Note on Course Numbers
Each Carnegie Mellon course number begins with a two-digit prefix which designates the department offering the course (76-xxx courses are offered by the Department of English, etc.). Although each department maintains its own course numbering practices, typically the first digit after the prefix indicates the class level: xx-1xx courses are freshmen-level, xx-2xx courses are sophomore level, etc. xx-6xx courses may be either undergraduate senior-level or graduate-level, depending on the department. xx-7xx courses and higher are graduate-level. Please consult the Schedules of Classes (https://enr-apps.as.cmu.edu/open/SOC/SOCServlet) each semester for course offerings and for any necessary pre-requisites or co-requisites.

88-104 Decision Processes in American Political Institutions
Fall: 9 units
This is an interdisciplinary introduction to the study of politics and government, drawing mostly on political science, but also on economics. It familiarizes the student with the basic structures and processes of American government. The main theoretical tools are spatial models of political decision making, and models of collective action problems. The course focuses on politics and government in the United States, but explicit comparisons are made with politics in other countries. Grading is usually based on two midterm exams and a final exam, as well as a short writing assignment, several quizzes and homework.

88-110 Experiments with Economic Principles
Fall: 9 units
This course is designed to teach the basic principles of economics through the use of experiments. In each experiment you will be an active participant attempting to make deals with other traders in the market. At the end of the experiment it is time to really put economics to the test—can economic theory really explain the complex interactions of the participants in your experiment? One nice feature of these experiments is that you can be both a participant and an observer, and you often will learn nearly as much about economic principles from your experience as a participant as you will from the analysis of the experiment as an observer. Topics covered include basic market behavior, auctions, rent control, pollution, network externalities, information economics, and international trade.

88-111 SDS Freshman Seminar: Human Rights and Global Politics
Fall: 9 units
The purpose of the seminar is to study human rights from different dimensions. First, we will examine the meaning of the term and the issues associated with defining the human rights field. What are these rights? What is their origin? Secondly, we will examine which rights/issues have been raised in the contemporary international political system and the responses from major international actors such as the United States, the Western European countries, International Organizations, and the NGO’s such as Amnesty International. The central issue here is one of answers and policies toward human rights abuses/issues. Finally, we will analyze a number of case studies. Some case studies will be presented in the lectures, some will be discussed by the students. Students will be asked to do research and report on a case of human rights abuses looking not only at the issue or conflict that has led to those abuses, but also international responses to the issue.

88-114 SDS Freshman Seminar: Everyday Irrationality
Intermittent: 9 units
This seminar will cover the historical progression from belief in hot irrationality—i.e., emotional interference with an otherwise pristine intellect (Plato, Freud) through cold irrationality—i.e., clear thought stymied by common cognitive biases and heuristics (Tversky and Kahneman)—through a possible integration of hot and cold approaches—e.g., resulting from attentional mechanisms (Simon, Loewenstein, Lerner). Then the professor and students will discuss belief in ESP, alternative medicines, faith healing and Nazism in terms of the principles proposed. During the last half of the semester, students will choose a particular irrational belief to study and will both present to other students and write a term paper describing its acceptance (by at least some people) and possible reasons for such acceptance. The major text will be Dawes's new book "Everyday Irrationality: How Pseudo-Scientists, Lunatics, and the Rest of Us Systematically Fail to Think Rationally." This book will be supplemented by selected readings from Plato, Freud, Hines's book on "Pseudoscience and the Paranormal," Gilovich's book of "How We Know What Isn't So," a book of first-hand accounts by the perpetrators of the Holocaust entitled "Death Dealers," and finally Browning's book of "Ordinary Men."
88-120 Reason, Passion and Cognition
Spring: 9 units
This course will introduce students to major concepts and theories in the social and decision sciences, focusing in particular on how cognition and emotion shape judgment and choice. We will address such questions as: What are some common mistakes in judgment and decision making? Can information shape our choices even if we do not consciously recognize the information? Throughout the course, the emphasis will be on understanding: (1) basic theories and research findings of decision science and psychology, and (2) the relevance of research findings to everyday life.

88-124 Freshman Seminar: Democracies and War
Spring: 9 units
To be determined.

88-198 Research Training: Social and Decision Sciences
Fall and Spring
This course is part of a set of 100-level courses offered by HSS departments as independent studies for second-semester freshmen, and first- or second-semester sophomores, in the College. In general, these courses are designed to give students some real research experience through work on a faculty project or lab in ways that might stimulate and nurture subsequent interest in research participation. Faculty and students devise a personal and regular-ized meeting and task schedule. Each Research Training course is worth 9 units, which generally means a minimum for students of about 9 work-hours per week. These courses are offered only as electives; i.e., they cannot be applied toward a college or major requirement, although the units do count toward graduation as elective units. Additional details (including a roster and descriptions of Research Training Courses available in any given semester) are available in the HSS Academic Advisory Center. Prerequisites/restrictions: for HSS students only; only for second-semester freshmen, or first- or second-semester sophomores; minimum cumulative GPA of 3.0 (at the time of registration) required for approved entry; additional prerequisites (e.g., language proficiency) may arise out of the particular demands of the research project in question.

88-205 Comparative Politics
Spring: 9 units
The goal of this course is to use the comparative method to learn about the evolution of political ideas and political systems in selected countries. The course is centered on the study of political ideologies, political systems, institutions, and policies. The course will focus on four countries: China, Cuba, Iran and South Africa and the political philosophy that inspired those regimes structures, foundations, and policies. Each of the case studies will allow the students to learn about the ideology, political institutions, and policies, as well as the political and economic transformation of these countries or regions. Students will be expected to compare political ideologies, political institutions, socioeconomic policies and the consequences that those policies have on the society. The course provides the student with both knowledge about critical political ideas and systems and the skills required to analyze and formulate policies.

88-210 Comparative Political Systems
Fall: 9 units
Why do some countries thrive while others stagnate? Why are some leaders in power for decades, while others last less than a year? When do political protests lead to regime change? What types of political systems produce the “best” outcomes? In this class students will learn the art and science of comparative politics. We will ask central questions to understanding how political systems emerge, how they change, and how they survive. To do so, students will learn core theories of comparative politics and be introduced to the major methods of inquiry designed to test those theories. Students will learn to evaluate current events through a comparative politics lens and draw reasoned conclusions by considering contemporary issues in light of the theories covered. Students should be prepared to think critically, analyze complex arguments and data, and apply theories to the “real world.” Upon completing the course, students will be well-equipped for advanced study of comparative politics, and will also be able to think like a comparative political scientists as they interpret events in the world around them.

88-220 Policy Analysis I
Fall: 9 units
This course provides an introduction to theories and methods for policy analysis. The main focus of the course is to develop an understanding of how theories from social science, such as economics, can help us understand policy issues such as allocation, regulation, and welfare. Throughout the course we analyze outcomes produced by private markets, by examining consumer choice, the supply and demand of factors and produced goods, and general and partial equilibrium. We also analyze the efficiency and welfare properties of such outcomes, paying special attention to the role of policy in influencing market outcomes. We consider how policy can address the efficiency and welfare shortcomings of markets that may result from informational asymmetries, industrial organization, moral hazard, transactions costs, and bounded rationality. Markets are compared in this light with organizational, governmental, and other modes of resource allocation. Grading will be based mainly on 3 exams. Homework assignments and/or quizzes will comprise a smaller part of the grade. Priority access is given to SDS junior and senior students.

88-231 Decision Analysis and Decision Support Systems
Spring: 9 units
This course emphasizes explicit procedures for analyzing complex decisions. The topics covered include: decision trees and other models of decisions involving uncertainty; methods for quantifying preferences and expert opinion; risk analysis; and the development and use of computerized decision aids ranging from spreadsheet programs to highly specialized decision support models. Prerequisites: 36-201 or 36-207 or 36-211 or 36-217 or 36-220 or 36-225 or 36-247 or 70-207.

88-251 Empirical Research Methods
Fall: 9 units
This course teaches students how to evaluate and conduct original research regarding human behavior, whether it be in economic, social, or political settings. The course gives students practical experience in many of the most commonly used research techniques, including surveys, experiments, and quasi-experimental analysis. Although the course focuses primarily on the relationship between formulating research questions and implementing the appropriate methods to answer them, students can expect regularly to apply the statistical techniques learned in the course prerequisites, including regression. Prerequisites: 36-201 or 36-207 or 36-247.
Intermittent: 9 units
Causal questions are pervasive in the social and behavioral sciences, and empirical researchers often use regression analysis as a tool to tackling such questions. This course focuses on the scientific problem of analyzing causal hypotheses in real-world settings, not on the mathematical details of regression. After clearly distinguishing prediction from causation, we discuss how to represent causal hypotheses and how to use regressions to analyze both predictive and causal hypotheses. Using in-class data exercises throughout, we will examine how to move from an interesting but somewhat vague question about the world (e.g., do police discriminate based on race and gender, do NFL athletes choke under high pressure, does parenthood improve happiness) to a clear statistical model that, when estimated, meaningfully addresses the question asked. The course emphasizes causal analysis as the main research goal and multivariate linear regression as the main statistical tool. After mastering basic techniques, we will introduce students to more advanced econometric approaches such as panel regressions and instrumental variables to deal with trickier settings in which causal inference is more challenging (e.g., do more guns lead to more violence?). In keeping with the hands-on philosophy of the course, a central focus of the semester will be a group research paper/presentation where students will have the opportunity to formulate and empirically test a research question of their choosing. Students will learn how to find, clean, and analyze a new dataset, and then concisely communicate their findings in the form of a scientific paper (and accompanying presentation). The research project makes this course excellent preparation for any student who hopes to ultimately write an undergraduate thesis.
Prerequisites: 36-201 or 36-207 or 70-207.

88-257 Experimental Economics
Fall: 9 units
This course will focus on the experimental literature studying decision making and strategic interactions. We will explore both seminal and ongoing experimental work on risk, time and social preferences, as well as how these preferences are affected by emotions and other visceral factors. The course will focus on laboratory experiments. The last section of the class will focus on the use of experiments to test economic theory (both standard and behavioral). The class is meant to be interactive, and students will have many opportunities to critically discuss existing experimental research, as well as to present their own research ideas.

88-260 Organizations
Fall: 9 units
Even in a "market" economy, the preponderance of economic activity is carried out through firms and other organizations. The course begins by examining economic theories of the firm, and explores some of the canonical questions, such as why are the firms the way they are? An important underlying question concerns how various organizational forms motivate, or fail to motivate, employees. The central concepts will be fleshed out by examining business firms, as well as not-for-profit enterprises, political parties, and government agencies.

88-281 Topics in Law: 1st Amendment
Fall: 9 units
In their firm desire to perfect the new Constitution, which defined and limited the powers and roles of their new government, the founding fathers insisted on explicit statements that would protect the rights of the new nation's citizens. Indeed, the protection of these essential rights in many ways drove and defined their successful rebellion from Britain. This impulse resulted in ten amendments to the Constitution, which we have come to know as the Bill of Rights. The very first (and arguably considered at the time as the most essential) of these was the First Amendment, which we sometimes call the "free speech" amendment to the Constitution. This amendment guarantees every U.S. citizen five freedoms: freedom of religion, speech, press, peaceful assembly, and the freedom to petition the government for redress of grievances. This course examines the historical and philosophical roots of this key constitutional amendment, how it has been fleshed out and defined over time through case law, and the bases of some more recent critics of this amendments and current interpretations.

88-283 Decision Making in Clinical Psychology
Spring: 9 units
This course surveys decision making surrounding core issues in clinical psychology. It includes an overview of how decisions are made in the prediction of mental illness, risk for violence, and the probability of recovery among individuals with mental illnesses. It also investigates decisions surrounding the treatment of mental illness, such as the efficacy of existing treatment methods and discrepancies between professional judgments and actual outcomes. The final section of the course will shift the focus to decision making by individuals with specific disorders. Here we will examine decision making among individuals with addictions, eating disorders, aggressive behavior problems, and neurological illnesses.

88-284 Topics of Law: The Bill of Rights
Spring: 9 units
This course examines the history and place of the Bill of Rights in our nation's constitutional framework. It focuses on the historical origins of the U.S. Constitution, of each of the first ten amendments to the Constitution (that we refer to as the "Bill of Rights"), how the meanings and interpretations of these have evolved over time, and what they mean to us today. Each article of the Bill of Rights will be examined in terms of its original intentions, and then through cases that have challenged and been interpreted through the Bill's articles.

88-302 Behavioral Decision Making
Fall: 9 units
Behavioral decision making is the study of how people make decisions, in terms that can eventually help them to make better decisions. It involves information gathering, creative thinking, intuition, and skilled judgment. The course will begin with economic theories of the firm. An important underlying question concerns how various organizational forms motivate, or fail to motivate, employees. The central concepts will be fleshed out by examining business firms, as well as not-for-profit enterprises, political parties, and government agencies.

88-309 Judicial Politics & Behavior
Fall: 9 units
This course is a survey of research and insight into one of the most unique American government institutions: the judiciary. Rather than exclusively reading case law (as one would do in a Constitutional Law class), this course explores the court structure, rules of law and, most importantly, judges as actors within an institutional setting. We will focus on how rules, norms, and expectations guide the decisions, actions, and range of options available to judges. Here we will study the nature of judicial decision-making and its antecedents, the organization of the judicial branch and its implications for behavior, and the strategic interactions both within courts and between the courts and the more "political" branches of government. The course will look at state and federal courts within the United States, supplemented with examples from international jurisdictions. Material from law, history, economics, political science, sociology, and psychology will be introduced throughout the semester. Although some of the literature uses empirical and/or game theoretical models, students are not expected to have mastered these tools prior to taking the course.

88-310 International Political Economy and Organizations
Intermittent: 9 units
This course is an introduction to basic tools of modern political economy such as game theory and hypothesis testing and their applications to study international politics. This course will familiarize students with these theoretical approaches and will demonstrate how we can use them to address contemporary policy questions. We will analyze, for example, how various factors such as the interaction between the state and market, interest groups, and domestic institutions affect trade policies. We will also analyze the roles of international organizations such as the World Trade Organization and the International Court of Justice in the state of "anarchy".

88-316 Game Theory
Intermittent: 9 units
Game theory is the branch of decision theory in which decision problems interact. Due to its flexibility and strategic nature, game theory is used heavily in other academic areas such as economics, political science, biology, and even competitive sports. This course will cover those parts of game theory of special interest to social scientists. We will discuss specific elements of the formal theory of games as well as experimental results. Throughout the course we will examine applications of game theory problems across the social sciences.
88-320 Domestic Politics and International Affairs
Intermittent: 9 units
This course will provide students with a broad overview of the recent development in the literature of international relations, focusing on domestic determinants as well as consequences of foreign affairs. We will explore issues in both international security and cooperation. Specific topics include war, regime promotion, foreign aid, trade, and international treaties/organization. Rather than looking at international system at a macro level, this course aims to investigate the causes and consequences of foreign policies that have roots in domestic political institutions. For example, how does domestic politics constrain or encourage leaders to go to war, sign a trade pact, and send foreign aid? How can citizens incentivize policymakers to achieve desirable foreign policy goals? How do international affairs such as trade, foreign aid, and promotion of democracy affect our lives in a long-run? Do certain foreign policies affect citizens of a democracy and an autocracy differently, and if so, why?

88-326 Theories of International Relations
Fall: 9 units
This course has three major dimensions. Assumptions and propositions of the leading theories of international relations will be reviewed. This course also seeks to ensure that students clearly understand how newer theoretical approaches to the study of international relations build upon or depart from classical theories. Finally, theories will be tested against the historical record by examining major policy decisions and events such as the Cuban missile crisis, the Vietnam War, the Soviet invasion of Afghanistan, the Persian Gulf War, and the current war against global terror.

88-336 Autocrats and Democrats
Intermittent: 9 units
The international system is populated by countries with many different types of national governments. A common simplification of the many diverse political systems in the world is to divide them between democratic states and non-democratic states. Non-democratic states are also often further simplified as just “autocracies.” This simplification misses many key institutional differences between democracies and autocracies. Furthermore, and even more dangerously, it causes us to overlook key similarities between these two regime types. In this course we have three aims. First, we unpack what is meant by autocracies: What are the different types of non-democratic regimes out there? Second, we evaluate the strategic incentives faced by all types of autocratic leaders and democratic leaders. Finally, we ask what these differences mean for international relations, for democracy-building, and for the future of the organization of national governments. If some of the roots of conflict come from misunderstandings between autocracies and democracies, perhaps a better understanding will contribute to heightened international cooperation, not conflict. An additional goal throughout the course is to build student familiarity with the different sectors: We often think of them as dangerous, as unfriendly, or as deeply foreign, simply because we do not understand them or know much about them.

88-343 Economics of Technological Change
Intermittent: 9 units
This course will consider the determination of innovative activity and performance, and the effect of innovation on productivity, economic growth, and social welfare. We will focus particularly on the characteristics of markets and firms that influence industrial innovation. Such characteristics include, for example, market concentration, firm size, the strength of patent protection, and the vitality of the basic science and technology underlying innovation in a given industry. We will also study the economics of the adoption and diffusion of innovation. In addition to drawing on economic theory, the course will emphasize empirical studies of innovation and technological change, and will selectively exploit case study and institutional studies.

Prerequisites: 73-250 or 73-251 or 88-220.

88-345 Perspectives on Industrial Research and Development
Intermittent: 9 units
In this course students will study the historical, political and economic factors that have shaped the research and development activities of major industrial laboratories in the USA and Europe. Students will learn about the historical background of R&D laboratories, and how they have evolved over time. They will also gain an understanding of the role of government in R&D, as well as the impact of R&D on society.

Prerequisites: 88-320 Domestic Politics and International Affairs.

88-347 Complex Technological Systems: Past, Present, and Future
Intermittent: 9 units
The Internet is only the latest example of a complex technological system. Other examples include transportation systems such as the railroad and mass-produced automobiles running on paved roads and superhighways to networked information systems including the telegraph, the telephone, and radio and television. What are the common features of these complex technological systems? When do they emerge? How are national and international standards for these systems established? How far reaching are the consequences of these systems in society, business, and in other complex technological systems? Can they be predicted? Can they be controlled? Can such complex technological systems be fully comprehended and modeled? In a world in which many of these systems are interconnected, how vulnerable are current societies (such as those in the West) that depend on them, especially in an age of global terrorism? These are but some of the questions this lecture and discussion course will tackle using cases from the past, the present, and the future.

Prerequisites: 88-320 Domestic Politics and International Affairs.

88-349 War and Peace
Intermittent: 9 units
This course explores the conditions that lead to the initiation, escalation, spread, and termination of international conflict as well as the circumstances that promote, preserve, or restore peace. We will explore topics such as balance of power, uncertainty, commitment problems, alliances, arms races, appeasement, and the democratic peace. In addition, we will discuss theories and cases of international mediation and peacekeeping, and evaluate their effectiveness. We will also address the role of the US in promoting international peace. The course emphasizes the application of simple game theoretic models of rational action as tools for assessing relations between nations, coupled with statistical and historical analysis of classes of events. No mathematics beyond high school math is needed for this course.
88-352 Environmental Economics and Policy
Fall: 9 units
The course will introduce students to the economic analysis of problems associated with private and collective use of environmental resources and to the analysis of public policy options to environmental problems. Policy relevant examples will be used throughout the course. When thinking about protecting nature environmental economics has traditionally focused on the idea that market failure (externalities, non rival goods, asymmetric information) is the critical source of economic inefficiency. Based on this idea economists have designed policies for environmental protection, which include Pigouvian taxes, marketable permits, liability rules and mechanisms design. We will start from the theories of externalities, market failure and mechanism design and we shall explore the causes of these problems and some of the potential remedies using the competing/complementary lenses of traditional and behavioral economics. To organise and evaluate alternative environmental policy options environmental economics has traditionally used rational choice theory. According to rational choice theory, people respond to policy instruments in their own self-interests and take all possible consequences into account. Behavioral economics has emerged to challenge this traditional view by documenting how people make choices and state values that deviate from the conventional rationality model. We will try to understand the behavioral economics underpinnings of environmental policy and how understanding the success and failure of conventional economic theory can help make good environmental policy better.
Prerequisites: 73-150 or 88-220.

88-355 Social Brains: Neural Bases of Social Perception and Cognition
Intermittent: 9 units
By some accounts, the large expansion of the human brain evolved due to the complex demands of dealing with social others?competing or cooperating with them, deceiving or empathizing with them, understanding or misjudging them. This discussion-based seminar surveys the emerging field of social cognitive neuroscience and its multi-level approach to understanding the brain in its social context. We will review current theories and methods guiding the field and recent research examining the neural bases of social processes, including: theory of mind, empathy, emotion, morality, among others. We will also discuss broader questions that apply to the specific topics that the course covers, including: What are appropriate levels of description for the target phenomena? How can different disciplines in neuroscience and the social sciences contribute to social neuroscience research? What can we learn from animals? behavior about human social cognition? Do neural systems exist that are specialized for social cognition, or do the systems that participate in social cognition have more general cognitive functions?
Prerequisites: 85-310 or 85-340 or 85-355 or 88-251.

88-360 Behavioral Economics
Intermittent: 9 units
This course introduces students to behavioral economics, an emerging subfield of economics that incorporates insights from psychology and other social sciences into economics. We will examine evidence on how human behavior systematically departs from the standard assumptions of economics, and then investigate attempts by behavioral economists to improve economic analysis and policy. We will first document and review the underlying theory for three conceptual departures from the standard model -non-standard preferences (e.g., present-bias, reference dependence), non-standard beliefs (e.g., overconfidence, gambler’s fallacy), and non-standard decision-making (e.g., heuristics, emotions, framing effects)-and then quickly move to assess the evidence for these claims in field settings. We will additionally explore how markets respond to behavioral biases, and discuss recent research in behavioral policy with an emphasis on policies aimed at increasing savings, improving food choice, and heightening program take-up and compliance. The course will be paper-centric and we will review a variety of popular empirical methods from field experiments to quasi-experimental approaches (e.g., estimation through regression-based panel analyses, difference-in-differences, and instrumental variables). Student evaluation will be based on performance on problem sets, an exam, as well as a short class presentation of an empirical paper of choice.
Prerequisite: 36-202.

88-361 Entrepreneurship, Regulation and Technological Change
Intermittent: 9 units
There is a growing interest in understanding the interrelationships between regulatory institutions and innovations. Certainly, opportunities for innovative activities take place in the context of the extant public policy institutions (e.g., entry restrictions in telecommunications, environmental performance standards, intellectual property protections). Consequently, entrepreneurial activity plays a key role in identifying and exploiting these opportunities. In this course, we examine the role that entrepreneurs play in the interrelationships between regulation and technological change. The objectives are to develop and articulate an understanding of the theory, nature, and role of entrepreneurship in the American economy; the theory, nature, and role of regulation in the American economy; and the theory, nature, and role of the dynamic interaction of entrepreneurship and regulation in the American economy. Students will evaluate historical cases in which new or changing regulation presents opportunity for entrepreneurial entry in business, as well as historical cases in which entrepreneur activity (in the form of innovation) presents new needs or opportunities for regulation, thereby presenting-or constraining-further opportunities for entry. The course is broken into a series of blocks, and each week there will be a set of readings posted on Blackboard. Blackboard will be used to facilitate communication, including announcements, readings, lectures, and assignments.
Prerequisites: 73-150 or 79-300 or 88-202 or 88-220.

88-378 International Economics
Intermittent: 9 units
This course analyses the causes and effects of commercial and financial transactions between nations and the major policy issues raised by these transactions. The first half focuses on international trade and commercial policy using the tools of microeconomic analysis. The second half deals with balance of payments and exchange rate issues with emphasis on problems of macroeconomic policy in open economies.

88-380 Grand Strategy in the United States
All Semesters: 9 units
88-384 Conflict and Conflict Resolution in International Relations
Intermittent: 9 units
Course will introduce students to concepts of conflict, conflict resolution, and peace in international relations. Causes of war, alliances, and role of non-state actors in conflict will be examined. There will be also discussion on foreign policy decision making, mediation, negotiation and international law. The following specific cases will be discussed the Middle East Peace Process (Security Council Resolution 242, Camp David, Oslo Agreement and Geneva Accord); Indo-Pakistan dispute (Lahore Declaration 1999); War in Bosnia and Herzegovina and the Dayton Peace Accords; El Salvador Peace Agreement (between the Government of El Salvador and the Frente Farabundo Marti para la Liberacion Nacional); and the Algiers Agreement between Eritrea and Ethiopia. Globalization, terrorism, and conflict resolution will also be covered.

88-385 Managerial Decision Making
Fall: 9 units
People in organizations make decisions, with important consequences, every day. Therefore, an understanding of decision-making is important in any education in management or economics. However, while a large number of courses in these curricula expose students to how decisions should be made, very few focus on how people actually make choices. This course addresses this topic by focusing on how decisions made by real people - and in particular decisions in business contexts - differ from the theoretical predictions of rational decision-making. We specifically focus on common areas of biased decision-making, their basis, and how they might be corrected. The focus of the course is on both individual and competitive decision-making.

88-386 Desires and Decisions
Spring: 9 units
This course explores how the desirability of experiences and (consumer and public) goods are determined. Through the lens of psychological research we will explore (1) the construction of preferences, (2) how preferences are affected by factors such as context, adaptation, memory, culture, and emotion, and (3) how to understand how the malleability of our preferences affects our personal decisions, economic markets, the law, and public policy. Class meetings will include a mixture of lecture and discussion, with a stronger emphasis on discussion. Throughout the course, the emphasis will be on learning to critically evaluate advanced theories and research findings of decision science and psychology, and carefully articulate those critiques orally and in writing. Prerequisite: 88-120.

88-387 Social Norms and Economics
Intermittent: 9 units
Social norms play an important role in individual economic decisions and influence economic decision outcomes. This raises several important questions. What mechanisms are effective in enforcing social norms? To what extent and in what contexts might we expect norm obedience absent external economic incentives? How should we take into account the role of social norms when designing economic institutions? This course discusses experimental research in economics, law and psychology that takes steps towards answering these and other related questions.

88-388 Psychological Models of Decision Making
Intermittent: 9 units
This course provides an introduction to several techniques and theories for modeling psychological processes and decision making. The topics covered include: signal detection theory, individual decision modeling, and multidimensional scaling. The course will include an introduction to the theory behind the models as well as “hands on” computational applications of the models with data. The topics covered in this course can be used in a variety of applied settings-ranging from medical and public policy to marketing and psychological research-to produce simplified representations of seemingly complex phenomena. Prerequisites: 36-201 and (21-112 or 21-120).

88-389 Terrorism and Insurgency
Intermittent: 9 units
This course offers an introduction to the study of terrorism and insurgency, and governmental policies to counter these forms of domestic political violence. We will read and discuss recent leading academic and policy research that addresses questions such as what are the causes of terrorism and insurgency? Who becomes a terrorist or an insurgent? Do terrorists and insurgents achieve their goals? What works and what does not work in counterterrorism and counterinsurgency? The goal of this course is to demonstrate how theoretical and empirical approaches in social sciences can be used to answer questions about terrorism and insurgency. In addition, the course is designed to help students critically evaluate the arguments in the literature, and to be able to engage debates about these issues in informed way.

88-391 Technology and Economic Growth
Fall: 9 units
The importance of economic growth is difficult to overstate. The more than tenfold increase in income in the United States over the last century is the result of economic growth. So is the fact that incomes in the United States and Western Europe are at least thirty times greater than incomes in much of Sub-Saharan Africa. Economic research has clearly identified technological innovation as the engine of long-run economic growth. This course seeks to provide students with analytical frameworks that will enable them to understand the economic growth process, the role that technological innovation plays in that process, and the policies and institutions that can enhance and sustain technological innovation in industrialized societies.

88-393 Legislative Decision-Making: U.S. Congress
Intermittent: 9 units
This course analyzes decision-making by the United States Congress. The course examines legislative behavior by focusing on the way Congress is organized (institutional and constitutional structure) and the ways legislators, voters, and various other parties interact (strategic constraints). Students will both learn the legislative process and explore the influence of norms, rules, expectations, incentives and, perhaps most important of all, the power of the electorate in influencing legislative outcomes and policy. Elections, voting decisions, committee assignments, political party power, and intra-branch relations across the Federal government are some of the topics into which we will delve. This course does not require any prior knowledge of the U.S. Congress, and there are no prerequisites for the course.

88-398 Independent Study
Fall and Spring
Students conduct independent academic study under the supervision of a Social Decision Sciences faculty member. Students who wish to engage in an independent study should seek out a faculty member whose interests are appropriate to the topic. Students must also complete an “Independent Study/Research for Credit” form, available from the SDS Coordinator of Student Programs in Porter 208A. Prerequisite: Permission of a faculty sponsor.

88-399 Undergraduate Research
Fall and Spring
Students conduct research under the supervision of a Social Decision Sciences faculty member. Students who wish to engage in research should seek out a faculty member whose interests are appropriate to the research. Prerequisite: Students must also complete an “Independent Study/Research for Credit” form, available from the SDS Coordinator of Student Programs in Porter 208A. Permission of a faculty sponsor.

88-402 Modeling Complex Social Systems
9 units
Many of the biggest challenges facing modern societies—maintaining global political and financial stability, protecting against terrorist acts, cooperating to solve collective problems such as climate change or corruption—are complex. They are not simply complicated; they arise as interacting agents create various feedbacks that result in, often unintentional, emergent phenomena. Confronting these challenges requires an understanding of the properties of complex systems. In this course, we will provide an overview of complex systems theory and concepts. You will learn the fundamental properties of complex adaptive systems and how to apply these insights to a variety of key social science problems. We will introduce and analyze computational and mathematical models, as well as qualitative models, so you should have some familiarity with basic probability and algebra. We will explore topics such as inequality, networks, information spread, community formation, the evolution of cooperation, and the stabilization of financial markets. We will cross traditional disciplinary boundaries and venture into economics, political science, sociology, finance, cognitive science, computer science, physics, statistics, and mathematics as needed. Students will be expected to think critically about how to apply modeling insights to the real world, taking account of the social, political, and economic implications of proposed policies. They will express their ideas in class discussions, presentations, and written reports. The course will culminate with students engaging in a research project to model a complex social system of their choice. Prerequisites: 36-201 or 36-207 or 36-217 or 36-220 or 36-225 or 36-247 or 70-207.
88-403 Network and Social Systems
Intermittent: 9 units
Modern societies are structured and highly connected systems. The necessity to cope with major phenomena like disease spread, terrorism, organized crime and financial crisis, requires understanding of the fundamental properties of complex (social) networks. In this course, we will first provide an overview of the theory of networks. We will then focus our attention on networks in social sciences and, in particular, on the nature of social links, as the perception of the nature of a social connection may be subjective to some extent. We will learn the basic structural and dynamical properties of networks, and how to apply these concepts to real social systems. We will investigate, starting from real data, the structure of several social networks including phone call and email networks, friendship networks, financial networks, trading networks, and crime networks. We will also explore the dynamics of processes occurring on networks, such as disease spread and market contagion, and macroscopic phenomena related to these processes, including information cascades and herding. Students will be expected to think critically about concepts, models and empirical evidences presented in class. They will also be expected to apply concepts and data analysis tools to real world networks.

88-404 Economics of Networks and Information
Intermittent: 9 units
Networks and information play a major role in the rise of the digital economy, and they are challenging the economic theory. Information goods are anything that can be digitized. They stem from many industries, from media to creative industries, as well as finance or scientific research. Then, the diffusion and commercialization of information goods rely heavily upon network infrastructures, both technological and social. Hence, information (as software or fluid) and networks (as hardware or pipe) have interdependent economic properties that must be understood jointly to carry out the right economic strategies and policies. In this course, we will study these properties via three perspectives. First, from a user perspective, we analyze what makes the value of information and networks. Second, from a policy maker perspective, we study the various options available to ensure constant innovations and a fair competition. Third, from a firm perspective, we observe how the networked information economy influences innovation and production processes. After this course, you will be able to express a well-reasoned view on questions such as: why is it a battle over smartphone patents? What are the answers to the Internet piracy of creative contents? What are the benefits of open source development? Prerequisites: 73-100 or 88-220.

88-405 Risk Perception and Communication
9 units
Throughout their lives, people make decisions about risks that may potentially affect their health, safety, finances, use of technology, and effects on the environment. This course will review the risk perception and communication literature, focusing on theoretical and methodological issues as well as practical implications for educators, public health officials, engineers, economists, and other experts who aim to teach people about risks. We will discuss how to design surveys to increase our understanding of the problems people face when making decisions about specific risks, and how to design communication materials that help people to improve their decisions. We will highlight examples and applications taken from multiple disciplines, including health psychology, adolescent decision making, environmental science, and engineering. Prerequisites: 36-201 or 36-207 or 36-217 or 36-220 or 36-225 or 36-247 or 70-207.

88-407 Health Risk Communication
9 units
This course will cover the relationship between risk perception and health behavior, focusing on how to effect behavior change through communication. The course will begin by exploring how people make decisions about their health, with an emphasis on how we as researchers can learn what factors affect such decisions. We will then turn to the question of how to change unhealthy behaviors by helping to improve this decision making. Finally, the course will cover strategies for evaluating these techniques, to determine whether they have been effective. Throughout the semester, students will conduct a multi-stage research project, beginning by assessing people’s decisions on a health topic of their choice and ending with the creation and production of a health communication intervention and a plan for its evaluation. Readings will consist primarily of original journal articles describing research and reviews, which students will be expected to read prior to class for discussion. Grading will be based on mid-term and final papers describing the research project and on short assignments throughout the semester relating to class readings. This course is aimed at students with a background in Decision Science, Psychology, or related fields. A course on research methods or experimental design is recommended. However, the topic may also be of interest to those studying health or design, and students in these fields are welcome.

88-408 Attitudes the Media and Conflict in International Relations
9 units
This course examines the sources of political attitudes, the effect of the media on attitudes, how both interact to influence international conflict, with some attention also to civil war, terrorism, other forms of violence. The first half of the course considers attitude formation the media, the second half focuses on conflict. Specifically, we begin by considering different social science perspectives on attitude formation, drawing from research in behavioral economics, public opinion, decision science, political psychology. We then consider the effect of the media on attitudes, the incentives facing leaders of democracies and non-democracies to manipulate the media. Here, we draw primarily from research in comparative politics IR, but we also cover information science systems thinking about the spread of ideas. Finally, we consider the effect of attitudes on conflict by examining theories of IR conflict at multiple levels of analysis: from intra-group conflict, to the relationship between domestic politics IR, to the “first image” in IR, and to theories of cooperation under anarchy. Throughout, the diverse collection of social science theories will be both illustrated by critically evaluated through the consideration of contemporary and historical issues, including the rise of China, energy security, human security, inter-ethnic conflict. Students will leave the class with a deeper understanding of the relationship between ideas conflict, how the media affects political outcomes, the diversity of causes consequences of international conflict. Students will be expected to think critically about the theories and arguments presented they should not simply accept them at face value; rather, students should come prepared to discuss and question the assumptions, relevance, and explanatory power of various ideas presented.

Spring: 9 units
In the early years of the 21st Century, nations are more economically integrated than at any other point in human history. This presents business leaders and consumers with unprecedented opportunities and challenges. This course seeks to equip future business leaders to exploit these opportunities and cope with these challenges. The course will accomplish that goal by providing students with a systematic understanding of the fundamental aspects of the global business environment that influence business decisions and behavior. Managers must understand the structural economic factors that determine locational advantages, the way government policies both promote and restrain the integration of national economies with the global economy, and the impact of volatility in the global macroeconomic environment on international business strategy. These issues will be studied using the analytical tools and concepts of international economics, and case studies will be used to relate these concepts to actual business problems. We will also invite international business managers to share their practical experience and insight at several points over the course of the semester. Prerequisites: 73-100 or 88-220.
88-411 The Rise of the Asian Economies
Spring: 9 units
For most of the past quarter century, no region of the world has been more economically dynamic than Asia. This course is designed to provide students with the essential knowledge necessary to evaluate opportunities and risks in Asia. The course will use analytical tools drawn from economics and finance, business cases, and guest lectures to focus on the key strengths that sustained economic growth in East Asia for decades, the weaknesses that undermined that growth in the late 1990s, and what lies ahead. The course will also examine Indian economic growth since the early 1980s, and compare India’s experience with that of the East Asian economies. A special focus will be placed on recent developments in India and China and the prospects for continued growth in those countries over the next decade. Prerequisites: 73-100 or 73-150 or 88-220.

88-412 Energy, Climate Change, and Economic Growth in the 21st Century
Spring: 9 units
The scientific community has concluded that human industrial activities are causing global temperatures to increase. Coping with the environmental, economic, and political consequences of this change is considered by many to be the preeminent public policy challenge of the 21st century. In this course, we will investigate the basic science of climate change, the prospective economic impact of global warming, the uncertainty involved in long-run climate forecasting, and the technological alternatives available to us as we seek to mitigate the impact of human industrial activity on global warming. The heart of this course will be an in-depth analysis of the policy options available to the United States and the global community. We will investigate the economic costs of these options and the way political realities are likely to shape and constrain policy at the national and international levels. Prerequisites: 73-100 or 73-150 or 88-220.

88-413 Energy and Climate: History, Science, Technology, & Policy in the US 1776-2076
Intermittent: 9 units
This course provides CMU students with a historically grounded, technically informed, and policy-centered examination of energy and climate in the United States from the American Revolution to the nation’s tri-centennial, by which time the nation will either have taken the necessary action to avoid massive catastrophes related to global warming or will be destined for—and perhaps already experiencing—a series of vastly catastrophic climate events that visit apocalyptic-like suffering and misery on large segments of the nation. Energy procurement and expenditure in the US and climate change have been surprisingly linked over the nation’s entire. Now is the time for CMU students to understand these relationships historically, technically and scientifically, and politically and geopolitically. The course is structured around the reading and discussion of landmark scholarship on energy and climate woven together by lectures, films, and various unorthodox pedagogical methods.

88-414 International and Subnational Security
9 units
The course explores various international and domestic security challenges that contemporary states face. Specifically, the course will survey the most recent research in political science that addresses the questions of why states choose to enter violent conflicts as opposed to settling disputes peacefully, how states may improve their security in the international arena, and how states may improve their security in the domestic environment. We will focus in depth on the bargaining explanations for war, democratic/ regime similarity/capitalist peace, deterrence, interdependence, insurgency, and terrorism. The course draws heavily upon research that employs game theoretic and computational models to develop logical arguments about political events and statistical analysis to test whether empirical reality follows the outlined theoretical predictions. The course will provide solid training in graphical literacy. Students will evaluate table-form output from statistical analysis, interpret graphical output, and receive a notion of game theoretic and computational models.

88-415 Global Competitiveness: Firms, Nations, and Technological Change
9 units
This course introduces students to the fundamental principles surrounding global competitiveness and technological change in the 21st century. The past twenty years have seen dramatic changes in innovation ecosystems in the U.S. and internationally. Alone within the U.S., there has been a sharp decline in corporate RD labs, matched by the global fragmentation of firm activities. At the same time growing linkages have been observed across institutional firms, government labs, and universities and national borders. These changes raise critical questions about the new rules of the game driving technological change in the 21st century. This course sheds insights into these questions through the lenses of competing economic, sociological, and political science theories on the structures supporting technological change. The course is broken into three sections. The first section introduces students to theories of the firm, bureaucracy, institutional economics, and social networks as competing frameworks within which to understand technological change. The second section presents the contemporary literature on the technological change, including creative destruction, dominate designs, industry life cycles, and networks of innovators. The concluding section leverages lessons from the preceding two sections to evaluate national innovation systems, and the factors that lead to national comparative advantage. Students should leave the class able to reflect competently on what the existing literature tells us about the factors influencing global technology competitiveness, and on how modern changes in the structures supporting innovation as well as technology itself may be changing the rules of the game for firms and for nations. The course is open to seniors, also to juniors with instructor permission.

88-416 Democracies and War
9 units
This course will explore the role of domestic politics in international conflict and examine the effect of regime type on warfare. In particular, the course will focus on the Democratic Peace and why democracies tend to win the wars they enter. We will discuss a variety of explanations for the Democratic Peace, that is, the tendency of democratic states to avoid war with each other. We will also discuss whether democratic states select wars more carefully, the incentives of democratic leaders when engaging in war, and whether democratic democratic structures provide states with war-fighting advantages with respect to military organization and soldier initiative.

Course Website: http://88441

88-419 Negotiation
9 units
Negotiation is a process in which two or more parties undertake a process to resolve conflicting interests. Decision makers use negotiation in a variety of circumstances to reach agreements among countries, among employers and employees, among firms, and among family and friends. There are two different sections of this course (students are not permitted to take both): Domestic section: The objective of this course is to understand the process of negotiations and how the structure of the negotiation environment affects the outcomes achieved. Students will learn to analyze the features of the negotiation environment, develop an understanding of effective negotiation strategies, and identify the barriers to reaching wise agreements. This course will focus on negotiations in a wide variety of context: public policy negotiations, business negotiations, and interpersonal negotiations. International section: The objective of this course is to understand the process of negotiations and how the structure of the negotiation environment affects the outcomes achieved. Students will learn to analyze the features of the negotiation environment, develop an understanding of effective negotiation strategies, and identify the barriers to reaching wise agreements. This course will focus on negotiations in primarily international contexts.

88-421 Emotion: Physiology, Neurobiology, Expression, and Decision Making
Intermittent: 9 units
This course examines advanced topics in emotion from a psychological perspective. Emotions are thought to relate to numerous response channels including physiology, neurobiology and expression (facial and vocal), and each of these components and their relationships will be examined. Class will center around discussion of primary sources. Prerequisites: 85-211 or 88-120.
88-423 Institutions, Entrepreneurship, and Innovation
Spring: 9 units
Institutional environment and public policy greatly affect incentives determining the direction of entrepreneurial activity and innovation that are the engines of economic growth. In societies with poor institutions, entrepreneurial talent is mostly directed towards seeking rents rather than generating productive innovations. But even in modern capitalist economies entrepreneurial activity and innovation are strongly influenced by public policies, for example, those related to intellectual property rights. This course seeks to provide students with analytical frameworks that will enable them to understand how various formal and informal institutional arrangements and public policy decisions influence entrepreneurial activity and innovation and how this, in its turn, affects economic efficiency and growth potential of nations.

88-424 Decision Theory and Rational Choice
Intermittent: 9 units
Introduction to the concept of rational choice and its relevance (benefits and limitations) as a tool to analyze different decision problems. Judgment and analysis of decisions by presenting a contrast between the rational choice model from economics and many documented biases and mistakes that can depart from the aforementioned rational model. Topics include rational preferences and optimal choice, judgment and choice biases, mistakes in analyzing statistical data, and basic theories of decision-making under risk and uncertainty.
Prerequisites: 21-112 or 21-120.

88-432 International Policy Decision Modeling Workshop
Intermittent: 9 units
Creating and “exercising” mathematical analysis in ways that inform policy and decision making is an art. One can acquire some relevant skills by taking “methods” classes or by reading and discussing case studies describing others’ models, but true mastery comes only with practice, notably practice starting with a blank sheet of paper and creating one’s own analysis from scratch. This course offers students the chance to practice that art in a “high-feedback” environment. The primary goal is to improve modeling judgment (e.g., good sense about what should be included or excluded from a model or analysis), creativity (practice creating models from whole cloth), and strategy (weaving analytical insights into a coherent decision-relevant “story”). Students will also be taught some basic analytical frameworks and techniques applied to real world policy analysis problems in the international trade and investment policy domain. Using these skills, students will undertake policy analysis projects for U.S. federal government trade policy agencies, potentially including the United States Trade Representative. The instructor, Lee Branstetter, will draw upon his own policy experience in teaching the course and leading student policy analysis. From August 2011-July 2012, Professor Branstetter served as the Senior Economist for International Trade and Investment Issues on President Barack Obama’s Council of Economic Advisers.

88-435 Analysis of Uncertain Social Systems
Intermittent: 9 units
Research in the social sciences has extensively investigated how decision makers behave when they encounter many different and difficult decision scenarios. This course serves as an introduction to how relevant research fields (e.g., decision and social sciences can be applied to complex environments such as those encountered by governments (intelligence and policy analysts) and private industry (business strategists and information officers). Topics of operations research, game theory, signal detection theory, and decision theory (heuristics and biases) will be discussed with respect to the application of these theories to improve the performance of individuals and groups within a complex social system.

88-442 Decision Science in Intergroup Conflict
All Semesters: 9 units
A conventional course on decision science tackles the biases and heuristics that affect individual decision-making. This course will highlight biases and heuristics in an intergroup rather than individual context, and in times of uncertainty or insecurity (e.g. conflict) rather than times of stability. Themes to be covered include: intergroup identities, perceptions, emotions, attributions, empathy, moral judgments, sacred values and parochial attachments. The course will draw on a variety of scientific methods (e.g. field lab experiments, fMRI, and psychophysiology) and disciplinary approaches (e.g. decision science, anthropology, social/cognitive/cultural psychology, and political science). Emphasis will be placed on understanding the relevance of research findings for everyday life.

88-444 Public Policy and Regulation
Intermittent: 9 units
Regulations are a significant policy tool of government. How society and the economy will react to new regulations can be hard to predict. Unintended side effects sometimes occur resulting in costs exceeding estimates and/ or benefits never being realized. This course will review the basics of regulatory policy and using historical examples, will explore the reasons why past regulations have succeeded and failed. The second half of the course will involve 2-3 detailed case studies. Quantitative methods will be used to evaluate several pending regulations for real-world clients from both government and industry perspectives.

88-450 IRP Capstone Policy Forum
Fall and Spring
International Relations and Politics Capstone Policy Forum.

88-451 Policy Analysis Senior Project
Spring: 12 units
Students in this course apply the research and analytical methods learned in their other courses to a real-world problem. Students decide how to structure the problem, divide into teams responsible for its different parts, identify and analyze relevant literature, collect data, synthesize their results, and present their conclusions in oral and written form to a review panel of individuals concerned with the problem. Faculty members help them along the way. Performance is based on students’ contribution to the process and substance of the class, as observed by the faculty and by their fellow students. One or two such projects is offered every term. A complete list of previous topics is available from the department. Course is open only to seniors in SDS.

88-452 Policy Analysis Senior Project
Fall: 12 units
Students in this course apply the research and analytical methods learned in their other courses to a real-world problem. Students decide how to structure the problem, divide into teams responsible for its different parts, identify and analyze relevant literature, collect data, synthesize their results, and present their conclusions in oral and written form to a review panel of individuals concerned with the problem. Faculty members help them along the way. Performance is based on students’ contribution to the process and substance of the class, as observed by the faculty and by their fellow students. One or two such projects is offered every term. A complete list of previous topics is available from the department. Course is open only to seniors in SDS.

88-499 Advanced Undergraduate Research
Fall and Spring
Students conduct research at an advanced level under the supervision of a Social Decision Sciences faculty member. Students who wish to engage in advanced research should seek out a faculty member whose interests are appropriate to the research. Students must also complete an “Independent Study/Research for Credit” form, available from the SDS Coordinator of Student Programs in Porter 208A. Prerequisite: Permission of a faculty sponsor.

88-505 Undergraduate Internship
All Semesters
An internship is an approved and monitored work experience than can be related to an academic field of study through active reflection and specific learning goals. Students must work at least 10 hours per week for the semester at the internship. Additionally, students will also keep in regular contact with a faculty member in Social and Decision Sciences, who will assign and evaluate academic work. Internships are available for 3, 6, or 9 units, depending on the type and amount of academic work produced. Students are responsible for finding their own internships and faculty sponsors, although assistance is available in the department.

88-506 Undergraduate Internship
All Semesters
An internship is an approved and monitored work experience than can be related to an academic field of study through active reflection and specific learning goals. Students must work at least 10 hours per week for the semester at the internship. Additionally, students will also keep in regular contact with a faculty member in Social and Decision Sciences, who will assign and evaluate academic work. Internships are available for 3, 6, or 9 units, depending on the type and amount of academic work produced. Students are responsible for finding their own internships and faculty sponsors, although assistance is available in the department.