concepts apply to urban systems, and explore the paradigms of ecology in, of, and for cities. Readings and discussions will focus on classical research papers from the ecological literature, history of modern ecology, and contemporary approaches to studying biotic systems in cities.

Instructor(s): Alison Anastasio Terms Offered: Winter

Equivalent Course(s): PBPL 23550

ENST 23610. Eating a Global Environment: Critical Perspectives of Agrofood Systems. 100 Units.

This topics course looks at questions about the human dimensions of the globalization and localization of food production. Drawing sociological theories of labor and consumption, class, and capitalism into popular notions of taste, nutrition, and the "good farmer," this course aims to answer questions of agrofood systems in a globalizing world. We will bring social scientific theory to bear on a series of case studies centering on the United States and its relationships with other places. Our driving questions and interdisciplinary readings will be animated by four themes: 1) ideological roots of food and farming, 2) causes and consequences of agricultural globalization, 3) challenges facing urban and rural food access, and 4) power dynamics of sustainable land use.

Equivalent Course(s): PBPL 23610

ENST 23650. Revolutionizing Agriculture: Early Modern Technologies for the New Millennium. 100 Units.

Based on a wave of sustainable and organic farming technologies that have reinvented early modern growing practices, this course integrates USDA reports and modern field and lab studies into the historiography of The British Agricultural Revolution. Not all historical technologies were sustainable, and this course relies upon modern agronomy to evaluate the environmental costs and benefits of the farming improvements that defined the British Agricultural Revolution. We similarly explore primary historical sources and historiography to better understand the environmental limits of the technologies used by organic and sustainable farmers today. By bringing the science and history into discourse, we will take a critical look at the British Agricultural Revolution, which is thought to have facilitated the Industrial Revolution by accumulating capital for investment and by allowing England to feed a growing urban population and manufacturing sector without a significant increase in arable acres. We know that yields per acre per worker did increase, but this is the only aspect of the story that remains unquestioned. Some agricultural improvement technologies, like light plowing and enclosure, caused catastrophic environmental harms that ultimately lowered yields over time. Other technologies like The Norfolk Rotation may have had small and gradual impacts over time and cannot be easily correlated with increases in yields on a site-by-site basis in the historical literature or in modern field trials. Other early modern technologies have proven to be more beneficial than previously thought. How can a better understanding of this history inform farming practices today?

Equivalent Course(s): PBPL 23650, HIST 25015

ENST 23900. Environmental Chemistry. 100 Units.

The focus of this course is the fundamental science underlying issues of local and regional scale pollution. In particular, the lifetimes of important pollutants in the air, water, and soils are examined by considering the roles played by photochemistry, surface chemistry, biological processes, and dispersal into the surrounding environment. Specific topics include urban air quality, water quality, long-lived organic toxins, heavy metals, and indoor air pollution. Control measures are also considered. This course is part of the College Course Cluster program: Climate Change, Culture, and Society.

Instructor(s): A. Colman, D. Archer Terms Offered: Autumn

Prerequisite(s): CHEM 11101-11201 or equivalent, and prior calculus course

Equivalent Course(s): ENSC 23900, GEOS 23900, GEOS 33900

ENST 24102. Environmental Politics. 100 Units.

This course examines the different theoretical underpinnings of environmental activism and elucidates the manner in which they lead to different ends. We explore several contrasting views of environmentalism, including the land ethic, social ecology, and deep ecology. Discussions are based on questions posed about the readings and the implications they suggest. Class participation is required.

Instructor(s): R. Lodato Terms Offered: Spring

Equivalent Course(s): LLSO 24102, PBPL 24102

ENST 24201. China's Eco-Environmental Challenges and Society's Responses. 100 Units.

In nearly four decades of reform and opening policies, China's economic achievements have come at a high cost for its ecological environment; air pollution, water pollution, and soil contamination, among other problems, are facts of life for most Chinese citizens. In addition, China is now the world's biggest emitter of carbon dioxide and has recently acknowledged its contributions to global warming and the need for drastic mitigation of greenhouse gases. Facing these tremendous challenges, remarkable shifts in the way that Chinese society communicates and tackles these problems are occurring. This seminar will look, in particular, at relevant public debates, crucial policies, as well as popular initiatives and protest, to approach this wide topic. How is the relationship between humans/society and nature/environment conceptualized and communicated? Can we detect shifts from traditional to modern, even contemporary 'Chinese approaches'? And to what extent and how do political authorities, media, the general population and scientists in China interact in the face of the acknowledged risks that environmental pollution poses to communities, to China's (economic) development and, not least, to individual health and well-being. Basic knowledge about modern Chinese society and politics as well as Chinese reading skills are helpful, but not a strict requirement for participation in this course.

Instructor(s): A.L. Ahlers Terms Offered: Autumn
Equivalent Course(s): EALC 34201, EALC 24201

ENST 24600. Introduction to Urban Sciences. 100 Units.

This course is a grand tour of conceptual frameworks, general phenomena, emerging data and policy applications that define a growing scientific integrated understanding of cities and urbanization. It starts with a general outlook of current worldwide explosive urbanization and associated changes in social, economic and environmental indicators. It then introduces a number of historical models, from sociology, economics and geography that have been proposed to understand how cities operate. We will discuss how these and other facets of cities can be integrated as dynamical complex systems and derive their general characteristics as social networks embedded in structured physical spaces. Resulting general properties of cities will be illustrated in different geographic and historical contexts, including an understanding of urban resource flows, emergent institutions and the division of labor and knowledge as drivers of innovation and economic growth. The second part of the course will deal with issues of inequality, heterogeneity and (sustainable) growth in cities. We will explore how these features of cities present different realities and opportunities to different individuals and how these appear as spatially concentrated (dis)advantage that shape people's life courses. We will show how issues of inequality also have consequences at more macroscopic levels and derive the general features of population and economic growth for systems of cities and nations.

Instructor(s): Luis Bettencourt Terms Offered: Autumn
Prerequisite(s): STAT 22000
Equivalent Course(s): GEOG 24600, PBPL 24605, SOCI 20285

ENST 24660. Urban Geography. 100 Units.

This course examines the spatial organization and current restructuring of modern cities in light of the economic, social, cultural, and political forces that shape them. It explores the systematic interactions between social process and physical system. We cover basic concepts of urbanism and urbanization, systems of cities urban growth, migration, centralization and decentralization, land-use dynamics, physical geography, urban morphology, and planning. Field trip in Chicago region required. This course is part of the College Course Cluster, Urban Design.

Instructor(s): M. Conzen Terms Offered: Winter
Note(s): This course offered in even years.
Equivalent Course(s): GEOG 23500, GEOG 33500

ENST 24680. Introduction to Urban Planning. 100 Units.

The academic study of urban planning encompasses a range of issues dealing with cities, from urban design to governance, economic development, local politics, and place. The goal of this course is to provide a broad overview of urban planning theory and history while at the same time introducing students to basic GIS applications for urban planners. This format provides students with a better contextual understanding of the wide range of issues currently facing 21st century cities, and at the same time serves as an introduction to the everyday practice of urban planning. The course includes readings from prominent urban theorists, a discussion of the historical development of the urban planning profession in the US, and GIS exercises that allow students to apply their theoretical urban knowledge to real-world planning problems.

Instructor(s): Kevin Credit Terms Offered: Autumn
Equivalent Course(s): GEOG 34700, GEOG 24700

ENST 24701. U.S. Environmental Policy. 100 Units.

Making environmental policy is a diverse and complex process. Environmental advocacy engages different governmental agencies, congressional committees, and courts, depending on the issue. This course examines how such differentiation has affected policy making over the last several decades.

Instructor(s): R. Lodato Terms Offered: Autumn
Equivalent Course(s): LLSO 24901, PBPL 24701

ENST 24705. Energy: Science, Technology, and Human Usage. 100 Units.

This course covers the technologies by which humans appropriate energy for industrial and societal use, from steam turbines to internal combustion engines to photovoltaics. We also discuss the physics and economics of the resulting human energy system: fuel sources and relationship to energy flows in the Earth system; and modeling and simulation of energy production and use. Our goal is to provide a technical foundation for students interested in careers in the energy industry or in energy policy. Field trips required to major energy converters (e.g., coal-fired and nuclear power plants, oil refinery, biogas digester) and users (e.g., steel, fertilizer production). This course is part of the College Course Cluster program: Climate Change, Culture and Society.

Instructor(s): E. Moyer Terms Offered: Spring

Prerequisite(s): Knowledge of physics or consent of instructor

Equivalent Course(s): ENSC 21100, GEOS 34705, GEOS 24705

ENST 24756. Exploring the Resilient City. 100 Units.

In recent years, sub-national units of government have enacted meaningful policy plans in the wake of the ongoing failure of the international community to address global climate change. Cities in particular have shaped their plans to address the now-inevitable effects of climate change by adopting policies that emphasize resilience and environmental protection, without sacrificing economic growth, and with attention to the ongoing challenges of poverty and inequality. This course will take a comparative look at the policies adopted by cities on an international basis, while defining what it means to be a resilient city and how much the built environment can be adjusted to limit the environmental impact of densely populated metropolises. It will also consider what impact citizen activism and input had upon the shape of each plan and the direction that its policies took. Students will also be asked to consider what might be missing from each plan and how each plan could be improved to foster greater resiliency.

Instructor(s): R. Lodato Terms Offered: Winter

Equivalent Course(s): PBPL 24756

ENST 24800. Complex Problem: World Hunger. 100 Units.

Few of our policymakers are experts in economics, agronomy, food science, and molecular biology, yet all of these disciplines are essential for developing strategies to end world hunger. Choosing one country as a test case, we look at the history, politics, governmental structure, population demographics, and agricultural challenges. We then study the theory of world markets, global trade, and microeconomics of developing nations, as well as the promise and limitation of traditional breeding and biotechnology.

Instructor(s): J. Malamy, Staff Terms Offered: Not offered in 2018-2019

Prerequisite(s): Third or fourth-year standing

Equivalent Course(s): BIOS 02810, BPRO 24800, SOSC 26900

ENST 25006. How Things Get Done in Cities and Why. 100 Units.

Innovation. Prosperity. Democracy. Diversity. Cities long have been lauded as unique incubators of these social features. In contrast to the national level, the smaller scale and dense diversity of cities is thought to encourage the development of civic solutions that work for the many. But cities are inhabited by distinct groups of people with divergent interests and varied beliefs about how to address countless urban issues, such as creating jobs, delivering education, ensuring safe neighborhoods, promoting environmental sustainability, and taking care of the vulnerable. Many groups and organizations have an interest in the outcomes of these processes. Some take action to try to shape them to their own advantage, while others have few chances to make themselves heard. This course examines dynamics of interest representation, decision-making, and inclusion/exclusion in the contemporary city, drawing insights from multiple disciplines and substantive domains.

Instructor(s): N. Marwell Terms Offered: Autumn

Equivalent Course(s): SOSC 25006

ENST 25014. Introduction to Environmental History. 100 Units.

How have humans interacted with the environment over time? This course introduces students to the methods and topics of environmental history by way of classic and recent works in the field: Crosby, Cronon, Worster, Russell, and McNeill et al. Major topics of investigation include preservationism, ecological imperialism, evolutionary history, forest conservation, organic and industrial agriculture, labor history, the commons and land reform, energy consumption, and climate change. Our scope covers the whole period from 1492 with case studies from European, American and British imperial history.

Equivalent Course(s): HIPS 25014, HIST 25014, HIST 35014, CHSS 35014

ENST 25114. Natural History and Empire, circa 1500-1800. 100 Units.

This course will examine natural history—broadly defined as a systematic, observational body of knowledge devoted to describing and understanding the physical world of plants, animals, natural environments, and (sometimes) people—in the context of European imperial expansion during the early modern era. Natural history was upended by the first European encounters with the New World. The encounter with these new lands exposed Europeans for the first time to unknown flora and fauna, which required acute empirical observation, collection, cataloguing, and circulation between periphery and metropole in order to understand their properties and determine their usefulness. As the Spanish, Portuguese, British, French, and Dutch competed with one another to establish overseas trade and military networks in the sixteenth, seventeenth, and eighteenth centuries, they also competed over and shared information on natural resources. The course will combine lecture and discussion and mix primary source readings on natural history in the early modern world with modern historical writings. Though the readings skew a bit toward Britain and the British Atlantic world, every effort has been made to include texts and topics from multiple European and colonial locales. Topics and themes will include early modern sources of natural history from antiquity and their (re)interpretation in imperial context; early modern collecting cultures and cabinets of curiosities; Linnaeus and the origins of

Equivalent Course(s): HIST 25114, HIPS 25114

ENST 25460. Environmental Effects on Human Health. 100 Units.

Given the increasing human population in urban areas, the effects of urbanization and the urban environment on human health can be particularly profound. In this course, students will be introduced to environmental health issues, research, policy and advocacy. An overview of fundamental concepts in environmental health will be paired with case studies based on current local issues and topical research. Guest-led lectures and discussions will connect biological, chemical, and physical exposures to their real effects on human communities.

Instructor(s): Alison Anastasio Terms Offered: Spring

ENST 25500. Biogeography. 100 Units.

This course examines factors governing the distribution and abundance of animals and plants. Topics include patterns and processes in historical biogeography, island biogeography, geographical ecology, areography, and conservation biology (e.g., design and effectiveness of nature reserves).

Instructor(s): B. Patterson (odd years, lab), L., Heaney (even years, discussion) Terms Offered: Winter

Prerequisite(s): Three quarters of a Biological Sciences Fundamentals sequence and a course in either ecology, evolution, or earth history; or consent of instructor

Equivalent Course(s): GEOG 25500, BIOS 23406, EVOL 45500, GEOG 35500

ENST 25900. Cultural Geography. 100 Units.

This course examines the two main concerns of this field of geography: (1) the logic and pathology revealed in the record of the human use and misuse of the Earth, and (2) the discordant relationship of the world political map with more complicated patterns of linguistic and religious distribution.

Instructor(s): TBD Terms Offered: TBD

Equivalent Course(s): GEOG 30100, GEOG 20100

ENST 26100. Roots of the Modern American City. 100 Units.

This course traces the economic, social, and physical development of the city in North America from pre-European times to the mid-twentieth century. We emphasize evolving regional urban systems, the changing spatial organization of people and land use in urban areas, and the developing distinctiveness of American urban landscapes. All-day Illinois field trip required. This course is part of the College Course Cluster, Urban Design.

Instructor(s): M. Conzen Terms Offered: Autumn

Note(s): This course offered in odd years.

Equivalent Course(s): GEOG 36100, GEOG 26100, HIST 38900, HIST 28900

ENST 26420. Sustainable Food Enterprise Lab Practicum. 100 Units.

This practicum explores efforts to promote environmental and social sustainability in the food system through market initiatives. Student teams will work on consulting projects for Chicago based client organizations, focusing on the connection between business success and social/environmental impact. Students will address a problem or an innovation challenge for the client and develop actionable, research-based recommendations. Student teams will refine the problem, identify appropriate analytical tools to address it, design data collection methods, collect and analyze data, develop data-driven recommendations and present to the client's management. Students will be mentored in their work with clients in order to develop their personal and inter-personal skills for working on environmental and social change. Project-based experiential learning will be complemented by readings and discussions that will support the students' work and invite them to reflect deeply and critically on sustainable food enterprises.

Instructor(s): T. Yifat Terms Offered: Winter. Not offered 2017-18

ENST 26433. Practicum in Environmental Management. 100 Units.

Students in this course will explore and evaluate aspects of environmental sustainability on campus, through scholarly research, interviews, surveys and data collection and analysis. Students will apply concepts and tools from environmental studies, public policy and economics to evaluate and make recommendations for enhancing the environmental performance of campus athletics operations and events. The research will be conducted in collaboration with the Office of Sustainability and Department of Physical Education and Athletics. Prerequisite: PBPL 200 or ECON 198 or equivalent

Instructor(s): S. Sabina Terms Offered: Autumn

Prerequisite(s): Prerequisite: PBPL 200 or ECON 198 or equivalent

Equivalent Course(s): PBPL 26433

ENST 26444. Practicum in Campus Athletics and Environment. 100 Units.

The practicum course will engage students in economic and environmental research related to designing a system for waste diversion on campus. Students will develop hands-on experience by designing, implementing, measuring and reporting the impacts of a "zero-waste" campus athletics event. Students will explore different technologies and behavioral interventions for waste management, with a focus on reducing food waste at campus events. Students are expected to attend the zero-waste event on April 23-24th, 2017.

Equivalent Course(s): PBPL 26444

ENST 26500. Environmental Economics. 100 Units.

This course applies theoretical and empirical economic tools to environmental issues. We discuss broad concepts such as externalities, public goods, property rights, market failure, and social cost-benefit analysis. These concepts are applied to areas that include nonrenewable resources, air and water pollution, solid waste management, and hazardous substances. We emphasize analyzing the optimal role for public policy.

Instructor(s): S. Shaikh Terms Offered: Econ 26500 will not be offered in 2018-19.

Prerequisite(s): ECON 20100

Equivalent Course(s): ECON 26500, PBPL 32631

ENST 26530. Environment, Agriculture, and Food: Economic and Policy Analysis. 100 Units.

The connections between environment, agriculture, and food are inherent in our social, cultural, and economic networks. Land use, natural resource management, energy balances, and environmental impacts are all important components in the evolution of agricultural systems. Therefore it is important to develop ways in which to understand these connections in order to design effective agricultural programs and policies. This course is designed to provide students with guidance on the models and tools needed to conduct an economic research study on the intersecting topics of environment, agriculture, and food. Students learn how to develop original research ideas using a quantitative and applied economic policy analysis for professional and scholarly audiences. Students collect, synthesize, and analyze data using economic and statistical tools. Students provide outcomes and recommendations based on scholarly, objective, and policy relevant research rather than on advocacy or opinions, and produce a final professional-quality report for a workshop presentation and publication. This small seminar course is open by instructor consent to undergraduate and graduate students who meet the prerequisites. For consideration, please submit a one-page proposal of research to pge@uchicago.edu.

Instructor(s): S. Shaikh Terms Offered: Winter

Prerequisite(s): ECON 20000 or ECON 20100 or PBPL 20000 or PBPL 22200 (or equivalent), STAT 22000 or STAT 23400 or PBPL 26400 (or equivalent); for ECON Enrollment: ECON 20000 and ECON 20100, STAT 23400

Equivalent Course(s): ECON 26530, PBPL 26530, PPHA 32510

ENST 26531. Environment, Agriculture, and Food: Advanced Economic and Policy Analysis. 100 Units.

This course is an extension of ENST 26530 but also stands alone as a complete course itself. Students don't need to take ENST 26530 to enroll in this course. This small seminar course is open by instructor consent to undergraduate and graduate students who meet the prerequisites. For consideration, please submit a one-page proposal of research to pge@uchicago.edu.

Instructor(s): S. Shaikh Terms Offered: Spring

Prerequisite(s): ECON 20000 or ECON 20100 or PBPL 20000 or PBPL 22200 (or equivalent), STAT 22000 or STAT 23400 or PBPL 26400 (or equivalent); for ECON Enrollment: ECON 20000 and ECON 20100, STAT 23400

Equivalent Course(s): ECON 26540, PBPL 26531, PPHA 32520

ENST 27100-27201-27220-27301-27320. Integrative Research Seminar: Calumet; Food Security and Agriculture; Calumet; Environmental Management and Planning in the Calumet Region; Restoration Ecology; Topics in the Ecology of the Calumet Region.

This full-time, one-quarter sequence is intended to help students bridge theory and practice in environmental studies. The program features four integrated courses, projects, field trips, guest lectures, and presentations. Students will work in the classroom and field as they integrate perspectives from the sciences, humanities, and social sciences in the study of local environments and communities. Enrollment is based on acceptance into the Calumet Quarter Program. Visit pge.uchicago.edu/calumet for an application, which requires an unofficial transcript and letter of recommendation. Students must enroll in the three core Calumet Quarter courses ENST 27100-27201-27301 and may also enroll in the optional readings course ENST 29720. The Calumet Quarter will not be offered in Spring Quarter 2017. It will be offered next in Spring Quarter 2018.

ENST 27100. Integrative Research Seminar: Calumet. 100 Units.

This course examines the history of land use and social and environmental issues in the Calumet region. In addition to discussing the Calumet region broadly, students develop final projects grounded in research from all courses in the field studies program. Talks and discussions are led each week by guest lecturers who represent industry, nonprofit organizations, or Chicago government, or who are conducting research within the Calumet region.

Instructor(s): Staff Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27201. Food Security and Agriculture: Calumet. 100 Units.

Do you know where your next meal will come from? Many people around the world, and even close to home, do not. The Food and Agricultural Organization explains that food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food security is thus a complex issue involving aspects of food production and distribution, poverty, buying power, and social networks, and cultural choice. In this course we use the Calumet region as a case study to examine some aspects of the food security debate, especially the basic conceptual divide between the framework of food security, as defined by international organizations above, and the more grass-roots notion of food sovereignty. Though we will aim for an overview of the issues, we focus this quarter more specifically on issues of agriculture and the food system, including urban agriculture, permaculture, and other challenges to the dominant industrial model. In a region with significant economic distress and area of "food desert," the Calumet presents examples of both challenge and response to this critical topic.

Instructor(s): K. Morrison Terms Offered: Spring. Not offered 2017-18

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27220. Environmental Management and Planning in the Calumet Region. 100 Units.

This course focuses on the identification and measurement of environmental outcomes in the Calumet Region of Chicago. Topics include the quantification of air quality impacts from industrial pollution and the potential for green infrastructure development to manage stormwater in the region and beyond. The course will introduce students to the environmental concerns and opportunities in the area and develop the methods and tools for measurement, management and planning for improved outcomes for residents and businesses. The course will draw on economic concepts and tools through applications of environmental management and policy. Enrollment in this course requires participation in the Calumet Quarter.

Instructor(s): S. Shaikh Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27301. Restoration Ecology. 100 Units.

This course will give students a strong foundation in the discipline of restoration ecology, building up from basic ecological principles to concepts and theory applied to restoration of ecosystems. We will evaluate restoration projects based on a discussion of primary literature with a focus on ecosystems found in the Calumet region. The course will also have a strong field component, and students will work on restoration projects in the Calumet area. Wetland restoration will be a primary focus, and projects will include studies of plant and bird diversity as well as water quality evaluations. The fieldwork will form the basis of the students' own case studies in restoration ecology, and students will write reports on their field work, analyzing their own projects in the context of the larger body of wetland restoration literature.

Instructor(s): T. Massad Terms Offered: Spring. Not offered 2017-18

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27320. Topics in the Ecology of the Calumet Region. 100 Units.

We consider stewardship of land, habitats, natural areas, communities, and buildings in the Calumet Region of Chicago and Northwest Indiana. The goal of this course is to give students a basic understanding of select ecological principles and concepts, a demonstration of their application to local ecosystems, and the opportunity to collaborate with stewards in the Calumet.

Instructor(s): A. Anastasio Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27120. Historical Ecology of the Calumet Region. 100 Units.**ENST 27150. Urban Design with Nature. 100 Units.**

This course will use the Calumet region as a laboratory for evaluating the social, environmental, and economic effects of alternative forms of human settlement. Students will be introduced to the basics of geographic information systems (GIS) and use GIS to map the Calumet region's "place types" - human habitats that vary along an urban-to-rural transect, as well as the ecosystem services provided by the types. They will then evaluate these place types using a range of social, economic and environmental criteria. In this way, students will evaluate the region's potential to simultaneously realize economic potential, protect environmental health, and provide social connectivity.

Terms Offered: Spring

ENST 27155. Urban Design with Nature. 100 Units.

This course will use the Chicago region as a laboratory for evaluating the social, environmental, and economic effects of alternative forms of human settlement. Students will be introduced to the basics of geographic information systems (GIS) and use GIS to map Chicago's "place types" - human habitats that vary along an urban-to-rural transect, as well as the ecosystem services provided by the types. They will then evaluate these place types using a range of social, economic and environmental criteria. In this way, students will evaluate the region's potential to simultaneously realize economic potential, protect environmental health, and provide social connectivity.

Instructor(s): Sabina Shaikh and Emily Talen Terms Offered: Autumn

Note(s): Students who have taken ENST 27150: Urban Design with Nature: Assessing Social and Natural Realms in the Calumet Region in the Spring of 2018 may not enroll in this course.

Equivalent Course(s): GEOG 27155, PBPL 27156

ENST 27200. The Calumet Experience. 100 Units.

This course is the field component of the Calumet Quarter. Throughout the quarter, students visit restoration sites, historical landmarks, industrial zones, and conservation zones throughout the Calumet region. In addition to day-long field trips, students are expected to attend weekly lunch sessions (lunch is provided) with professionals through the Calumet region and the Calumet Research Summit in April.

Instructor(s): R. Keller Terms Offered: Spring

ENST 27201. Food Security and Agriculture: Calumet. 100 Units.

Do you know where your next meal will come from? Many people around the world, and even close to home, do not. The Food and Agricultural Organization explains that food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food security is thus a complex issue involving aspects of food production and distribution, poverty, buying power, and social networks, and cultural choice. In this course we use the Calumet region as a case study to examine some aspects of the food security debate, especially the basic conceptual divide between the framework of food security, as defined by international organizations above, and the more grass-roots notion of food sovereignty. Though we will aim for an overview of the issues, we focus this quarter more specifically on issues of agriculture and the food system, including urban agriculture, permaculture, and other challenges to the dominant industrial model. In a region with significant economic distress and area of "food desert," the Calumet presents examples of both challenge and response to this critical topic.

Instructor(s): K. Morrison Terms Offered: Spring. Not offered 2017-18

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27220. Environmental Management and Planning in the Calumet Region. 100 Units.

This course focuses on the identification and measurement of environmental outcomes in the Calumet Region of Chicago. Topics include the quantification of air quality impacts from industrial pollution and the potential for green infrastructure development to manage stormwater in the region and beyond. The course will introduce students to the environmental concerns and opportunities in the area and develop the methods and tools for measurement, management and planning for improved outcomes for residents and businesses. The course will draw on economic concepts and tools through applications of environmental management and policy. Enrollment in this course requires participation in the Calumet Quarter.

Instructor(s): S. Shaikh Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27221. Sustainable Urbanism. 100 Units.

This course explores cutting-edge solutions to today's interrelated challenges of decarbonizing the economy, reversing the obesity epidemic, and replacing sprawl. In addition to learning about the current state of sustainable urban planning and design, students will apply to the Calumet region a collection of future-forward urban design strategies to build prosperous and sustainable urban communities that can thrive for years to come. Topics include community organizing; public health, safety, and welfare; governance; neighborhood planning and design; stormwater management; density, and net-zero-energy building design. While not a studio class, there will be opportunities to practice spatial design drawing, community engagement tactics, and sustainability metrics.

Terms Offered: TBD

ENST 27300. Freshwater Ecosystems of the Calumet Region. 100 Units.

The Calumet region contains a wide range of important freshwater ecosystems. The Great Lakes are possibly the world's most valuable freshwater ecosystem, while the Kankakee marshes previously supported a massive diversity and abundance of waterfowl and other native species. Since European colonization most of the marshes of the Calumet region have been drained for agriculture, urbanization, or to create new land for industry. All remaining freshwater ecosystems in the Calumet region, including Lake Michigan, have been affected by invasive species, chemical pollution, overfishing, and numerous other factors. This course examines the history of impacts on the extent and functioning of freshwater ecosystems in the Calumet region. Particular attention is paid to the pre-European state of Calumet freshwaters, the impacts of land-use change and invasive species, and the prospects for restoration. The entire course is framed within the context of the economic conditions that allowed freshwater habitats in the Calumet region to be so strongly modified and how current economic conditions affect the likely future of these ecosystems.

Terms Offered: Spring

ENST 27301. Restoration Ecology. 100 Units.

This course will give students a strong foundation in the discipline of restoration ecology, building up from basic ecological principles to concepts and theory applied to restoration of ecosystems. We will evaluate restoration projects based on a discussion of primary literature with a focus on ecosystems found in the Calumet region. The course will also have a strong field component, and students will work on restoration projects in the Calumet area. Wetland restoration will be a primary focus, and projects will include studies of plant and bird diversity as well as water quality evaluations. The fieldwork will form the basis of the students' own case studies in restoration ecology, and students will write reports on their field work, analyzing their own projects in the context of the larger body of wetland restoration literature.

Instructor(s): T. Massad Terms Offered: Spring. Not offered 2017-18

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27320. Topics in the Ecology of the Calumet Region. 100 Units.

We consider stewardship of land, habitats, natural areas, communities, and buildings in the Calumet Region of Chicago and Northwest Indiana. The goal of this course is to give students a basic understanding of select ecological principles and concepts, a demonstration of their application to local ecosystems, and the opportunity to collaborate with stewards in the Calumet.

Instructor(s): A. Anastasio Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 27325. Urban Ecology in the Calumet Region. 100 Units.

This course will give students a strong foundation in the local ecology of the Calumet. Students will use local research and habitats to understand fundamental concepts in ecology and the scientific method. Students will explore some of these habitats during field trips with scientists and practitioners. The course focus will be on urban ecology in the region, whether these fundamental ecological concepts are applicable, what other factors need to be considered in the urban ecosystem, and the role humans have in restoring natural and managing novel ecosystems, among other topics.

Terms Offered: TBD

Equivalent Course(s): PBPL 27325, GEOG 27325

ENST 27400. Epidemiology and Population Health. 100 Units.

This course does not meet requirements for the biological sciences major. Epidemiology is the study of the distribution and determinants of health and disease in human populations. This course introduces the basic principles of epidemiologic study design, analysis, and interpretation through lectures, assignments, and critical appraisal of both classic and contemporary research articles.

Instructor(s): B. Lahey Terms Offered: Autumn

Prerequisite(s): Introductory statistics recommended or Consent of Instructor

Equivalent Course(s): STAT 22810, PBHS 30910, PPHA 36410

ENST 27420. Urban Gardens: Therapeutic, Educational, and Community Building Practicum. 100 Units.

This teaching practicum will consider emerging research on urban gardens for individual, community, and environmental wellness, and will prepare students to design teachable lessons for school-based programs and community building. Course material is drawn from current literature, curricula, and case studies that demonstrate the impacts and methods of garden education, place-based development, and horticultural therapy. We will discuss the perceived individual, societal, and global problems that urban gardens are thought to address and the reported benefits they deliver. Students will evaluate the goals, organization, methodology, values-bias, and efficacy of existing curricula, and design a series of educational workshops that can be adapted to multiple age groups and learning environments. The course will include one or more field trips, and students will be required to volunteer/teach at an area school or community garden program.

Instructor(s): M. Mass Terms Offered: Not offered 2017-18

Note(s): This course will include off-site field trips and community service/teaching commitment.

ENST 28601. Ideas of Nature I. 100 Units.

Nature is, and has been, a fundamental category in human thought. Yet Arthur Lovejoy (1935) enumerated sixty-six senses in which the word had been used in European literature and philosophy. We examine the roles that the (nominally continuous) category of "nature" played in sources such as ancient religious texts, Greek and Roman philosophical writings, and medieval poetry and theology.

Instructor(s): A. Gugliotta Terms Offered: Spring

Prerequisite(s): ECON 20900, 21000, or 26500; or ENST 26500

Note(s): ENST 28601 and 28602 may be taken individually in any order. This course is offered in alternate years.

Equivalent Course(s): HIPS 29001

ENST 28800. Readings in Spatial Analysis. 100 Units.

This independent reading option is an opportunity to explore special topics in the exploration, visualization and statistical modeling of geospatial data.

Instructor(s): L. Anselin Terms Offered: Autumn Spring Winter. Students are required to submit the College Reading and Research Course Form. Available for either quality grades or for P/F grading.

Note(s): By permission of instructor only.

Equivalent Course(s): GEOG 38700, GEOG 28700

ENST 28900. Environmental and Science Policy. 100 Units.

With a strong emphasis on the fundamental physics and chemistry of the environment, this course is aimed at students interested in assessing the scientific repercussions of various policies on the environment. The primary goal of the class is to assess how scientific information, the economics of scientific research, and the politics of science interact with and influence public policy development and implementation.

Equivalent Course(s): PBPL 28900

ENST 28980. Readings in Urban Planning and Design. 100 Units.

This independent reading option is an opportunity to explore contemporary debates and theoretical arguments involved in the planning and design of cities.

Instructor(s): E.Talen Terms Offered: Autumn Spring Winter. Students are required to submit the College Reading and Research Course Form. Available for either quality grades or for P/F grading.

Note(s): By permission of instructor only.

Equivalent Course(s): GEOG 28900, GEOG 38900

ENST 29000. Energy and Energy Policy. 100 Units.

This course shows how scientific constraints affect economic and other policy decisions regarding energy, what energy-based issues confront our society, how we may address them through both policy and scientific study, and how the policy and scientific aspects can and should interact. We address specific technologies, both those now in use and those under development, and the policy questions associated with each, as well as with more overarching aspects of energy policy that may affect several, perhaps many, technologies.

Instructor(s): S. Berry, G. Tolley Terms Offered: TBD. May be offered 2018-2019

Prerequisite(s): PQ: Third- or fourth-year standing. For ECON majors who want ECON credit for this course (ECON 26800): PQ is ECON 20100.

Equivalent Course(s): CHSS 37502, PSMS 39000, PPHA 39201, BPRO 29000, PBPL 29000, ECON 26800

ENST 29700. Reading and Research. 100 Units.

This course is a reading and research course for independent study not related to BA research or BA paper preparation.

Prerequisite(s): Consent of faculty supervisor and program director Note(s): Students are required to submit the College Reading and Research Course Form. This course may be counted as one of the electives required for the major.

Terms Offered: Autumn, Spring, Winter

Prerequisite(s): Consent of faculty supervisor and program director

Note(s): Students are required to submit the College Reading and Research Course Form. This course may be counted as one of the electives required for the major.

ENST 29701. Readings and Research: Working Group in Environment, Agriculture, and Food (EAF) 100 Units.

This course consists of participation in the Environment, Agriculture, and Food Group in a role assigned by the instructor.

Instructor(s): S. Shaikh Terms Offered: Winter

Prerequisite(s): Registration by instructor consent only

Note(s): Please email Sabina Shaikh at sabina@uchicago.edu.

Equivalent Course(s): PBPL 29701

ENST 29720. Reading and Research: Calumet. 100 Units.

The Program on the Global Environment will be hosting many interesting guest speakers during the Calumet Quarter, and this readings course will be dedicated primarily to the discussion of relevant articles written by the speakers. This will acquaint students with literature on a variety of topics ranging from food security to wetlands ecology to conservation theory. Students will be expected to discuss the articles, drawing on knowledge gained in the three core Calumet courses. Students will also attend the guest presentations and write short responses to the lectures.

Instructor(s): Staff Terms Offered: Spring

Prerequisite(s): Enrollment is based on acceptance into Calumet Quarter Program.

ENST 29801. BA Colloquium I. 100 Units.

This colloquium is designed to aid students in their thesis research. Students are exposed to different conceptual frameworks and research strategies. The class meets weekly.

Instructor(s): Staff Terms Offered: Autumn

Prerequisite(s): Students must have an approved topic proposal and a faculty reader

Note(s): Required of students with fourth-year standing who are majoring in Environmental Studies.

ENST 29802. BA Colloquium II. 100 Units.

This colloquium assists students in conceptualizing, researching, and writing their BA theses.

Instructor(s): Staff Terms Offered: Winter

Prerequisite(s): Open only to students with fourth-year standing who are majoring in Environmental Studies

ENST 29900. B. A. Thesis (Reading and Research) 100 Units.

This is a reading and research course for independent study related to BA research and BA thesis preparation.

Instructor(s): Staff Terms Offered: Winter, Spring

Prerequisite(s): Consent of instructor and program director

Note(s): Students are required to submit the College Reading and Research Course Form.



Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Trajan.

Times was used instead of Palatino.

The editor may contact Leepfrog for a draft with the correct fonts in place.