When addressing complex issues, we often rely on approaches that take advantage of a variety of relevant disciplines. The college houses the special category of "interdepartmental majors" for programs where this interdisciplinary approach is most pronounced and in which the varied disciplinary perspectives are most fully integrated. These majors are presented here separately, rather than as departmentally-based options, to reflect and underscore their sponsorship by more than one academic department and the unique features that follow from this structure.

Interdepartmental majors are administered by the academic department of the major's faculty advisor.

### The Major in Economics and Mathematical Sciences

**Academic Advisor:** Kathleen Conway  
**Office:** GSIA 131  
**Email:** kconway@andrew.cmu.edu

The B.S. in Economics and Mathematical Sciences (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/undergraduateeconomicstaprogram/#bsineconomicsandmathematicalsciencescurriculum) is a collaborative effort between the Department of Mathematical Sciences and the Undergraduate Economics Program. Combining advanced mathematics with advanced economic theory is the hallmark of this curriculum. The curriculum provides students with courses that complement and develop depth of understanding of economic theory, applied economics, and applied mathematics. This major offers an integrated curriculum, guiding students through a program of coursework that exploits and builds upon the synergies between mathematics and economics. This degree program equips students with the mathematical tools that are essential for success in Ph.D. programs in economics, mathematics, and key functional areas of business including finance, accounting, marketing, and information systems. Students pursuing this degree will be well prepared for the beginning of their research careers in academia, government, and industry. There are a limited number of student slots in this program; interested students may apply as early as their sophomore year.

### The Major in Economics and Statistics

**Academic Advisor:** Paige Houser  
**Faculty Advisor:** Rebecca Nugent  
**Executive Director, Undergraduate Economics Program:** Carol Goldburg  
**Associate Director, Undergraduate Economics Program:** Kathleen Conway  
**Office:** Baker Hall 132A  
**Email:** acadcoord@stat.cmu.edu

The Major in Economics and Statistics provides an interdisciplinary course of study aimed at students with a strong interest in the empirical analysis of economic data. With joint curriculum from the Department of Statistics and the Undergraduate Economics Program, the major provides students with a solid foundation in the theories and methods of both fields. Students in this major are trained to advance the understanding of economic issues through the analysis, synthesis and reporting of data using the advanced empirical research methods of statistics and econometrics. Graduates are well positioned for admission to competitive graduate programs, including those in statistics, economics and management, as well as for employment in positions requiring strong analytic and conceptual skills - especially those in economics, finance, education, and public policy.

The requirements for the B.S. in Economics and Statistics are the following:

#### I. Prerequisites 38-39 units

1. **Mathematical Foundations** 38-39 units

   **Calculus**
   
   21-120 Differential and Integral Calculus 10
   
   and one of the following three:
   
   21-122 Integration and Approximation 10
   21-127 Concepts of Mathematics 10
   21-257 Models and Methods for Optimization 9
   
   and one of the following:
   
   21-256 Multivariate Analysis 9

21-259 Calculus in Three Dimensions 9

**Note:** Passing the MSC 21-120 assessment test is an acceptable alternative to completing 21-120.

**Note:** Taking both 21-111 and 21-112 is equivalent to 21-120. The Mathematical Foundations total is then 48-49 units. The Economics and Statistics major would then total 201-202 units.

#### II. Foundations 18-27 units

2. **Economics Foundations** 9 units

   73-100 Principles of Economics 9

3. **Statistical Foundations** 9-18 units

   **Sequence 1 (For students beginning their freshman or sophomore year)**
   
   **Beginning**
   
   Choose one of the following courses:
   
   36-201 Statistical Reasoning and Practice 9
   36/70-207 Probability and Statistics for Business Applications 9
   36-220 Engineering Statistics and Quality Control 9
   36-247 Statistics for Lab Sciences 9

   *Or extra data analysis course in Statistics

   **Sequence 2 (For students beginning later in their college career)**
   
   **Intermediate**
   
   Choose one of the following courses:
   
   36-202 Statistical Methods 9
   36-208 Regression Analysis 9
   36-309 Experimental Design for Behavioral and Social Sciences 9

   *Or extra data analysis course in Statistics

**Students who enter the program with 36-225/36-226 should discuss options with their advisors.**

#### III. Disciplinary Core 126 units

1. **Economics Core** 45 units

   73-230 Intermediate Microeconomics 9
   73-240 Intermediate Macroeconomics 9
   73-270 Writing for Economists 9
   73-274 Econometrics I 9
   73-374 Econometrics II 9

**Special Topics rotate and new ones are regularly added.**
2. Statistics Core 36 units
36-225 Introduction to Probability Theory * 9
and one of the following two courses:
36-226 Introduction to Statistical Inference * 9
36-326 Mathematical Statistics (Honors) * 9
and both of the following two courses:
36-401 Modern Regression * 9
36-402 Advanced Methods for Data Analysis 9
*In order to be a major in good standing, a grade of C or better is required in 36-225 (or equivalents), 36-226 or 36-326 and 36-401. Otherwise you will not be allowed to continue in the major.
#It is possible to substitute 36-217 or 21-325 for 36-225. (36-225 is the standard introduction to probability, 36-217 is tailored for engineers and computer scientists, and 21-325 is a rigorous Probability Theory course offered by the Department of Mathematics.)

3. Computing 9 units
36-350 Statistical Computing * 9
*In rare circumstances, a higher level Computer Science course that includes Statistical Computing content approved by your Statistics advisor may be used as a substitute.

4. Advanced Electives 36 units
Students must take two advanced Economics elective courses (numbered 73-300 through 73-495, excluding 73-374, 73-407 and 73-450) and two advanced Statistics elective courses (numbered 36-303, 36-315, or 36-410 through 36-495).

Total number of units for the major 182-192 units
Total number of units for the degree 360 units

Professional Development
Students are strongly encouraged to take advantage of professional development opportunities and/or coursework. One option is 73-450 Economics Colloquium, a fall-only mini that provides information about careers in Economics, job search strategies, and research opportunities. The Statistics Department also offers a series of workshops pertaining to resume preparation, graduate school applications, careers in the field, among other topics. Students should also take advantage of the Career and Professional Development Center.

Sample Program
The following sample program illustrates one way to satisfy the requirements of the Economics and Statistics Major. Keep in mind that the program is flexible and can support other possible schedules (see footnotes below the schedule).

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>21-120 Differential and Integral Calculus</td>
<td>36-202 Statistical Methods</td>
</tr>
<tr>
<td>36-201 Statistical Reasoning and Practice</td>
<td>21-256 Multivariate Analysis</td>
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</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>36-401 Modern Regression</td>
<td>73-270 Writing for Economists</td>
</tr>
<tr>
<td>73-374 Econometrics II</td>
<td>-----</td>
</tr>
</tbody>
</table>

*In each semester, ----- represents other courses (not related to the major) which are needed in order to complete the 360 units that the degree requires.
** Students can also take 21-127 or 21-257. Students should consult with their advisor.

Students who elect Economics and Statistics as a second major must fulfill all Economic and Statistics degree requirements. Majors in many other programs would naturally complement an Economics and Statistics Major, including Business Administration, Social and Decision Sciences, Policy and Management, Social & Political History, and Psychology.

With respect to double-counting courses, it is departmental policy that students must have at least six courses (three Economics and three Statistics) that do not count for their primary major. If students do not have at least six, they typically take additional advanced electives.

Students are advised to begin planning their curriculum (with appropriate advisors) as soon as possible. This is particularly true if the other major has a complex set of requirements and prerequisites.

**Dietrich College Interdisciplinary Majors**

Additional Major in Environmental Policy

Faculty Director: John Soluri
Office: Baker Hall 240
E-mail: jsoluri@andrew.cmu.edu

The additional major in Environmental Policy focuses on human-environment interactions from a multitude of disciplinary perspectives. The curriculum draws on the expertise of faculty across several Carnegie Mellon colleges in order to provide students with the interdisciplinary background and skills necessary to understand environmental problems and the means to mitigate them. It emphasizes three general areas: (1) natural science and technology; (2) social sciences; and (3) the humanities. The flexible curriculum features training in research methods; a set of core courses on fundamental environmental issues including energy, pollution, and biological diversity; and a project course experience geared toward policy formulation. The total units required are 121.

Note that some courses carry prerequisites and/or reserve seats for primary majors. Students interested in pursuing the additional major must meet beforehand with the Faculty Director and their home unit academic advisor in order to evaluate the feasibility of completing the additional major and to map out a course of study. Double counting follows guidelines set by the Dietrich College. Students are encouraged to be alert to new course offerings; every effort will be made to find equivalent courses that meet student interest when done in consultation with the Faculty Director.

Prerequisites (55-57 units)

Complete ALL of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-111 Calculus I-(or equivalent)</td>
<td>10</td>
</tr>
<tr>
<td>36-201 Statistical Reasoning and Practice</td>
<td>9</td>
</tr>
<tr>
<td>36-202 Statistical Methods</td>
<td>9</td>
</tr>
</tbody>
</table>

Complete THREE of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-121 Modern Biology</td>
<td>9</td>
</tr>
<tr>
<td>03-124 Modern Biology Laboratory-(03-121 is corequisite)</td>
<td>9</td>
</tr>
<tr>
<td>03-125 Evolution</td>
<td>9</td>
</tr>
<tr>
<td>09-103 Atoms, Molecules and Chemical Change</td>
<td>9</td>
</tr>
<tr>
<td>09-105 Introduction to Modern Chemistry I</td>
<td>10</td>
</tr>
<tr>
<td>09-106 Modern Chemistry II</td>
<td>10</td>
</tr>
</tbody>
</table>

Disciplinary Perspectives: Complete TWO of the following courses (18 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-510 Chemistry and Sustainability</td>
<td>9</td>
</tr>
<tr>
<td>73-148 Environmental Economics</td>
<td>9</td>
</tr>
<tr>
<td>76-319 Environmental Rhetoric</td>
<td>9</td>
</tr>
</tbody>
</table>
Curriculum

Students graduating with a primary major in Ethics, History, and Public Policy may elect to receive either a Bachelor of Arts or a Bachelor of Science Degree (additional requirements apply; see below). Basic requirements include 120 units encompassing 9 units in Economics, 36 units in History, 36 units in Philosophy, 27 units of elective courses, and a 12-unit senior capstone course. This program may also be taken as an additional (e.g., second) major. All courses toward the major must be taken for a letter grade, and 79-200 and 79-300 must be passed with a grade of “C” or better.

Research and Analytical Methods: Complete TWO of the following courses (18 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>36-309</td>
<td>Experimental Design for Behavioral and Social Sciences</td>
<td>9</td>
</tr>
<tr>
<td>79-380</td>
<td>Ethnographic Methods</td>
<td>9</td>
</tr>
<tr>
<td>79-381</td>
<td>Energy and Empire: How Fossil Fuels Changed the World</td>
<td>9</td>
</tr>
<tr>
<td>88-220</td>
<td>Policy Analysis I</td>
<td>9</td>
</tr>
<tr>
<td>88-251</td>
<td>Empirical Research Methods</td>
<td>9</td>
</tr>
</tbody>
</table>

Project Course: Complete ONE of the following courses (12 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-451</td>
<td>EPP Projects (pre-approved topics)</td>
<td>12</td>
</tr>
<tr>
<td>19-452</td>
<td>EPP Projects (pre-approved topics)</td>
<td>12</td>
</tr>
</tbody>
</table>

The Major in Ethics, History, and Public Policy

Alex John London, Director
Office: Baker Hall 150A
Email: ajlondon@andrew.cmu.edu

http://www.cmu.edu/hss/ehpp/

The B.A./B.S. in Ethics, History, and Public Policy is an interdepartmental major offered jointly by the Departments of History and Philosophy. It prepares students for leadership positions by providing them with a rigorous, interdisciplinary humanistic and social-scientific education. It also serves as an excellent springboard for graduate study in a wide variety of disciplines such as law, public policy, ethics, and advocacy. The program focuses equally on the historical understanding of how modern-day problems have evolved, and the importance of developing clear criteria for ethical decision-making. The capstone project course provides students with the opportunity to engage with real-world public policy challenges using the methods, theories, and knowledge that they have gained through the major. Offered jointly by the departments of History and Philosophy, the B.A./B.S. in EHPP encourages specialization, internship experiences, and research in a wide range of policy areas.

The Economics Requirement 9 units

Choose one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>73-100</td>
<td>Principles of Economics</td>
<td>9</td>
</tr>
<tr>
<td>88-220</td>
<td>Policy Analysis I</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

II. History Core 36 units

Choose one 9-unit course from each category below:

Policy History (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-300</td>
<td>History of American Public Policy</td>
<td>9</td>
</tr>
</tbody>
</table>

U.S. History (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-240</td>
<td>Development of American Culture</td>
<td>9</td>
</tr>
<tr>
<td>79-249</td>
<td>20th/21st Century U.S. History</td>
<td>9</td>
</tr>
</tbody>
</table>

Non-U.S. History (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-202</td>
<td>Flesh and Spirit: Early Modern Europe</td>
<td>9</td>
</tr>
<tr>
<td>79-203</td>
<td>Social and Political Change in 20th Century</td>
<td>9</td>
</tr>
<tr>
<td>79-205</td>
<td>20th/21st Century Europe</td>
<td>9</td>
</tr>
<tr>
<td>79-207</td>
<td>Development of European Culture</td>
<td>9</td>
</tr>
<tr>
<td>79-222</td>
<td>Between Revolutions: The Development of Modern Latin America</td>
<td>9</td>
</tr>
<tr>
<td>79-223</td>
<td>Mexico: From the Aztec Empire to the Drug War</td>
<td>9</td>
</tr>
<tr>
<td>79-226</td>
<td>African History: Earliest Times to 1780</td>
<td>9</td>
</tr>
<tr>
<td>79-227</td>
<td>African History: Height of Trans-Atlantic Slave Trade to the End of Apartheid</td>
<td>9</td>
</tr>
<tr>
<td>79-229</td>
<td>Origins of the Arab-Israeli Conflict, 1880-1949</td>
<td>9</td>
</tr>
<tr>
<td>79-230</td>
<td>Arab-Israeli Conflict and Peace Process since 1948</td>
<td>9</td>
</tr>
<tr>
<td>79-237</td>
<td>Comparative Slavery</td>
<td>9</td>
</tr>
<tr>
<td>79-251</td>
<td>India/America: Democracy, Diversity, Development</td>
<td>9</td>
</tr>
<tr>
<td>79-261</td>
<td>The Last Emperors: Chinese History and Society, 1600-1900</td>
<td>9</td>
</tr>
<tr>
<td>79-262</td>
<td>Modern China: From the Birth of Mao ... to Now</td>
<td>9</td>
</tr>
<tr>
<td>79-264</td>
<td>Tibet and China: History and Propaganda</td>
<td>9</td>
</tr>
<tr>
<td>79-265</td>
<td>Russian History: From the First to the Last Tsar</td>
<td>9</td>
</tr>
<tr>
<td>79-266</td>
<td>Russian History: From Communism to Capitalism</td>
<td>9</td>
</tr>
<tr>
<td>79-307</td>
<td>Religion and Politics in the Middle East</td>
<td>9</td>
</tr>
</tbody>
</table>

Historical Methods and Approaches (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-200</td>
<td>Introduction to Historical Research &amp; Writing</td>
<td>9</td>
</tr>
</tbody>
</table>

III. Philosophy Core 36 units

Choose one 9-unit course from each category below. No more than 9 units at the 100 level may be counted toward this requirement.

Ethics (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-130</td>
<td>Introduction to Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-230</td>
<td>Ethical Theory</td>
<td>9</td>
</tr>
</tbody>
</table>

Political Philosophy (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-135</td>
<td>Introduction to Political Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-334</td>
<td>Social and Political Philosophy</td>
<td>9</td>
</tr>
</tbody>
</table>

Foundations of Social Science (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-221</td>
<td>Philosophy of Social Science</td>
<td>9</td>
</tr>
<tr>
<td>80-321</td>
<td>Causation, Law, and Social Policy</td>
<td>9</td>
</tr>
<tr>
<td>80-324</td>
<td>Philosophy of Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-337</td>
<td>Philosophy, Politics &amp; Economics</td>
<td>9</td>
</tr>
</tbody>
</table>

Applied Philosophy (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-136</td>
<td>Social Structure, Public Policy &amp; Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-244</td>
<td>Environmental Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-245</td>
<td>Medical Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-247</td>
<td>Ethics and Global Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-335</td>
<td>Deliberative Democracy: Theory and Practice</td>
<td>9</td>
</tr>
<tr>
<td>80-348</td>
<td>Health Development and Human Rights</td>
<td>9</td>
</tr>
</tbody>
</table>
### IV. Senior Capstone Project Course 12 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-449</td>
<td>EHPP Project Course [cross-listed]</td>
<td>12</td>
</tr>
<tr>
<td>80-449</td>
<td>EHPP Project Course</td>
<td>12</td>
</tr>
</tbody>
</table>

The Ethics, History and Public Policy Project Course is required for the Ethics, History and Public Policy major and is taken in the fall semester of the senior year. In this capstone course, Ethics, History and Public Policy majors carry out a collaborative research project that examines a compelling current policy issue that can be illuminated with historical research and philosophical and policy analysis. The students develop an original research report based on both archival and contemporary policy analysis and they present their results to a client organization in the community.

### V. Elective Courses 27 units

Choose any three courses from any category or categories shown below. Substitution of elective courses that cohere with a student’s interest or concentration may be allowed after consultation with and approval from the Director.

Engineering and Public Policy (some courses have prerequisites; see EPP catalog listing)
- 19-424 Energy and the Environment 9

Business
- 70-311 Organizational Behavior 9
- 70-321 Negotiation and Conflict Resolution 9
- 70-332 Business, Society and Ethics 9
- 70-364 Business Law 9
- 70-365 International Trade and International Law 9
- 70-430 International Management 9

Economics (some courses have prerequisites; see Economics catalog listing)
- 73-148 Environmental Economics 9
- 73-310 Evolution of Economic Ideas and Analysis 9
- 73-352 Public Economics 9
- 73-358 Economics of the Environment and Natural Resources 9
- 73-359 Benefit-Cost Analysis 9
- 73-365 Firms, Market Structures, and Strategy 9
- 73-372 International Money and Finance 9
- 73-375 History of Money and Monetary Policy 9
- 73-408 Law and Economics 9
- 73-476 American Economic History 9

English
- 76-492 Rhetoric of Public Policy 9

History

Courses from the EHPP History Core (above) may be taken as electives only if they are not being used to fulfill the core requirement. Double counting is not permitted.
- 79-217 The War in Vietnam 9
- 79-221 Development and Democracy in Latin America 9
- 79-231 American Foreign Policy: 1945-Present 9
- 79-233 The United States and the Middle East since 1945 9
- 79-242 African American History: Reconstruction to the Present 9
- 79-253 American Massacres in History and Memory 6
- 79-267 The Soviet Union in World War II: Military, Political, and Social History 6
- 79-288 Bananas, Baseball, and Borders: Latin America and the United States 9
- 79-298 Mobile Phones & Social Media in Development & Human Rights: A Critical Appraisal 6
- 79-299 From Newton to the Nuclear Bomb: History of Science, 1750-1950 9
- 79-301 History of Surveillance: From the Plantation to Edward Snowden 6

Philosophy

Courses from the EHPP Philosophy Core (above) may be taken as electives only if they are not being used to fulfill the core requirement. Double counting is not permitted.
- 80-256 Modern Moral Philosophy 9
- 80-305 Choices, Decisions, and Games 9
- 80-405 Game Theory 9

Institute for Politics and Strategy
- 84-310 International Political Economy and Organizations 9
- 84-380 Grand Strategy in the United States 9
- 84-393 Legislative Decision Making: US Congress 9
- 84-402 Judicial Politics and Behavior 9

Social and Decision Sciences
- 88-223 Decision Analysis 9
- 88-281 Topics in Law: 1st Amendment 9
- 88-345 Perspectives on Industrial Research and Development 9
- 88-371 Entrepreneurship, Regulation and Technological Change 9
- 88-387 Social Norms and Economics 9
- 88-444 Public Policy and Regulation 9

### VI. Bachelor of Science Option

Students may elect to earn a Bachelor of Science rather than a Bachelor of Arts degree by completing two courses from the list below, or by petitioning the Director of EHPP to accept equivalent courses as substitutions.
- 21-257 Models and Methods for Optimization 9
- 36-202 Statistical Methods 9
- 36-208 Regression Analysis 9
- 36-207 Probability and Statistics for Business Applications 9
- 36-303 Sampling, Survey and Society 9
- 36-309 Experimental Design for Behavioral and Social Sciences 9
- 80-305Choices, Decisions, and Games 9
- 84-265 Political Science Research Methods 9
- 88-251 Empirical Research Methods 9
The Major in Information Systems

Faculty Program Director: Randy S. Weinberg
Office: Porter Hall 224C, rweinberg@cmu.edu
Program Advisor: Carol Young
Office: Porter Hall 222F, caroly@cmu.edu
Faculty: C.F. Larry Heimann, Jeria Quesenberry, Raja Sooriamrthi

Information Systems (IS) is a unique and innovative undergraduate interdisciplinary program, drawing on a wide range of exciting college and university strengths. IS is an internationally recognized undergraduate major for students who want to design and implement effective solutions to meet organizational and management needs for information and decision support. IS majors learn how elements of organizations, technology, economics, social aspects and human interaction work together to create effective computer-based information systems to a range real outcomes. Graduates of the Program are ideally situated to take a leading role in managing and shaping our information-based future.

For full program information, go to The Major in Information Systems (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesand社会科学/sinformationsystems/).

The Major in Linguistics

Tom Werner, Director
Office: Baker Hall 155F
Email: twerner@andrew.cmu.edu

Linguistics is the study of human language, and it encompasses a broad spectrum of research questions, approaches and methodologies. Some linguists are concerned with the cognitive aspects of language learning, production and comprehension; some are concerned with language as a social and cultural phenomenon; others engage in the analysis of linguistic form and meaning, some from a functional and others from a formal perspective. There are also computational approaches to linguistics with both applied and theoretical goals.

The major in Linguistics reflects the multidisciplinary character of the field and of the Linguistics faculty here at Carnegie Mellon, offering a program which provides students with the fundamental tools of linguistic analysis while maintaining a focus on the human context in which language is learned and used. The major is available as either a primary major or an additional major. It is an ideal choice for students with a general interest in their own or other languages, and combines well thematically with studies in any of the departments represented in the major.

Curriculum

The Linguistics major requires a total of 12 courses, which includes 2 semesters of language study. In addition, primary majors in Linguistics are required to write a Senior Thesis in their final year. At least three courses (not including specific language courses) must be at the 300-level or higher. All courses counted towards the major must be taken for a letter grade and passed with a grade of "C" or above. For Dietrich College students, up to 2 of these courses may be counted also as satisfying the college's general education requirements (as long as the double-counting maximum established by the college is not exceeded), with permission of the major director. Students from other colleges may fulfill their Humanities requirements using courses taken towards the Linguistics Major. However, no courses may be counted simultaneously towards the Linguistics Major and any other major or minor.

Introductory course

80-180 Nature of Language 9

Fundamental Skills

Take one course from each of the following core subject areas:

Sounds
80-282 Phonetics and Phonology I 9

Structure
80-280 Linguistic Analysis 9
80-285 Natural Language Syntax 9

Meaning
80-381 Meaning in Language 9
80-383 Language in Use 9
76-385 Introduction to Discourse Analysis 9

Breadth

Take one course from each of the following breadth subject areas:

Area 1: Language Learning and Language Cognition
76-420 The Cognition of Reading and Writing: Introduction to a Social/Cognitive Process 9
80-281 Language and Thought 9
82-280 Learning About Language Learning 9
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-585 Topics in Second Language Acquisition 9
85-354 Infant Language Development 9
85-421 Language and Thought 9

Area 2: Discourse, Society and Culture
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
80-283 Syntax and Discourse 9
82-273 Introduction to Japanese Language and Culture 9
82-283 Language Diversity & Cultural Identity 9
82-333 Introduction to Chinese Language and Culture Var. 9
80-383 Language in Use 9
82-388 Understanding Second Language Fluency 9

Electives

Take four additional electives. These can be additional courses from the Fundamental Skills courses or Breadth courses listed above, or any other course which is approved by the Director as a linguistics elective. Listed below are the additional electives taught on a regular basis. Additional appropriate courses are offered irregularly or on a one-off basis. The Director will provide students with a list of possible electives each semester, and will assist students in selecting electives which are consistent with their goals and interests.

76-378 Literacy: Educational Theory and Community Practice 9
76-451 Language and Globalization 9
80-284 Invented Languages 9
80-286 Words and Word Formation: Introduction to Morphology 9
80-287 Historical and Comparative Linguistics 9
80-380 Philosophy of Language 9
80-382 Phonetics and Phonology II 9
80-384 Linguistics of Turkic Languages 9
80-385 Linguistics of Germanic Languages 9
82-373 Structure of the Japanese Language 9
11-411 Natural Language Processing 9
11-492 Speech Processing 9
11-716 Graduate Seminar on Dialog Processing 6

The above sample program is presented as a two-year (junior-senior year) plan for completing EHP major requirements. Its purpose is to show that this program can be completed in as few as two years; not that it must be. Students may enter the EHP major, and begin major course requirements, as early as the start of the sophomore year, or even in the first year. Students should consult their advisor when planning their program.
Language Requirement
Students must successfully complete two semesters of consecutive language courses. (Note that students may not 'test out' of this requirement. However, language courses taken at other institutions or as part of a study abroad program will typically substitute for a semester of language study.)

Senior Thesis [primary majors only]
Primary majors must complete a senior thesis (a workload equivalent to a 12-unit course) during their senior year. Topics must be approved by an advisor, who will work with the student and guide the thesis project.

Note
• All 11-xxx courses have significant Computer Science prerequisites. Interested students should check with the course instructor before registering.

The Major in Psychology and Biological Sciences
This unified major is intended to reflect the interdisciplinary nature of our current research in the fields of psychology and biology, as well as the national trend in some professions to seek individuals broadly trained in both the social and natural sciences. Students entering from the Dietrich College of Humanities and Social Sciences will earn a Bachelor of Science in Psychology and Biological Sciences. Students entering from the Mellon College of Sciences receive a Bachelor of Science in Biological Sciences and Psychology. Students entering from the Science and Humanities Scholars (SHS) program can complete the SHS educational core and choose either departmental order for their diploma.

Pre-Major Requirements
The unified major specifies particular pre-major requirements in the areas of mathematical sciences and statistics, natural science, and computational reasoning. Particular courses are specified in these areas because they are prerequisites for courses required in the major and therefore they are the most efficient way to complete the general education requirements for either Dietrich College or SHS. All other general education categories can be filled in any way that satisfies the requirements of the student's college or of the SHS program.

The major in Psychology and Biological Sciences is offered only as a B.S. degree. Full curriculum requirements can be viewed here (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumaneandsocialsciences/departmentofpsychology/#unifieddoublemajorinpsychologyandbiologicalsciences).

Student-Defined Major Program
Joseph E. Devine, Director; Associate Dean for Undergraduate Studies
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http://www.hss.cmu.edu/studentdefinedmajor.html

For Dietrich College students whose educational goals cannot be as adequately served by the curricula of existing majors, the college offers the opportunity to self-define a major. The procedure for establishing such a major centers on a written proposal, submitted to the Dietrich College Dean's Office. This proposal consists of two parts:

Major description and rationale. A description of the components of the proposed program of study; a presentation of the objectives of the program of study, how it represents a coherent and (given available faculty, courses, and other resources) viable course of study, and the reason(s) why these objectives cannot be accomplished within one or more of the college's existing majors.

The curriculum. Presentation of a complete outline of all courses that will comprise the requirements for the major. These courses should be categorized in two ways: first, according to that component of the major program to which each belongs (e.g., mathematical prerequisites; research methods; theoretical perspectives; etc.); and second, a semester-by-semester outline that indicates when each course is to be taken (or, for any already taken, when taken and grade received). In addition to courses taken at Carnegie Mellon, the major's curriculum may include courses taken (or to be taken) at other schools, related projects or internships, or programs of study abroad. The minimum requirements for graduation is, as with all majors in the college, 360 units of credit and completion of the Dietrich College general education program.

Proposals and curricula are evaluated for clarity of focus, coherence and depth in related areas, and viability. Proposals should generally be developed no later than the sophomore year, and approved majors begin their program generally no later than the junior year.

The student-defined option is also possible to propose as an additional major or minor. These options extend to undergraduates from all Carnegie Mellon colleges.