SA.500 (DEVELOPMENT, CLIMATE & SUSTAINABILITY)

SA.500.100. Green New Deals. 2 Credits.

SA.500.101. Financial Crises and Policy Dilemmas in Emerging Markets. 4 Credits.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.810.727[C]

SA.500.102. Business and Human Rights: Who’s Responsibility is it?. 4 Credits.
This course will examine the complexities of transnational and cross-political business practices and strengthen students’ ability to counsel corporate clients effectively in a transnational business environment. The class will touch on the legal dimensions of international business and human rights, starting with postwar prosecutions of business leaders in the Nuremburg trials, and continuing through contemporary human rights challenges against corporations and corporate executives based upon their alleged complicity in human rights violations. It will focus on the increasing importance of corporate social responsibility, the creation of shared value for business, and the crucial role of the financial sector, advocacy groups and the internet in rewarding (and penalizing) businesses that do not take human rights and sustainability into account. The class will cover a few sectors that pose specific challenges in the business environment, namely, extractive industries, internet privacy, human trafficking, and health. Click here to see evaluations, syllabi, and faculty bios.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.650.766[C]

SA.500.103. Climate Change Impacts: Foundations, Problems, and Solutions. 4 Credits.
This course will explore the impacts of climate change, with an emphasis on developing countries. In the first half of the course, we will characterize the current and expected impacts of climate change and the institutional landscape of global climate governance, particularly climate finance. In the second half of the course, we will examine specific issues arising from or linked to climate change, such as energy poverty and renewables, extreme weather and power grids, drought and human conflict, and adaptive agriculture. Students will become familiar with the scientific community’s assessment of climate impacts, the problems arising from climate change in developing countries, and possible solutions to those problems. Students will write policy memos and undertake numerous negotiations on climate change.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.888[C]

SA.500.104. Climate Change: Science, Economics and Politics. 4 Credits.
Climate change is anticipated to have catastrophic impacts on the planet and on human civilization over the coming century and beyond. Sea-level rise is expected to have severe consequences on coastal communities; weather extremes such as droughts, heat waves, and hurricanes are expected to intensify; and the combination of these impacts with warming temperatures is expected to influence human activities from agriculture to the development and maintenance of energy systems. Globally, scientists have come to a consensus that greenhouse gas emissions from human activities contribute to present trends in climate. Students will acquire a firm grounding in climate science, mitigation options, economics, and politics that they can leverage at SAIS and throughout their careers. Join us for a lively course on how policymakers and society have addressed this challenge up to now and options into the future, accounting for interactions with the COVID-19 pandemic and beyond. Classroom sessions will involve lectures, seminar discussions, and active learning (e.g., simulations of international climate negotiations).
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.760[C]

SA.500.105. Comparative Energy and Environmental Governance. 4 Credits.
How are public policies addressing energy and environmental problems designed and implemented at various levels of governance? Why are certain pressing energy and environmental problems addressed, while others ignored? What drives some nations, but not others, to embrace renewable energy and decrease reliance on fossil fuels? Moving beyond the idea that differences in public opinion are primarily to blame for such variation, this course focuses instead on how the design of the state itself influences energy and environmental governance outcomes. Regime type, electoral systems, party rules, fiscal structures, and institutions that determine regional and municipal policy-making authority have enormous impact on policy design and implementation. In addition, energy and environmental problems span regional and national borders, often mapping poorly onto existing governance institutions and spawning a range of unintended consequences. To systematically examine the link between state institutions and energy and environmental governance, this discussion-intensive seminar applies theories and concepts from literatures on comparative politics to topics in energy and environment, moving gradually from multilateral institutions, through institutions at the national, regional, and municipal levels. The course ends with a class on non-state, market-based governance institutions. To facilitate detailed, comparative analysis and in-class discussion, each week introduces a range of empirical cases drawn primarily from China, Germany, and the United States. Click here to see a video introduction for the course. Click here to see evaluations, syllabi, and faculty bios.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.796[C]
SA.500.106. Development Strategies. 4 Credits.
Study of development reveals a range of proposals for economics, political and social reform and an equally wide range of constraints. But the challenge confronting development practitioners is to find a tractable and promising way forward, given country-specific realities. Drawing on a variety of emerging approaches to development policymaking, this course examines how to identify priorities for reform that are feasible in particular country circumstances and that have the potential to build and sustain momentum for development.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.400.818[C]

The aim of this course is to provide students with a practical, relevant framework to apply participatory and principled approaches to deploying information and communications technologies (ICTs) and digital tools to meet international development goals and improve outcomes in low and middle income countries (LMICs). The course will equip students with the skills and knowledge they need to understand and contribute to this emerging sub-field of international development practice. Each session will include an introduction to relevant foundational knowledge that will provide an entry point whereby technologies such as mobile phones, sensors, drones and tablets can be designed and deployed to address problems in health, education, agriculture, governance and environmental sustainability. Cross-cutting themes such as information security, policy, gender, and inclusion will also be explored. Students will have an understanding of the constraints and benefits of integrating technology into development programs.<a href="http://bit.ly/1beb5s" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.400.797[C]

SA.500.108. Energy Economics. 4 Credits.
The objective of this course is to make you familiar with key economic concepts, ground realities, and policies related to the supply and use of energy. There will be a focus on sustainable energy, but the course will not consider environmental implications, which will be part of the Environmental Economics course. We will consider supply issues (renewables and storage, petroleum, coal, natural gas, nuclear), energy demand and efficiency in various sectors, and their interactions with each other and with the rest of the economy.<a href="http://bit.ly/1beb5s" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.772[C]

SA.500.109. Facing the Oil Problem: The United States, Canada, OPEC and the World. 4 Credits.
Every aspect of foreign and domestic policy feels the effect of the oil problem. Solutions will be difficult. The course assesses direct and indirect costs of oil addiction, including global warming. Considers scenarios of supply disruption. Examines who controls oil and how. Explains "peak oil" and the loss of "spare capacity" to cushion price shocks. Looks at heavy oil production from Canada, America's largest oil supplier. Weighs energy initiatives, alternative energy development and future energy RD&D. Unravels complexities of the oil problem and explores what is to be done about it. (This is a cross-listed course offered by the Energy, Resources and Environment Program that also can fulfill a requirement for the Canadian Studies Program and the Latin American Studies Program.)
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.759[C]

SA.500.110. Fundamentals of International Law. 4 Credits.
A general introduction to international law, surveying such areas as (among others) the sources of law, the law of treaties and customary international law, statehood and sovereignty, refugees and human rights, the laws of armed conflict, dispute resolution, international organizations, the law of the sea, use of armed force, the role(s) of NGOs, and the law of international trade. The course will consider the differences and similarities between international and domestic legal regimes, and how the two systems interact in theory and in practice. Considerable emphasis will be placed on legal reasoning, exposition, and advocacy. The course is intended for students of all fields of concentration, since it will introduce them to the grammar and syntax of international law: a language with which they will surely need some familiarity whatever their intended career paths. It should be of special interest to potential International Law concentrators, since it will lay the foundation for the exploration of more specialized areas. Examination or paper option, with mid-term writing assignment.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.650.700[C]

The energy economy and the natural environment operate over a common matrix, that of geography. To gain a comprehensive understanding of how these phenomena interact and interrelate, one must apply tools that can accurately represent and model the spatial dimension. In this class, students will explore the use of Geographic Information Systems (GIS) and satellite imaging technologies to capture and analyze geospatial data. Topics covered include Spatial Thinking, GIS components, spatial data types and sources, and remote sensing principles, systems and technologies, as they apply to energy and environment. Students will investigate geospatial datasets and develop hands-on skills with mainstream and open-source GIS platforms.<a href="http://bit.ly/1beb5s" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.887[C]

SA.500.112. Global Electricity Markets. 4 Credits.
Electricity is fundamental to the functioning of modern society and the electricity grid has been called the greatest engineering achievement of the 20th century. It has also been deemed the lynchpin in combating climate change – globally, the electricity sector accounts for just over 40% of carbon emissions, and 20% of final energy consumption. This course is designed to provide an introduction to the electric power industry, with a focus on the economic, policy, technology, institutional, and regulatory factors affecting the industry, major current issues and trends, and the prospects for the industry’s future development and sustainability.<a href="http://bit.ly/1beb5s" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.730[C]
SA.500.113. Global Governance of Energy and Environment. 4 Credits.
This seminar introduces the institutional governance of international energy and environmental affairs. We will consider several questions of contemporary policy relevance. How have governments designed international institutions to meet energy demands in developing countries? What are the principle challenges for the international community in facilitating global energy transitions? To what extent are global institutions capable of meeting the challenges posed by climate change? How have global institutions evolved since the end of the Cold War to handle environmental issues? And what lessons can policymakers learn in designing or building institutions to govern energy sectors and the natural environment? By the end of the seminar we will have learned about the specific energy and environmental challenges and the international strategies developed to meet those challenges. Topics will include oil markets, climate change, renewable energy, ozone depletion, technology innovation, and financing mechanisms. We will cover the relationships between technology and energy, environment and energy, international relations and energy, domestic politics and fossil fuels, and oil and international relations. Sessions will focus on questions relating material from different parts of the seminar to provide continuity from one week to the next.
**Prerequisite(s):** Students may not register for this class if they have already received credit for SA.680.889[C]

SA.500.114. Global Health Policy. 4 Credits.
The world's countries—low, middle and high-income alike—face numerous health challenges, many shaped by processes connected to globalization. These include combating the COVID-19 and HIV/AIDS pandemics, addressing non-communicable diseases, expanding health coverage and ensuring effective global governance for health. This course will examine these and other issues with an emphasis on facilitating your understanding and critical analysis of central issues in global health policy, and examining the role you can play to address health conditions—particularly those that affect disadvantaged populations.
**Prerequisite(s):** Students may not register for this class if they have already received credit for SA.400.745[C]

SA.500.115. Humanitarianism, Aid & Politics. 4 Credits.
Over the past 20 years, the attention given to the humanitarian consequences of conflict has grown considerably, not least due to advances in media technology. These consequences are multiple and transnational: civilian casualties, insecurity and human rights abuses, population displacement and attendant health impacts, food insecurity, damage to traditional political and economic structures—what some have called "development in reverse". The human toll of these conflicts—sometimes fueled by natural resources such as oil, water, land, diamonds, timber, or poppy—has placed substantial public pressure on donor governments and aid agencies to respond with ever more rapid and effective assistance. The resulting relief programs in turn carry real political repercussions, locally and internationally. The course examines these political repercussions. It provides a foundation for understanding the context of conflict and humanitarian crises, laying out such components as the nature of conflict, forced migration, humanitarian law, how the international aid community functions, and the use of militaries in humanitarian interventions. It also follows current trends in humanitarian action, tracking the role and use of Western aid agencies, the changes arising from counter terrorism policies, and the dynamics of specific crises. **Prerequisite(s):** Students may not register for this class if they have already received credit for SA.400.769[C]

SA.500.116. International Development Practicum. 4 Credits.
The practicum is a course designed to provide students with the tools and opportunity to work with an external client on a development problem or opportunity. It allows students the opportunity to apply their research, analysis and practical skills to an issue that is of direct relevance to a client. The team of students works closely with the client to produce a high quality output in the form of a publishable report, policy or program that may be implemented by the client. In addition to allowing students to translate their knowledge into practice, the practicum experience also allows students to make valuable contacts with potential employers. Students audit the course in the fall semester (in addition to their full load) and take the Practicum as a 4-credit course in the spring semester as part of their load. **Prerequisite(s):** Students may not register for this class if they have already received credit for SA.400.901[C]

SA.500.117. International Environmental Law: Crisis and Cooperation. 4 Credits.
This course will explore various aspects of international environmental law and policy, including relating to human health. We will examine international regimes on the ownership, control and management of natural resources, including the international institutions designed to resolve disputes, as well as the prevention and management of pollution problems that do not respect national boundaries. Many international environmental problems are, unfortunately, in a state of crisis, the proliferation of hazardous chemicals and climate change being examples. These and other environmental problems can only be resolved through international cooperation. We will explore ways of catalyzing and actualizing such cooperation. We will also explore approaches to reconciling the particular needs of, and realities facing, developing countries in dealing with these issues. The course is intended to allow students to develop an analytic approach to international environmental problems in order to enable them to participate in designing and implementing solutions to those problems, particularly in an era of increasing interdependence and globalization. The course will also convey substantive information about specific problems and about the policies and legal regimes being used to deal with them.
**Prerequisite(s):** Students may not register for this class if they have already received credit for SA.680.744[C]

SA.500.118. Energy & Environment Practicum. 4 Credits.
The Energy & Environment (E&E) Practicum is an opportunity for students to work in a consulting-like setting during their second year at SAIS. Teams of four are paired with a client organization on a pro-bono basis to tackle a real-world problem. This is an excellent opportunity to get hands-on consulting experience and acquire marketable skills that can be showcased on your resume and during interviews; and to contribute to the public discourse by addressing a meaningful problem in the energy, resources, and environment space. **Prerequisite(s):** Students may not register for this class if they have already received credit for SA.680.775[C]
SA.500.119. International Human Rights Law Clinic. 4 Credits.
The HR Clinic is a practicum designed to provide hands-on experience
in legal mechanisms for the promotion and protection of internationally-
guaranteed human rights. The classroom portion of the course will seek
to provide students with a solid grounding in human rights principles,
treaties, enforcement procedures, and caselaw. The course culminates
in a significant report on a case study that will be the principal focus
of the entire academic year. The specific topic and subject country
for the study will be announced at or shortly before the first class session,
but the project this year will explore ways in which domestic legal
systems internalize, implement, and enforce human rights norms, making
them into legally-enforceable obligations. Students will research more
developed systems, to analyze their successes and shortcomings,
and will report based on their observation of the subject country.

Prerequisite(s): Students may not register for this class if they have
already received credit for SA.400.748[C]

SA.500.120. International Migration, Diasporas and Development. 4
Credits.
While there are fierce debates on the impact of immigration on advanced
industrial countries, the effects of emigration and diasporas on the
source country are poorly understood. This seminar will seek
to understand the economic, political and social consequences of
international migration and diasporas on countries of origin. Is the
phenomenon of greater import in the current (and future) context than
it has historically been and if so, why? How do selection characteristics
of international migrants and reasons for leaving – whether as students,
workers or refugees – affect the country of origin? What are the
human capital effects ranging from the “brain-drain” of limited human
capital to “brain-gain” effects arising and social norms and thereby
influence social and political change? When do diasporas engage in
“long- distance” nationalism that support more polar political parties
and groups from diasporic networks? What are the different forms
of economic engagement of diasporas with their countries of origin,
ranging from remittances to trade to FDI, and why do these vary?
Do diasporas transmit “social” remittances which reshape individual
preferences engaged in conflict and civil wars? And what are the effects
of destination country policies on immigrant selection, assimilation and
deporation on the above questions?

Prerequisite(s): Students may not register for this class if they have
already received credit for SA.400.748[C]

SA.500.121. Introduction to Energy, Resources & Environment. 4 Credits.
This course introduces students to the fundamentals of energy,
resources and environment. It covers a wide range of topics from the
functioning of electricity markets to the challenge of climate policy
and the management of air pollution. It also introduces a host of key
concepts and analytical frameworks that underpin policy analysis in
the field, such as notions of collective action and the role of regulatory
agencies in monopolistic markets. The course pays particular attention
to the energy-environment nexus, including the challenge of low-carbon
development in an era of climate change.

Prerequisite(s): Students may not register for this class if they have
already received credit for SA.680.680[C]

SA.500.122. Life Cycle Assessment. 4 Credits.
Life cycle assessment (LCA) is technique that is widely used by
businesses, government, and civil society to quantify environmental
impacts of products and processes from materials extraction to
waste disposal (cradle-to-grave or even cradle-to-cradle). This course
will provide a comprehensive introduction to LCA, an internationally-
recognized tool that is promoted by organizations such as the
United Nations Environmental Program (through the Life Cycle
Initiative). Studies employing this technique have uncovered surprising
environmental findings, including the trade-offs between plastic and
glass bottles, the upstream impacts of gasoline produced from the
Canadian Oil Sands, and the hidden impacts of “zero emissions” vehicles.
The classroom sessions will include in-depth discussions, exercises
with and without software, and guest lectures to engage students with
real-world LCA practice. The course has been structured for students to
iteratively develop their own real-world LCA on a product of their choice
throughout the semester. The technique enables in-depth comparative
analyses which may be used to examine the environmental impacts of
different products (e.g. dietary or energy choices) or even the influence
of supply chain disruptions (e.g., related to COVID-19). While other products
will be discussed, there will be an emphasis on energy technologies.
This course can fulfill quantitative reasoning requirements. Pre-requisite:
Students are strongly encouraged to already have or acquire basic
spreadsheet skills in advance of this course. Contact the professor
with questions about the course and the prerequisite.<a href="http://bit.ly/2D0n6mw" target="_blank">Click here to see a video introduction for
the course.</a><a href="https://livejohnshopkins.sharepoint.com/sites/SAINSider2/SitePages/DC-Capstones,-Professional-Skills-Courses.aspx"
target="_blank">Click here for Capstone course application information</a>

Prerequisite(s): Students may not register for this class if they have
already received credit for SA.680.680[C]

SA.500.123. Natural Gas Market Fundamentals, Forecasting and
Political Drivers. 4 Credits.
This course acts as an introduction to global natural gas markets, with
a focus on the methods energy companies, consulting firms, financial
institutions, and governments use to analyze and forecast energy prices
and fundamentals. The course covers four themes: (a) global natural
gas and LNG market fundamentals (key producers, consumers, trade
flows and market pricing) (b) methods for forecasting gas supply and
demand; (c) geopolitical drivers and trade flows and (d) commercial
strategies of international oil companies, national oil companies, and
utilities. The primary project for this class is building an excel-based,
bottom-up country level gas balance. Accordingly, while there are no
prerequisites for this course, students will find the course easier if they
have a background in economics (micro, macro) and if they can use data-
processing software (e.g. Microsoft Excel). A paper and a presentation
will accompany the model.

Prerequisite(s): Students may not register for this class if they have
already received credit for SA.680.793[C]
SA.500.124. Nuclear Non-Proliferation Challenges in the 21st Century. 4 Credits.
How can a world of multiple nuclear powers control the spread of this immensely powerful nuclear technology? This course will introduce the student to these challenges by looking at how nuclear weapons work, why some countries are tempted to seek them, and the implications of nuclear weapons for civilian nuclear power and geopolitical stability. Over 50 years have elapsed since an international non-proliferation regime was established based on the 1968 Nuclear Non Proliferation Treaty (NPT). The Treaty assigned responsibility to the International Atomic Energy Agency of the United Nations (IAEA) for applying safeguards to nuclear and related materials, nuclear equipment and facilities to ensure that they remain in peaceful use. New challenges arise from growing interest by some nations in acquiring nuclear weapons to meet their perceived security needs, and the revival of interest in nuclear power as a carbon-free energy source, including from countries that have no experience in nuclear technology. In addition, increasing threats of nuclear terrorism from acts of malice, diversion, sale, and theft of nuclear material and technologies contribute to the scenario of competing nations able to master the technology and thirsting for the security benefits it seems to offer. North Korea and Iran are not alone in this. Students will gain an understanding of the political and military dynamics of nuclear weapons, ways to slow or halt the spread of such weapons and how to reduce the dangers of nuclear terrorism. Group discussions, simulated exercises, and guest lecturers will introduce additional real-world dimensions into the classroom.<a href="http://bit.ly/2hWONjP" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.797[C]

SA.500.125. Reimagining International Development for Children and Youth. 4 Credits.
There are well over two billion children and youth in the world with half living in poverty. Threats to human security are already leading to social disruption in many parts of the world. Investing in education, healthcare, protection, and future economic opportunities for future generations is vital for building a safer, productive, and prosperous society. This course will enable students to have an overview on issues affecting young people's lives at the intersection of poverty and globalization. The course will have a heavy focus on social innovations that have been developed and implemented to support the most vulnerable young people globally. It will also examine many dynamic policies that deal effectively with these issues.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.400.753[C]

SA.500.126. Renewable and Distributed Energy Policy. 4 Credits.
Given the challenges presented by climate change, environmental degradation, and resource scarcity, virtually everybody agrees that "business as usual" in energy production and consumption is no longer tenable. However, for all the compelling reasons to increase the share of energy generated from renewable sources, the development of renewable energy sectors has varied widely across countries. In some economies, more than 30 percent of electricity are now generated from renewable sources, while others have made few attempts to establish domestic renewable energy sectors. This course will examine what's driving the remarkable growth in some countries while others lag behind. To understand such variation, this course provides an in-depth look at the policies and economics of renewable energy – from large scale wind and solar to distributed generation (DG) resources such as rooftop solar, micro-grids, and storage in the U.S., Europe, and Asia. Weekly, discussion-intensive class meetings examine how specific national and state policies are driving growth in renewable energy sectors, how these policies impact renewable energy projects (large and small scale), how and why these policies have differed across nations and over time, and what factors have contributed to policy failure.<a href="http://bit.ly/2h1Uieh" target="_blank">Click here to see a video introduction for the course.</a>
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.797[C]

SA.500.127. Research Seminar: Energy and Environment. 4 Credits.
Policy makers, business leaders and other stakeholders in civil society confront many challenges in ensuring a transition to a sustainable energy future. The ERE curriculum provides students with basic and specialized skills and knowledge across a broad spectrum of these challenges. With the introduction of the ERE Research Seminar, students will have the opportunity to conduct more in-depth, focused research on a specific topic under the guidance of an instructor and with inputs from fellow students. Note: successful completion of this course fulfills the capstone oral exam requirement.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.857[C]

SA.500.128. Sustainable Development in the Era of Climate Disruption. 4 Credits.
Students will get an introduction and participate in critical discussions of basic concepts, science and debate about climate change and how climate will impact sustainable development, climate change leadership, science, power and politics. This will cover the scientific overview of climate change over geological and historical time, its impact on the availability of basic necessities like freshwater, food security, and energy and a number of case studies that illustrate different societies interaction, adaptation and collapse in relation to climate change. Thereafter, students will learn global, regional and local efforts being undertaken to adapt and mitigate climate change and how these efforts are shaping the global development agenda and the Sustainable Development Goals. There will be case studies understanding the political and ethical contentions of climate and sustainable development and how present and future scenarios could impact food prices, conflict, infrastructure, migration, trade and geopolitical relationships.
Prerequisite(s): Students may not register for this class if they have already received credit for SA.400.799[C]
SA.500.129. The Geopolitics of Energy. 4 Credits.
Energy and geopolitics are intrinsically linked. Profound shifts in the global energy landscape are having major impacts on international relations. This course will address the risks to global energy security, how countries and regions define their energy challenges, and how these perceptions impact their foreign policies and the international system. The course will look at global energy forecasts, the security considerations attached to different fuels and sources of energy, and the key issues impacting the geopolitics of energy in different regions of the world.

Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.765[C]

SA.500.130. The Water, Energy and Food Nexus. 4 Credits.
Energy underpins the modern economy, food and agriculture underpin civilization, and water underpins life on Earth. These three resources are the essence of human existence on this planet and yet their current exploitation and use imperil that very existence. The Food, Energy, Water Nexus, is the exploration of the interrelationships between these resources, the challenges they face individually, and the complex linkages between them. Dealing with these challenges requires an interdisciplinary approach to find integrative technology and policy solutions to complex problems especially as these challenges are exacerbated by global warming and climate change. In this class students will be exposed to the unique features of each element of the nexus, the complex dynamics of their interaction, and the pursuit of integrative solutions. Students will investigate historical, contemporary, and emerging practices that are essential for a sustainable and resilient human society.

Prerequisite(s): Students may not register for this class if they have already received credit for SA.680.792[C]

SA.500.131. Venture Capital and Impact Investing in Emerging Markets. 2 Credits.
This class will thus focus on the intersection of venture capital and impact investing, on this newer asset class for emerging markets, and its specific application in the service of consciously creating impact. Given the roots of the early success stories in impact investing in the financial services sector, this class will focus primarily (although not exclusively) on financial inclusion, as it helps to demonstrate the progression of one impact investment sector that has had both early stage VC support and multiple exits. Financial inclusion also offers an ideal laboratory because it offers a service typically provided by private sector entities (albeit to fewer people than it should) and has been the source of entrepreneurs pursuing pro-poor innovations for decades, led and supported by Grameen, Accion, Women's World Banking, Opportunity International, and many others who pioneered microcredit. But the course will go well beyond the field's microcredit roots and explore what is happening on the frontier in the fintech revolution, as significant portions of the financial services sector begin to digitize and financial services increasingly are delivered via mobile phones. As such, this focus on financial inclusion will, in turn, highlight the power of investing and value creation in many of the newest pro-poor sectors.<a href="http://bit.ly/1beb5s" target="_blank">Click here to see evaluations, syllabi, and faculty bios</a>

Prerequisite(s): Students may not register for this class if they have already received credit for SA.400.795[C];SA.380.760[C] OR SA.510.102[C]

SA.500.132. Practicum on Responsible Digital Development: Ethical Considerations in Implementing Digital Solutions. 4 Credits.
With advances in artificial intelligence and pervasive digitization, policymakers must now contend with ethical dilemmas including such issues as facial recognition, voter profiling and exclusion, labor displacement, algorithmic bias, and addiction. Beyond risks, policymakers must ensure that the communities in greatest need of the benefits of technology benefit from, and have the ability to access it safely. Through engagements with digital development practitioners, the Practicum seeks to expose students to the tradeoffs involved in digitization and ethical dimensions of these choices, while also providing participating clients with well-considered advice and recommendations on these tradeoffs.<a href="https://livejohnshopkins.sharepoint.com/sites/SAINS Insider2/SitePages/DC-Capstones,-Professional-Skills-Courses.aspx" target="_blank">Click here for Capstone course application information</a>
SA.500.137. Energy and Climate Change. 4 Credits.
This course will focus on the inseparable links between energy use and climate change and, consequently, the unavoidable connection between energy and environmental policy. Through an examination of the subject, we also hope to explore three closely-related themes that exemplify the complexity of the interaction between science and technology on the one hand and public policy on the other hand: the challenges of achieving political acceptance, both nationally and internationally, of scientific consensus in the face of ever-present scientific uncertainty; the extent and the limitations of science as a driving force for public policy; and the role of technological development in influencing political choices.