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 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, 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, or to enter a wide range of graduate degree programs.

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

Mathematics Prerequisite
21-111-21-112 Calculus I-II
or 21-120 Differential and Integral Calculus

Statistics Prerequisite
36-200 Reasoning with Data

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

Quantitative Method Courses
36-202 Methods for Statistics & Data Science
88-251 Empirical Research Methods
88-252 Causal Inference in the Field

Economics Courses
73-102 Principles of Microeconomics
73-160 Foundations of Microeconomics: Applications and Theory
73-230 Intermediate Microeconomics

Psychology Courses
88-120 Reason, Passion and Cognition
88-302 Behavioral Decision Making

Behavioral Economics Courses
88-360 Behavioral Economics
88-367 Behavioral Economics in the Wild

Senior Project Course
88-453 Behavioral Economics, Policy, and Organizations Capstone

ELECTIVES
Complete at least 36 units from the following categories. Students MUST take one elective from each of the three categories. The fourth elective may be chosen from any of the categories. Note that not all elective courses are offered every year.

Economics**
73-328 Health Economics
73-347 Game Theory Applications for Economics and Business
73-408 Law and Economics
73-421 Emerging Markets ****
73-476 American Economic History

** 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 to the above: 73-348 Behavioral Economics can ONLY count as either an Economics OR Behavioral Economics elective course. It cannot be counted in both categories.

73-421 has a required prerequisite of 73-103 Principles of Microeconomics, which NOT a course requirement for the BEPO major.

Counts IN PLACE OF the fourth elective from any category.

Behavioral Economics elective course. It cannot be counted in both categories.

*** Can ONLY count as either an Economics OR Behavioral Economics elective course.

Psychology

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-311 Organizational Behavior</td>
<td>9</td>
</tr>
<tr>
<td>70-385 Consumer Behavior</td>
<td>9</td>
</tr>
<tr>
<td>85-350 Psychology of Prejudice</td>
<td>9</td>
</tr>
<tr>
<td>85-352 Evolutionary Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-358 Pro-Social Behavior</td>
<td>9</td>
</tr>
<tr>
<td>85-375 Crosscultural Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-377 Attitudes and Persuasion</td>
<td>9</td>
</tr>
<tr>
<td>85-442 Health Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-446 Psychology of Gender</td>
<td>9</td>
</tr>
<tr>
<td>88-230 Human Intelligence and Human Stupidity</td>
<td>9</td>
</tr>
<tr>
<td>88-231 Thinking in Person vs. Thinking Online</td>
<td>9</td>
</tr>
<tr>
<td>88-342 The Neuroscience of Decision Making</td>
<td>9</td>
</tr>
<tr>
<td>88-372 Social and Emotional Brain</td>
<td>9</td>
</tr>
<tr>
<td>88-380 Dynamic Decisions</td>
<td>9</td>
</tr>
<tr>
<td>88-388 Psychological Models of Decision Making</td>
<td>9</td>
</tr>
<tr>
<td>88-418 Domestic Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>88-419 International Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>88-435 Decision Science and Policy</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: Some courses have additional prerequisites. Free Elective

Counts IN PLACE OF the fourth elective from any category.

Behavioral Economics, Policy, and Organizations, B.A. Sample Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>88-275 Bubbles: Data Science for Human Minds</td>
<td>9</td>
</tr>
<tr>
<td>88-300 Programming and Data Analysis for Social Scientists</td>
<td>9</td>
</tr>
</tbody>
</table>

### Department of Social and Decision Sciences

#### Behavioral Economics, Policy and Organizations, B.A. Sample Curriculum

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>21-120 Differential and Integral Calculus (OR 21-111, depending on placement)</td>
<td>73-160 Foundations of Microeconomics; Applications and Theory***</td>
</tr>
<tr>
<td>36-200 Reasoning with Data OR 36-201</td>
<td>Rick One (Freshman Seminar, 76-101, 79-124)</td>
</tr>
<tr>
<td>73-102 Principles of Microeconomics</td>
<td>Rick One (Freshman Seminar, 76-101, 79-124)</td>
</tr>
<tr>
<td>Rick One (Freshman Seminar, 76-101, 79-104)</td>
<td>Gen Ed or Elective</td>
</tr>
</tbody>
</table>

* Should be taken as the first course in Behavioral Economics, Policy and Organizations sequence. It is intended for students in their first or second year and is offered in Fall semesters. It may be taken as late as the junior year.

** 73-160 is intended for students in their first or second year; it is offered in Spring semesters. It may be taken as late as the junior year. Additionally, 73-230 Intermediate Microeconomics can serve as a substitute for 73-160 Foundations of Microeconomics: Applications and Theory.

*** Senior Honors Thesis may be substituted in the Spring term for 88-453 Behavioral Economics, Policy, and Organizations 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 freshman 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, Policy and Organizations Academic Advisor.

### Additional Major

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

Students pursuing Decision Science with an additional major in Behavioral Economics, Policy and Organizations 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, Policy and Organizations may only count 36-202, 73-102 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 Behavioral Economics, Policy and Organizations should see the Academic Advisor of the Behavioral Economics, Policy and Organizations program.

### The Major in Decision Science

Gretchen Chapman, Faculty Director
Location: Porter Hall 219F
DS-advisor@andrew.cmu.edu

Lizzy Stoyle, Senior Academic Advisor
Advises Primary Majors in Decision Science
Location: 208G
estoyle@andrew.cmu.edu

Connie Angermeier, Senior Academic Program Manager
Advises Additional Majors and Minors in Decision Science
Location: Porter Hall 208A
cia2@andrew.cmu.edu

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
21-111-21-112 Calculus I-II Units 10-20
or 21-120 Differential and Integral Calculus

Statistics Prerequisite
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.

Analytic Methods Prerequisite
21-122 Integration and Approximation 10
21-256 Multivariate Analysis 9
21-257 Models and Methods for Optimization 9
36-309 Experimental Design for Behavioral & Social Sciences 9
36-401 Modern Regression 9
36-410 Introduction to Probability Modeling 9
80-210 Logic and Proofs 9
80-211 Logic and Mathematical Inquiry 9
80-223 Causality and Probability 9
80-315 Modal Logic 9
88-252 Causal Inference in the Field 9

Curriculum

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

Theoretical Perspectives
73-102 Principles of Microeconomics 9
85-102 Introduction to Psychology 9
88-120 Reason, Passion and Cognition * 9
88-223 Decision Analysis 12

88-302 Behavioral Decision Making 9

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

Statistical Methods
36-202 Methods for Statistics & Data Science 9
36-309 Experimental Design for Behavioral & Social Sciences 9
85-309 Statistical Concepts and Methods for Behavioral and Social Science 9

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

Electives

Complete at least 45 units of courses from the following categories. The
selected courses may be from one category or from any combination. Note
that not all elective courses are offered every year.

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

1. Biological and Behavioral Aspects of Decision Making
85-350 Psychology of Prejudice 9
85-352 Evolutionary Psychology 9
85-375 Crosscultural Psychology 9
85-377 Attitudes and Persuasion 9
85-444 Relationships 9
85-442 Health Psychology 9
85-446 Psychology of Gender 9
88-230 Human Intelligence and Human Stupidity 9
88-231 Thinking in Person vs. Thinking Online 9
88-342 The Neuroscience of Decision Making 9
88-360 Behavioral Economics 9
88-365 Behavioral Economics and Public Policy 9
88-380 Dynamic Decisions 9

2. Managerial and Organization Aspects of Decision Making
70-311 Organizational Behavior 9
70-381 Marketing I 9
70-460 Mathematical Models for Consulting 9
88-150 Managing Decisions 9
88-221 Analytical Foundations of Public Policy 9
88-406 Behavioral Economics @ Work 9
88-418 Domestic Negotiation 9
88-419 International Negotiation 9
88-444 Public Policy and Regulation 9
88-451 Policy Analysis Senior Project 12
or 88-452 Policy Analysis Senior Project

3. Philosophical and Ethical Perspectives on Decision Making
70-332 Business, Society and Ethics 9
80-208 Critical Thinking 9
80-221 Philosophy of Social Science 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-246 Moral Psychology 9
80-249 AI, Society, and Humanity 9
80-271 Philosophy and Psychology 9
80-305 Decision Theory 9
80-321 Causation, Law, and Social Policy 9
80-324 Philosophy of Economics 9
88-275 Bubbles: Data Science for Human Minds 9
88-409 Behavioral Economics Perspectives on Ethical Issues 9

Units
45
4. Economic and Statistical Methods for Decision Science Units
70-374 Data Mining & Business Analytics 9
70-455 Modern Data Management 9
70-460 Mathematical Models for Consulting 9
73-265 Economics and Data Science 9
73-347 Game Theory Applications for Economics and Business 9
80-405 Game Theory 9
88-255 Strategic Decision Making 9
88-300 Programming and Data Analysis for Social Scientists 9
88-360 Behavioral Economics 9
88-367 Behavioral Economics in the Wild 9

5. Decision Science and Public Policy
84-364 Comparative Presidential Behavior: Leadership, Personality, and Decision Making 9
84-369 Decision Science for International Relations 9
88-221 Analytical Foundations of Public Policy 9
88-344 Environmental Policy and Planning 9
88-365 Behavioral Economics and Public Policy 9
88-366 Behavioral Economics of Poverty and Development 9
88-405 Risk Perception and Communication 9
88-435 Decision Science and Policy 9
88-444 Public Policy and Regulation 9
88-451 Policy Analysis Senior Project 12
or 88-452 Policy Analysis Senior Project 12

6. Research Methods for Decision Science
36-303 Sampling, Survey and Society 9
70-460 Mathematical Models for Consulting 9
85-310 Research Methods in Cognitive Psychology 9
88-252 Causal Inference in the Field 9
88-388 Psychological Models of Decision Making 9
88-402 Modeling Complex Social Systems 9

Note: Some courses have additional prerequisites.

**Decision Science, B.S. Sample Curriculum**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Spring</td>
<td>Fall</td>
</tr>
<tr>
<td>88-120 Reason, Passion and Cognition*</td>
<td>36-202 Methods for Statistics &amp; Data Science (or 85-309, also offered in Spring), or 88-309, offered in fall, to be taken fall of sophomore year</td>
<td>85-102 Introduction to Psychology</td>
</tr>
<tr>
<td>36-200 Reasoning with Data</td>
<td>Pick One (Freshman Seminar, 76-101, 79-104)</td>
<td>88-251 Empirical Research Methods</td>
</tr>
<tr>
<td>21-120 Differential and integral Calculus (or 21-111, depending on placement)</td>
<td>Pick One (Freshman Seminar, 76-101, 79-104)</td>
<td>Decision Science Elective</td>
</tr>
<tr>
<td>73-102 Principles of Microeconomics</td>
<td>Decision Science Elective</td>
<td>Gen Ed or Elective</td>
</tr>
<tr>
<td>Pick One (Freshman Seminar, 76-101, 79-104)</td>
<td>Gen Ed or Elective</td>
<td>Gen Ed or Elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>Decision Science Elective</td>
<td>88-223 Decision Analysis</td>
</tr>
<tr>
<td>Gen Ed or Elective</td>
<td>Decision Science Elective</td>
</tr>
<tr>
<td>Elective</td>
<td>Decision Science Elective</td>
</tr>
<tr>
<td>Elective</td>
<td>Decision Science Elective</td>
</tr>
<tr>
<td>Elective</td>
<td>Decision Science Elective</td>
</tr>
</tbody>
</table>

* 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 freshman 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.

**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, Policy and Organizations 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 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**

Christina Fong, **Faculty Director**
Location: Porter Hall 223
P-and-M-advisor@andrew.cmu.edu

Connie Angermeyer, **Senior Academic Program Manager and Advisor**
Location: Porter Hall 208A
claz@andrew.cmu.edu

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 core provides 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 | 21-111-21-112 Calculus I-II or 21-120 Differential and Integral Calculus |

Statistics Prerequisite

| Units | 36-200 Reasoning with Data |

Curriculum

Policy Core

| Units | 73-102 Principles of Microeconomics 9 |
| | 88-221 Analytical Foundations of Public Policy 9 |
| | 18 |

Management Core

| Units | 88-150 Managing Decisions 9 |
| 88-223 Decision Analysis 12 |
| 88-418 Domestic Negotiation 9 |
| or 88-419 International Negotiation 9 |
| | 30 |

Empirical Core

| Units | 36-202 Methods for Statistics & Data Science 9 |
| 88-251 Empirical Research Methods 9 |
| 88-252 Causal Inference in the Field 9 |
| or 88-275 Bubbles: Data Science for Human Minds 9 |
| | 27 |

Capstone

| 88-451 Policy Analysis Senior Project 12 |
| or 88-452 Policy Analysis Senior Project 12 |

Concentration

| 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 courses before making their concentration selection so that they can make a well-informed decision.

1. Analytics Concentration (minimum four total courses)

| Units | 88-300 Programming and Data Analysis for Social Scientists 9 |
| 88-252 Causal Inference in the Field (if not taken in Empirical Core) 9 |
| Analytics/Empirical electives (select any two courses) 18 |

2. Policy Concentration (minimum four total courses)

| Units | 88-344 Environmental Policy and Planning 9 |
| 88-365 Behavioral Economics and Public Policy 9 |
| 88-366 Behavioral Economics of Poverty and Development 9 |
| 88-367 Behavioral Economics in the Wild 9 |
| 88-411 Rise of the Asian Economies 9 |
| 88-435 Decision Science and Policy 9 |
| 88-444 Public Policy and Regulation 9 |
| 36-103 Sampling, Survey and Society 9 |
| 19-402 Telecommunications Technology and Policy for the Internet Age 12 |
| 19-421 Emerging Energy Policies 9 |
| 19-443 Climate Change Science and Adaptation 9 |
| 19-639 Policies of the Internet 12 |
| 73-328 Health Economics 12 |
| 79-342 Introduction to Science and Technology Studies 9 |
| 80-244 Environmental Ethics 9 |
| 80-324 Philosophy of Economics 9 |
| 80-341 Computers, Society and Ethics 9 |
| 84-310 International Political Economy 9 |
| 84-362 Diplomacy and Statecraft 9 |
| 84-389 Terrorism and Insurgency 9 |
| 90-798 Systems Analysis: Environmental Policy 12 |

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

| Units | * other Heinz courses are also approved. Please talk with the P&M advisor for information about getting approval for Heinz course registration |
| | 27 |

3. Management Concentration (minimum four total courses)

| Units | 88-231 Thinking in Person vs. Thinking Online 9 |
| 88-341 Team Dynamics and Leadership 9 |
| 88-406 Behavioral Economics @ Work 9 |
| 88-411 Rise of the Asian Economies 9 |
| 88-418 Domestic Negotiation (if not taken in Management Core) 9 |
| 88-419 International Negotiation (if not taken in Management Core) 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 9 |
| 70-430 International Management 9 |
| 80-344 Management, Environment, and Ethics 9 |

Management concentration breadth elective (select one course from any of the other three concentrations; must be 88xxx) * 9
4. Law Concentration (minimum four total courses) Units

**Topics of Law (select one course)** 9

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

**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
- 70-364 Business Law 9
- 70-365 International Trade and International Law 9
- 73-408 Law and Economics 9
- 80-321 Causation, Law, and Social Policy 9
- 80-447 Global Justice 9
- 84-313 International Organizations and Law 9
- 84-373 Emerging Technologies and the 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

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
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</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>36-200 Reasoning with Data</td>
<td>73-102 Principles of Microeconomics</td>
</tr>
<tr>
<td>21-120 Differential and integral Calculus (or 21-111, depending on placement)</td>
<td>Pick Two (Freshman Seminar, 76-101, 79-104)</td>
</tr>
<tr>
<td>Pick One (Freshman Seminar, 76-101, 79-104)</td>
<td>Gen Ed or Elective</td>
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<th>Senior</th>
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<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>Policy &amp; Management concentration elective</td>
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<td>Students may consider the CMU Washington Semester Program or study abroad in this semester</td>
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</table>

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 freshman 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 Decision Science

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Connie Angermeier, Senior Academic Program Manager
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 one course with another major or minor.

Curriculum 57 units

Core Courses 39 units
73-102 Principles of Microeconomics 9
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 categories. At least one of the courses (9 units) must be a Social and Decision Sciences course (88-xxx).

1. Biological and Behavioral Aspects of Decision Making Units
85-350 Psychology of Prejudice 9
85-352 Evolutionary Psychology 9
85-375 Crosscultural Psychology 9
85-377 Attitudes and Persuasion 9
85-442 Health Psychology 9
85-444 Relationships 9
85-466 Psychology of Gender 9
88-230 Human Intelligence and Human Stupidity 9
88-231 Thinking in Person vs. Thinking Online 9
88-342 The Neuroscience of Decision Making 9
88-360 Behavioral Economics 9
88-365 Behavioral Economics and Public Policy 9
88-380 Dynamic Decisions 9

2. Managerial and Organizational Aspects of Decision Making Units
70-311 Organizational Behavior 9
70-381 Marketing I 9
70-460 Mathematical Models for Consulting 9
88-150 Managing Decisions 9
88-221 Analytical Foundations of Public Policy 9
88-406 Behavioral Economics @ Work 9
88-418 Domestic Negotiation 9
88-419 International Negotiation 9
88-444 Public Policy and Regulation 9
88-451 Policy Analysis Senior Project 12 or 88-452 Policy Analysis Senior Project

3. Philosophical and Ethical Perspectives on Decision Making Units
70-332 Business, Society and Ethics 9
80-208 Critical Thinking 9
80-221 Philosophy of Social Science 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-246 Moral Psychology 9
80-249 AI, Society, and Humanity 9
80-271 Philosophy and Psychology 9
80-305 Decision Theory 9
80-321 Causation, Law, and Social Policy 9
80-324 Philosophy of Economics 9
88-275 Bubbles: Data Science for Human Minds 9
88-409 Behavioral Economics Perspectives on Ethical Issues 9

4. Economic and Statistical Methods for Decision Science Units
70-374 Data Mining & Business Analytics 9
70-455 Modern Data Management 9
70-460 Mathematical Models for Consulting 9
73-265 Economics and Data Science 9
73-347 Game Theory Applications for Economics and Business 9
80-405 Game Theory 9
88-255 Strategic Decision Making 9
88-300 Programming and Data Analysis for Social Scientists 9
88-360 Behavioral Economics 9
88-367 Behavioral Economics in the Wild 9

5. Decision Science and Public Policy Units
84-364 Comparative Presidential Behavior: Leadership, Personality, and Decision Making 9
84-369 Decision Science for International Relations 9
88-221 Analytical Foundations of Public Policy 9
88-344 Environmental Policy and Planning 9
88-365 Behavioral Economics and Public Policy 9
88-366 Behavioral Economics of Poverty and Development 9
88-405 Risk Perception and Communication 9
88-435 Decision Science and Policy 9
88-444 Public Policy and Regulation 9
88-451 Policy Analysis Senior Project 12 or 88-452 Policy Analysis Senior Project

6. Research Methods for Decision Science Units
36-303 Sampling, Survey and Society 9
70-460 Mathematical Models for Consulting 9
85-310 Research Methods in Cognitive Psychology 9
88-252 Causal Inference in the Field 9
88-388 Psychological Models of Decision Making 9
88-402 Modeling Complex Social Systems 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 one course with another major or minor.
Curriculum 57 units

Required Courses 39 units

73-102 Principles of Microeconomics 9
88-150 Managing Decisions 9
88-221 Analytical Foundations of 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 in the Field 9
88-275 Bubbles: Data Science for Human Minds 9
88-300 Programming and Data Analysis for Social Scientists 9
88-388 Psychological Models of Decision Making 9
88-402 Modeling Complex Social Systems 9
21-257 Models and Methods for Optimization 9
36-303 Sampling, Survey and Society 9
36-315 Statistical Graphics and Visualization 9
70-374 Data Mining & Business Analytics 9
70-455 Modern Data Management 9
70-460 Mathematical Models for Consulting 9
80-321 Causation, Law, and Social Policy 9
90-834 Health Care Geographical Information Systems 12

* other Heinz courses are also approved. Please talk with the P&M advisor for information about getting approval for Heinz course registration

Policy Concentration

88-344 Environmental Policy and Planning 9
88-365 Behavioral Economics and Public Policy 9
88-366 Behavioral Economics of Poverty and Development 9
88-367 Behavioral Economics in the Wild 9
88-411 Rise of the Asian Economies 9
88-435 Decision Science and Policy 9
88-444 Public Policy and Regulation 9
36-303 Sampling, Survey and Society 9
19-402 Telecommunications Technology and Policy for the Internet Age 12

19-421 Emerging Energy Policies 9
19-443 Climate Change Science and Adaptation 9
19-639 Policies of the Internet 9
73-328 Health Economics 12
79-342 Introduction to Science and Technology Studies 9
80-244 Environmental Ethics 9
80-324 Philosophy of Economics 9
80-341 Computers, Society and Ethics 9
84-310 International Political Economy 9
84-362 Diplomacy and Statecraft 9
84-389 Terrorism and Insurgency 9
90-798 Systems Analysis: Environmental Policy 12

* other Heinz courses are also approved. Please talk with the P&M advisor for information about getting approval for Heinz course registration

Management Concentration

88-231 Thinking in Person vs. Thinking Online 9
88-341 Team Dynamics and Leadership 9
88-406 Behavioral Economics @ Work 9
88-411 Rise of the Asian Economies 9
88-418 Domestic Negotiation 9
88-419 International Negotiation 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
80-344 Management, Environment, and Ethics 9

Law Concentration

88-281 Topics in Law: 1st Amendment 9
88-284 Topics of Law: The Bill of Rights 9
70-364 Business Law 9
70-365 International Trade and International Law 9
73-408 Law and Economics 9
80-323 Causation, Law, and Social Policy 9
80-447 Global Justice 9
84-313 International Organizations and Law 9
84-373 Emerging Technologies and the Law 9

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