

Department of Social and Decision Sciences

Location: Porter Hall 208

www.cmu.edu/dietrich/sds (<http://www.cmu.edu/dietrich/sds/>)

The Department of Social and Decision Sciences is a multidisciplinary department that offers undergraduate programs that focus on decision making using a broad set of social science approaches. Theoretical and empirical work is seamlessly combined with the practical skills needed to excel in key decision making roles in the public, private, and non-profit sectors and in advanced graduate studies. Our students learn how to combine standards of rationality with the realities of human and organizational behavior and to apply these lessons across a wide variety of endeavors, ranging from government service to leadership positions consulting, marketing, data science, and other sectors.

The department offers undergraduate majors in Behavioral Economics, in Decision Science, and in Policy and Management. Each major includes a distinct set of required and elective courses. Course offerings leverage faculty strength in behavioral decision making, behavioral economics, and behavioral science approaches to public policy to produce a unique curriculum.

Our faculty is committed to the academic success and growth of our students and many of our undergraduates work with faculty on research projects and internships. The faculty director and advisors of the majors are easily accessible and encourage students to talk with them about the curriculum, progress, and available opportunities. Our academic advisors are committed to working with each individual student to help them create, clarify, and meet their goals.

The Department of Social and Decision Sciences has long been recognized as a global nexus of decision science expertise, offering undergraduate programs that are available at few other universities. Our cohesive majors combine theory and practice allowing our graduates to excel in a range of professions or in the pursuit of advanced studies.

The Major in Behavioral Economics

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The field of Behavioral Economics (BE) integrates perspectives from Economics and Psychology to better understand how people make consequential decisions and to leverage this understanding to improve the design of the policies, programs, and institutions that govern such behavior. The last decade has witnessed an explosion of interest in BE among governments and organizations, around the world, including here in the United States. On the policy front, this has led to the formation of government “nudge” units charged with applying BE principles to policy areas such as education, criminal justice, taxation, social benefit programs, consumer protection, and unemployment. Organizations have also aggressively sought to apply BE to encourage employee productivity, improve employee health and financial wellness, reshape managerial and hiring decisions, and to better understand and engage consumers.

The faculty in the Department of Social and Decision Sciences (SDS) has long stood at the forefront of research and teaching in BE. Our faculty has developed a reputation for working closely with governments and firms to help apply BE to address a range of issues such as predatory lending and consumer protection, bias among institutional investors, employee reward and incentive programs, behavioral barriers to retirement savings, participation in social service programs, medical adherence, pre-trial detainment of defendants, and gender and racial inequality in the workplace.

The new major of BE-- the first of its kind among US undergraduate institutions--was designed to rigorously train students in the field of Behavioral Economics and to encourage them to critically consider its relevance to policy and organizations. The major emphasizes both theory and the practical promise of BE to solve problems of importance to policy makers and organizations through the largest undergraduate selection of BE courses of any university in the world. Towards this end, students will learn to collect original data, design field and laboratory experiments, analyze data and draw causal inferences, and develop interventions to improve economic outcomes and decisions. The core requirements include

courses in Economics, Psychology, Behavioral Economics, and quantitative methods- including experimental design and econometrics. Students who complete the major will be well positioned to enter the private sector in a role involving data or people analytics, marketing, corporate strategy, or human resources, to enter the public sector, or to enter a wide range of graduate degree programs.

Prerequisites

All Behavioral Economics majors must complete mathematics and statistics prerequisites (see below), by the end of the sophomore year.

| | | |
|--------------------------|------------------------------------|-------|
| Mathematics Prerequisite | | Units |
| 21-111 | Differential Calculus | 10-20 |
| & 21-112 | and Integral Calculus | |
| or 21-120 | Differential and Integral Calculus | |
| Statistics Prerequisite | | Units |
| 36-200 | Reasoning with Data | 9 |

Curriculum

The core curriculum in Behavioral Economics consists of three Behavioral Economics courses, two Economic courses, two Psychology courses, three quantitative courses, and one project course.

| | | |
|------------------------------|---|-----------|
| Behavioral Economics Courses | | Units |
| 88-360 | Behavioral Economics | 9 |
| 88-365 | Behavioral Economics and Public Policy | 9 |
| 88-367 | Behavioral Economics & Field Experiments in Organizations | 9 |
| | | 27 |

| | | |
|--------------------------------|---|-----------|
| Economics Courses | | Units |
| 73-102 | Principles of Microeconomics | 9 |
| or 73-104 | Principles of Microeconomics Accelerated | |
| Second-Level Economics Course* | | |
| 88-221 | Markets, Democracy, and Public Policy | 9 |
| or 73-103 | Principles of Macroeconomics | |
| or 73-155 | Models, Math, and Markets | |
| or 73-230 | Intermediate Microeconomics | |
| or 73-328 | Health Economics | |
| or 73-347 | Game Theory Applications for Economics and Business | |
| or 73-359 | Benefit-Cost Analysis | |
| or 73-408 | Law and Economics | |
| or 73-421 | Emerging Markets | |
| or 73-427 | Sustainability, Energy, and Environmental Economics | |
| | | 18 |

* Second-Level Economics course CANNOT double count with the Economics Elective course.

| | | |
|---------------------|----------------------------------|-----------|
| Psychology Courses* | | Units |
| 88-120 | Reason, Passion and Cognition ** | 9 |
| 88-130 | Behavioral Economics for Life | 9 |
| or 88-302 | Behavioral Decision Making | |
| | | 18 |

* Students can elect to take **88-120 Reason, Passion and Cognition** & **88-130 Behavioral Economics for Life** OR **88-120 Reason, Passion and Cognition** & **88-302 Behavioral Decision Making**.

PLEASE NOTE: Students who have completed **88-302 Behavioral Decision Making** OR **88-360 Behavioral Economics** cannot take **88-130 Behavioral Economics for Life**.

** 88-120 Should be taken in the first or sophomore year.

| | | |
|------------------------------|---------------------------------------|-------|
| Quantitative Methods Courses | | Units |
| 36-202 | Methods for Statistics & Data Science | 9 |
| 88-251 | Empirical Research Methods | 9 |

| | | |
|-----------------------|--|-----------|
| 88-252 | Causal Inference: from Data to Decisions | 9 |
| or 73-274 | Econometrics I | |
| | | 27 |
| Senior Project Course | | Units |
| 88-453 | Behavioral Economics Capstone | 9 |
| | | 9 |

ELECTIVES 27 units

Complete at least 27 units from the following categories. Students MUST take one elective from the Economics category, and another from the Behavioral Economics category. The third elective may be chosen from either the Behavioral Economics or Psychology categories. Note that not all elective courses are offered every year.

| Economics* | | Units |
|-----------------|---|-------|
| 88-323 & 88-324 | Policy in a Global Economy 1: International Trade and Trade Policy and Policy in a Global Economy 2: International Trade and Trade Policy | 12 |
| 88-344 | Systems Analysis: Environmental Policy | 9 |
| 73-103 | Principles of Macroeconomics | 9 |
| 73-155 | Models, Math, and Markets | 9 |
| 73-230 | Intermediate Microeconomics *** | 9 |
| 73-328 | Health Economics | 12 |
| 73-347 | Game Theory Applications for Economics and Business | 9 |
| 73-359 | Benefit-Cost Analysis | 9 |
| 73-408 | Law and Economics | 9 |
| 73-421 | Emerging Markets **** | 9 |
| 73-427 | Sustainability, Energy, and Environmental Economics | 9 |

- * ANY 73-3XX or 73-4XX courses be counted as an economic elective course. Consult the Academic Advisor for more information about this process. NOTE: The Economics Elective course CANNOT double count with the Second-Level Economics core requirement.
- ** 88-323 and 88-324 must BOTH be taken in order to fulfill the economics requirement.
- *** Requires additional Math beyond 21-112 or 21-120.
- **** 73-421 has a required prerequisite of 73-103 Principles of Macroeconomics, which is NOT a course requirement for the BE major.

| Behavioral Economics | | Units |
|----------------------|---|-------|
| 88-234 | Negotiation: International Focus | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights | 9 |
| 88-255 | Strategic Decision Making | 9 |
| 88-261 | Health Policy and Decision Making | 9 |
| 88-275 | Bubbles: Data Science for Human Minds | 9 |
| 88-300 | Programming and Data Analysis for Social Scientists | 9 |
| 88-348 | Behavioral Finance | 9 |
| 88-366 | Behavioral Economics of Poverty and Development | 9 |

| Psychology | | Units |
|------------|---|-------|
| 88-230 | Human Intelligence and Human Stupidity | 9 |
| 88-231 | Thinking in Person vs. Thinking Online | 9 |
| 88-234 | Negotiation: International Focus | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights | 9 |
| 88-237 | The Happy Cyborg | 9 |
| 88-255 | Strategic Decision Making | 9 |
| 88-261 | Health Policy and Decision Making | 9 |
| 88-262 | Rationality and Irrationality in Medicine | 9 |
| 88-275 | Bubbles: Data Science for Human Minds | 9 |
| 88-285 | Deconstructing and Dismantling Discrimination | 9 |
| 88-290 | Confessions, Lies, and Gossip | 9 |
| 88-300 | Programming and Data Analysis for Social Scientists | 9 |
| 88-312 | Decision Models and Games | 9 |
| 88-348 | Behavioral Finance | 9 |
| 88-366 | Behavioral Economics of Poverty and Development | 9 |
| 70-311 | Organizational Behavior | 9 |

| | | |
|--------|--|---|
| 70-385 | Consumer Behavior * | 9 |
| 70-443 | Digital Marketing and Social Media Strategy | 9 |
| 85-358 | Pro-Social Behavior starting S26, course number is 85-451 | 9 |
| 85-375 | Crosscultural Psychology starting S26, course number is 85-409 | 9 |
| 85-377 | Attitudes and Persuasion starting S26, course number is 85-452 | 9 |
| 85-446 | Psychology of Gender starting S26, course number is 85-457 | 9 |
| 85-450 | Psychology of Prejudice starting S26, 85-450 is Psychology of Prejudice (previous course number was 85350) | 9 |
| 85-454 | Health Psychology | 9 |

* 70-385 has a required prerequisite of 70-381 Marketing 1, which is NOT a course requirement for the BE major.

Note: Some courses have additional prerequisites.

Behavioral Economics, B.S. Sample Curriculum

| First-Year | | Second-Year | |
|---|--|---|--|
| Fall | Spring | Fall | Spring |
| 88-120 Reason, Passion and Cognition* | 36-202 Methods for Statistics & Data Science | 88-251 Empirical Research Methods | 88-252 Causal Inference: from Data to Decisions |
| 21-120 Differential and Integral Calculus | Second-Level Economics Course Pick One (88-221, 73-103, 73-155, 73-230 (requires Math beyond 21-112/21-120), 73-328, 73-347, 73-359, 73-408, 73-421, 73-427) | 88-360 Behavioral Economics | 88-302 Behavioral Decision Making |
| 36-200 Reasoning with Data | Pick One (Grand Challenge Seminar, First Year Writing, Disciplinary Perspectives: Humanities) | 88-365 Behavioral Economics and Public Policy | 88-367 Behavioral Economics & Field Experiments in Organizations |
| 73-102 Principles of Microeconomics Or 73-104 Principles of Microeconomics Accelerated | Pick One (Grand Challenge Seminar, First Year Writing, Disciplinary Perspectives: Humanities) | Gen Ed or Elective | Behavioral Economics Elective |
| Pick One (Grand Challenge Seminar, First Year Writing, Disciplinary Perspectives: Humanities) | Gen Ed or Elective | Gen Ed or Elective | Gen Ed or Elective |

| Third-Year | | Fourth-Year | |
|--------------------|---|--------------------------------------|------------------------------------|
| Fall | Spring | Fall | Spring |
| Economics Elective | Behavioral Economics or Psychology Elective | 88-453 Behavioral Economics Capstone | Elective or Senior Honors Thesis** |
| Gen Ed or Elective | Gen Ed or Elective | Elective | Elective |
| Gen Ed or Elective | Elective | Elective | Elective |
| Elective | Elective | Elective | Elective |
| Elective | Elective | Elective | Elective |

- * Should be taken as the first course in Behavioral Economics major sequence. It is intended for students in their first or second year. It may be taken as late as the junior year.
- ** Senior Honors Thesis may be substituted in the Spring term for 88-453 Behavioral Economics Capstone, which is only offered in the Fall term.

This is presented as a recommended plan for completing major requirements. The major can be completed in as few as two years (not that it must be), but students may not have time for other opportunities such as additional majors or study abroad. Students may declare their major as early as the third week of the spring semester in the first-year. Students who are planning to attend the Washington Semester Program, to study abroad, to apply for the Heinz Accelerated Masters Program, or to pursue an additional major/minor may have a very different curriculum map and

should consult early – and often – with the Behavioral Economics Academic Advisor.

Additional Major

Students who elect Behavioral Economics as an additional major must fulfill all of the requirements of the Behavioral Economics major.

Additional majors cannot count BE electives toward simultaneously fulfilling requirements for another major or minor. Students who are interested in an additional major in Behavioral Economics should consult the Behavioral Economics Academic Advisor for guidance.

Students pursuing Decision Science with an additional major in Behavioral Economics may only count 36-202, 73-102, 88-120, 88-251 and 88-302 toward the completion of both majors.

Students pursuing Policy and Management with an additional major in Behavioral Economics may only count 36-202, 73-102 and 88-251 toward the completion of both majors.

The Major in Decision Science

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 Advises Primary Majors in Decision Science
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The interdisciplinary field of Decision Science seeks to understand and improve the judgment and decision making of individuals, groups, and organizations. Qualified graduates can continue to PhD programs in Decision Science or related fields (e.g., psychology, business), pursue professional degrees (e.g., MBA, MD, JD, MPH), or take professional positions in business, government, consulting, or the non-profit sector. Students work with faculty and the Academic Advisor to tailor their education to their personal needs and interest.

Carnegie Mellon is one of the leading centers for the study of Decision Science - and offers the only undergraduate major that integrates analytical and behavioral approaches to decision making. Our faculty are involved in applying Decision Science in a wide variety of areas, allowing them to share practical experiences with students. These applications include use of decision aids (e.g., effects on cognitive processes of using technology), medical decision making (e.g., harnessing decision principles to design interventions to promote healthy behavior), risk management (e.g., assessing and communicating the risks of climate change), marketing (e.g., understanding the effects of inter-temporal choice on purchasing decisions), and business (e.g., identifying unrecognized conflicts of interest).

Decision Science is grounded in theories and methods drawn from psychology, economics, philosophy, statistics, and management science. Courses in the major cover the three aspects of decision science: (a) normative analysis, creating formal models of choice; (b) descriptive research, studying how cognitive, emotional, social, and institutional factors affect judgment and choice, and (c) prescriptive interventions, seeking to improve judgment and decision making. In addition to gaining a broad education in the principles of judgment and decision making, Decision Science majors gain broadly applicable skills in research design and analysis and in application of research findings to behavioral problems in consumer, organizational, and public policy arenas.

The core courses present fundamental theories and results from the study of decision making, along with their application to real-world problems. They introduce students to methods for collecting and analyzing behavioral data. For example, students learn to conduct surveys (e.g., uncovering consumer or managerial preferences), design experiments (e.g., evaluating theories, comparing ways of presenting information), and evaluate the effectiveness of interventions.

The elective courses provide students with additional knowledge in areas of decision making that meet their personal, intellectual, and career goals. These courses are organized into six clusters: biological and behavioral aspects of decision making, managerial and organizational aspects,

philosophical and ethical perspectives, economic and statistical methods, public policy, and research methods. Students can concentrate in one area or spread their studies across them. In addition to coursework, the department offers research opportunities for interested and qualified students. Participating in research helps students to extend their mastery of decision science, discover whether a research career is right for them, and get to know faculty and graduate students better.

Prerequisites

All Decision Science majors must complete mathematics, statistics, and analytic methods prerequisites (see below), by the end of the sophomore year.

| | |
|--|-------|
| Mathematics Prerequisite | Units |
| 21-111 Differential Calculus | 10-20 |
| & 21-112 and Integral Calculus | |
| or 21-120 Differential and Integral Calculus | |
| Statistics Prerequisite | Units |
| 36-200 Reasoning with Data | 9 |

Students must take one course from the following set (or an approved alternative). Students may not count a course used to fulfill the Mathematics Prerequisite as also filling the Analytic Methods Prerequisite. Students may not count a course used to fulfill the Analytic Methods Prerequisite as also filling a Decision Science elective.

| | |
|---|-------|
| Analytic Methods Prerequisite | Units |
| 21-122 Integration and Approximation | 10 |
| or 21-256 Multivariate Analysis | |
| or 21-257 Models and Methods for Optimization | |
| or 36-401 Modern Regression | |
| or 36-410 Introduction to Probability Modeling | |
| or 80-210 Logic and Proofs | |
| or 80-211 Logic and Mathematical Inquiry | |
| or 80-315 Logics for Knowledge and Belief | |
| or 88-252 Causal Inference: from Data to Decisions | |
| or 88-300 Programming and Data Analysis for Social Scientists | |

Curriculum

The core curriculum in Decision Science consists of five courses providing the theoretical perspectives of Decision Science, two courses in research methods, and one capstone.

| | |
|--|-----------|
| Theoretical Perspectives | Units |
| 73-102 Principles of Microeconomics | 9 |
| or 73-104 Principles of Microeconomics Accelerated | |
| 85-100 Introduction to Psychology | 9 |
| 88-120 Reason, Passion and Cognition * | 9 |
| 88-223 Decision Analysis | 12 |
| 88-302 Behavioral Decision Making | 9 |
| | 48 |

* 88-120 should be taken in the freshman or sophomore year.

| | |
|--|-------|
| Statistical Research Methods (select one course)* | Units |
| 36-202 Methods for Statistics & Data Science | 9 |
| or 36-309 Experimental Design for Behavioral & Social Sciences | |
| or 85-309 Statistical Concepts and Methods for Behavioral and Social Science | |

*** Be sure to consult with your Decision Science advisor to discuss which course will best fit your plans and goals.**

| | |
|-----------------------------------|----------|
| SDS Research Methods | Units |
| 88-251 Empirical Research Methods | 9 |
| | 9 |

Electives 45 units

Complete at least 45 units of courses from the following list. Note that additional courses (most typically 88xxx courses) are occasionally added. **For the most up to date list of approved electives (and additional information about the courses), see the SDS website (<https://www.cmu.edu/dietrich/sds/undergraduate/>).**

Although the Decision Science major doesn't explicitly require students to take a capstone course, students who want to have real-world, professional experience should register for 88-454 Decision Science Capstone (this will count as one of the electives).

At least three of these courses (27 units) must be Department of Social and Decision Sciences courses (88-xxx) from the approved list.

| | | |
|--------|--|----|
| 88-150 | Managing Decisions | 9 |
| 88-221 | Markets, Democracy, and Public Policy | 9 |
| 88-230 | Human Intelligence and Human Stupidity | 9 |
| 88-231 | Thinking in Person vs. Thinking Online | 9 |
| 88-234 | Negotiation: International Focus | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights | 9 |
| 88-237 | The Happy Cyborg | 9 |
| 88-252 | Causal Inference: from Data to Decisions * | 9 |
| 88-261 | Health Policy and Decision Making | 9 |
| 88-262 | Rationality and Irrationality in Medicine | 9 |
| 88-275 | Bubbles: Data Science for Human Minds | 9 |
| 88-285 | Deconstructing and Dismantling Discrimination | 9 |
| 88-290 | Confessions, Lies, and Gossip | 9 |
| 88-300 | Programming and Data Analysis for Social Scientists | 9 |
| 88-312 | Decision Models and Games | 9 |
| 88-342 | The Neuroscience of Decision Making | 9 |
| 88-344 | Systems Analysis: Environmental Policy | 9 |
| 88-360 | Behavioral Economics | 9 |
| 88-365 | Behavioral Economics and Public Policy | 9 |
| 88-366 | Behavioral Economics of Poverty and Development | 9 |
| 88-367 | Behavioral Economics & Field Experiments in Organizations | 9 |
| 88-372 | Social and Emotional Brain | 9 |
| 88-379 | Data-Driven Decision Analysis | 9 |
| 88-451 | Policy Analysis Senior Project | 12 |
| 88-452 | Policy Analysis Senior Project | 12 |
| 88-454 | Decision Science Capstone | 9 |
| 70-311 | Organizational Behavior | 9 |
| 70-332 | Business, Society and Ethics | 9 |
| 70-381 | Marketing I | 9 |
| 70-443 | Digital Marketing and Social Media Strategy | 9 |
| 70-460 | Mathematical Models for Consulting | 9 |
| 73-265 | Economics and Data Science | 9 |
| 80-221 | Philosophy of Social Science | 9 |
| 80-324 | Philosophy of Economics | 9 |
| 84-369 | Decision Science for International Relations | 9 |
| 85-375 | Crosscultural Psychology starting S26, course number is 85-409 | 9 |
| 85-454 | Health Psychology | 9 |

Note: Some courses have additional prerequisites.

Decision Science, B.S. Sample Curriculum

| First-Year | | Second-Year | |
|--|--|--|---|
| Fall | Spring | Fall | Spring |
| 88-120 Reason, Passion and Cognition * | 36-202 Methods for Statistics & Data Science | 85-100 Introduction to Psychology | 88-223 Decision Analysis |
| 36-200 Reasoning with Data | Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | 88-251 Empirical Research Methods | 88-302 Behavioral Decision Making |
| 21-120 Differential and Integral Calculus (or 21-111, depending on placement) | Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | 88-252 Causal Inference: from Data to Decisions or other Analytic Methods course | 88-300 Programming and Data Analysis for Social Scientists or other Analytic Methods course |
| Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | Gen Ed or Elective | Gen Ed or Elective | Decision Science Elective |
| 73-102 Principles of Microeconomics | Gen Ed or Elective | Gen Ed or Elective | Gen Ed or Elective Gen Ed or Elective |

| Third-Year | | Fourth-Year | |
|---------------------------|---------------------------|---------------------------------------|----------------------------------|
| Fall | Spring | Fall | Spring |
| Decision Science Elective | Decision Science Elective | Senior Honors Thesis or Elective | Senior Honors Thesis or Elective |
| Gen Ed or Elective | Gen Ed or Elective | Capstone or Decision Science Elective | Decision Science Elective |
| Elective | Elective | Elective | Elective |
| Elective | Elective | Elective | Elective |
| Elective | | Elective | Elective |

* 88-120 should be taken as the first course in the Decision Science sequence. It is intended for students in their first or second year; it is offered in Fall and Spring semesters. It may be taken as late as the junior year.

This is presented as a recommended plan for completing major requirements. The major can be completed in as few as two years (not that it must be), but students may not have time for other opportunities such as additional majors or study abroad. Students may declare their major as early as the third week of the spring semester in the first year. Students who are planning to attend the Washington Semester Program, to study abroad, to apply for the Heinz Accelerated Masters Program, or to pursue an additional major/minor may have a very different curriculum map and should consult early – and often – with the Decision Science Academic Advisor.

Students are encouraged to consider the Washington Semester Program as part of their education. Suitable courses will be considered as fulfilling requirements of electives in the major. Please send the course syllabus, along with a note explaining how the course addresses fundamental aspects of decision science in one of the six elective categories to your DS advisor.

Additional Major in Decision Science

Students who elect Decision Science as an additional major must fulfill all of the requirements of the Decision Science major.

Students pursuing Behavioral Economics with an additional major in Decision Science may only count 36-202, 73-102, 88-120, 88-251 and 88-302 toward the completion of both majors.

Students pursuing Policy and Management with an additional major in Decision Science and may only count 36-202, 73-102, 88-223, and 88-251 toward the completion of both majors.

Additional majors cannot count menu electives toward simultaneously fulfilling more than one major or minor. Students who are interested in an additional major in Decision Science should see the Academic Advisor of the Decision Science program.

The Major in Policy and Management

Peter Schwardmann, *Faculty Director*

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Connie Angermeier, *Senior Academic Program Manager and Advisor*

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The Policy and Management major prepares students for key decision-making and management roles in government, non-profit organizations, and business. The major emphasizes analytical approaches to decision making, practical management skills, and empirical techniques necessary for graduates to excel in the public and private sectors. The multidisciplinary curriculum merges frontier knowledge on the ideals of decision making, policy, and data analysis, as well as the realities of individual behavior within various institutional settings that must be confronted if high-quality outcomes are to be attained.

The major is comprised of three required core areas taken by all Policy and Management majors, a capstone course, plus one of four concentration areas to be chosen by the student.

The three core areas are as follows:

The *Policy Core* gives students applied economic training and policy analysis experience. Students will gain an analytical understanding of some of the biggest domestic and global economic policy challenges, and gain an appreciation of the economic analysis of complex decisions, as well as the trade-off between economic and political-based decision making.

The *Management Core* focuses on real-world applications of decision making. Students will develop an understanding of effective negotiation strategies and tactics, and identify the barriers and the psychological factors that may prevent decision-makers from reaching wise agreements. The courses provide systematic methods for dealing with the complexities that make decisions difficult, ranging from incorporating issues of risk and uncertainty in decision making to dealing with choices that have mutually conflicting objectives. For example, a business or government agency may need to decide on a policy for mitigating the uncertain impacts of air pollution while simultaneously trying to minimize the costs of such a policy on manufacturing. A firm might want to consider the uncertain reductions in security dangers from alternative policies to protect against terrorism.

The *Empirical Core* focuses on key methods for collecting and analyzing data that are needed to make informed decisions. Students learn to use interviews, surveys, experiments, and econometric methods to enhance their ability to test existing, and design new, policies. Students will create statistical models to address questions asked in conceptual, computational, and data-driven investigations.

The required *Capstone* course gives students hands-on experience in a policy-related area. Students work in teams to apply the research and analytical methods learned in their other courses to a real-world problem.

Finally, the *four concentration areas* consist of four courses chosen by the student, in coordination with the Academic Advisor. The concentrations emphasize different aspects of decision making within the major: (1) Analytics, (2) Policy, (3) Management, and (4) Law. Each of the concentration areas draws upon the research and teaching strength of the Department of Social and Decision Sciences. Additionally, select courses from other areas in the University have been identified and approved as fulfilling elective requirements within the concentrations. More detail will be found in the concentration areas below.

The Policy and Management major provides an excellent combination of theoretical and practical skills for students who intend to seek managerial positions. Because of its strong analytic orientation, it is also an excellent major for those who intend to go on to professional school programs in law, business, or public policy. It is also an appropriate choice for students pursuing graduate degrees in economics, political science, or decision science. One such graduate option is the accelerated master's program offered by the H. J. Heinz III School of Public Policy and Management, in which a student earns both a B.S. in Policy and Management and a M.S. in Public Policy and Management in five years.

Prerequisites

All Policy and Management majors must complete mathematics and statistics prerequisites (see below), by the end of the sophomore year.

| | |
|--|-------|
| Mathematics Prerequisite | Units |
| 21-111 Differential Calculus & 21-112 and Integral Calculus or 21-120 Differential and Integral Calculus | 10-20 |

| | |
|----------------------------|-------|
| Statistics Prerequisite | Units |
| 36-200 Reasoning with Data | 9 |

Curriculum

| | |
|---|-------------|
| Policy Core | Units |
| 73-102 Principles of Microeconomics or 73-104 Principles of Microeconomics Accelerated 88-221 Markets, Democracy, and Public Policy | 9 9 9 |
| | 18 |

| | |
|--|-------------------|
| Management Core | Units |
| 88-150 Managing Decisions or 88-255 Strategic Decision Making 88-223 Decision Analysis 88-235 Negotiation: Strategies and Behavioral Insights or 88-234 Negotiation: International Focus | 9 9 12 9 |
| | 30 |

| | |
|---|-------------|
| Empirical Core | Units |
| 36-202 Methods for Statistics & Data Science 88-251 Empirical Research Methods 88-252 Causal Inference: from Data to Decisions or 88-275 Bubbles: Data Science for Human Minds | 9 9 9 |
| | 27 |

| | | |
|--|--|----|
| Capstone | | |
| 88-451 Policy Analysis Senior Project or 88-452 Policy Analysis Senior Project (88452 is offered in fall, 88451 in spring) | | 12 |

Concentration 36 units

Complete at least 36 units (a minimum of four courses) from the following concentrations of courses. Students are required to declare a concentration before their graduating semester, but are not required to choose a concentration when they initially declare (typically in the freshman or sophomore year). In fact, students are encouraged to take many of the core classes before making their concentration selection so that they can make a well-informed decision.

| | |
|---|-----------|
| 1. Analytics Concentration (minimum four total courses) | Units |
| Programming (one course) | 9 |
| 88-300 Programming and Data Analysis for Social Scientists | 9 |
| Analytics/Empirical electives (select any two courses) | 18 |
| 88-252 Causal Inference: from Data to Decisions (if not taken in Empirical Core) | 9 |
| 88-275 Bubbles: Data Science for Human Minds (if not taken in Empirical Core) | 9 |
| 88-312 Decision Models and Games | 9 |
| 88-379 Data-Driven Decision Analysis | 9 |
| 36-303 Sampling, Survey and Society | 9 |
| 36-315 Statistical Graphics and Visualization | 9 |
| 70-257 Optimization for Business | 9 |
| 70-374 Data Mining & Business Analytics | 9 |
| 70-455 Data Management Fundamentals | 9 |
| 70-460 Mathematical Models for Consulting | 9 |
| 90-434 Geospatial Health Analytics | 12 |
| Analytics concentration breadth elective (select one course from any of the other three concentrations; must be 88xxx) | 9 |

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

| | |
|--|-----------|
| 2. Policy Concentration (minimum four total courses) | Units |
| Policy electives (select three courses; at least one of the three must be 88xxx) | 27 |
| 88-230 Human Intelligence and Human Stupidity | 9 |
| 88-237 The Happy Cyborg | 9 |
| 88-261 Health Policy and Decision Making | 9 |
| 88-285 Deconstructing and Dismantling Discrimination | 9 |
| 88-323 Policy in a Global Economy 1: International Trade & 88-324 and Trade Policy and Policy in a Global Economy 2: International Trade and Trade Policy | 12 |
| 88-344 Systems Analysis: Environmental Policy | 9 |
| 88-365 Behavioral Economics and Public Policy | 9 |
| 88-366 Behavioral Economics of Poverty and Development | 9 |
| 88-367 Behavioral Economics & Field Experiments in Organizations | 9 |
| 88-411 Rise of the Asian Economies | 9 |
| 36-303 Sampling, Survey and Society | 9 |
| 73-328 Health Economics | 12 |
| 80-244 Environmental Ethics | 9 |
| 84-362 Diplomacy and Statecraft | 9 |
| 84-389 Terrorism and Insurgency | 9 |
| 90-443 Urban and Regional Economic Development * | 12 |
| Policy concentration breadth elective (select one course from any of the other three concentrations; must be 88xxx) | 9 |

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

| | |
|---|-----------|
| 3. Management Concentration (minimum four total courses) | Units |
| Management electives (select three courses; at least one of the three must be 88xxx) | 27 |
| 88-231 Thinking in Person vs. Thinking Online | 9 |

| | | |
|--------|---|----|
| 88-234 | Negotiation: International Focus (if not taken in Management Core) | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights (if not taken in Management Core) | 9 |
| 88-341 | Team Dynamics and Leadership | 9 |
| 88-411 | Rise of the Asian Economies | 9 |
| 70-311 | Organizational Behavior | 9 |
| 70-332 | Business, Society and Ethics | 9 |
| 70-342 | Managing Across Cultures | 9 |
| 70-371 | Operations Management | 9 |
| 70-381 | Marketing I | 9 |
| 70-430 | International Management | 9 |
| 94-408 | Management Consulting | 12 |
| 94-423 | Measuring Social* | 12 |

Management concentration breadth elective (select one course from any of the other three concentrations; must be 88xxx) 9

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

4. Law Concentration (minimum four total courses) Units
Topics of Law (select one course) 9

| | | |
|--------|-----------------------------------|---|
| 88-281 | Topics in Law: 1st Amendment | 9 |
| 88-284 | Topics of Law: The Bill of Rights | 9 |

Law electives (select any two courses) 18

| | | |
|--------|--|---|
| 88-281 | Topics in Law: 1st Amendment (if not used in required) | 9 |
| 88-284 | Topics of Law: The Bill of Rights (if not used in required) | 9 |
| 66-221 | Topics of Law: Introduction to Intellectual Property Law | 9 |
| 66-226 | Law and Literature | 9 |
| 70-364 | Business Law | 6 |
| 73-408 | Law and Economics | 9 |
| 76-219 | Law & Blame | 9 |
| 76-475 | Law, Performance, and Identity | 9 |
| 79-302 | Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War | 9 |
| 79-360 | Crime, Policing, and the Law: Historical and Contemporary Perspectives | 9 |
| 80-447 | Global Justice | 9 |
| 84-373 | International Law | 9 |

Law concentration breadth elective (select one course from any of the other three concentrations; must be 88xxx) 9

NOTE: Some courses have additional prerequisites.

Policy and Management, B.S. Sample Curriculum

| First-Year | | Second-Year | |
|--|--|--|--|
| Fall | Spring | Fall | Spring |
| 88-150 Managing Decisions or 88-255 in spring | 88-255 Strategic Decision Making or 88-150 in fall | 88-235 Negotiation: Strategies and Behavioral Insights or 88-234 in spring | 88-221 Markets, Democracy, and Public Policy |
| 36-200 Reasoning with Data | 36-202 Methods for Statistics & Data Science | 88-251 Empirical Research Methods | 88-223 Decision Analysis |
| 21-120 Differential and Integral Calculus (or 21-111, depending on placement) | 73-102 Principles of Microeconomics | 88-252 Causal Inference: from Data to Decisions or 88-275 in spring | 88-234 Negotiation: International Focus or 88-235 in fall |
| Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | Gen Ed or Elective | 88-275 Bubbles: Data Science for Human Minds or 88-252 in fall |
| Gen Ed or Elective | Pick One (Grand Challenge Seminar, FYW, Disciplinary Perspectives: Humanities) | Gen Ed or Elective | Gen Ed or Elective |

| Third-Year | | Fourth-Year | |
|--|--|---|---|
| Fall | Spring | Fall | Spring |
| Policy & Management concentration elective | Policy & Management concentration elective | 88-452 Policy Analysis Senior Project or 88-451 in spring | 88-451 Policy Analysis Senior Project or 88-452 in fall |
| Policy & Management concentration elective | Policy & Management concentration elective | Senior Honors Thesis or Elective | Senior Honors Thesis or Elective |
| Gen Ed | Elective | Complete remaining gen eds/electives | Complete remaining gen eds/electives |
| Elective | Elective | additional Policy & Management concentration electives | additional Policy & Management concentration electives |
| Elective | Elective | additional Policy & Management concentration electives | additional Policy & Management concentration electives |
| Students may consider the CMU Washington Semester Program or study abroad in this semester | Students may consider the CMU Washington Semester Program or study abroad in this semester | | |

This is presented as a recommended plan for completing major requirements. Students may declare their major as early as the third week of the spring semester in the first year. Students who are planning to attend the Washington Semester Program, to study abroad, to apply for the Heinz Accelerated Masters Program, or to pursue an additional major/minor may have a very different curriculum map and should consult early - and often - with the Policy and Management Academic Advisor.

Students are encouraged to consider the Washington Semester Program as part of their education. Suitable courses may be considered as fulfilling requirements of concentration electives in the major. Please discuss course selections with the Academic Advisor during the application phase to the program.

Additional Major

Students who elect Policy and Management as an additional major must fulfill all of the requirements of the Policy and Management major. For additional majors in Policy and Management, courses taken as concentration electives may not count toward the student's primary major or other program.

Students pursuing Behavioral Economics, Policy, and Organizations with an additional major in Policy and Management may only count 36-202, 73-102, and 88-251 (and 88-252, if taken in Empirical Core) toward the completion of both majors.

Students pursuing Decision Science with an additional major in Policy and Management may only count 36-202, 73-102, 88-223, and 88-251 toward the completion of both majors.

Additional majors cannot count menu electives toward simultaneously fulfilling more than one major or minor. Students who are interested in an additional major in Policy and Management should see the Academic Advisor of the Policy and Management program.

The Minor in Behavioral Economics

Peter Schwardmann, *Faculty Director*

Location: Porter Hall 319F

schwardmann (<http://coursecatalog.web.cmu.edu/schools-colleges/dietrichcollegeofhumanitiesandsocialsciences/departmentsocialanddecisionsciences/schwardmann@cmu.edu>) (schwardmann@cmu.edu)@andrew.cmu.edu (<http://coursecatalog.web.cmu.edu/schools-colleges/dietrichcollegeofhumanitiesandsocialsciences/departmentsocialanddecisionsciences/schwardmann@cmu.edu>)

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The minor in Behavioral Economics, provides students with a selective survey of disciplinary perspectives. The field of Behavioral Economics (BE) integrates perspectives from Economics and Psychology to better understand how people make consequential decisions and to leverage this understanding to improve the design of the policies, programs, and institutions that govern such behavior. The core requirements include courses in Economics, Psychology, Behavioral Economics, and quantitative methods- including experimental design and econometrics. Students who elect Behavioral Economics as a minor must complete the six core courses and one elective from the elective set (below).

Students may double-count two courses with another major or minor. 73-102 is excluded from this double count policy. The prerequisite course of 36-200 (or its equivalent) is also excluded.

Curriculum

The core curriculum in Behavioral Economics consists of one quantitative course, two Economic courses, one Psychology course, and two Behavioral Economics courses.

CURRICULUM 63

Core Courses 54

| | | |
|-------------------------------|---|-----------|
| Quantitative Methods Core | | Units |
| 36-202 | Methods for Statistics & Data Science | 9 |
| Economics Core | | Units |
| 73-102 | Principles of Microeconomics | 9 |
| or 73-104 | Principles of Microeconomics Accelerated | |
| Second-Level Economics Course | | |
| 88-221 | Markets, Democracy, and Public Policy | 9 |
| or 73-103 | Principles of Macroeconomics | |
| or 73-155 | Models, Math, and Markets | |
| or 73-230 | Intermediate Microeconomics | |
| or 73-328 | Health Economics | |
| or 73-347 | Game Theory Applications for Economics and Business | |
| or 73-359 | Benefit-Cost Analysis | |
| or 73-408 | Law and Economics | |
| or 73-421 | Emerging Markets | |
| or 73-427 | Sustainability, Energy, and Environmental Economics | |
| | | 18 |
| Psychology Core | | Units |
| 88-120 | Reason, Passion and Cognition | 9 |
| Behavioral Economics Core | | Units |
| 88-360 | Behavioral Economics | 9 |
| 88-367 | Behavioral Economics & Field Experiments in Organizations | 9 |
| or 88-365 | Behavioral Economics and Public Policy | |
| | | 18 |

* Behavioral Economics core courses CANNOT double count with the elective course.

Elective Courses 9

Complete at least one of the courses (9 units) from the following list. Note: Behavioral Economics core courses CANNOT double count with the elective course.

| | | |
|------------------|---|-------|
| Elective Courses | | Units |
| 88-130 | Behavioral Economics for Life * | 9 |
| 88-221 | Markets, Democracy, and Public Policy | 9 |
| 88-230 | Human Intelligence and Human Stupidity | 9 |
| 88-231 | Thinking in Person vs. Thinking Online | 9 |
| 88-234 | Negotiation: International Focus | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights | 9 |
| 88-251 | Empirical Research Methods | 9 |
| 88-252 | Causal Inference: from Data to Decisions | 9 |
| 88-255 | Strategic Decision Making | 9 |

| | | |
|-----------------|---|----|
| 88-261 | Health Policy and Decision Making | 9 |
| 88-275 | Bubbles: Data Science for Human Minds | 9 |
| 88-285 | Deconstructing and Dismantling Discrimination | 9 |
| 88-290 | Confessions, Lies, and Gossip | 9 |
| 88-300 | Programming and Data Analysis for Social Scientists | 9 |
| 88-302 | Behavioral Decision Making | 9 |
| 88-312 | Decision Models and Games | 9 |
| 88-323 & 88-324 | Policy in a Global Economy 1: International Trade and Trade Policy and Policy in a Global Economy 2: International Trade and Trade Policy | 12 |
| 88-344 | Systems Analysis: Environmental Policy | 9 |
| 88-365 | Behavioral Economics and Public Policy | 9 |
| 88-366 | Behavioral Economics of Poverty and Development | 9 |
| 88-367 | Behavioral Economics & Field Experiments in Organizations | 9 |

Note: Some courses have additional prerequisites.

* **PLEASE NOTE:** Students who have completed **88-302 Behavioral Decision Making** OR **88-360 Behavioral Economics** cannot take **88-130 Behavioral Economics for Life**.

The Minor in Decision Science

Peter Schwardmann, *Faculty Director*

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Connie Angermeier, *Senior Academic Program Manager and Advisor*

Advises Additional Majors and Minors in Decision Science

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The minor in Decision Science provides students with a selective survey of disciplinary perspectives. The courses present descriptive and normative approaches to judgment and decision making, as well as some application of theories and results to real-world problems. Students who elect Decision Science as a minor must complete the four core courses (below) and two electives from the elective set (below).

Students may double-count two courses with another major or minor.

Curriculum

57 units

| Core Courses | 39 units |
|--|----------|
| 73-102 Principles of Microeconomics | 9 |
| or 73-104 Principles of Microeconomics Accelerated | |
| 88-120 Reason, Passion and Cognition | 9 |
| 88-223 Decision Analysis | 12 |
| 88-302 Behavioral Decision Making | 9 |

| Elective Courses | 18 units |
|------------------|----------|
|------------------|----------|

Complete two courses from the following list. At least one of the courses (9 units) must be a Social and Decision Sciences course (88-xxx) from the approved list. Note that additional courses (most typically 88xxx courses) are occasionally added. For the most up to date list of approved electives (and additional information about the courses), see the SDS website (<https://www.cmu.edu/dietrich/sds/undergraduate/>).

| | |
|--|----|
| 88-150 Managing Decisions | 9 |
| 88-221 Markets, Democracy, and Public Policy | 9 |
| 88-230 Human Intelligence and Human Stupidity | 9 |
| 88-231 Thinking in Person vs. Thinking Online | 9 |
| 88-234 Negotiation: International Focus | 9 |
| 88-235 Negotiation: Strategies and Behavioral Insights | 9 |
| 88-237 The Happy Cyborg | 9 |
| 88-252 Causal Inference: from Data to Decisions | 9 |
| 88-255 Strategic Decision Making | 9 |
| 88-261 Health Policy and Decision Making | 9 |
| 88-262 Rationality and Irrationality in Medicine | 9 |
| 88-275 Bubbles: Data Science for Human Minds | 9 |
| 88-285 Deconstructing and Dismantling Discrimination | 9 |
| 88-290 Confessions, Lies, and Gossip | 9 |
| 88-300 Programming and Data Analysis for Social Scientists | 9 |
| 88-312 Decision Models and Games | 9 |
| 88-342 The Neuroscience of Decision Making | 9 |
| 88-344 Systems Analysis: Environmental Policy | 9 |
| 88-360 Behavioral Economics | 9 |
| 88-365 Behavioral Economics and Public Policy | 9 |
| 88-366 Behavioral Economics of Poverty and Development | 9 |
| 88-367 Behavioral Economics & Field Experiments in Organizations | 9 |
| 88-372 Social and Emotional Brain | 9 |
| 88-379 Data-Driven Decision Analysis | 9 |
| 88-451 Policy Analysis Senior Project | 12 |
| 88-452 Policy Analysis Senior Project | 12 |
| 88-454 Decision Science Capstone | 9 |
| 70-311 Organizational Behavior | 9 |
| 70-332 Business, Society and Ethics | 9 |
| 70-443 Digital Marketing and Social Media Strategy | 9 |
| 70-460 Mathematical Models for Consulting | 9 |
| 73-365 Firms, Market Structures, and Strategy | 9 |
| 80-221 Philosophy of Social Science | 9 |
| 80-324 Philosophy of Economics | 9 |
| 84-369 Decision Science for International Relations | 9 |

Note: Some courses have additional prerequisites.

The Minor in Policy and Management

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Regardless of major, many Carnegie Mellon graduates will face analytical and managerial challenges and responsibilities in their professional lives. Whether these are in their area of expertise or in more general settings, these roles will to some degree require assumption of the responsibility for directing the work of others. The Policy and Management minor is intended for students who expect to need these management concepts and skills.

Students may double-count two courses with another major or minor.

Curriculum

57 units

| Required Courses | 39 units |
|--|----------|
| 73-102 Principles of Microeconomics | 9 |
| or 73-104 Principles of Microeconomics Accelerated | |
| 88-150 Managing Decisions | 9 |
| or 88-255 Strategic Decision Making | |
| 88-221 Markets, Democracy, and Public Policy | 9 |
| 88-223 Decision Analysis | 12 |

18 units Electives

Complete two courses (at least 18 units) from any of the concentrations (Analytics, Policy, Management, and Law). **Courses do not need to be taken from the same concentration.** The courses are listed by their concentration categories as a way to guide students. At least one of the courses (9 units) must be a Social and Decision Sciences course (88-xxx).

Analytics Concentration

| | |
|--|----|
| 88-252 Causal Inference: from Data to Decisions | 9 |
| 88-275 Bubbles: Data Science for Human Minds | 9 |
| 88-300 Programming and Data Analysis for Social Scientists | 9 |
| 88-312 Decision Models and Games | 9 |
| 88-379 Data-Driven Decision Analysis | 9 |
| 36-303 Sampling, Survey and Society | 9 |
| 36-315 Statistical Graphics and Visualization | 9 |
| 70-257 Optimization for Business | 9 |
| 70-374 Data Mining & Business Analytics | 9 |
| 70-455 Data Management Fundamentals | 9 |
| 70-460 Mathematical Models for Consulting | 9 |
| 90-434 Geospatial Health Analytics * | 12 |

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

Policy Concentration

| | Units |
|---|-------|
| 88-230 Human Intelligence and Human Stupidity | 9 |
| 88-237 The Happy Cyborg | 9 |
| 88-261 Health Policy and Decision Making | 9 |
| 88-285 Deconstructing and Dismantling Discrimination | 9 |
| 88-323 Policy in a Global Economy 1: International Trade and Trade Policy | 12 |
| & 88-324 and Policy in a Global Economy 2: International Trade and Trade Policy | |
| 88-344 Systems Analysis: Environmental Policy | 9 |
| 88-365 Behavioral Economics and Public Policy | 9 |
| 88-366 Behavioral Economics of Poverty and Development | 9 |
| 88-367 Behavioral Economics & Field Experiments in Organizations | 9 |
| 88-411 Rise of the Asian Economies | 9 |
| 36-303 Sampling, Survey and Society | 9 |

| | | |
|--------|---|----|
| 73-328 | Health Economics | 12 |
| 80-244 | Environmental Ethics | 9 |
| 84-362 | Diplomacy and Statecraft | 9 |
| 84-389 | Terrorism and Insurgency | 9 |
| 90-443 | Urban and Regional Economic Development * | 12 |

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

| Management Concentration | | Units |
|--------------------------|---|-------|
| 88-231 | Thinking in Person vs. Thinking Online | 9 |
| 88-234 | Negotiation: International Focus | 9 |
| 88-235 | Negotiation: Strategies and Behavioral Insights | 9 |
| 88-341 | Team Dynamics and Leadership | 9 |
| 88-411 | Rise of the Asian Economies | 9 |
| 70-311 | Organizational Behavior | 9 |
| 70-332 | Business, Society and Ethics | 9 |
| 70-342 | Managing Across Cultures | 9 |
| 70-371 | Operations Management | 9 |
| 70-381 | Marketing I | 9 |
| 70-430 | International Management | 9 |
| 94-423 | Measuring Social * | 12 |

* other Heinz courses may also be approved. Please contact the P&M advisor for more information.

| Law Concentration | | Units |
|-------------------|--|-------|
| 88-281 | Topics in Law: 1st Amendment | 9 |
| 88-284 | Topics of Law: The Bill of Rights | 9 |
| 70-364 | Business Law | 6 |
| 73-408 | Law and Economics | 9 |
| 76-219 | Law & Blame | 9 |
| 76-475 | Law, Performance, and Identity | 9 |
| 79-302 | Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War | 9 |
| 79-360 | Crime, Policing, and the Law: Historical and Contemporary Perspectives | 9 |
| 80-447 | Global Justice | 9 |
| 84-373 | International Law | 9 |

NOTE: Some courses have additional prerequisites.

Minor in Medical Decision Making

Peter Schwarzmann, *Faculty Director*

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Imagine you were diagnosed with cancer and were presented with the following options:

- 1) Do nothing. You are expected to live between 1-3 years.
- 2) Get surgery. There is a 30% chance the cancer is removed, and you will be fully cured. There is 30% chance that the cancer will be partially removed and you will live 4-6 years. There is a 30% chance that the surgery is unsuccessful, and you will live 1-3 years. There is a 10% chance you will die on the operating table. There is also a 20% chance, regardless of the success of removing the cancer, that the surgery will lead to side effects such as incontinence and abdominal discomfort.
- 3) Get chemotherapy. This will add an extra 2-5 years to your life, but you will spend every other weekend of the rest of your life in bed with debilitating nausea and weakness.

How do you make such a decision? What biases are likely influencing the quality of your decision and how can they be overcome? Who should you seek out for advice? Or, if you are a health care provider, how do you help a patient make such a decision? How do patients understand risks? How can doctors effectively communicate those risks to patients? And that is only the beginning. How do people decide whether to get vaccinated?

How do people decide when to seek treatment when they experience medical symptoms? How do doctors decide what diagnostic tests to run, and problem solve about the likely causes of symptoms? How do people

determine whether to engage in risky health behaviors, such as smoking or unprotected sex?

With an increasing demand for healthcare professionals who can navigate complex decision-making scenarios, this minor is specifically curated to be relevant to the health professions and seeks to equip students with essential knowledge and skills in understanding the psychological, behavioral, and ethical dimensions of medical decision-making processes. The minor will also introduce students to healthcare policy as well as the workings of the healthcare industry and insurance markets.

Students may double-count two courses with another major or minor.

Curriculum 54 units

| Foundation Course | | Units |
|------------------------------|--|-------|
| 88-130 | Behavioral Economics for Life | 9 |
| or 88-140 | Introduction to Sociology | |
| or 85-100 | Introduction to Psychology | |
| or 85-150 | Social Psychology | |
| 88-120 | Reason, Passion and Cognition | 9 |
| 88-261 | Health Policy and Decision Making | 9 |
| 88-262 | Rationality and Irrationality in Medicine | 9 |
| 88-302 | Behavioral Decision Making | 9 |
| Elective - choose one course | | Units |
| 88-365 | Behavioral Economics and Public Policy | 9 |
| 73-328 | Health Economics | 12 |
| 80-245 | Medical Ethics | 9 |
| 85-108 | Mind and Body: Pathways to Health | 9 |
| 85-375 | Crosscultural Psychology starting S26, course number is 85-409 | 9 |
| 85-454 | Health Psychology | 9 |

Faculty

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