BXA Intercollege Degree Programs

http://www.cmu.edu/interdisciplinary

Mission Statement

The BXA Intercollege Degree Programs are designed for students who want to turn talent and passion into viable professions for the future through a challenging academic regimen. BXA students pursue their goals with the help of multifaceted advising, innovative pedagogical strategies, and a focus on the impact arts have on technology and vice versa.

The goal of the Bachelor of Humanities and Arts (BHA), the Bachelor of Science and Arts (BSA), and the Bachelor of Computer Science and Arts (BCSA) BXA Intercollege Degree Programs is to allow a select group of students who demonstrate interest and accomplishment in the fine arts and the humanities, social sciences or natural sciences, computer science, and emerging media to explore beyond the traditional academic major, or integrate more than one field of study across disciplines. These programs foster the creativity of students who explore innovative approaches to the academic environments of two colleges. By merging the components in the arts and humanities, natural sciences, or computer science into an interdisciplinary/multidisciplinary study, a unique, complex product is born. BXA students produce new information, challenging questions, and innovative theory. BXA students are models of independence, motivation, and well-rounded scholarship as humanists, scientists, and artists at the same time.

In the context of the Carnegie Mellon University environment, the BXA Intercollege Degree Programs hold a special role. BXA provides access to four strong colleges that offer specialized training with expert faculty and researchers. The BXA Programs challenge students to utilize those resources as they explore and develop their own approach to interdisciplinary studies in the fine arts and the humanities and social sciences, the natural and mathematical sciences, or computer science.

BXA students balance courses in their CFA concentration with courses in their academic concentration, as well as BXA-specific courses. These BXA-specific courses give students the opportunity to integrate their areas of concentration by focusing on interdisciplinary approaches and arts-based research techniques. The curricula in the concentration areas provide students with a solid disciplinary foundation upon which they can draw for interdisciplinary projects.

A BXA intercollege degree prepares students for graduate study and careers in an enormous variety of fields, including traditional graduate training in the arts as well as academic areas, positions in arts and education non-profits such as museums and foundations, and technical positions with media and technology companies.

Program Objectives

The skills developed by BXA students span the creative, the technical, the academic, and the practical. The objective of the BXA Intercollege Program is to prepare graduates for careers in which they will draw on their creative and academic skills to create, educate, communicate, and innovate across disciplines.

Students who complete the BXA curriculum will graduate with the following skills:

- Foundational knowledge and technical expertise in the CFA concentration area and the DC/MCS/SCS concentration area
- Ability to describe the connections between these concentrations and how the student integrates them
- Ability to communicate ideas textually, visually, and orally
- Knowledge of how the concentration disciplines intersect with history, society, and culture from local and global perspectives
- Ability to use cognitive, behavioral, and ethical dimensions within the concentration disciplines to make decisions on individual and social levels
- Experience in engaging in art research to produce new knowledge both within the CFA concentration and the DC/MCS/SCS concentration area
- Experience in designing, researching, and completing a large-scale, object-based project that integrates both areas of concentration

Bachelor of Humanities and Arts Degree Program

Carnegie Mellon University offers an intercollege degree that combines the strengths of the College of Fine Arts (CFA) and the College of Dietrich College of Humanities and Social Sciences (DC). The intercollege degree, called the Bachelor of Humanities and Arts (BHA), offers depth of study in both the fine arts and the humanities, social and behavioral sciences. The BHA Degree Program enables a student to receive broader exposure to the humanities and liberal arts than is generally possible through a Bachelor of Fine Arts degree in CFA, while obtaining deeper and more substantial training in the fine arts than is generally possible through a Bachelor of Arts or Bachelor of Science degree in DC. Students receive extensive training in one or more of the fine arts disciplines as well as related advanced training in areas such as writing, social sciences, behavioral sciences, or cultural studies. The program also provides enough flexibility to allow students to explore other areas of interest. The most important aspect of the BHA Program is for students to blend their interests, and to explore the connections between their chosen disciplines.

The BHA curriculum is divided into three parts: 1) General Education coursework, 2) CFA concentration coursework, and 3) DC concentration coursework.

Students choose their fine arts concentration from among the five schools in CFA: Architecture, Art, Design, Drama, or Music. A student must meet the entrance requirements for the particular CFA school of their choice. While in the BHA Program, a student may change their CFA concentration only if they pass all admission requirements for that particular school.

Students choose their humanities or social/behavioral sciences concentration from the list of majors and minors offered by DC.

The BHA Degree Program is governed by faculty and administrators from both colleges and led by the director of the BHA Intercollege Degree Programs. The director and academic advisor of the BHA Intercollege Degree Programs are the primary advisors and liaisons between CFA and DC. Students receive extensive advising support. Each student has two additional academic advisors: an advisor in the admitting school of CFA for their fine arts concentration, and an advisor in DC for their humanities/social sciences concentration. This network of advisors guides each student through their curriculum.

Masters of Arts Management (MAM) Option

BHA students who have an interest in arts management and wish to go on for an advanced degree may select courses in their sophomore and junior years to prepare them for this area. A student in the junior year may apply for an advanced degree may select courses in the senior year, earn the BHA degree, and continue on for an additional year to complete the work for the Masters of Arts Management (MAM) degree.

BHA Curriculum

| I. BHA General Education                      | 111 |
| I. BHA General Education (GenEd)             |     |
| Units                                         |     |
| I. Communicating: Language and Interpretations| 27  |
| (3 courses, 76-101 required, two approved modern language courses required) |     |
| Reflecting: Societies and Cultures            | 9   |
| (1 course, 79-104 required)                  |     |
| Modeling: Mathematics and Experiments         | 9   |
| (1 course, 36-201 required)                  |     |
| Deciding: Social Sciences and Values          | 27  |
| (3 courses, 36-201 required)                  |     |

Total BHA Degree Requirements: 378
- BXA Freshman Interdisciplinary Seminar (1 course, 9 units, 52-190 or 52-399 required)
- BXA Junior Seminar (1 course, 9 units, 52-410 required)
- BXA Junior Portfolio Review (complete 1 required review, 0 units, 52-391 required)
- BXA Capstone Project (2 courses, 18 units, 52-401 & 52-402 required)
- Computing @ Carnegie Mellon (1 mini-course, 3 units, required in first semester)

Communicating: Language and Interpretations (3 courses, complete 27 units minimum)
Courses in this category give special attention to the study of language as interpretation, expression and argument within and across multiple discourses. Students examine language for its internal logics and structures.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-101</td>
<td>Interpretation and Argument -REQUIRED</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>(various topics by section)</td>
<td></td>
</tr>
<tr>
<td>82-xxx</td>
<td>Modern Languages -REQUIRED</td>
<td>18</td>
</tr>
</tbody>
</table>

Complete two courses taught in a language offered by the Modern Language Department. A wide selection of courses are offered in Arabic, Chinese Studies, European Studies, French and Francophone Studies, German Studies, Hispanic Studies, Italian, Japanese Studies, Russian Studies, and Spanish. Students must complete two courses in the same language. Languages taught at other institutions are also acceptable (with advisor approval).

Reflecting: Societies and Cultures (1 course, complete 9 units minimum)
This category emphasizes the study of history, society, and culture from local and global perspectives.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>79-104</td>
<td>Global Histories -REQUIRED</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>(various topics by section)</td>
<td></td>
</tr>
</tbody>
</table>

Modeling: Mathematics and Experiments (1 course, complete 9 units minimum)
Courses in this category stress the interplay of mathematical (formal) theories and experimental work. Some courses investigate the internal structure of theories, whereas others use them as models for producing real-world knowledge. Such models may be drawn from a variety of disciplines including the natural sciences, but also, for example, psychology and computer science. The interactions between theorizing and experimenting (observing) can be understood within an intellectual framework that invites comparative assessment. Select one course from the following course options:

**Mathematics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>21-110</td>
<td>Problem Solving in Recreational Mathematics</td>
<td>9</td>
</tr>
<tr>
<td>21-111</td>
<td>Calculus I</td>
<td>10</td>
</tr>
<tr>
<td>21-112</td>
<td>Calculus II</td>
<td>10</td>
</tr>
<tr>
<td>21-120</td>
<td>Differential and Integral Calculus</td>
<td>10</td>
</tr>
<tr>
<td>21-122</td>
<td>Integration, Differential Equations and Approximation</td>
<td>10</td>
</tr>
<tr>
<td>21-127</td>
<td>Concepts of Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>21-241</td>
<td>Matrices and Linear Transformations</td>
<td>10</td>
</tr>
<tr>
<td>21-256</td>
<td>Multivariate Analysis</td>
<td>9</td>
</tr>
<tr>
<td>21-259</td>
<td>Calculus in Three Dimensions</td>
<td>9</td>
</tr>
<tr>
<td>80-110</td>
<td>Nature of Mathematical Reasoning</td>
<td>9</td>
</tr>
<tr>
<td>80-210</td>
<td>Logic and Proofs</td>
<td>9</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>80-212</td>
<td>Arguments and Logical Analysis</td>
<td>9</td>
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</tbody>
</table>

**Natural Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>03-121</td>
<td>Modern Biology</td>
<td>9</td>
</tr>
<tr>
<td>03-122</td>
<td>Organic Botany</td>
<td>9</td>
</tr>
<tr>
<td>03-125</td>
<td>Evolution and History of Life</td>
<td>9</td>
</tr>
<tr>
<td>03-203</td>
<td>Bench to Bedside: Process of Regenerative Therapeutics</td>
<td>6</td>
</tr>
<tr>
<td>03-231</td>
<td>Biochemistry I</td>
<td>9</td>
</tr>
<tr>
<td>03-232</td>
<td>Biochemistry I</td>
<td>9</td>
</tr>
<tr>
<td>09-101</td>
<td>Introduction to Experimental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>09-103</td>
<td>Atoms, Molecules and Chemical Change</td>
<td>9</td>
</tr>
<tr>
<td>09-105</td>
<td>Introduction to Modern Chemistry I</td>
<td>10</td>
</tr>
<tr>
<td>09-106</td>
<td>Modern Chemistry II</td>
<td>10</td>
</tr>
<tr>
<td>09-217</td>
<td>Organic Chemistry I</td>
<td>9</td>
</tr>
<tr>
<td>09-218</td>
<td>Organic Chemistry II</td>
<td>9</td>
</tr>
<tr>
<td>09-221</td>
<td>Laboratory I: Introduction to Chemical Analysis *</td>
<td>12</td>
</tr>
<tr>
<td>09-222</td>
<td>Laboratory II: Organic Synthesis and Analysis *</td>
<td>12</td>
</tr>
<tr>
<td>12-201</td>
<td>Geology</td>
<td>9</td>
</tr>
<tr>
<td>33-100</td>
<td>Basic Experimental Physics</td>
<td>6</td>
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<tr>
<td>33-104</td>
<td>Experimental Physics</td>
<td>9</td>
</tr>
<tr>
<td>33-106</td>
<td>Physics I for Engineering Students *</td>
<td>12</td>
</tr>
<tr>
<td>33-107</td>
<td>Physics II for Engineering Students *</td>
<td>12</td>
</tr>
<tr>
<td>33-111</td>
<td>Physics I for Science Students *</td>
<td>12</td>
</tr>
<tr>
<td>33-112</td>
<td>Physics II for Science Students *</td>
<td>12</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
<td>9</td>
</tr>
<tr>
<td>33-115</td>
<td>Physics for Future Presidents</td>
<td>9</td>
</tr>
<tr>
<td>33-124</td>
<td>Introduction to Astronomy</td>
<td>9</td>
</tr>
<tr>
<td>33-131</td>
<td>Matter and Interaction I</td>
<td>12</td>
</tr>
<tr>
<td>33-132</td>
<td>Matter and Interactions II</td>
<td>12</td>
</tr>
<tr>
<td>33-211</td>
<td>Physics III: Modern Essentials</td>
<td>10</td>
</tr>
<tr>
<td>33-213</td>
<td>Mini-Course in Special Relativity</td>
<td>4</td>
</tr>
<tr>
<td>33-224</td>
<td>Stars, Galaxies and the Universe</td>
<td>9</td>
</tr>
<tr>
<td>33-355</td>
<td>Nanoscience and Nanotechnology</td>
<td>9</td>
</tr>
</tbody>
</table>

**Other Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-223</td>
<td>How to Analyze Your Own Genome</td>
<td>9</td>
</tr>
<tr>
<td>05-291</td>
<td>HCI for Computer Scientists *</td>
<td>12</td>
</tr>
<tr>
<td>05-413</td>
<td>Human Factors</td>
<td>9</td>
</tr>
<tr>
<td>06-100</td>
<td>Introduction to Chemical Engineering *</td>
<td>12</td>
</tr>
<tr>
<td>09-109</td>
<td>Kitchen Chemistry Sessions</td>
<td>3</td>
</tr>
<tr>
<td>09-209</td>
<td>Kitchen Chemistry Sessions *</td>
<td>3</td>
</tr>
<tr>
<td>12-100</td>
<td>Introduction to Civil and Environmental Engineering*</td>
<td>12</td>
</tr>
<tr>
<td>15-110</td>
<td>Principles of Computing</td>
<td>10</td>
</tr>
<tr>
<td>15-121</td>
<td>Introduction to Data Structures</td>
<td>10</td>
</tr>
<tr>
<td>18-100</td>
<td>Introduction to Electrical and Computer Engineering*</td>
<td>12</td>
</tr>
<tr>
<td>19-101</td>
<td>Introduction to Engineering and Public Policy *</td>
<td>12</td>
</tr>
<tr>
<td>24-101</td>
<td>Fundamentals of Mechanical Engineering *</td>
<td>12</td>
</tr>
<tr>
<td>27-100</td>
<td>Engineering the Materials of the Future *</td>
<td>12</td>
</tr>
<tr>
<td>33-120</td>
<td>Science and Science Fiction</td>
<td>9</td>
</tr>
<tr>
<td>36-202</td>
<td>Statistical Methods *</td>
<td>9</td>
</tr>
<tr>
<td>42-101</td>
<td>Introduction to Biomedical Engineering *</td>
<td>12</td>
</tr>
<tr>
<td>80-220</td>
<td>Philosophy of Science</td>
<td>9</td>
</tr>
<tr>
<td>80-222</td>
<td>Measurement and Methodology</td>
<td>9</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
<td>9</td>
</tr>
<tr>
<td>80-312</td>
<td>Philosophy of Mathematics</td>
<td>9</td>
</tr>
<tr>
<td>80-313</td>
<td>Philosophical Logic *</td>
<td>9</td>
</tr>
<tr>
<td>80-322</td>
<td>Philosophy of Physics</td>
<td>9</td>
</tr>
<tr>
<td>80-323</td>
<td>Philosophy of Biology</td>
<td>9</td>
</tr>
<tr>
<td>85-355</td>
<td>Introduction to Cognitive Neuroscience *</td>
<td>9</td>
</tr>
<tr>
<td>85-370</td>
<td>Perception *</td>
<td>9</td>
</tr>
<tr>
<td>85-392</td>
<td>Human Expertise *</td>
<td>9</td>
</tr>
<tr>
<td>85-406</td>
<td>Autism: Psychological and Neuroscience Perspectives*</td>
<td>9</td>
</tr>
<tr>
<td>85-412</td>
<td>Cognitive Modeling *</td>
<td>9</td>
</tr>
<tr>
<td>85-414</td>
<td>Cognitive Neuropsychology *</td>
<td>9</td>
</tr>
</tbody>
</table>
Deciding: Social Sciences and Values (3 courses, complete 27 units minimum)
The theme of this category is the exploration of cognitive, behavioral and ethical dimensions of decision-making on both the individual and social level. Making decisions requires a broad understanding of human rationality and social interaction. Some courses examine the critical collection and analysis of data for achieving such an understanding, whereas others emphasize the historical development of policies and values, which form the matrix for decision-making.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>36-201</td>
<td>Statistical Reasoning and Practice -REQUIRED</td>
<td>9</td>
</tr>
<tr>
<td>36-207</td>
<td>Probability and Statistics for Business Applications</td>
<td>9</td>
</tr>
<tr>
<td>36-220</td>
<td>Engineering Statistics and Quality Control</td>
<td>9</td>
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<tr>
<td>36-247</td>
<td>Statistics for Lab Sciences</td>
<td>9</td>
</tr>
<tr>
<td>36-303</td>
<td>Sampling, Survey and Society</td>
<td>9</td>
</tr>
<tr>
<td>73-100</td>
<td>Principles of Economics</td>
<td>9</td>
</tr>
<tr>
<td>73-230</td>
<td>Intermediate Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>79-313</td>
<td>Objects of Value</td>
<td>9</td>
</tr>
<tr>
<td>79-342</td>
<td>Introduction to Science and Technology Studies</td>
<td>9</td>
</tr>
<tr>
<td>80-130</td>
<td>Introduction to Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-136</td>
<td>Social Structure, Public Policy &amp; Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-208</td>
<td>Critical Thinking</td>
<td>9</td>
</tr>
<tr>
<td>80-221</td>
<td>Philosophy of Social Science</td>
<td>9</td>
</tr>
<tr>
<td>80-230</td>
<td>Ethical Theory</td>
<td>9</td>
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<tr>
<td>80-235</td>
<td>Political Philosophy</td>
<td>9</td>
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<tr>
<td>80-241</td>
<td>Ethical Judgments in Professional Life</td>
<td>9</td>
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<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>80-270</td>
<td>Philosophy of Mind</td>
<td>9</td>
</tr>
<tr>
<td>80-271</td>
<td>Philosophy and Psychology</td>
<td>9</td>
</tr>
<tr>
<td>80-305</td>
<td>Rational Choice</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 Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-335</td>
<td>Deliberative Democracy: Theory and Practice</td>
<td>9</td>
</tr>
<tr>
<td>80-337</td>
<td>Philosophy Politics &amp; Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-341</td>
<td>Computers, Society and Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-348</td>
<td>Health Development and Human Rights</td>
<td>9</td>
</tr>
<tr>
<td>80-405</td>
<td>Game Theory</td>
<td>9</td>
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<tr>
<td>80-430</td>
<td>Ethics and Medical Research</td>
<td>9</td>
</tr>
<tr>
<td>80-447</td>
<td>Global Justice</td>
<td>9</td>
</tr>
<tr>
<td>85-102</td>
<td>Introduction to Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-211</td>
<td>Cognitive Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-213</td>
<td>Human Information Processing and Artificial Intelligence *</td>
<td>9</td>
</tr>
<tr>
<td>85-219</td>
<td>Biological Foundations of Behavior</td>
<td>9</td>
</tr>
<tr>
<td>85-221</td>
<td>Principles of Child Development</td>
<td>9</td>
</tr>
<tr>
<td>85-241</td>
<td>Social Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-251</td>
<td>Personality</td>
<td>9</td>
</tr>
<tr>
<td>85-261</td>
<td>Abnormal Psychology</td>
<td>9</td>
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<tr>
<td>85-395</td>
<td>Applications of Cognitive Science</td>
<td>9</td>
</tr>
<tr>
<td>88-104</td>
<td>Decision Processes in American Political Institutions</td>
<td>9</td>
</tr>
<tr>
<td>88-120</td>
<td>Reason, Passion and Cognition</td>
<td>9</td>
</tr>
<tr>
<td>88-363</td>
<td>Behavioral Economics Theory *</td>
<td>9</td>
</tr>
<tr>
<td>88-385</td>
<td>Behavioral Economics and Public Policy *</td>
<td>9</td>
</tr>
<tr>
<td>88-388</td>
<td>Psychological Models of Decision Making *</td>
<td>9</td>
</tr>
</tbody>
</table>

* Indicates co-requisites and/or prerequisites required.

BXA Freshman Interdisciplinary Seminar (1 course, 9 units)
The BXA Freshman Research Seminar introduces first-year students to the field of interdisciplinary work and arts-based research. Students engage with theoretical and practical readings from across the various concentrations, with particular emphasis on aesthetic theory. Guest lectures complement the weekly readings by giving insight into practical implementations of these ideas. Students will conceive, research, and create a final project to be presented at the end of the semester. BXA internal transfer students should register for 52-399 BXA Interdisciplinary Seminar to fulfill the interdisciplinary requirement.

52-190 BXA Freshman Interdisciplinary Seminar -REQUIRED or 52-399 BXA Interdisciplinary Seminar

BXA Junior Seminar: Music from an Ancient Land, Traditional, Folk, and Contemporary Music of Iran (1 course, 9 units)
The Iranian civilization is one of the oldest continuing civilizations in the world. Music has played an important role in the continuation and preservation of this ancient culture. In this course, the traditional, folk, and contemporary music of Iran will be studied and discussed. The focal point of the course will be the Persian modal system, the Dáštghāh. Starting with an historical survey of the ancient and medieval Persian music, different aspects of the Dáštghāh system will be demonstrated and discussed. In addition, religious music and folk music of Iran as well as Iranian contemporary music will be discussed during the course. Course topic may vary each semester.

52-410 BXA Junior Seminar -REQUIRED

BXA Junior Portfolio Review (complete 1 required review, 0 units)
To better assess the progress and accomplishments of BXA students as they enter their final year, students submit a portfolio for review during the spring semester junior year. Students should work with their BXA advisor and their concentration faculty advisors to assemble a portfolio that represents their academic and creative accomplishments over the course of their college career. This portfolio should also include a reflective essay in which students evaluate how they integrated their two areas of interest, and how they will extend that integration into the BXA Capstone Project in the senior year.

Students should identify their own specific goals for their academic career and how they are fulfilling them in this reflective essay, as well as how they evaluate their performance in light of the programs’ broader pedagogical goals. Students in the BXA program should be working toward being able to:

- describe the connections between their chosen concentration disciplines and to integrate them into their work
- communicate ideas in writing, visual expression, and oral expression
- discuss the intersection of history, society, and culture from local and global perspectives
- synthesize mathematical theories and experimental work to produce real-world knowledge
- use cognitive, behavioral, and ethical dimensions to make decisions on individual and social levels

52-391 BXA Junior Portfolio Review -Spring -REQUIRED (pass/no pass)

BXA Capstone Project (2 courses, 18 units)
The BXA Capstone Project gives BXA students the opportunity to demonstrate the extent of their interdisciplinary work over the course of their academic career. The Capstone Project should represent the culmination of the student’s academic journey, with the project itself reflecting the student’s major, minor, and concentrations. The project should be a substantial and sustained effort that spans at least two semesters, with a minimum of 24 credits. The project should be the result of a collaborative effort, involving at least two faculty advisors and potentially other students or professionals.

The BXA Capstone Project is a comprehensive, integrative project that requires students to apply the knowledge and skills they have acquired throughout their college career. The project should reflect the student’s major, minor, and concentrations and should be designed to address a significant and substantive problem or issue. The project should be presented in a written report, a demonstration, an exhibition, or a performance, and should be evaluated by a panel of faculty members.

The BXA Capstone Project is a requirement for graduation and should be completed during the senior year. The project should be submitted to the Capstone Project Committee, which is composed of the student’s major advisor, the concentration advisor, and the BXA director. The Capstone Project Committee will recommend the student for graduation.

The BXA Capstone Project is a requirement for graduation and should be completed during the senior year. The project should be submitted to the Capstone Project Committee, which is composed of the student’s major advisor, the concentration advisor, and the BXA director. The Capstone Project Committee will recommend the student for graduation.

The BXA Capstone Project is a requirement for graduation and should be completed during the senior year. The project should be submitted to the Capstone Project Committee, which is composed of the student’s major advisor, the concentration advisor, and the BXA director. The Capstone Project Committee will recommend the student for graduation.

The BXA Capstone Project is a requirement for graduation and should be completed during the senior year. The project should be submitted to the Capstone Project Committee, which is composed of the student’s major advisor, the concentration advisor, and the BXA director. The Capstone Project Committee will recommend the student for graduation.
they create their Capstone Project and prepare to present it at the annual Meeting of the Minds Undergraduate Research Symposium held each May.

52-401  BXA Capstone Project I - Fall - REQUIRED (course attendance required)  
52-402  BXA Capstone Project II - Spring - REQUIRED (DNM, independent study)

Computing @ Carnegie Mellon (1 mini-course, 3 units)  
This is a mini-course, pass/no pass, to be completed in the first semester.

99-101  Computing @ Carnegie Mellon - REQUIRED  
or 99-102  Computing @ Carnegie Mellon  
or 99-103  Computing @ Carnegie Mellon

II. Dietrich College of Humanities and Social Sciences Concentration

(9 courses, 81 units minimum)

Each student meets individually with a BHA DC Academic Advisor to design an 81 unit DC concentration based on existing DC majors/minors. Please refer to the DC section of this catalog to review the individual majors and minors offered. Curriculum for several BHA DC concentration options are outlined below and others will be made available in the BHA office throughout the academic year.

A completed DC Concentration Sheet must be approved by the concentration faculty advisor and submitted to the BHA office by the end of the student’s sophomore year.

Anthropology (81 units minimum)

The BHA concentration in Anthropology offers students training in a wide range of ethnographic methods along with a highly developed theoretical understanding of culture. Students examine the evolution, depth, and complexities of ethnography, and explore notions of “culture” in diverse settings, over time and across space. In today’s world, students are increasingly aware of the importance of developing a sophisticated approach to culture and its articulation with changes in the domains of the arts, technology, economics, and politics. The BHA concentration in Anthropology provides students with the tools to link artistic practices to various aspects of globalization.

Students in the Anthropology concentration are required to take an introductory course and a methods/theory course (18 units), two regional courses and two topical courses (36 units), two advanced language courses (18 units). These courses deepen the immersion in a language or society that the Anthropology concentration provides a student, and should coordinate with the regional courses selected for the concentration.

Introductory and Methods Courses (2 courses, 18 units)

79-297  Dilemmas and Controversies in Anthropology  
79-311  Introduction to Anthropology  
79-379  Extreme Ethnography  
79-380  Ethnographic Methods  

Anthropological Perspectives (4 courses, 36 units)

Students gain knowledge of specialized theoretical and regional topics by choosing four from the following (36 units):

79-220  Caribbean: Cultures and Histories  
79-235  Caribbean Cultures  
79-261  Chinese Culture and Society  
79-262  Modern China  
79-278  Rights to Representation: Indigenous People and their Media  
79-295  Race Relations in the Atlantic World  
79-299  Trafficking Persons: Children in a Global Context  
79-313  Objects of Value  
79-315  Hawaii I: America’s Pacific Island State  
79-317  Art, Anthropology and Empire  
79-332  Medical Anthropology  
79-375  China’s Environmental Crisis  

Note: Courses that count toward this category may be taken at another university, and the units transferred to the BHA Concentration under the guidance of the BHA Anthropology faculty advisor.

Language Courses (2 courses, 18 units)

Every student is expected to take two upper level (intermediate or above) language courses (18 units). These courses deepen the immersion in a culture or society that the Anthropology concentration provides a student, and should coordinate with the regional courses selected for the concentration.

Capstone/Independent Study (1 course, 9 units)

Every student is required to do a culminating research project; this may be part of an advanced course (9 units). Students should work with the BHA Anthropology faculty advisor to determine the best method for completing the capstone research project. This project may be complementary to the BHA Capstone Project sequence (52-401 and 52-402) that is completed in the senior year.

Creative Writing (81 units minimum)

In the Creative Writing concentration, BHA students develop their talents in writing fiction, poetry, and other imaginative forms. While studying with faculty members who are practicing poets and prose writers, students read widely in literature, explore the resources of their imaginations, sharpen their critical and verbal skills, and develop a professional attitude toward their writing. The Creative Writing program is based on a conservative model, made up of faculty and students who have an intense commitment to their work.

Students in the Creative Writing concentration are required to take two of the introductory Survey of Forms courses, ideally in their sophomore year. Choices include Poetry (76-265), Fiction (76-260), Screenwriting (76-269), and Nonfiction (76-261). In order to proceed into the upper level courses in the major (and in each of the genres), students must do well in these introductory courses (receive a grade of A or B). After completing the Survey of Forms courses, students take four workshops in fiction, poetry, screenwriting, or nonfiction. At least two of the upper level workshops must be taken in a single genre. In the writing workshops, students develop their critical and verbal abilities through close writing and analysis of poems, stories, and other literary forms. Their work is critiqued and evaluated by peers and the faculty.

Survey of Forms Courses (2 courses, 18 units)

76-260  Survey of Forms: Fiction  
76-261  Survey of Forms: Creative Nonfiction  
76-265  Survey of Forms: Poetry  
76-269  Survey of Forms: Screenwriting  

Note: A student must receive a grade of A or B in the Survey of Forms class in a specific genre in order to be eligible to enroll in a workshop of that genre. A student who receives a grade of C in a Survey of Forms course may enroll in a related workshop only with the permission of the workshop instructor. A student who receives a D or F in Survey of Forms may not take a workshop in that genre.

Creative Writing Workshops (4 courses, 36 units)

Complete four Creative Writing workshops, at least two in a single genre. Workshops in all genres may be taken more than once for credit.

76-365  Beginning Poetry Workshop  
76-460  Beginning Fiction Workshop  
76-462  Advanced Fiction Workshop  
76-464  Creative Nonfiction Workshop  
76-465  Advanced Poetry Workshop  
76-469  Advanced Screenwriting Workshop  
76-4xx  Elective Workshops (various forms)  

English Electives (3 courses, 27 units)

Complete three courses from the English Department’s offerings. Reading in Forms classes are recommended, as is 76-306 Editing and Publishing. Please consult the list of courses published each semester by the Department for current offerings. Students should discuss curriculum choices with the Creative Writing advisor to determine the best electives for their focus in Creative Writing.

Decision Science (81 units minimum)

Decision Science is grounded in theories and methods drawn from psychology, economics, philosophy, statistics, and management science. Courses in the BHA concentration in Decision Science cover three aspects of decision science: (a) normative analysis, creating formal models of rational 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, students with a concentration in Decision Science gain broadly applicable skills in research design and analysis. They also have the chance to think about and discuss decision making in many different areas.

**Disciplinary Perspectives** (5 courses, 45 units)
- 85-211 Cognitive Psychology 9
- 88-120 Reason, Passion and Cognition 9 (freshman or sophomore year)
- 88-220 Policy Analysis I 9
- 88-223 Decision Analysis and Decision Support Systems 9
- 88-302 Behavioral Decision Making 9

**Research Methods** (2 courses, 18 units)
- 36-202 Statistical Methods 9
- 88-251 Empirical Research Methods 9

**Electives** (2 courses, 18 units)
Complete at least 18 units from the following categories of courses. The selected courses may be from one category or from any combination of categories. Note that not all elective courses are offered every year. At least one of these courses (9 units) must be a Department of Social and Decision Sciences course (88-xxx).

**Biological and Behavioral Aspects of Decision Making:**
- 85-219 Biological Foundations of Behavior 9
- 85-241 Social Psychology 9
- 85-352 Evolutionary Psychology 9
- 85-355 Introduction to Cognitive Neuroscience 9
- 85-414 Cognitive Neuropsychology 9
- 85-442 Health Psychology 9
- 88-360 Behavioral Economics 9
- 88-365 Behavioral Economics and Public Policy 9
- 88-377 Attitudes and Persuasion 9
- 88-386 Desires and Decisions 9

**Managerial and Organizational Aspects of Decision Making:**
- 70-332 Business, Society and Ethics 9
- 70-381 Marketing I 9
- 70-460 Mathematical Models for Consulting 9
- 70-481 Marketing Research 9
- 88-221 Policy Analysis II 9
- 88-341 Organizational Communication 9
- 88-419 Negotiation 9
- 88-444 Public Policy and Regulation 9
- 88-451 Policy Analysis Senior Project 9 or 88-452

**Philosophical and Ethical Perspectives on Decision Making:**
- 19-426 Environmental Decision Making 9
- 80-208 Critical Thinking 9
- 80-241 Ethical Judgments in Professional Life 9
- 80-305 Rational Choice 9
- 80-321 Causation, Law, and Social Policy 9

**Economic and Statistical Methods for Decision Science:**
- 70-460 Mathematical Models for Consulting 9
- 73-347 Game Theory for Economists 9
- 80-221 Philosophy of Social Science 9
- 80-245 Medical Ethics 9
- 80-337 Philosophy Politics & Economics 9
- 80-405 Game Theory * 9
- 88-316 Game Theory * 9
- 88-360 Behavioral Economics 9
- 88-387 Social Norms and Economics 9
- 98-424 Decision Theory and Rational Choice 9

* 80-405 and 88-316 are different courses and are not cross-listed.

**Decision Science and Public Policy:**
- 88-221 Policy Analysis II 9
- 88-365 Behavioral Economics and Public Policy 9
- 88-405 Risk Perception and Communication 9
- 88-408 Attitudes the Media and Conflict in International Relations 9
- 88-412 Economics of Global Warming 9
- 88-444 Public Policy and Regulation 9
- 88-451 Policy Analysis Senior Project 9 or 88-452 Policy Analysis Senior Project

**Research Methods for Decision Science:**
- 36-303 Sampling, Survey and Society 9
- 70-460 Mathematical Models for Consulting 9
- 88-252 Empirical Research for Social Science and Policy 9
- 88-402 Modeling Complex Social Systems 9

**Ethics, History, and Public Policy (81 units minimum)**
The BHA concentration in Ethics, History, and Public Policy (EHPPP) provides students with a rigorous, interdisciplinary humanistic and social-scientific education. The concentration in EHPPP encourages the development of a broad technical skill set that will benefit students in whatever career they ultimately choose to pursue. Students with a concentration in EHP learn how to analyze and construct arguments; to evaluate evidentiary statements; to persuade people to agree with their particular claims; to conduct research under time and resource constraints; and to craft policies that address real world problems in a way that is sensitive both to history and competing sets of values. Comprised of courses in the departments of History, Philosophy, Economics, and Decision Science, the BHA concentration in EHPPP encourages specialization, internship experiences, and research in a wide range of policy areas.

**Economics Requirement** (1 course, 9 units)
Choose one of the following:
- 73-100 Principles of Economics 9
- 88-220 Policy Analysis I 9

**History Core** (2 courses, 21 units)
- 79-200 Introduction to Historical Research 12
- 79-300 History of American Public Policy 9

**Philosophy Core** (3 courses, 27 units)
Choose one course from three of the four categories below. No more than 18 units at the 100-level may be counted toward this requirement.

**Ethics (9 units):**
- 80-130 Introduction to Ethics 9
- 80-230 Ethical Theory 9

**Political Philosophy (9 units):**
- 80-135 Introduction to Political Philosophy 9
- 80-235 Political Philosophy 9

**Foundations of Social Science (9 units):**
- 80-221 Philosophy of Social Science 9
- 80-321 Causation, Law, and Social Policy 9
- 80-337 Philosophy Politics & Economics 9

**Applied Philosophy (9 units):**
- 80-136 Social Structure, Public Policy & Ethics 9
- 80-241 Ethical Judgments in Professional Life 9
- 80-244 Environmental Ethics 9
- 80-245 Medical Ethics 9
- 80-247 Ethics and Global Economics 9
- 80-341 Computers, Society and Ethics 9
- 80-344 Management, Environment, and Ethics 9
- 80-348 Health Development and Human Rights 9
- 80-447 Global Justice 9

**Elective Courses** (3 courses, 27 units)
Choose any three courses from any of the following categories:

**Engineering and Public Policy:**
Fundamental Skills courses or Breadth courses listed above, or any other
Take four additional electives. These can be additional courses from the
Elective Courses

Linguistics (81 units minimum)
The BHA Concentration in Linguistics combines courses from the
departments of English, Modern Languages, Philosophy and Psychology
and the Language Technologies Institute. 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.

Introductory Course (1 course, 9 units)
80-180 Nature of Language 9

Fundamental Skills Courses (2 courses, 18 units)
Take one course each in two of the following three areas:

Sounds:
80-282 Phonetics and Phonology 9

Structure:
76-389 Rhetorical Grammar 9
80-280 Linguistic Analysis 9
80-283 Syntax and Discourse 9

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

Breadth Courses (2 courses, 18 units)
Take one course from each of the following two areas:

Language Learning and Language Cognition:
76-420 Process of Reading and Writing 9
82-280 Learning About Language Learning 9
82-383 Second Language Acquisition: Theories and Research 9
82-585 Topics in Second Language Acquisition 9
85-354 Infant Language Development 9
85-421 Language and Thought 9

Discourse, Society and Culture:
76-318 Communicating in the Global Marketplace 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
82-273 Introduction to Japanese Language and Culture 9
82-305 French in its Social Contexts 9
82-312 Arabic Language and Culture I 9
82-313 Arabic Language and Culture II 9
82-333 Introduction to Chinese Language and Culture 9

Elective Courses (4 courses, 36 units)
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.

11-411 Natural Language Processing 12
11-716 Graduate Seminar on Dialog Processing 6
11-721 Grammars and Lexicons 12
11-722 Grammar Formalisms 12
11-761 Language and Statistics 12
11-762 Language and Statistics II 12
15-492 Special Topic: Speech Processing 12
76-373 Topics in Rhetoric: Argument 9
76-378 Literacy: Educational Theory and Community Practice 9
76-451 Topics in Language Study 9
76-476 Rhetoric of Science 9
80-281 Language and Thought 9
80-380 Philosophy of Language 9
80-382 Linguistics of Germanic Languages 9
82-345 Introduction to Hispanic Literary and Cultural Studies 9
82-372 Structure of the Japanese Language 9
82-378 Japanese Conversation Analysis 9
82-388 Understanding Second Language Fluency 9
82-442 Analysis of Spoken Spanish 9
82-444 The Structure of Spanish 9
82-476 Japanese Discourse Analysis 9
82-480 Social and Cognitive Aspects of Bilingualism 9
82-488 Language Learning in a Study Abroad Context 9

Language Requirement

Students must successfully complete two semesters of consecutive language courses. 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.

Professional Writing (81 units minimum)

Professional Writing combines liberal and professional education with a strong foundation in rhetorical studies. The concentration in Professional Writing has a strong career orientation and is specifically designed to prepare students for successful careers as writers and communications specialists in a range of fields: publishing, government, journalism, the non-profit sector, education, public and media relations, corporate communications, advocacy writing, and the arts. The concentration is designed to develop articulate and reflective communicators who are prepared to enter and negotiate current work contexts (including writing for the web and other digital media) and the analytic and problem-solving skills needed to understand and keep pace with cultural and technological change.

Foundation Courses (4 courses, 36 units)

76-26x Survey of Forms (Nonfiction, Fiction, Poetry, or Screenwriting) 9
76-271 Introduction to Professional and Technical Writing 9
76-373 Topics in Rhetoric: Argument 9
76-390 Style 9

Rhetoric/Language Studies Course (1 course, 9 units)

Students with a concentration in Professional Writing complete one course from designated Rhetoric courses offered and advertised each semester by the English Department. Rhetoric courses focus on understanding the role of language and language practices in both personal and professional contexts. Courses emphasize the relationships between texts and their contexts and pay particular attention to textual features, meaning, processes of reading and writing, and the ways in which language practices vary over time and across situations and cultures. The courses also equip students with explicit techniques for analyzing, understanding, and exploring language practices. The Rhetoric/Language Studies courses may also be taken as part of the concentration requirements for 3 additional, Advanced Writing/Rhetoric courses and include but are not limited to the following list.

76-318 Communicating in the Global Marketplace 9
76-319 Environmental Rhetoric 9
76-355 Leadership, Dialogue, and Change 9
76-378 Literature, Educational Theory and Community Practice 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
76-387 Narrative & Argument 9
76-389 Rhetorical Grammar 9
76-419 Communication Revolutions & Technologies 9
76-420 Process of Reading and Writing 9
76-451 Topics in Language Study 9
76-457 Topics in Rhetoric 9
76-476 Rhetoric of Science 9
76-491 Rhetorical Analysis 9
76-492 Rhetoric of Public Policy 9

Advanced Writing/Rhetoric Courses (3 courses, 27 units minimum)

Students with a concentration in Professional Writing complete three Advanced Writing/Rhetoric courses at the 300- or 400-level. Options for these courses include all of the Rhetoric/Language Studies courses listed above plus the writing-focused courses listed below. Additional courses that fulfill these requirements are advertised on a semester-by-semester basis. For help in choosing which of the possible options are most appropriate for various professional goals – journalism, writing for new media, editing and publishing, public relations/ corporate communications, or science and technical writing – consult your English Department advisor and the “Selected Core Courses & Electives for PW Majors” advising sheet available through the English Department. All students with a concentration in PW, regardless of their career focus, are encouraged to take 76-391 Document Design and 76-487 Web Design (in conjunction with the 3-unit 76-488 Web Design Lab) to extend their skills in writing for print to include information design for digital media. Both courses focus on the role of the writer in these specializations and provide lab instruction in the relevant software and related computer skills.

39-605 Engineering Design Projects 12
39-301 Internship Var.
39-359 Planning and Testing Documents 9
39-360 Literary Journalism Workshop 9
39-372 Topics in Journalism 9
39-375 Magazine Writing 9
39-389 Rhetorical Grammar 9
39-391 Document Design 12
39-395 Science Writing 9
39-396 Non-Profit Advocacy 9
39-397 Major Works of Modern Fiction 9
39-472 Advanced Journalism 9
39-474 Software Documentation 9
39-479 Marketing, Public Relations, and Corporate Communications 9
39-481 Writing for Multimedia 12
39-487 Web Design 9 (take with 76-488 Web Design Lab, 3 units)
39-491 Rhetorical Analysis 9
39-494 Healthcare Communications 9

English Elective (1 course, 9 units)

Students with a concentration in Professional Writing complete one additional course from the English Department’s offerings. This course should be one that focuses on the relationships between texts and their cultural and historical contexts. Courses in literature, cultural studies, rhetoric, and media studies that meet this requirement are advertised on a semester-by-semester basis. The English Elective may be any course offered by the Department with the exception of 76-270 Writing for the Professions and 76-272 Language in Design, both of which are designed for non-majors and overlap with 76-271 Introduction to Professional and Technical Writing. Students with a concentration in PW are additionally encouraged to supplement their PW coursework with 76-300 Professional Seminar (3 units) to learn more about internship and career options in professional writing. 76-300 meets once per week and is offered every fall semester.

Psychology (81 units minimum)

Psychology is a science that embraces both biological and social sciences. It is a science concerned with establishing principles and laws regarding the ways in which people think, feel, and behave through the scientific study of human behavior. Students with a concentration in Psychology are expected not only to learn about findings already established by psychologists, but also to become proficient in the investigation and analysis of behavior.
This includes observing behavior, formulating hypotheses, designing experiments to test these hypotheses, running experiments, performing statistical analyses, and writing reports.

**Breadth Courses (4 courses, 36 units)**

To gain familiarity with the breadth of the field of Psychology, students take 85-102 Introduction to Psychology and three survey courses.

**Required Course:**

85-102 Introduction to Psychology 9

**Survey Courses:**

85-211 Cognitive Psychology 9

85-221 Principles of Child Development 9

85-241 Social Psychology 9

85-251 Personality 9

**Research Methods and Statistics (2 courses, 18 units)**

Students complete one course in Research Methods (9 units). The corresponding survey course is prerequisite for this course.

85-310 Research Methods in Cognitive Psychology 9

85-320 Research Methods in Developmental Psychology 9

85-340 Research Methods in Social Psychology 9

The following Statistics course is a prerequisite or co-requisite for all the Research Methods courses. This Statistics course counts toward the Psychology concentration.

36-309 Experimental Design for Behavioral and Social Sciences 9

**Advanced Courses (3 courses, 27 units)**


III. College of Fine Arts Concentration

(number of courses vary, 108 units minimum)

BHA students choose one of the following concentrations:

- **Architecture (108 units)**
- **Art (108 units)**
- **Drama (108 units)**
- **Design (108 units)**
- **Music (108 units)**

**Architecture Required Courses (52 units minimum)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-100</td>
<td>Architecture Design Studio: Foundation I -Fall</td>
<td>10-12</td>
</tr>
<tr>
<td>48-095</td>
<td>or Spatial Concepts for Non-Architects I</td>
<td></td>
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<tr>
<td>48-120</td>
<td>Introduction to Digital Media I -Fall</td>
<td>6</td>
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<tr>
<td>48-125</td>
<td>Introduction to Digital Media II -Spring</td>
<td>6</td>
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<tr>
<td>48-1xx</td>
<td>Analog Media I -Fall</td>
<td>6</td>
</tr>
<tr>
<td>48-240</td>
<td>Historical Survey of World Architecture and Urbanism I -Spring</td>
<td>9</td>
</tr>
<tr>
<td>48-241</td>
<td>Survey of Architectural History II -Fall</td>
<td>9</td>
</tr>
</tbody>
</table>

**Architecture Electives (56 units minimum)**

Choose 56 elective Architecture units in consultation with the Architecture advisor.

**Art Concentration (108 units minimum)**

PORTFOLIO REVIEW REQUIRED FOR ADMISSION

**Concept Studios** (2 courses, 20 units)

Complete two courses:

60-101 Concept Studio I 10

60-201 Concept Studio II 10

60-202 Concept Studio III 10

60-203 Concept Studio: EcoArt 10

60-204 Concept Studio: Networked Narrative 10

**Media Studies** (3 courses, 30 units)

Complete three courses:

60-150 2D Media Studio: Drawing 10

60-160 2D Media Studio: Imaging 10

60-250 2D Media Studio: Painting 10

60-251 2D Media Studio: Print Media 10

60-130-60-130 3-D Media Studio I-I (complete two minis, 5 units each) 10

60-131-60-131 3D Media Studio II-II (complete two minis, 5 units each) 10

60-110 Electronic Media Studio I 10

60-210 Electronic Media Studio II 10

**Advanced Studios** (4 courses, 40 units)

Complete four courses. Courses may be offered in the fall and/or spring. Students may take courses in any media area (ETB, SIS, CP or DP3). They may take all courses in one media area if a focus is desired.

60-410 - 60-429 Advanced Electronic and Time-Based Work (ETB) 10

60-430 - 60-447 Advanced Sculpture, Installation and Site-Work (SIS) 10

60-448 - 60-449 Advanced Contextual Practice (CP) 10

60-450 - 60-498 Advanced Drawing, Painting, Print Media and Photography (DP3) 10

60-499 Studio Independent Study (one only) 10

**Art History/Theory** (2 courses, 18 units)

60-205 Modern Visual Culture 1789-1960 9

60-206 Contemporary Visual Culture 1960 - Present 9

**Review Requirement** (complete 2 required reviews, 0 units)

A review is required at the end of the sophomore and senior years. Pass/no pass only.

60-200 Sophomore Review -Spring 0

60-400 Senior Review -Spring 0

**Design Concentration (108 units minimum)**

PORTFOLIO REVIEW REQUIRED FOR ADMISSION

Options available in the following areas, to be selected in the sophomore year:

1) Communication Design, 2) Industrial Design

**Required Courses for Both Concentration Options** (78 units)

51-101 Design Studio I -Fall, Freshman year 9

51-102 Design Studio II -Spring, Freshman year 9

51-103 Design Workshop -Fall, Freshman year 3

51-104 Design Workshop II -Spring, Freshman year 3

51-121 Design Drawing I -Fall, Freshman year 9

51-122 Design Drawing II -Spring, Freshman year 9

51-132 Introduction to Photo Design -Spring, Freshman year 4.5

51-134 Photo Design II -Spring, Freshman year 4.5

51-171 Human Experience in Design -Fall, Sophomore year 9

51-241 How People Work -Fall, Sophomore year 9

51-271 Design History I -Fall, Sophomore year 9

Work with Design Advisor in the Sophomore Year to Form Concentration Option

(30 units minimum):

Communication Design Required Courses (21 units)

51-201 CD Studio I: Communicating with Type -Fall 9

51-202 Communication Design Computer Lab -Fall 3

51-229 Digital Photographic Imaging -Fall 9

Choose 9 additional Design units in consultation with the Design advisor.

**Industrial Design Required Courses** (18 units)
Required Courses for All Concentration Options (20 units)

- 54-175-54-176 Conservatory Hour-Conservatory Hour (1 unit each) 2
- 54-177 Foundations of Drama I 6 or 54-178 Foundations of Drama I 6
- 54-281 Foundations of Drama II (prerequisite: 48-177 or 54-178) 6 or 54-282 Foundations of Drama II 6
- 54-381 Special Topics in Drama: History, Literature and Criticism 6

Choose 36 additional Design units in consultation with the Design faculty advisor.

Drama Concentration (108 units minimum)

Options available in the following areas: 1) Design, 2) Directing, 3) Dramaturgy, 4) Production Technology and Management

Choose 36-39 additional Directing units in consultation with the Directing faculty advisor.

Dramaturgy Required Courses (53 units)

- 54-109 Dramaturgy 1: Approaches to Text 9
- 54-184 Dramaturgy 2: History and Practice 9
- 54-160 Production Symposium I -Spring 6
- 54-200 Dramaturgy Forum (two times, 2 units total) -Fall 1
- 54-387 Dramaturgy : Production I 9
- 54-xxx Dramaturgy 3, 4, 5 or 6 (take two in any order during the sophomore, junior, and senior years) 18

Choose 35 additional Dramaturgy units in consultation with the Dramaturgy faculty advisor.

Production Technology and Management Required Courses (26 units)

- 54-151-54-152 Stagecraft-Stagecraft (15 units + 11 units) 26

Choose 62 additional PTM units in consultation with the PTM faculty advisor.

Music Concentration (108 units minimum)

Required Course for All Concentration Options (9 units)

- 57-152 Harmony I 9
- 57-161 Eurythmics I 3
- 57-181 Solfege I 3
- 57-173 Survey of Western Music History 9
- 57-188 Repertoire and Listening for Musicians (co-requisite: 57-173) 1
- 57-69xBXA Studio (4 semesters) 36
- 57-xxx Major Ensemble (4 semesters) 24

Choose 23 additional Music units in consultation with the Music advisor.

Musicology & Cultural Studies Required Courses (45 units)

- 57-283 Music History I 9
- 57-284 Music History II 9
- 57-285 Music History III 9
- 57-189 Introduction to Repertoire and Listening for Musicians 3
- 57-190 Repertoire and Listening for Musicians I (co-requisite: 57-283) 3
- 57-289 Repertoire and Listening for Musicians II (co-requisite: 57-284) 3
- 57-290 Repertoire and Listening for Musicians III (co-requisite: 57-285) 3
- 57-611 Independent Study in History 6

Choose 36 units from:

Music Technology Required Courses (40 units)

- 57-101 Introduction to Music Technology 6
- 57-181 Solfege I 3
- 57-173 Survey of Western Music History 9
- 57-188 Repertoire and Listening for Musicians (co-requisite: 57-173) 1
- 57-337 Sound Recording 6
- 57-347 Electronic and Computer Music 6
- 57-xxx Independent Study in Music Technology or Sound Recording 9

Choose 36 units from:

- 57-153 Harmony II 9
- 57-182 Solfege II 3
- 57-283 Music History I 9
- 57-284 Music History II 9
- 57-285 Music History III 9
- 57-190 Repertoire and Listening for Musicians I (co-requisite: 57-283) 3
- 57-289 Repertoire and Listening for Musicians II (co-requisite: 57-284) 3
- 57-290 Repertoire and Listening for Musicians III (co-requisite: 57-285) 3
- 57-338 Sound Editing and Mastering 6
- 57-438 Multitrack Recording 9

Choose 23 additional Music units in consultation with the Music advisor.
IV. Free Electives
(approximately 9 courses, 78 units)

Take any Carnegie Mellon course. Many BHA students use their electives to broaden or deepen their concentrations. A maximum of 9 units of physical education and/or military science may be counted toward this requirement. Physical education and military science courses will not be calculated in a student’s GPA.

Bachelor of Science and Arts Degree Program

Carnegie Mellon University recognizes that there are students who are naturally gifted in both the fine arts and the natural sciences or mathematics. In order to accommodate students who want to pursue an education simultaneously in these areas, we offer a degree that combines the strengths of the College of Fine Arts (CFA) and the Mellon College of Science (MCS). The intercollege degree, called the Bachelor of Science and Arts (BSA), is a rigorous program that offers a unique group of qualified students the opportunity to develop their talents and interests in an area of the fine arts and an area of the natural sciences or mathematics.

The BSA curriculum is divided into three parts: 1) BSA Core requirements, 2) CFA concentration coursework, and 3) MCS concentration coursework.

Students choose their fine arts concentration from among the five schools in CFA: Architecture, Art, Design, Drama or Music. A student must meet the entry requirements for the particular CFA school of their choice. While in the BSA Program, a student may change their CFA concentration only if they pass all admission requirements for that particular school.

Students choose their science concentration from among the four departments in MCS: Biological Sciences, Chemistry, Mathematical Sciences, or Physics.

The BSA Degree Program is governed by faculty and administrators from both colleges and led by the director of the BXA Intercollege Degree Programs. The director and academic advisor of the BXA Intercollege Degree Programs are the primary advisors and liaisons between CFA and MCS. Students receive extensive advising support. Each student has two additional academic advisors: an advisor in the admitting school of CFA and an advisor in MCS for their natural sciences/mathematics concentration. This network of advisors guides each student through their curriculum.

BSA Curriculum

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. BSA Core 135</td>
</tr>
<tr>
<td>II. MCS Concentration 120-134</td>
</tr>
<tr>
<td>III. CFA Concentration 108</td>
</tr>
<tr>
<td>IV. Free Electives 3-17</td>
</tr>
<tr>
<td>Total BSA Degree Requirements 380</td>
</tr>
</tbody>
</table>

I. BSA Core

(16 courses, 135 units minimum)
- Writing/Expression (1 course, 9 units, 76-101 required)
- Cultural Analysis (1 course, 9 units minimum)
- Economic, Political, & Social Institutions OR Cognition, Choice & Behavior (1 course, 9 units minimum)
- Two additional courses from one of the following departments: English, History, Modern Languages, Philosophy, or Psychology (2 courses, 18 units minimum)
- Mathematics (2 courses, 20 units, 21-120 and 21-122 required)
- Science (3 courses, 31 units, 03-121, 09-105, and 33-111 required)
- BXA Freshman Interdisciplinary Seminar (1 course, 9 units, 52-190 or 52-399 required)
- BXA Junior Seminar (1 course, 9 units, 52-410 required)
- BXA Junior Portfolio Review (complete 1 required review, 0 units, 52-391 required)
- BXA Capstone Project (2 courses, 18 units, 52-401 & 52-402 required)
- Computing @ Carnegie Mellon (1 mini-course, 3 units, required in first semester)

Writing/Expression (1 course, 9 units)

Broadly considered, language is a tool used to communicate, as well as a way to organize non-visual and non-mathematical thinking. This requirement focuses on the social nature of language and the ways in which writing constitutes thinking.

76-101 Interpretation and Argument -REQUIRED (various topics by section) www.cmu.edu/hss/english/first_year/index.html

Cultural Analysis (1 course, complete 9 units minimum)
This category explores definitions of culture and the role culture plays in producing different actions and institutions as well as the roles of institutions, systems and human actions in shaping cultural contexts. Listed below are examples of courses that meet the requirement for this category.

57-173 Survey of Western Music History 9
57-209 The Beatles 9
70-342 Managing Across Cultures * 9
76-227 Comedy 9
76-232 African American Literature * 9
76-239 Introduction to Film Studies * 9
76-241 Introduction to Gender Studies 9
79-104 Global Histories 9
79-202 Flesh and Spirit: Early Modern Europe, 1400-1750 9
79-205 20th Century Europe 9
79-207 Development of European Culture 9
79-221 Development and Democracy in Latin America 9
79-229 Origins of the Arab-Israeli Conflict, 1880-1948 9
79-230 Arab-Israeli Conflict and Peace Process since 1948 9
79-240 The Development of American Culture 9
79-241 African American History: Africa to the Civil War 9
79-242 African American History: Reconstruction to the Present 9
79-255 Irish History 9
79-261 Chinese Culture and Society 9
79-265 Russian History: From the First to the Last Tsar 9
79-266 Russian History: From Communism to Capitalism 9
79-281 Introduction to Religion 9
79-307 Religion and Politics in the Middle East 9
79-310 Religions of China 9
79-311 Introduction to Anthropology 9
79-345 The Roots of Rock and Roll, 1870-1970 9
79-350 Early Christianity 9
79-368 Poverty, Charity, and Welfare 9
80-100 Introduction to Philosophy * 9
80-250 Ancient Philosophy 9
80-251 Modern Philosophy 9
80-253 Continental Philosophy 9
80-254 Analytic Philosophy 9
80-255 Pragmatism 9
80-276 Philosophy of Religion 9
82-2xx Any 200 level or greater course from Modern Languages 9

* Indicates co-requisites and/or prerequisites required.

Economic, Political & Social Institutions OR Cognition, Choice, and Behavior (1 course from either category, complete 9 units minimum)

Economic, Political & Social Institutions
This category examines the ways in which institutions organize individual preferences and actions into collective outcomes using model-based reasoning.

19-101 Introduction to Engineering and Public Policy * 12
36-303 Sampling, Survey and Society * 9
70-332 Business, Society and Ethics * 9
70-420 Entrepreneurship for Scientists 9
Mathematics (2 courses, 20 units)

- 73-100 Principles of Economics
- 79-205 20th Century Europe
- 79-306 Delinquency, Crime, and Juvenile Justice: 1970’s to the Present
- 79-330 Medicine and Society
- 79-335 Drug Use and Drug Policy
- 79-341 The Cold War in Documents and Film
- 79-374 American Environmental History: Critical Issues
- 79-377 Food, Culture, and Power: A History of Eating
- 80-135 Introduction to Political Philosophy
- 80-136 Social Structure, Public Policy & Ethics
- 80-226 Revolutions in Science
- 80-235 Political Philosophy
- 80-245 Medical Ethics
- 80-276 Philosophy of Religion
- 80-341 Computers, Society and Ethics
- 82-305 French in its Social Contexts
- 88-104 Decision Processes in American Political Institutions
- 88-110 Experiments with Economic Principles
- 88-205 Comparative Politics
- 99-238 Materials, Energy and Environment

* Indicates co-requisites and/or prerequisites required.

Cognition, Choice, and Behavior

This category uses model-based analysis to broaden an understanding of human thinking, choices, and behavior on an individual basis across a variety of settings.

- 80-100 Introduction to Philosophy
- 80-130 Introduction to Ethics
- 80-150 Nature of Reason
- 80-180 Nature of Language
- 80-208 Critical Thinking
- 80-220 Philosophy of Science
- 80-221 Philosophy of Social Science
- 80-222 Measurement and Methodology
- 80-230 Ethical Theory
- 80-241 Ethical Judgments in Professional Life
- 80-270 Philosophy of Mind
- 80-271 Philosophy and Psychology
- 80-312 Philosophy of Mathematics
- 85-102 Introduction to Psychology
- 85-211 Cognitive Psychology
- 85-221 Principles of Child Development
- 85-241 Social Psychology
- 85-251 Personality
- 85-261 Abnormal Psychology
- 85-390 Human Memory
- 88-120 Reason, Passion and Cognition

* Indicates co-requisites and/or prerequisites required.

Complete TWO additional courses from one of the following departments (2 courses, complete 18 units minimum)

- English
- History
- Modern Languages
- Philosophy
- Psychology

Mathematics (2 courses, 20 units)

- 21-120 Differential and Integral Calculus
- 21-122 Integration, Differential Equations and Approximation

Science (3 courses, 31 units)

- 03-121 Modern Biology
- 09-105 Introduction to Modern Chemistry I
- 33-111 Physics I for Science Students

BXA Freshman Interdisciplinary Seminar (1 course, 9 units)

The BXA Freshman Research Seminar introduces first-year students to the field of interdisciplinary work and arts-based research. Students engage with theoretical and practical readings from across the various concentrations, with particular emphasis on aesthetic theory. Guest lectures complement the weekly readings by giving insight into practical implementations of these ideas. Students will conceive, research, and create a final project to be presented at the end of the semester. BXA internal transfer students should register for 52-399 BXA Interdisciplinary Seminar to fulfill the interdisciplinary requirement.

- 52-190 BXA Freshman Interdisciplinary Seminar -REQUIRED
- or 52-399 BXA Interdisciplinary Seminar

BXA Junior Seminar: Music from an Ancient Land, Traditional, Folk, and Contemporary Music of Iran (1 course, 9 units)

The Iranian civilization is one of the oldest continuing civilizations in the world. Music has played an important role in the continuation and preservation of this ancient culture. In this course, the traditional, folk, and contemporary music of Iran will be studied and discussed. The focal point of the course will be the Persian modal system, the Dástgah. Starting with a historical survey of the ancient and medieval Persian music, different aspects of the Dástgah system will be demonstrated and discussed. In addition, religious music and folk music of Iran as well as Iranian contemporary music will be discussed during the course. Course topic may vary each semester.

- 52-410 BXA Junior Seminar -REQUIRED

BXA Junior Portfolio Review (complete 1 required review, 0 units)

To better assess the progress and accomplishments of BXA students as they enter their final year, students submit a portfolio for review during the spring semester junior year. Students should work with their BXA advisor and their concentration faculty advisors to assemble a portfolio that represents their academic and creative accomplishments over the course of their college career. This portfolio should also include a reflective essay in which students evaluate how they extended their academic and creative accomplishments over the course of their college career. This portfolio should also include a reflective essay in which students evaluate how they integrated their two areas of interest, and how they will extend that integration into the BXA Capstone Project in the senior year.

Students should identify their own specific goals for their academic career and how they are fulfilling them in this reflective essay, as well as how they evaluate their performance in light of the programs’ broader pedagogical goals. Students in the BXA program should be working toward being able to:

- describe the connections between their chosen concentration disciplines and to integrate them into their work;
- communicate ideas in writing, visual expression, and oral expression;
- discuss the intersection of history, society, and culture from local and global perspectives;
- synthesize mathematical theories and experimental work to produce real-world knowledge;
- use cognitive, behavioral, and ethical dimensions to make decisions on individual and social levels.

- 52-391 BXA Junior Portfolio Review -Spring -REQUIRED

BXA Capstone Project (2 courses, 18 units)

The BXA Capstone Project gives BXA students the opportunity to demonstrate the extent of their interdisciplinary work over the course of their academic career. The Capstone Project should include elements that span the student’s CFA and DC concentrations (for BHA students), CFA and MCS concentrations (for BSA students), or CFA and SCS concentrations (for BCSA students). The project can be either a scholarly or creative endeavor, and may take on many possible forms (e.g., a written thesis, a compilation of creative work or works, an experiment and report, a computer program or animation, etc.).

The BXA Capstone sequence covers both semesters of a student’s senior year. In the fall, students are enrolled in 52-401 BXA Capstone Project I (9 units), which meets weekly to discuss strategies for managing research, planning the project, and larger theoretical issues related to interdisciplinary work. At the end of the fall course, students will have produced a Capstone Project proposal, an annotated bibliography, and multiple versions of their proposal.
project pitch. In the spring, students enroll in 52-402 BXA Capstone Project II (9 units), which has no required classroom time. Instead, students spend the semester doing research and the foundational work necessary for the project, as well as working with their faculty and BXA advisors as they develop their Capstone Project and prepare to present it at the annual Meeting of the Minds Undergraduate Research Symposium held each May.

**II. MCS Concentration**

(number of courses vary, 120-134 units)

BSA students choose one of the following concentrations:

- Biological Sciences (120 units)
- Chemistry (124 units)
- Mathematical Sciences (122 units)
- Physics (134 units)

**Biological Sciences Concentration (120 units minimum)**

**Biological Sciences Required Courses (102 units minimum)**

- 03-231 Biochemistry I 9
- or 03-232 Biochemistry I 9
- 03-240 Cell Biology 9
- 03-330 Genetics 9
- 03-124 Modern Biology Laboratory 9
- or 03-343 Experimental Techniques in Molecular Biology 9
- 03-201/202 Undergraduate Colloquium for Sophomores 2
- 09-106 Modern Chemistry II 10
- 09-217 Organic Chemistry I 9
- 09-218 Organic Chemistry II 9
- 09-221 Laboratory I: Introduction to Chemical Analysis 12
- 09-222 Laboratory II: Organic Synthesis and Analysis 12
- 33-112 Physics II for Science Students 12

**Biological Sciences Electives (2 courses, 18 units)**

One course must be an advanced elective selected from 03-3xx or higher, excluding 03-445.

**Chemistry Concentration (124 units minimum)**

**Chemistry Required Courses (106 units)**

- 09-106 Modern Chemistry II 10
- 09-219 Modern Organic Chemistry 10
- 09-220 Modern Organic Chemistry II 10
- 09-214 Physical Chemistry 9
- or 09-344 Physical Chemistry (Quantum): Microscopic Principles of Physical Chemistry 9
- or 09-345 Physical Chemistry (Thermo): Macroscopic Principles of Physical Chemistry 9
- 09-348 Inorganic Chemistry 10
- 09-221 Laboratory I: Introduction to Chemical Analysis 12
- 09-222 Laboratory II: Organic Synthesis and Analysis 12
- 09-321 Laboratory III: Molecular Design and Synthesis 12
- 09-204 Professional Communication Skills in Chemistry 3
- 09-201-09-202-09-321-09-322-09-323 Undergraduate Seminar I - Undergraduate Seminar II: Safety and Environmental Issues for Chemists - Undergraduate Seminar III 3
- 09-402 Undergraduate Seminar VI 3
- 33-112 Physics II for Science Students 12

**Advanced Chemistry Electives (2 courses, 18 units)**

May be any upper level chemistry course, 09-3xx or higher, or Biochemistry I, 03-231 or 03-232, with the exception of 09-435 Independent Study, which can be used only by permission of the Director of Undergraduate Studies.

**Mathematical Sciences Concentration (122 units minimum)**

**Mathematical Sciences Required Courses (86 units minimum)**

(Reasonable substitutions within the core program will be allowed.)

- 15-110 Principles of Computing 10
- 21-127 Concepts of Mathematics (prerequisite for 15-211) 10
- 21-228 Discrete Mathematics 9
- 21-241 Matrices and Linear Transformations 10
- or 21-341 Linear Algebra 10
- 21-259 Calculus in Three Dimensions 9
- 21-260 Differential Equations 9
- 21-355 Principles of Real Analysis I 9
- 21-373 Algebraic Structures 9
- 33-112 Physics II for Science Students 12

**Mathematical Sciences Electives (2 courses, 18 units)**

Students with a music focus should take 21-372 Partial Differential Equations and Fourier Analysis.

**Physics Concentration (134 units minimum)**

**Physics Required Courses (116 units)**

- 21-259 Calculus in Three Dimensions 9
- 33-104 Experimental Physics 9
- 33-112 Physics II for Science Students 12
- 33-201 Physics Sophomore Colloquium I -Fall 2
- 33-202 Physics Sophomore Colloquium II -Spring 2
- 33-211 Physics III: Modern Essentials 10
- 33-228 Electronics I 10
- 33-231 Physical Analysis 10
- 33-232 Mathematical Methods of Physics 10
- 33-234 Quantum Physics 10
- 33-301 Physics Upperclass Colloquium I -Fall 1
- 33-302 Physics Upperclass Colloquium II -Spring 1
- 33-331 Physical Mechanics I 10
- 33-338 Intermediate Electricity and Magnetism I 10
- 33-340 Modern Physics Laboratory 10
- 33-341 Thermal Physics I 10

**Physics Electives (2 courses, 18 units)**

Two courses to be pre-approved by the Physics Department.

- 33-xxx Two Physics Electives 18

NOTE: 33-114 Physics of Musical Sound (9 units) is highly recommended for students with a Music concentration.

**III. College of Fine Arts Concentration**

(number of courses vary, 108 units minimum)

BSA students choose one of the following concentrations:

- Architecture (108 units)
- Art (108 units)
- Design (108 units)
- Drama (108 units)
- Music (108 units)

**Architecture Concentration (108 units minimum)**

**Architecture Required Courses (52 units minimum)**

- 48-100 Architecture Design Studio: Foundation I -Fall 10
- or 48-095 Spatial Concepts for Non-Architects I 10
- 48-120 Introduction to Digital Media I -Fall 6
48-125 Introduction to Digital Media II -Spring 6
48-1xx Analog Media I -Fall 6
48-1xx Analog Media II -Spring 6
48-240 Historical Survey of World Architecture and Urbanism I -Spring 9
48-241 Survey of Architectural History II -Fall 9

**Architecture Electives** (56 units minimum)
Choose 56 elective Architecture units in consultation with the Architecture advisor.

Art Concentration (108 units minimum)
PORTFOLIO REVIEW REQUIRED FOR ADMISSION

**Concept Studies** (2 courses, 20 units)
Complete two courses:

60-101 Concept Studio I 10
60-201 Concept Studio II 10
60-202 Concept Studio III 10
60-203 Concept Studio: EcoArt 10
60-204 Concept Studio: Networked Narrative 10

**Media Studios** (3 courses, 30 units)
Complete three courses:

60-150 2D Media Studio: Drawing 10
60-160 2D Media Studio: Imaging 10
60-250 2D Media Studio: Painting 10
60-251 2D Media Studio: Print Media 10
60-130-60-130 3-D Media Studio I-I (complete two minis, 5 units each) 10
60-131-60-131 3D Media Studio II-I (complete two minis, 5 units each) 10
60-110 Electronic Media Studio I 10
60-210 Electronic Media Studio II 10

**Advanced Studios** (4 courses, 40 units)
Complete four courses. Courses may be offered in the fall and/or spring. Students may take courses in any media area (ETB, SIS, CP or DP3). They may take all courses in one media area if a focus is desired.

60-410 - 60-429 Advanced Electronic and Time-Based Work (ETB) 10
60-430 - 60-447 Advanced Sculpture, Installation and Site-Work (SIS) 10
60-448 - 60-449 Advanced Contextual Practice (CP) 10
60-450 - 60-498 Advanced Drawing, Painting, Print Media and Photography (DP3) 10
60-499 Studio Independent Study (one only) 10

**Art History/Theory** (2 courses, 18 units)
60-205 Modern Visual Culture 1789-1960 9
60-206 Contemporary Visual Culture 1960 - Present 9

**Review Requirement** (Complete 2 required reviews, 0 units)
A review is required at the end of the sophomore and senior years. Pass/no pass only.

60-200 Sophomore Review -Spring 0
60-400 Senior Review -Spring 0

**Design Concentration** (108 units minimum)
PORTFOLIO REVIEW REQUIRED FOR ADMISSION

Options available in the following areas, to be selected in the sophomore year:
1) Communication Design, 2) Industrial Design

**Required Courses for Each Option** (78 units)
51-101 Design Studio I -Fall, Freshman year 9
51-102 Design Studio II -Spring, Freshman year 9
51-103 Design Workshop -Fall, Freshman year 3
51-104 Design Workshop II -Spring, Freshman year 3
51-121 Design Drawing I-Fall, Freshman year 9
51-122 Design Drawing II-Spring, Freshman year 9
51-132 Introduction to Photo Design -Spring, Freshman year 4.5
51-134 Photo Design II-Spring, Freshman year 4.5
51-171 Human Experience in Design -Fall, Sophomore year 9
51-241 How People Work -Fall, Sophomore year 9
51-271 Design History I -Fall, Sophomore year 9

Work with Design Advisor in the Sophomore Year to Form Concentration Option
(30 units minimum):

**Communication Design Required Courses** (21 units)
51-201 CD Studio I: Communicating with Type -Fall 9
51-203 Communication Design Computer Lab -Fall 3
51-229 Digital Photographic Imaging -Fall 9

Choose 9 additional Design units in consultation with the Design advisor.

**Industrial Design Required Courses** (18 units)
51-211 Generation of Form: Industrial Design I 9
51-243 Prototyping 4.5
51-251 Digital Prototyping 4.5

Choose 12 additional Design units in consultation with the Design advisor.

**Dramaturgy Required Courses** (26 units)
54-175-54-176 Conservatory Hour-Conservatory Hour (1 unit each) 2
54-177 Foundations of Drama I or 54-178 Foundations of Drama I 6
54-281 Foundations of Drama II (prerequisite: 54-177 or 54-178) 6
54-282 Foundations of Drama II 6
54-381 Special Topics in Drama: History, Literature and Criticism 6

Work with Drama Faculty Advisor to Form Concentration Option (88 units minimum):

**Design Required Courses** (26 units)
54-151-54-152 Stagecraft-Stagecraft (15 units + 11 units) 26

Choose 62 additional Design units in consultation with the Design faculty advisor.

**Directing Required Courses** (49-52 units)
54-121-54-122 Directing I: Sources-Directing I: Sources 18
54-221-54-222 Directing II: Fundamentals-Directing II: Fundamentals (6 or 9 units + 9 units) 18
54-159-54-160 Production Symposium I-I 12
54-517-54-518 Director's Colloquium-Director's Colloquium (four times, 4 units total) 2

Choose 36-39 additional Directing units in consultation with the Directing faculty advisor.

**Dramaturgy Required Courses** (53 units)
54-109 Dramaturgy I: Approaches to Text 9
54-184 Dramaturgy 2: History and Practice 9
54-160 Production Symposium I -Spring 6
54-200 Dramaturgy Forum (two times, 2 units total) -Fall 1
54-387 Dramaturgy : Production I 9
54-xxx Dramaturgy 3, 4, 5 or 6 (take two in any order during the sophomore, junior, and senior years) 18

Choose 35 additional Dramaturgy units in consultation with the Dramaturgy faculty advisor.
Production Technology and Management Required Courses (26 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-151-54-152</td>
<td>Stagecraft-Stagecraft</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>(15 units + 11 units)</td>
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</tr>
</tbody>
</table>

Choose 62 additional PTM units in consultation with the PTM faculty advisor.

Music Concentration (108 units minimum)

AUDITION REQUIRED FOR MUSIC PERFORMANCE CONCENTRATION OPTION. PORTFOLIO REVIEW/INTERVIEW REQUIRED FOR MUSIC COMPOSITION, MUSICOLOGY & CULTURAL STUDIES, OR MUSIC TECHNOLOGY CONCENTRATION OPTION.

Options available in the following areas: 1) Music Performance (instrumental, piano, organ, voice), 2) Music Composition 3) Musicology & Cultural Studies, 4) Music Technology

Required Course for All Concentration Options (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-152</td>
<td>Harmony I</td>
<td>9</td>
</tr>
</tbody>
</table>

Music Performance and Music Composition Required Courses (76 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-161</td>
<td>Eurhythmics I</td>
<td>3</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-173)</td>
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<tr>
<td>57-69x</td>
<td>BXA Studio (4 semesters)</td>
<td>36</td>
</tr>
<tr>
<td>57-xxx</td>
<td>Major Ensemble (4 semesters)</td>
<td>24</td>
</tr>
</tbody>
</table>

Choose 23 additional Music units in consultation with the Music advisor.

Musicology & Cultural Studies Required Courses (45 units)

<table>
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<tr>
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<tbody>
<tr>
<td>57-283</td>
<td>Music History I</td>
<td>9</td>
</tr>
<tr>
<td>57-284</td>
<td>Music History II</td>
<td>9</td>
</tr>
<tr>
<td>57-285</td>
<td>Music History III</td>
<td>9</td>
</tr>
<tr>
<td>57-189</td>
<td>Introduction to Repertoire and Listening</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>for Musicians I</td>
<td></td>
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<tr>
<td>57-190</td>
<td>Repertoire and Listening for Musicians I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-283)</td>
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<tr>
<td>57-289</td>
<td>Repertoire and Listening for Musicians II</td>
<td>3</td>
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<tr>
<td></td>
<td>(co-requisite: 57-284)</td>
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<tr>
<td>57-290</td>
<td>Repertoire and Listening for Musicians III</td>
<td>3</td>
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<tr>
<td></td>
<td>(co-requisite: 57-285)</td>
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</tr>
<tr>
<td>57-611</td>
<td>Independent Study in History</td>
<td>6</td>
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</table>

Choose 36 units from:

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<tr>
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<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>57-209</td>
<td>The Beatles</td>
<td>9</td>
</tr>
<tr>
<td>57-306</td>
<td>World Music</td>
<td>6</td>
</tr>
<tr>
<td>57-377</td>
<td>Psychology of Music</td>
<td>9</td>
</tr>
<tr>
<td>57-412</td>
<td>Opera Since Wagner</td>
<td>9</td>
</tr>
<tr>
<td>57-414</td>
<td>Music and Nature</td>
<td>9</td>
</tr>
<tr>
<td>57-415</td>
<td>Globalization of Classical Music USA Turkey, Japan</td>
<td>6</td>
</tr>
<tr>
<td>57-477</td>
<td>Music of the Spirit</td>
<td>6</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-480</td>
<td>History of Black American Music Seminar</td>
<td>6</td>
</tr>
</tbody>
</table>

Graduate Musicology courses may be taken with instructor permission.

Choose 18 additional Music units in consultation with the Music advisor.

Music Technology Required Courses (40 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-101</td>
<td>Introduction to Music Technology</td>
<td>6</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-173)</td>
<td></td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-347</td>
<td>Electronic and Computer Music</td>
<td>6</td>
</tr>
<tr>
<td>57-xxx</td>
<td>Independent Study in Music Technology or Sound Recording</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 36 units from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
<td>9</td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
<td>3</td>
</tr>
<tr>
<td>57-283</td>
<td>Music History I</td>
<td>9</td>
</tr>
<tr>
<td>57-284</td>
<td>Music History II</td>
<td>9</td>
</tr>
<tr>
<td>57-285</td>
<td>Music History III</td>
<td>9</td>
</tr>
<tr>
<td>57-190</td>
<td>Repertoire and Listening for Musicians I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-283)</td>
<td></td>
</tr>
<tr>
<td>57-289</td>
<td>Repertoire and Listening for Musicians II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-284)</td>
<td></td>
</tr>
<tr>
<td>57-290</td>
<td>Repertoire and Listening for Musicians III</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(co-requisite: 57-285)</td>
<td></td>
</tr>
<tr>
<td>57-338</td>
<td>Sound Editing and Mastering</td>
<td>6</td>
</tr>
<tr>
<td>57-438</td>
<td>Multitrack Recording</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 23 additional Music units in consultation with the Music advisor.

IV. Free Electives

(approximately 1-2 courses, 3-17 units)

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement. Physical education and military science courses will not be calculated in a student's QPA.

Bachelor of Computer Science and Arts Degree Program

Carnegie Mellon University recognizes that there are students who are naturally gifted in both the fine arts and computer science. In order to accommodate students who want to pursue an education simultaneously in these areas, we offer a degree that combines the strengths of the College of Fine Arts (CFA) and the School of Computer Science (SCS). The intercollege degree, called the Bachelor of Computer Science and Arts (BCSA), is a rigorous program that offers a unique group of qualified students the opportunity to develop their talents and interests in an area of the fine arts and computer science.

The BCSA curriculum is divided into three parts: 1) BCSA Core requirements, 2) CFA concentration coursework, and 3) SCS concentration coursework.

Students choose their fine arts concentration from among the five schools in CFA: Architecture, Art, Design, Drama or Music. A student must meet the entry requirements for the particular CFA school of their choice. While in the BCSA Program, a student may change their CFA concentration only if they pass all admission requirements for that particular school.

The BCSA Degree Program is governed by faculty and administrators from both colleges and led by the director of the BXA Intercollege Degree Programs. The director and academic advisor of the BXA Intercollege Degree Programs are the primary advisors and liaisons between CFA and SCS. Students receive extensive advising support. Each student has two academic advisors: an advisor in the admitting school of CFA and SCS. Students choose their fine arts concentration from among the five schools in CFA: Architecture, Art, Design, Drama or Music. A student must meet the entry requirements for the particular CFA school of their choice. While in the BCSA Program, a student may change their CFA concentration only if they pass all admission requirements for that particular school.

Fine Arts Degree Program (approximately 3-8 units)

Students choose their fine arts concentration from among the five schools in CFA: Architecture, Art, Design, Drama or Music. A student must meet the entry requirements for the particular CFA school of their choice. While in the BCSA Program, a student may change their CFA concentration only if they pass all admission requirements for that particular school.

Bachelor of Computer Science and Arts Degree Program

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BCSA Curriculum

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
</tr>
</tbody>
</table>

I. BCSA Core

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-118</td>
</tr>
</tbody>
</table>

II. SCS Concentration

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-40</td>
</tr>
</tbody>
</table>

IV. BCSA Free Electives

(15 courses, 121 units minimum)

- Writing/Expression (1 course, 9 units, 76-101 required)
- Cultural Analysis (1 course, 9 units minimum)
- Mathematics (2 courses, 19 units minimum, 21-120 and either 21-122 or 21-241 required), Probability (1 course, 9 units minimum required)
- Science (2 courses, 18 units minimum)
- Engineering (In consultation with your academic advisor, an engineering course could substitute for one of the two Science requirements.)
- Economic, Political, & Social Institutions OR Cognition, Choice & Behavior (1 course, 9 units minimum)
• One additional course from one of the following departments: English, History, Modern Languages, Philosophy, or Psychology (1 course, 9 units minimum)

• BXA Freshman Interdisciplinary Seminar (1 course, 9 units, 52-190 or 52-399 required)

• BXA Junior Seminar (1 course, 9 units, 52-410 required)

• BXA Junior Portfolio Review (complete 1 required review, 0 units, 52-391 required)

• BXA Capstone Project (2 courses, 18 units, 52-401 & 52-402 required)

• Computing @ Carnegie Mellon (1 mini-course, 3 units, required in first semester)

Writing/Expression (1 course, 9 units)

Broadly considered, language is a tool used to communicate, as well as a way to organize non-visual and non-mathematical thinking. This requirement focuses on the social nature of language and the ways in which writing constitutes thinking.

76-101 Interpretation and Argument -REQUIRED (various topics by section) www.cmu.edu/hss/english/first_year/index.html

Cultural Analysis (1 course, complete 9 units minimum)

This category explores definitions of culture and the role culture plays in producing different actions and institutions as well as the roles of institutions, systems and human actions in shaping cultural contexts. Listed below are examples of courses that meet the requirement for this category.

57-173 Survey of Western Music History 9

70-342 Managing Across Cultures * 9

76-227 Comedy 9

76-232 African American Literature * 9

76-239 Introduction to Film Studies * 9

76-241 Introduction to Gender Studies 9

79-104 Global Histories 9

79-207 Development of European Culture 9

79-240 The Development of American Culture 9

79-241 African American History: Africa to the Civil War 9

79-242 African American History: Reconstruction to the Present 9

79-261 Chinese Culture and Society 9

79-281 Introduction to Religion 9

79-311 Introduction to Anthropology 9

79-330 Medicine and Society 9

79-345 The Roots of Rock and Roll, 1870-1970 9

79-350 Early Christianity 9

79-368 Poverty, Charity, and Welfare 9

80-100 Introduction to Philosophy 9

80-250 Ancient Philosophy 9

80-251 Modern Philosophy 9

80-253 Continental Philosophy 9

80-254 Analytic Philosophy 9

80-255 Pragmatism 9

80-276 Philosophy of Religion 9

82-3xx Any 300 level or greater course from Modern Languages 9

* Indicates co-requisites and/or prerequisites required.

Mathematics & Probability (3 courses, 29 units minimum)

Choose two mathematics courses (20 units minimum):

21-120 Differential and Integral Calculus 10

21-122 Integration, Differential Equations and Approximation 10

or 21-241 Matrices and Linear Transformations

Choose one probability course (9 units minimum):

15-359 Probability and Computing 12

21-325 Probability 9

36-217 Probability Theory and Random Processes 9

36-225 Introduction to Probability Theory 9

Science (2 courses, 18 units minimum)

Choose two courses from the following list:

03-121 Modern Biology 9

09-105 Introduction to Modern Chemistry I 10

21-259 Calculus in Three Dimensions 9

33-111 Physics I for Science Students 12

Engineering

In consultation with your academic advisor, an engineering course could substitute for one of the two Science requirements.

Economic, Political & Social Institutions OR Cognition, Choice & Behavior (1 course from either category, complete 9 units minimum)

Economic, Political & Social Institutions

This category examines the ways in which institutions organize individual preferences and actions into collective outcomes using model-based reasoning.

36-303 Sampling, Survey and Society * 9

70-332 Business, Society and Ethics * 9

73-100 Principles of Economics 9

79-335 Drug Use and Drug Policy 9

79-374 American Environmental History: Critical Issues 9

80-135 Introduction to Political Philosophy 9

80-136 Social Structure, Public Policy & Ethics 9

80-235 Political Philosophy 9

80-341 Computers, Society and Ethics 9

88-104 Decision Processes in American Political Institutions 9

88-110 Experiments with Economic Principles 9

88-205 Comparative Politics 9

88-220 Policy Analysis I 9

* Indicates co-requisites and/or prerequisites required.

Cognition, Choice, and Behavior

This category use model-based analysis to broaden an understanding of human thinking, choices, and behavior on an individual basis across a variety of settings.

70-311 Organizational Behavior * 9

80-130 Introduction to Ethics 9

80-150 Nature of Reason 9

80-180 Nature of Language 9

80-221 Philosophy of Social Science 9

80-230 Ethical Theory 9

80-241 Ethical Judgments in Professional Life 9

80-270 Philosophy of Mind 9

80-271 Philosophy and Psychology 9

80-275 Metaphysics 9

80-281 Language and Thought 9

85-102 Introduction to Psychology 9

85-211 Cognitive Psychology 9

85-221 Principles of Child Development 9

85-241 Social Psychology * 9

85-251 Personality 9

85-261 Abnormal Psychology 9

88-120 Reason, Passion and Cognition 9

88-260 Organizations 9

* Indicates co-requisites and/or prerequisites required.

Complete ONE additional course from one of the following departments (1 course, complete 9 units minimum)

• English

• History

• Modern Languages

• Philosophy

• Psychology
BXA Freshman Interdisciplinary Seminar (1 course, 9 units)
The BXA Freshman Research Seminar introduces first-year students to the field of interdisciplinary work and arts-based research. Students engage with theoretical and practical readings from across the various concentrations, with particular emphasis on aesthetic theory. Guest lectures complement the weekly readings by giving insight into practical implementations of these ideas. Students will conceive, research, and create a final project to be presented at the end of the semester. BXA internal transfer students should register for 52-399 BXA Interdisciplinary Seminar to fulfill the interdisciplinary requirement.

52-190 BXA Freshman Interdisciplinary Seminar -REQUIRED 9
or 52-399 BXA Interdisciplinary Seminar

BXA Junior Seminar: Music from an Ancient Land, Traditional, Folk, and Contemporary Music of Iran (1 course, 9 units)
The Iranian civilization is one of the oldest continuing civilizations in the world. Music has played an important role in the continuation and preservation of this ancient culture. In this course, the traditional, folk, and contemporary music of Iran will be studied and discussed. The focal point of the course will be the Persian modal system, the Dastgah. Starting with a historical survey of the ancient and medieval Persian music, different aspects of the Dastgah system will be demonstrated and discussed. In addition, religious and folk music of Iran and as well as Iranian contemporary music will be discussed during the course. Course topic may vary each semester.

52-410 BXA Junior Seminar -REQUIRED 9

BXA Junior Portfolio Review (complete 1 required review, 0 units)
To better assess the progress and accomplishments of BXA students as they enter their final year, students submit a portfolio for review during the spring semester junior year. Students should work with their BXA advisor and their concentration faculty advisors to assemble a portfolio that represents their academic and creative accomplishments over the course of their college career. This portfolio should also include a reflective essay in which students evaluate how they integrated their two areas of interest, and how they will extend that integration into the BXA Capstone Project in the senior year.

Students should identify their own specific goals for their academic career and how they are fulfilling them in this reflective essay, as well as how they evaluate their performance in light of the programs' broader pedagogical goals. Students in the BXA program should be working toward being able to:

• describe the connections between their chosen concentration disciplines and to integrate them into their work
• communicate ideas in writing, visual expression, and oral expression
• discuss the intersection of history, society, and culture from local and global perspectives
• synthesize mathematical theories and experimental work to produce real-world knowledge
• use cognitive, behavioral, and ethical dimensions to make decisions on individual and social levels

52-391 BXA Junior Portfolio Review -Spring -REQUIRED 0
(pass/no pass)

BXA Capstone Project (2 courses, 18 units)
The BXA Capstone Project gives BXA students the opportunity to demonstrate the extent of their interdisciplinary work over the course of their academic career. The Capstone Project should include elements that span the student's CFA and DC concentrations (for BXA students), CFA and MCS concentrations (for BCSA students), or CFA and SCS concentrations (for BCSA students). The project can be either a scholarly or creative endeavor, and may take one of many possible forms (e.g., a written thesis, a compilation of creative work or works, an experiment and report, a computer program or animation, etc.).

The BXA Capstone sequence covers both semesters of a student's senior year. In the fall, students are enrolled in 52-401 BX A Capstone Project I (9 units), which meets weekly to discuss strategies for managing research, planning the project, and larger theoretical issues related to interdisciplinary work. At the end of the fall course, students will have produced a Capstone Project proposal, an annotated bibliography, and multiple versions of their project pitch. In the spring, students enroll in 52-402 BX A Capstone Project II (9 units), which has no required classroom time. Instead, students spend the semester doing the research and foundational work necessary for the project, as well as meeting with their faculty and BXA advisors as they create their Capstone Project and prepare to present it at the annual Meeting of the Minds Undergraduate Research Symposium held each May.

52-401 BXA Capstone Project I -Fall -REQUIRED (course attendance required) 9
52-402 BXA Capstone Project II -Spring -REQUIRED (DMN, independent study) 9

Computing @ Carnegie Mellon (1 mini-course, 3 units)
This is a mini-course, pass/no pass, to be completed in the first semester.
99-101 Computing @ Carnegie Mellon -REQUIRED 3
or 99-102 Computing @ Carnegie Mellon
or 99-103 Computing @ Carnegie Mellon

II. SCS Concentration
School of Computer Science Concentration (111 units minimum)
Prerequisite
15-112 Fundamentals of Programming and Computer Science 12

Computer Science Core Requirements (56 units)
15-122 Principles of Imperative Computation 10
15-150 Principles of Functional Programming 10
15-210 Parallel and Sequential Data Structures and Algorithms 12
15-213 Introduction to Computer Systems 12
15-251 Great Theoretical Ideas in Computer Science 12

Concepts of Mathematics (10 units)
21-127 Concepts of Mathematics (co-requisite for 15-122; prerequisite for 15-150) 10

Applications Courses or CS Electives (5 courses, 45 units minimum)
Consult with the CS advisor to choose a minimum of five courses from the following list:
05-331 Building Virtual Worlds (12 units for CS concentration, 12 units for Art concentration) 24
05-391 Designing Human Centered Software 12
11-411 Natural Language Processing 12
15-237 Special Topic: Cross-Platform Mobile Web Apps 12
15-322 Introduction to Computer Music 9
15-323 Computer Music Systems and Information Processing 9
15-381 Artificial Intelligence: Representation and Problem Solving 9
15-415 Database Applications 12
15-437 Web Application Development 12
15-451 Algorithm Design and Analysis 12
15-462 Computer Graphics 12
15-463 Computational Photography 12
15-464 Technical Animation 12
15-465 Animation Art and Technology 12
15-466 Computer Game Programming 12
16-362 Mobile Robot Programming Laboratory 12
16-384 Robot Kinematics and Dynamics 12
16-385 Computer Vision 9

Others as appropriate with advisor's permission.

III. College of Fine Arts Concentration
(number of courses vary, 108-118 units minimum)
BCSA students choose one of the following concentrations:

• Architecture (108 units)
• Art (118 units)
• Design (108 units)
• Drama (108 units)
• Music (108 units)
Architecture Concentration (108 units minimum)

Architecture Required Courses (52 units minimum)

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-100</td>
<td>Architecture Design Studio: Foundation I - Fall</td>
<td>10</td>
</tr>
<tr>
<td>or 48-095</td>
<td>Spatial Concepts for Non-Architects I</td>
<td>12</td>
</tr>
<tr>
<td>48-120</td>
<td>Introduction to Digital Media I - Fall</td>
<td>6</td>
</tr>
<tr>
<td>48-125</td>
<td>Introduction to Digital Media II - Spring</td>
<td>6</td>
</tr>
<tr>
<td>48-1xx</td>
<td>Analog Media I - Fall</td>
<td>6</td>
</tr>
<tr>
<td>48-1xx</td>
<td>Analog Media II - Spring</td>
<td>6</td>
</tr>
<tr>
<td>48-240</td>
<td>Historical Survey of World Architecture and Urbanism I - Spring</td>
<td>9</td>
</tr>
<tr>
<td>48-241</td>
<td>Survey of Architectural History II - Fall</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 56 elective Architecture units in consultation with the Architecture advisor.

Art Concentration (118 units minimum)

PORTFOLIO REVIEW REQUIRED FOR ADMISSION

Concept Studies (2 courses, 20 units)

Complete two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-101</td>
<td>Concept Studio I</td>
<td>10</td>
</tr>
<tr>
<td>60-201</td>
<td>Concept Studio II</td>
<td>10</td>
</tr>
<tr>
<td>60-202</td>
<td>Concept Studio III</td>
<td>10</td>
</tr>
<tr>
<td>60-203</td>
<td>Concept Studio: EcoArt</td>
<td>10</td>
</tr>
<tr>
<td>60-204</td>
<td>Concept Studio: Networked Narrative</td>
<td>10</td>
</tr>
</tbody>
</table>

Complete two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-150</td>
<td>2D Media Studio: Drawing</td>
<td>10</td>
</tr>
<tr>
<td>60-160</td>
<td>2D Media Studio: Imaging</td>
<td>10</td>
</tr>
<tr>
<td>60-250</td>
<td>2D Media Studio: Painting</td>
<td>10</td>
</tr>
<tr>
<td>60-251</td>
<td>2D Media Studio: Print Media</td>
<td>10</td>
</tr>
<tr>
<td>60-330-60-330</td>
<td>3D Media Studio I- complete two minis, 5 units each</td>
<td>10</td>
</tr>
<tr>
<td>60-131-60-131</td>
<td>3D Media Studio II - complete two minis, 5 units each</td>
<td>10</td>
</tr>
<tr>
<td>60-110</td>
<td>Electronic Media Studio I</td>
<td>10</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio II</td>
<td>10</td>
</tr>
</tbody>
</table>

Advanced Studios (6 courses, 60 units)

Complete six courses. Courses may be offered in the fall and/or spring. Students may take courses in any media area (ETB, SIS, CP or DP3). They may take all courses in one media area if a focus is desired.

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-410</td>
<td>40-429 Advanced Electronic and Time-Based Work ETB</td>
<td>12</td>
</tr>
<tr>
<td>60-420</td>
<td>40-447 Advanced Sculpture, Installation and Site-Work SIS</td>
<td>15</td>
</tr>
<tr>
<td>60-448</td>
<td>40-449 Advanced Contextual Practice CP</td>
<td>12</td>
</tr>
<tr>
<td>60-450</td>
<td>40-498 Advanced Drawing, Painting, Print Media and Photography (PDF)</td>
<td>12</td>
</tr>
<tr>
<td>60-499</td>
<td>Studio Independent Study (one only)</td>
<td>10</td>
</tr>
</tbody>
</table>

Art History/Theory (2 courses, 18 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-205</td>
<td>Modern Visual Culture 1789-1960</td>
<td>9</td>
</tr>
<tr>
<td>60-206</td>
<td>Contemporary Visual Culture 1960 - Present</td>
<td>9</td>
</tr>
</tbody>
</table>

Review Requirement (Complete 2 required reviews, 0 units)

A review is required at the end of the sophomore and senior years. Pass/no pass only.

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>60-200</td>
<td>Sophomore Review - Spring</td>
<td>0</td>
</tr>
<tr>
<td>60-400</td>
<td>Senior Review - Spring</td>
<td>0</td>
</tr>
</tbody>
</table>

Design Concentration (108 units minimum)

PORTFOLIO REVIEW REQUIRED FOR ADMISSION

Options available in the following areas, to be selected in the sophomore year:
1) Communication Design, 2) Industrial Design

Required Courses for Both Concentration Options (78 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>51-101</td>
<td>Design Studio I - Fall, Freshman year</td>
<td>9</td>
</tr>
<tr>
<td>51-102</td>
<td>Design Studio II - Spring, Freshman year</td>
<td>9</td>
</tr>
<tr>
<td>51-103</td>
<td>Design Workshop - Fall, Freshman year</td>
<td>3</td>
</tr>
<tr>
<td>51-104</td>
<td>Design Workshop II - Spring, Freshman year</td>
<td>3</td>
</tr>
</tbody>
</table>
### BXA Intercollege Degree Programs

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-387</td>
<td>Dramaturgy : Production I</td>
<td>9</td>
</tr>
<tr>
<td>54-xxx</td>
<td>Dramaturgy 3, 4, 5 or 6 (take two in any order during the sophomore, junior, and senior years)</td>
<td>18</td>
</tr>
</tbody>
</table>

Choose 35 additional Dramaturgy units in consultation with the Dramaturgy faculty advisor.

**Production Technology and Management Required Courses (26 units)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-151-54-152</td>
<td>Stagecraft-Stagecraft (15 units + 11 units)</td>
<td>26</td>
</tr>
</tbody>
</table>

Choose 62 additional PTM units in consultation with the PTM faculty advisor.

**Music Concentration (108 units minimum)**

PORTFOLIO REVIEW/INTERVIEW REQUIRED FOR MUSIC COMPOSITION OR MUSIC TECHNOLOGY CONCENTRATION OPTION.

Options available in the following areas: 1) Music Composition, 2) Music Technology

**Required Courses for Both Concentration Options (19 units)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-152</td>
<td>Harmony I</td>
<td>9</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians (co-requisite: 57-173)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Music Composition Required Courses (66 units)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-161</td>
<td>Eurhythmics I</td>
<td>3</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-69x</td>
<td>BXA Studio (4 semesters)</td>
<td>36</td>
</tr>
<tr>
<td>57-xxx</td>
<td>Major Ensemble (4 semesters)</td>
<td>24</td>
</tr>
</tbody>
</table>

Choose 23 additional Music units in consultation with the Music advisor.

**Music Technology Required Courses (30 units)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-101</td>
<td>Introduction to Music Technology</td>
<td>6</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-347</td>
<td>Electronic and Computer Music</td>
<td>6</td>
</tr>
<tr>
<td>57-xxx</td>
<td>Independent Study in Music Technology or Sound Recording</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 36 units from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
<td>9</td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
<td>3</td>
</tr>
<tr>
<td>57-283</td>
<td>Music History I</td>
<td>9</td>
</tr>
<tr>
<td>57-284</td>
<td>Music History II</td>
<td>9</td>
</tr>
<tr>
<td>57-285</td>
<td>Music History III</td>
<td>9</td>
</tr>
<tr>
<td>57-190</td>
<td>Repertoire and Listening for Musicians I (co-requisite: 57-283)</td>
<td>3</td>
</tr>
<tr>
<td>57-289</td>
<td>Repertoire and Listening for Musicians II (co-requisite: 57-284)</td>
<td>3</td>
</tr>
<tr>
<td>57-290</td>
<td>Repertoire and Listening for Musicians III (co-requisite: 57-285)</td>
<td>3</td>
</tr>
<tr>
<td>57-338</td>
<td>Sound Editing and Mastering</td>
<td>6</td>
</tr>
<tr>
<td>57-438</td>
<td>Multitrack Recording</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 23 additional Music units in consultation with the Music advisor.

### IV. Free Electives

(approximately 3-4 courses, 30-40 units minimum)

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement. Physical education and military science courses will not be calculated in a student’s GPA.