BXA Intercollege Degree Programs

M. Stephanie Murray, Director
Location: Hall of the Arts 211
www.cmu.edu/interdisciplinary (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 curriculum. 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 Computer Science and Arts (BCSA), the Bachelor of Humanities and Arts (BHA), the Bachelor of Science and Arts (BSA) and the additional major in Engineering and Arts (EA), housed under the BXA Intercollege Degree Programs, is to allow a select group of students who demonstrate interest and accomplishment in the fine arts and computer science, engineering, humanities, social sciences or natural sciences 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 computer science, engineering, natural sciences or humanities 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 five 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 computer science, engineering, humanities and social sciences, or the natural and mathematical sciences.

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 studies in the fine arts and computer science. 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 Degree Programs 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 DCE/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 DCE/MCS/SCS concentration
- Experience in designing, researching and completing a large-scale, object-based project that integrates both areas of concentration

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 General Education coursework, 2) CFA concentration coursework, and 3) SCS concentration coursework.

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 associate director 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 additional academic advisors: an advisor in the admitting school of CFA for their fine arts concentration and an advisor in SCS for their computer science concentration. This network of advisors guides each student through their curriculum.

BCSA Curriculum

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<th>Units</th>
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<tr>
<td>I. BCSA General Education</td>
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<td>II. SCS Concentration</td>
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<td>III. CFA Concentration</td>
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<td>IV. Free Electives</td>
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<tr>
<td>Total BCSA Degree Requirements</td>
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</tbody>
</table>

BCSA General Education

(15 courses, 122 units minimum)

- Writing (1 course, 9 units, 76-101 required)
- Mathematics (2 courses, 19 units minimum, 21-122 and either 21-259 or 23-241 required)
- Science & Engineering (2 courses, 18 units minimum)
- Economic, Political, & Social Institutions OR Cognition, Choice & Behavior (1 course, 9 units minimum)
- Two additional courses from Dietrich or CFA (2 course, 18 units minimum)
- University Requirement (1 course, 3 units, 99-101 required)
- BXA Required Courses (5 courses, 36 units minimum, 52-190 or 52-291, 52-391, 52-392, 52-401, 52-402)

Writing (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

or 76-102 Advanced First Year Writing: Special Topics

or 76-106 Writing about Literature, Art and Culture & 76-107 and Writing about Data & 76-108 and Writing about Public Problems

All undergraduate students must complete the First-Year Writing requirement—the Department of English does not accept any Advanced Placement exemptions. This requirement can be completed in two different ways. Enroll in one of two full-semester courses 101 or 102 (by invitation only), 9 units, or enroll in two of three half-semester mini courses (back-to-back within a single semester) 106/107/108, 4.5 + 4.5 units. Course options and topics: www.cmu.edu/hss/english/first_year/index.html
Mathematics & Probability (3 courses, 28 units minimum)
Choose two mathematics courses (19 units minimum):
21-122 Integration and Approximation 10
21-259 Calculus in Three Dimensions 9
or 21-241 Matrices and Linear Transformations 9
Choose one probability course(s) (9 units minimum):
15-259 Probability and Computing 12
21-325 Probability 9
36-218 Probability Theory for Computer Scientists 9
36-225-36-226 Introduction to Probability Theory - Introduction to Statistical Inference 18

Science & Engineering (2 courses, 18 units minimum)
Choose two science courses from differing departments or one science and one engineering course from the following list:
02-223 Personalized Medicine: Understanding Your Own Genome 9
03-121 Modern Biology 9
03-125 Evolution 9
03-132 Basic Science to Modern Medicine 9
03-133 Neurobiology of Disease 9
06-100 Introduction to Chemical Engineering 10
09-105 Introduction to Modern Chemistry I 9
09-217 Organic Chemistry I 9
09-225 Climate Change: Chemistry, Physics and Planetary Science 9
12-100 Exploring CEE: Infrastructure and Environment in a Changing World 12
12-201 Geology 9
18-100 Introduction to Electrical and Computer Engineering 12
24-101 Fundamentals of Mechanical Engineering 12
27-215 Thermodynamics of Materials 12
33-14 Music and Society 9
33-19 Science and Science Fiction 9
33-121 Physics I for Science Students 12
42-101 Introduction to Biomedical Engineering 12
85-219 Biological Foundations of Behavior 9

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

Economic, Political & Social Institutions
This requirement explores the processes by which institutions organize individual preferences and actions into collective outcomes.
19-101 Introduction to Engineering and Public Policy 12
70-332 Business, Society and Ethics 9
73-102 Principles of Microeconomics 9
73-103 Principles of Macroeconomics 9
79-245 Capitalism and Individualism in American Culture 9
79-300 History of American Public Policy 9
79-310 U. S. Business History: 1870 to the Present 9
79-320 Women, Politics, and Protest 9
79-331 Body Politics: Women and Health in America 9
79-341 The Cold War in Documents and Film 9
79-383 Capitalism: A Global History 9
80-135 Introduction to Political Philosophy 9
80-136 Social Structure, Public Policy & Ethics 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-335 Social and Political Philosophy 9
84-104 Decision Processes in American Political Institutions 9
84-275 Comparative Politics 9
84-322 Nonviolent Conflict and Revolution 9
84-326 Theories of International Relations 9
84-362 Diplomacy and Statecraft 9
84-380 US Grand Strategy 9
84-386 The Privatization of Force 9
84-389 Terrorism and Insurgency 9

Cognition, Choice, and Behavior
This requirement explores the process of thinking, decision making, and behavior in the context of the individual.
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
80-242 Conflict and Dispute Resolution 9
80-270 Problems of Mind and Body: Meaning and Doing 9
80-271 Mind and Body: The Objective and the Subjective 9
80-330 Ethical Theory 9
85-102 Introduction to Psychology 9
85-211 Cognitive Psychology 9
85-213 Human Information Processing and Artificial Intelligence 9
85-221 Principles of Child Development 9
85-241 Social Psychology 9
85-251 Personality 9
85-261 Psychopathology 9
85-370 Perception 9
88-120 Reason, Passion and Cognition 9
* Indicates co-requisites and/or prerequisites required.

Complete Two additional courses from Dietrich or CFA (2 courses, complete 18 units minimum)
These courses must be non-technical/non-studio. Each CFA concentration has recommended courses for this category; consult with your BXA advisor to determine the best courses to fulfill this requirement.

University Requirement (1 course, 3 units)
This is a mini-course, pass/no pass, to be completed in the first semester or online in the summer prior to the first semester.
99-101 Computing @ Carnegie Mellon 3

BXA Required Courses (5 courses, 36 units minimum)
BXA-specific courses give students the opportunity to integrate their areas of concentration by focusing on interdisciplinary approaches and arts-based research techniques.
52-190 BXA Seminar I: Building the Wunderkammer 9
or 52-291 BXA Seminar II: Transferring Knowledge 9
52-391 BXA Junior Portfolio 0
52-392 BXA Seminar III: Deconstructing Disciplines 9
52-401 BXA Seminar IV: Capstone Project Research 9
52-402 BXA Seminar V: Capstone Project Production 9

School of Computer Science Concentration

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

Computer Science Core Requirements (5 courses, 56 units)
15-122 Principles of Imperative Computation 10
15-150 Principles of Functional Programming 10
College of Fine Arts Concentration
(number of courses vary, 108 units minimum)

BCSA 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 (7 courses, 52 units minimum)

48-100 Architecture Design Studio: Foundation I -Fall, 10-15 Freshman year

or 48-095 Spatial Concepts for Non-Architecture Majors
62-122 Digital Media I -Fall, Freshman year 6
62-125 Drawing I -Fall, Freshman year 6
62-123 Digital Media II -Spring, Freshman year 6
62-126 Drawing II -Spring, Freshman year 6
48-240 Historical Survey of World Architecture and Urbanism I -Spring, Freshman year 9
48-241 Modern Architecture -Fall, Sophomore year 9

Architecture Electives (56 units minimum)

A minimum of 56 additional Architecture units must be approved by the Architecture advisor. A list of these selected courses must be filed in the BXA office.

Art Concentration (108 units minimum)

Transdisciplinary Research Studios (2 courses, 20 units)
Complete two courses:

60-101 Transdisciplinary Research Studio I: Risk, Agency, Failure 10
60-201 Transdisciplinary Research Studio II: Publics 10
60-202 Transdisciplinary Research Studio III: Futures 10

Media Studios (3 courses, 30 units minimum)
Complete three courses. 3D II mini courses count as half a course:

60-150 2D Media Studio: Drawing 10
60-160 2D Media Studio: Imaging 10
60-131 3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication 10
60-133 3D Media Studio II (mini-3) 5
60-134 3D Media Studio II (mini-4) 5
60-250 2D Media Studio: Painting 10
60-251 2D Media Studio: Print Media 10
60-110 Electronic Media Studio: Introduction to the Moving Image 10
60-210 Electronic Media Studio: Introduction to Interactivity 10-12
or 60-212 Electronic Media Studio: Interactivity and Computation for Creative Practice

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.

60-401/402 Senior Studio 10
60-403 Senior Critique Seminar 10
Advanced Electronic and Time-Based Work (ETB) (course numbers 60-410 through 60-429) 10
Advanced Sculpture, Installation and Site-Work (SIS) (course numbers 60-430 through 60-447) 10
Advanced Contextual Practice (CP) (course numbers 60-448 through 60-449) 10
Advanced Drawing, Painting, Print Media and Photography (DP3) (course numbers 60-450 through 60-498) 10
60-499 Studio Independent Study (one only) 10

* Courses offered intermittently; speak with a BXA advisor to determine course availability.

Critical Studies (2 courses, 18 units)

60-205 Critical Theory in Art II -Fall 9
60-206 Critical Theory in Art IV -Spring 9

Note: Critical Theory I & II are strongly recommended.

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.
Design CONCENTRATION (108 UNITS MINIMUM)

Design Required Courses (13 courses, 95 units)
- 51-101 Studio: Survey of Design (Fall, Freshman year) 10
- 51-121 Visualizing (Fall, Freshman year) 10
- 51-171 Placing (Fall, Freshman year) 10
- 51-102 Design Lab (Spring, Freshman year) 10
- 51-122 Collaborative Visualizing (Spring, Freshman year) 10
- 51-172 Systems (Spring, Freshman year) 9

Choose Two Studios (Fall, Sophomore year): 4.5+4.5
- 51-225 Communications Studio I: Understanding Form & Context
- or 51-245 Products Studio I: Understanding Form & Context
- or 51-265 Environments Studio I: Understanding Form & Context

Choose Two Corresponding Labs (Fall, Sophomore year): 4.5+4.5
- 51-227 Prototyping Lab I: Communications
- or 51-247 Prototyping Lab I: Products
- or 51-267 Prototyping Lab I: Environments
- 51-271 How People Work (Fall, Sophomore year) 9
- 51-371 Futures I (Fall, Junior year or later) 4.5
- 51-373 Futures II (Fall, Junior year or later) 4.5

Design Electives (13 units)
A minimum of 13 additional Design units must be approved by the Design advisor. A list of these selected courses must be filed in the BXA office.

Drama Concentration (108 units minimum)

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

Note: There is no BHA Acting or Musical Theatre option.

Required Courses for All Concentration Options (5 courses, 20 units)
- 54-175-54-176 Conservatory Hour-Conservatory Hour (1 unit each) 2
- 54-177 Foundations of Drama I 6
- 54-281 Foundations of Drama II (prerequisite: 54-177) 6
- 54-381 Special Topics in Drama: History, Literature and Criticism 6

Work with Drama Faculty Option Coordinator to Approve Concentration Option (88 units minimum):

Design Required Courses (2 courses, 26 units)
- 54-151-54-152 Stagecraft-Stagecraft (13 units + 13 units) 26

A minimum of 62 additional Design units must be approved by the Design faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Directing Required Courses (10 courses, 52 units)
- 54-121-54-122 Directing I: Sources-Directing I: Sources 18
- 54-221-54-222 Directing II: Fundamentals-Directing II: Fundamentals 18
- 54-159-54-159 Production Practicum-Production Practicum (two times, 12 units total) 12
- 54-517 Director's Colloquium (four times, 4 units total) 1

A minimum of 36 additional Directing units must be approved by the Directing faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Dramaturgy Required Courses (9 courses, 53 units minimum)
- 54-109 Dramaturgy 1: Approaches to Text 9
- 54-184 Dramaturgy 2: Introduction to Production 9
- 54-121 Directing I: Sources 9
- 54-159-54-159 Production Practicum-Production Practicum (two times, 12 units total) 12
- 54-200-54-200 Dramaturgy Forum-Dramaturgy Forum -Fall (minimum of two; every semester it is offered while enrolled) 2
- 54-xxx Dramaturgy 3, 4, 5 or 6 (minimum of two; all four if enrolled as BXA for six semesters or more) 18

A minimum of 29 additional Dramaturgy units must be approved by the Dramaturgy faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Production Technology and Management Required Courses (2 courses, 26 units)
- 54-151-54-152 Stagecraft-Stagecraft (13 units + 13 units) 26

A minimum of 62 additional PTM units must be approved by the PTM faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Music Concentration (108 units minimum)

Options available in the following areas: 1) Music Performance (instrumental, piano, organ, voice), 2) Composition 3) Musicology, 4) Audio Recording & Production 5) Sound Theory & Practice

Required Course for All Concentration Options (1 course, 9 units)
- 57-152 Harmony I 9
  or 57-149 Basic Harmony I

Work with Music Advisor to Approve Concentration Option (99 units minimum):

Music Performance and Composition Required Courses (12 courses, 76 units)
- 57-161 Eurhythmics I (recommended co-requisite: 57-181) 3
- 57-181 Solfege I (co-requisite: 57-180) 3
  or 57-180 Basic Solfege I
- 57-173 Survey of Western Music History (co-requisite: 57-188) 9
- 57-188 Repertoire and Listening for Musicians 1
- 57-49x BXA Studio (4 semesters) 36
- 57-xxx Major Ensemble (4 semesters) 24

A minimum of 23 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Musicology Required Courses (8 courses, 45 units)
- 57-283 Music History I (co-requisite: 57-190) 9
- 57-284 Music History II (co-requisite: 57-289) 9
- 57-285 Music History III (co-requisite: 57-290) 9
- 57-189 Introduction to Repertoire and Listening for Musicians 3
- 57-190 Repertoire and Listening for Musicians I 3
- 57-289 Repertoire and Listening for Musicians II 3
- 57-290 Repertoire and Listening for Musicians III 3
- 57-611 Independent Study in History 6

Choose 36 units from:
- 57-209 The Beatles 9
- 57-306 World Music 9
Choose Sound Theory & Practice Required Courses (7 courses, 47 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>57-404</td>
<td>String Quartet: A Social History</td>
<td>9</td>
</tr>
<tr>
<td>57-405</td>
<td>Concerto: Virtuosity and Contrast</td>
<td>9</td>
</tr>
<tr>
<td>57-409</td>
<td>Puccini’s Operas</td>
<td>9</td>
</tr>
<tr>
<td>57-427</td>
<td>Advanced Seminar in Film Musicology</td>
<td>9</td>
</tr>
<tr>
<td>57-476</td>
<td>How Music Works: An Affective History</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</td>
<td>6</td>
</tr>
<tr>
<td>57-485</td>
<td>History of the Symphony</td>
<td>9</td>
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</table>

A minimum of 18 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Audio Recording & Production Required Courses (7 courses, 40 units)

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<tr>
<th>Course Code</th>
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<th>Units</th>
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<tbody>
<tr>
<td>57-101</td>
<td>Introduction to Music Technology</td>
<td>6</td>
</tr>
<tr>
<td>57-171</td>
<td>Introduction to Music Technology (self-paced)</td>
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<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
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<tr>
<td>57-180</td>
<td>Basic Solfege I</td>
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<tr>
<td>57-185</td>
<td>Advanced Solfege I</td>
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<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
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<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
<td>6</td>
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<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>
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Choose 59 units from:

- 57-153 Harmony II 9
- or 57-150 Basic Harmony II 9
- 57-182 Solfege II 3
- or 57-186 Advanced Solfege II 3
- 15-104 Introduction to Computing for Creative Practice 10
- 10-090 Twisted Signals: Multimedia Processing for the Arts 10
- 33-114 Physics of Musical Sound 9
- 54-166 Introduction to Sound Design for Theatre 6
- 54-275 History of Sound Design 3
- 54-666 Production Audio 6
- 57-344 Experimental Sound Synthesis 9
- 57-421 Exploded Ensemble 6
- 57-425 Expanded Music Performance 9
- 57-427 Advanced Seminar in Film Musicology 9
- 57-478 Survey of Historical Recording 6
- 57-622 Independent Study in Sound Recording Production 3
- 60-131 3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication 10
- 60-210 Electronic Media Studio: Introduction to Interactivity 10

Note: Students completing an IDeATe minor may double-count up to two of the IDeATe minor courses towards the Sound Theory & Practice concentration.

Free Electives

(approximately 4 courses, 39 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 QPA.

Bachelor of Humanities and Arts Degree Program

Carnegie Mellon University offers an intercollegiate 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 intercollegiate 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) BHA General Education coursework, 2) CFA concentration coursework, and 3) DC concentration coursework.

The BHA 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 associate director of the BXA 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.
BHA Curriculum

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</tr>
<tr>
<td><strong>Total BHA Degree Requirements</strong></td>
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BHA General Education

(14 courses, 111 units minimum)

- Communicating: Language and Interpretations (3 courses, 27 units minimum, 76-101 required, two approved modern language courses required)
- Reflecting: Societies and Cultures (1 course, 9 units, 79-104 required)
- Modeling: Mathematics and Experiments (1 course, 9 units minimum)
- Deciding: Social Sciences and Values (3 courses, 27 units minimum, 36-200 required)
- University Requirement (1 course, 3 units, 99-101 required)
- BXA Required Courses (5 courses, 36 units minimum, 52-190 or 52-291, 52-391, 52-401, 52-402)

### Communicating: Language and Interpretations (3 courses, 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.

- 76-101 Interpretation and Argument
- or 76-102 Advanced First Year Writing: Special Topics
- or 76-106 Writing about Literature, Art and Culture
- & 76-107 and Writing about Data
- & 76-108 and Writing about Public Problems

All undergraduate students must complete the First-Year Writing requirement—the Department of English does not accept any Advanced Placement exemptions. This requirement can be completed in two different ways. Enroll in one of two full-semester courses 101 or 102 (by invitation only), 9 units, or enroll in two of three half-semester mini courses (back-to-back within a single semester) 106/107/108, 4.5 + 4.5 units. Course options and topics: [www.cmu.edu/hss/english/first_year/index.html](http://www.cmu.edu/hss/english/first_year/index.html)

- 82-xxx Modern Languages

Complete two courses taught in a language offered by the Department of Modern Languages. A wide selection of courses are offered in Arabic Studies, Chinese Studies, French and Francophone Studies, German Studies, Hispanic Studies, Japanese Studies and Russian Studies. 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, 9 units)

This category emphasizes the study of history, society, and culture from local and global perspectives.

- 79-104 Global Histories

Course topics can be found on the Department of History website ([http://www.history.cmu.edu/undergraduate/fall.html](http://www.history.cmu.edu/undergraduate/fall.html)).

### Modeling: Mathematics and Experiments (1 course, 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:

- 21-111 Calculus I
- 21-120 Differential and Integral Calculus
- 21-127 Concepts of Mathematics
- 80-110 Nature of Mathematical Reasoning
- 80-210 Logic and Proofs
- 80-211 Logic and Mathematical Inquiry

### Deciding: Social Sciences and Values (3 courses, 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.

- 33-120 Science and Science Fiction
- 80-220 Philosophy of Science
- 80-224 Conflict and Dispute Resolution
- 80-245 Medical Ethics
- 80-270 Problems of Mind and Body: Meaning and Doing
- 80-271 Mind and Body: The Objective and the Subjective
- 80-312 Mathematical Revolutions
- 80-327 Philosophy of Neuroscience
- 80-330 Ethical Theory
- 80-335 Contemporary Debates in Human Rights
- 85-102 Introduction to Psychology

### Mathematics

- 21-111 Calculus I
- 21-120 Differential and Integral Calculus
- 21-127 Concepts of Mathematics
- 80-110 Nature of Mathematical Reasoning
- 80-210 Logic and Proofs
- 80-211 Logic and Mathematical Inquiry

### Natural Science

- 03-121 Modern Biology
- 03-125 Evolution
- 03-132 Basic Science to Modern Medicine
- 03-133 Neurobiology of Disease
- 03-161 Molecules to Mind
- 09-103 Atoms, Molecules and Chemical Change
- 09-105 Introduction to Modern Chemistry I
- 12-201 Geology
- 33-104 Experimental Physics
- 33-114 Physics of Musical Sound
- 33-115 Physics for Future Presidents
- 33-124 Introduction to Astronomy

### Other Courses

- 05-413 Human Factors
- 15-104 Introduction to Computing for Creative Practice
- 15-110 Principles of Computing
- 15-112 Fundamentals of Programming and Computer Science
- 32-120 Science and Science Fiction
- 80-220 Philosophy of Science
- 80-224 Conflict and Dispute Resolution
- 80-245 Medical Ethics
- 80-270 Problems of Mind and Body: Meaning and Doing
- 80-271 Mind and Body: The Objective and the Subjective
- 80-312 Mathematical Revolutions
- 80-327 Philosophy of Neuroscience
- 85-370 Perception
- 88-275 Bubbles: Data Science for Human Minds
- 99-236 Introduction to Environmental Ideas

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**Units**

- **36-200** Reasoning with Data -REQUIRED
- **05-292** iDeaTe: Learning in Museums
- **73-102** Principles of Microeconomics
- **80-130** Introduction to Ethics
- **80-136** Social Structure, Public Policy & Ethics
- **80-208** Critical Thinking
- **80-221** Philosophy of Social Science
- **80-242** Conflict and Dispute Resolution
- **80-244** Environmental Ethics
- **80-245** Medical Ethics
- **80-270** Problems of Mind and Body: Meaning and Doing
- **80-271** Mind and Body: The Objective and the Subjective
- **80-305** Decision Theory
- **80-330** Ethical Theory
- **80-348** Health, Human Rights, and International Development
- **80-405** Game Theory
- **80-447** Global Justice
- **84-104** Decision Processes in American Political Institutions
- **84-315** Contemporary Debates in Human Rights
- **85-102** Introduction to Psychology
85-211 Cognitive Psychology 9
85-219 Biological Foundations of Behavior 9
85-221 Principles of Child Development 9
85-241 Social Psychology 9
85-251 Personality 9
85-261 Psychopathology 9
88-120 Reason, Passion and Cognition 9

**University Requirement (1 course, 3 units)**
This is a mini-course, pass/no pass, to be completed in the first semester or online prior to the first semester.
99-101 Computing @ Carnegie Mellon 3

**BXA Required Courses (5 courses, 36 units minimum)**
BXA-specific courses give students the opportunity to integrate their areas of concentration by focusing on interdisciplinary approaches and arts-based research techniques.
52-190 BXA Seminar I: Building the Wunderkammer 9
or 52-291 BXA Seminar II: Transferring Knowledge 9
52-391 BXA Junior Portfolio 0
52-392 BXA Seminar III: Deconstructing Disciplines 9
52-401 BXA Seminar IV: Capstone Project Research 9
52-402 BXA Seminar V: Capstone Project Production 9

Dietrich College of Humanities and Social Sciences Concentration
(9 courses, 81 units minimum)
BHA students declare an 81-unit DC concentration based on existing DC programs, through consultation with their BHA advisor and the DC concentration advisor. A completed DC Concentration Declaration form must be approved by the concentration advisor and submitted to the BXA office, by spring mid-semester break of the student’s sophomore year.
Curriculum for several BHA DC concentration options are outlined below, though this list is not exhaustive of all concentrations possible in DC.
BHA students who are admitted as freshmen are undeclared until they have met with a concentration advisor and have submitted their signed Declaration form. BHA students who are admitted through internal transfer must have chosen a DC concentration at the time of their application (which serves as declaration). All BHA students wishing to change their DC concentration at any time following the initial declaration must meet with the advisor of their intended concentration area to complete a new Declaration form, which will be reviewed during the internal transfer application period.

**Anthropology Concentration (81 units minimum)**
The BHA concentration in Anthropology offers students training in ethnographic methods and in theoretical understandings 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. It is highly recommended that Anthropology students study abroad in some capacity.

There are three required courses for the concentration: 79-201 Introduction to Anthropology and 79-400 Global Studies Research Seminar, and one Methods course which may be satisfied by rotating options each semester. Students also choose 6 regional/topical courses (51 units). Demonstrating intermediate to advanced level proficiency in a language other than English is a crucial component of the concentration in Anthropology; all students are required to take at least two upper level (intermediate or above) language courses to satisfy this language pre-requisite requirement (which is in addition to required concentration courses).

**Language Proficiency Requirement**
Demonstrating intermediate to advanced level proficiency in a language other than English is a crucial component of the concentration in Anthropology. Normally this requirement can be satisfied by successfully completing a course conducted in the second language at the 300-level or above for French, German, Italian, or Spanish, or the fourth semester (Intermediate II) level or above for Arabic, Chinese, Japanese, or Russian. Comparable proficiency for other languages can be considered. Additional advanced cultural, historical, and literary study in the second language is strongly recommended. If needed these courses may be counted toward the BHA General Education Communicating: Language and Interpretations category.

**Anthropology Required Introductory and Capstone Courses (2 courses, 21 units)**
Students must earn a final grade of “C+” or better for these courses to count toward the concentration.
79-201 Introduction to Anthropology 9
79-400 Global Studies Research Seminar 12

**Required Anthropological Methods Course (1 course, 9 units)**
Students must take one course in ethnographic, archaeological, or other anthropological methods selecting from the list below. Other courses may fulfill these requirements, with permission of the BHA Anthropology faculty advisor.
79-379 Extreme Ethnography 9
79-380 Hostile Environments: The Politics of Pollution in Global Perspective 9

**Anthropological Perspectives (6 courses, 51 units minimum)**
Students gain knowledge of specialized theoretical and regional topics by choosing 51 units (typically six courses) selecting from the list below.

**BXA Intercollege Degree Programs**

<table>
<thead>
<tr>
<th>BHA Required Courses (5 courses, 36 units minimum)</th>
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<tbody>
<tr>
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</tbody>
</table>

| 85-211 Cognitive Psychology 9 |
| 85-219 Biological Foundations of Behavior 9 |
| 85-221 Principles of Child Development 9 |
| 85-241 Social Psychology 9 |
| 85-251 Personality 9 |
| 85-261 Psychopathology 9 |
| 88-120 Reason, Passion and Cognition 9 |

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<th>University Requirement (1 course, 3 units)</th>
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<tr>
<td>57-306 World Music 9</td>
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<tr>
<td>79-203 The Other Europes: The Habsburgs, Communism, &amp; Central/Eastern Europe, 1740-1990 9</td>
</tr>
<tr>
<td>79-219 Modern Southeast Asia: Colonialism, Capitalism, and Cultural Exchange 9</td>
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<tr>
<td>79-219 Hong Kong, Taiwan and the Idea of &quot;China&quot; 6</td>
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<tr>
<td>79-223 Mexico: From the Aztec Empire to the Drug War 9</td>
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<td>79-224 Mayan America 9</td>
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<td>79-235 Caribbean Cultures 9</td>
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<td>79-261 The Last Emperors: Chinese History and Society, 1600-1900 9</td>
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<td>79-262 Modern China: From the Birth of Mao ... to Now 9</td>
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<td>79-264 Tibet and China: History and Propaganda 6</td>
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<td>79-275 Introduction to Global Studies 9</td>
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<td>79-286 Archaeology: Understanding the Ancient World 6</td>
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<td>79-313 &quot;Unwanted&quot;: Refugees, Asylum Seekers, and Patterns of Global Migration 6</td>
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<td>79-314 The Politics and Culture of Memory 9</td>
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<td>79-315 Thirsty Planet: The Politics of Water in Global Perspective 9</td>
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<td>79-317 Art, Anthropology, and Empire 9</td>
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<td>79-333 Sex, Gender &amp; Anthropology 9</td>
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<td>79-334 Climate Change and Climate Justice: Global Perspectives 6</td>
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<td>79-342 Introduction to Science and Technology Studies 9</td>
</tr>
<tr>
<td>79-368 Un-natural Disasters: Societies and Environmental Hazards in Global Perspective 6</td>
</tr>
<tr>
<td>79-377 Food, Culture, and Power: A History of Eating 9</td>
</tr>
</tbody>
</table>

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.

**Behavioral Economics, Policy & Organizations Concentration (81 units minimum)**
Students in BEPO—the first and only major of its kind—will be uniquely trained in the integration of Economics and Psychology and will have a solid grounding in quantitative methods. The core includes courses in economics, psychology, behavioral economics, and quantitative methods. SDS offers the largest selection of behavioral economics courses anywhere in the world. Applied projects in courses will teach students how to collect original data, design field and laboratory experiments, analyze data, and
develop interventions to improve economic outcomes and decisions. Students will be well equipped to enter a wide range of professions and graduate degree programs.

Quantitative Methods (3 courses, 27 units)
- 36-202 Methods for Statistics & Data Science 9
- 88-251 Empirical Research Methods 9
- 88-252 Causal Inference in the Field 9

Economics Courses (2 courses, 18 units)
- 73-102 Principles of Microeconomics 9
- 73-160 Foundations of Microeconomics: Applications and Theory 9
- or 73-230 Intermediate Microeconomics 9

Psychology Courses (2 courses, 18 units)
- 88-120 Reason, Passion and Cognition (freshman or sophomore year) 9
- 88-302 Behavioral Decision Making 9

Behavioral Economics Courses (2 courses, 18 units)
- 88-360 Behavioral Economics 9
- 88-367 Behavioral Economics in the Wild 9

Chinese Studies CONCENTRATION (81 UNITS MINIMUM)
A BHA concentration in Chinese Studies promotes not just language proficiency but also an understanding of Chinese culture. Students who arrive at Carnegie Mellon with previous language study and/or who have high Advanced Placement, an International Baccalaureate, a Cambridge GCE Advanced level or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores will be able to begin taking courses in the concentration earlier in their undergraduate program. In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

Prerequisites
Intermediate level proficiency in Chinese. This is equivalent to the completion of three courses (two at the 100-level and one at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

Core Courses in Chinese Studies (4 courses, 39 units minimum)
- 82-232 Intermediate Chinese II 12
- or 82-235 Reading Into a New China I: Population, Youth, Marriage, & Housing 9
- 82-331 Reading Into a New China II: Transportation, Education, Pop Culture, & Health 9
- 82-333 Introduction to Chinese Language and Culture Var.

* Students who place out of 82-232/82-235 must take a minimum of 9 additional units chosen from Chinese Studies Electives at the 400-level.

Core Courses in Modern Languages (1 course, 9 units)
Complete one course.
- 82-281 Tutoring for Community Outreach Var.
- 82-282 Community Service Learning Var.
- 82-283 Language Diversity & Cultural Identity 9
- 82-284 Multicultural Pittsburgh: VR Storytelling 9
- 82-285 Podcasting: Language and Culture Through Storytelling 9
- 82-286 Understanding Cultural Complexities 9
- 82-383 Second Language Acquisition: Theories and Research 9
- 82-388 Understanding Second Language Fluency 9
- 82-480 Social and Cognitive Aspects of Bilingualism 9

Note: In consultation with the concentration advisor, students may substitute a Modern Languages course elective with one related to language analysis, language learning, or acquisition of language and culture from the listings in Chinese Studies or from another department. Examples: 80-180 Nature of Language, 85-421 Language and Thought. In addition, students may choose to take 82-580 Senior Seminar in Modern Languages (3 units).

Core Courses in Chinese History & Society (1 course, 9 units)
Complete one course in consultation with the concentration advisor.
- 79-261 The Last Emperors: Chinese History and Society, 1600-1900 9
- 79-262 Modern China: From the Birth of Mao ... to Now 9
- 79-309 The Chinese Revolution Through Film (1949-2000) 9
- 82-230 Topics in Cultural Comparison 9
- 82-234 Topics in Chinese History 9
- 82-238 Topics in Chinese Culture 9

Chinese Studies and Interdisciplinary Electives (3 courses, 24 units minimum)
Complete two courses from Chinese Studies Electives and one course from Interdisciplinary Electives in consultation with the concentration advisor.

Chinese Studies Electives:
- 82-334 Structure of Chinese 9
- 82-335 Chinese Culture Through Legends and Folktales 9
- 82-337 Mandarin Chinese for Oral Communication I 9
- 82-338 Mandarin Chinese for Oral Communication II 9
- 82-339 Business Language & Culture in China I 9
- 82-340 Business Language & Culture in China II 9
- 82-431 China and the West 9
- 82-432 Chinese Popular Culture: A Game of Learning 9
- 82-433 Topics in Contemporary Culture of China 9
- 82-434 Studies in Chinese Traditions * 9
- 82-436 Introduction to Classical Chinese 9
- 82-439 Modern China Through Literature Var.
- 82-505 Undergraduate Internship Var.
- 82-531/532 Special Topics in Chinese Studies (independent studies) Var.
- 82-533 Cultural Topics in Chinese Studies * 9

* Students may repeat these courses with new topics.

Interdisciplinary Electives:
This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and the concentration advisor for the most up to date interdisciplinary electives appropriate for the Chinese Studies curriculum. Courses may be suggested to the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

Business
- 70-342 Managing Across Cultures 9
- 70-365 International Trade and International Law 9
- 70-430 International Management 9

English
- 76-318 Communicating in the Global Marketplace 9
- 76-339 Topics in Film and Media 9
- 76-386 Language & Culture 9
- 76-387 Writing in the Disciplines 6

History
- 79-261 The Last Emperors: Chinese History and Society, 1600-1900 9
- 79-262 Modern China: From the Birth of Mao ... to Now 9
- 79-309 The Chinese Revolution Through Film (1949-2000) 9

Institute for Politics and Strategy (Choose in consultation with the concentration advisor.)
- 84-310 International Political Economy 9
- 84-326 Theories of International Relations 9
- 84-362 Diplomacy and Statecraft 9
- 84-369 Decision Science for International Relations 9
- 84-370 Global Nuclear Politics 9
- 84-380 US Grand Strategy 9
- 84-388 Concepts of War and Cyber War 6
- 84-405 The Future of Warfare 9
Approaches to Cognitive Neuroscience:

Modern Languages
82-137 Chinese Calligraphy: Culture and Skills 9
82-138 Comparative China: “Crazy” Linguistically Rich Asian Languages 9
82-230 Topics in Cultural Comparison 9
82-234 Topics in Chinese History 9
82-238 Topics in Chinese Culture 9
82-281 Tutoring for Community Outreach Var.
82-282 Community Service Learning Var.
82-283 Language Diversity & Cultural Identity 9
82-284 Multicultural Pittsburgh: VR Storytelling 9
82-285 Podcasting: Language and Culture Through Storytelling 9
82-286 Understanding Cultural Complexities 9
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-480 Social and Cognitive Aspects of Bilingualism 9
Philosophy
80-180 Nature of Language 9
80-263 Approaching Chinese Philosophy: Basic Texts and Implications 9
80-276 Philosophy of Religion 9
80-280 Linguistic Analysis 9
80-380 Philosophy of Language 9
Psychology
85-375 Crosscultural Psychology 9
85-421 Language and Thought 9

Cognitive Neuroscience Electives:

03-133 Neurobiology of Disease 9
03-362 Cellular Neuroscience 9
03-364 Developmental Neuroscience 9
85-356 Music and Mind: The Cognitive Neuroscience of Sound 9
85-370 Perception 9
85-385 Auditory Perception: Sense of Sound 9
85-390 Human Memory 9
85-406 Autism: Psychological and Neuroscience Perspectives 9
85-435 Biologically Intelligent Exploration 9
85-442 Health Psychology 9
85-501 Stress, Coping and Well-Being 9

Cognitive Neuroscience Concentration (81 units minimum)

The field of cognitive science has grown out of increasingly active interaction among psychology, linguistics, artificial intelligence, philosophy, and neuroscience. All of these fields share the goal of understanding intelligence. By combining these diverse perspectives, students of cognitive science are able to understand cognition at a deep level. Because this concentration is administered by the Psychology Department, it focuses on human cognition and the experimental study of the human mind as illuminated by the techniques of the above disciplines.

Prerequisite Courses
15-112 Fundamentals of Programming and Computer Science 12
21-120 Differential and Integral Calculus 10-20
or 21-111 & 21-112 Calculus I
21-127 Concepts of Mathematics 10
Statistics Course (1 course, 9 units)
36-309 Experimental Design for Behavioral & Social Sciences 9
or 85-309 Statistical Concepts and Methods for Behavioral and Social Science 9

Computational/Cognitive Modeling Core (3 courses, 29 units minimum)

Complete two of the following courses:
15-122 Principles of Imperative Computation 10
15-150 Principles of Functional Programming 10
15-251 Great Ideas in Theoretical Computer Science 12

Plus one of the following courses:
85-412 Cognitive Modeling 9
85-419 Introduction to Parallel Distributed Processing 9
85-426 Learning in Humans and Machines 9
85-435 Biologically Intelligent Exploration 9

Cognitive Psychology Core (4 courses, 36 units)

85-211 Cognitive Psychology 9
or 85-213 Human Information Processing and Artificial Intelligence 9
85-310 Research Methods in Cognitive Psychology 9
or 85-311 Modern Research Methods: Cumulative Science, Big Data, and Meta-Analysis 9
or 85-314 Cognitive Neuroscience Research Methods 9

Plus two of the following (one of which must be 85-3xx or 85-4xx):
85-219 Biological Foundations of Behavior 9
or 85-271 Animal Minds 9
85-359 Introduction to Music Cognition Research 9
85-360 Origins of Intelligence 9
85-370 Perception 9
85-390 Human Memory 9
85-395 Applications of Cognitive Science 9
85-408 Visual Cognition 9
85-414 Cognitive Neuropsychology 9
Courses in the BHA concentration in Decision Science cover the three psychology, economics, philosophy, statistics, and management science. Decision Science is grounded in theories and methods drawn from their focus in Creative Writing.

Complete three courses from the English Department's offerings.

English Electives (3 courses, 27 units)

Complete four Creative Writing workshops, at least two in a single genre. A student who receives a grade of C in a Survey of Forms course in a specific genre in order to be eligible to enroll in a workshop of that genre. 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 concentration 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 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)

Creative Writing Workshop (4 courses, 36 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).

Disciplinary Perspectives (5 courses, 48 units)

Biological and Behavioral Aspects of Decision Making:

Managerial and Organizational Aspects of Decision Making:

Philosophical and Ethical Perspectives on Decision Making:
80-324 Philosophy of Economics
88-275 Bubbles: Data Science for Human Minds
88-409 Behavioral Economics Perspectives on Ethical Issues

**Economic and Statistical Methods for Decision Science:**

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

**Decision Science and Public Policy:**

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

**Research Methods for Decision Science:**

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

**Economics Concentration (81 units minimum)**

The BHA concentration in Economics provides a solid understanding of economic theory and quantitative economic analysis. The core disciplinary sequences in economic theory and quantitative analysis are combined with calculus and data analysis to provide students with knowledge and skills that allow for creative problem-solving.

**Mathematics Prerequisites**

These courses are not counted as part of your DC Concentration. It may be used to satisfy general education or free elective requirements.

- 21-120 Differential and Integral Calculus
- 21-256 Multivariable Analysis

**Economic Theory Requirements (4 courses, 36 units)**

- 73-102 Principles of Microeconomics
- 73-103 Principles of Macroeconomics
- 73-230 Intermediate Microeconomics
- 73-240 Intermediate Macroeconomics

**Quantitative Analysis Requirements (2 courses, 18 units)**

These courses require 36-200 Reasoning with Data as a prerequisite; 36-200 fulfills a general education Deciding requirement, as well.

- 73-265 Economics and Data Science
- 73-274 Econometrics I

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

Students must take two advanced elective courses. Advanced elective courses are those numbered 73-300 through 73-495, as well as courses designated by the program offered by other departments/programs.

Additionally, students may work with their economics advisor to structure alternative sets of courses to meet these requirements based on their particular interests, subject to course availability.

**Senior Work (1 course, 9 units)**

- 73-497 Senior Project

Note: Students who have already taken 73-100 Principles of Economics should take 73-230 Intermediate Microeconomics and 73-240 Intermediate Macroeconomics for their Economic Theory Requirements. They will then take 27 units of Advanced Economics Electives.

**Environmental & Sustainability Studies Concentration (81 units minimum)**

The BHA concentration in Environmental & Sustainability Studies (ESS) focuses on human-environment interactions from a multitude of disciplinary perspectives. The curriculum draws on the expertise of faculty across several Carnegie Mellon colleges in order to provide students with the interdisciplinary background and skills necessary to understand environmental problems and the means to mitigate them. The curriculum is designed to help students apply social and scientific perspectives to environmental problems; to distinguish among scientific methods for evaluating environmental problems; to identify and assess sources of environmental data; and to identify environmental justice issues within the context of proposed policy solutions.

**Interdisciplinary Methods for Environmental and Sustainability Studies (2 courses, 18 units)**

- 66-236 Introduction to Environmental Ideas
- 66-506 Senior Capstone

**Environmental Science Courses (2 courses, 18 units)**

Take two of the following courses:

- 24-291/09-325 Special Topics: Environmental Systems on a Changing Planet
- 03-140 Ecology and Environmental Science
- 09-225 Climate Change: Chemistry, Physics and Planetary Science
- 09-510 Chemistry and Sustainability
- 12-201 Geology
- 12-203 Special Topics: Ecology

Note: Students can also take a Geology or Ecology course at the University of Pittsburgh to complete this requirement, with permission of the ESS concentration advisor.

**Electives in Environmental and Sustainability Studies (5 courses, 45 units)**

Students must take five elective courses addressing aspects of environment and sustainability chosen from at least two categories in the list below. Any course from the list of Environmental Science Courses, above, is also acceptable as one of five electives, but does not count as one of two categories.

Other courses may fulfill these electives requirements, with permission of the ESS concentration advisor. At least five Environmental and Sustainability Elective courses must come from Dietrich College departments.

**Economics:**

- 73-427 Sustainability, Energy, and Environmental Economics

**English:**

- 76-319 Environmental Rhetoric

**History:**

- 79-204 American Environmental History
- 79-234 Technology and Society
- 79-278 How (Not) to Change the World
- 79-280 Coffee and Capitalism
- 79-283 Hungry World: Food and Famine in Global Perspective
- 79-288 Bananas, Baseball, and Borders: Latin America and the United States
- 79-289 Animal Planet: An Environmental History of People and Animals
<table>
<thead>
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<td>History of American Public Policy</td>
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<td>Pittsburgh and the Transformation of Modern Urban America</td>
<td>6</td>
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<td>79-331</td>
<td>Body Politics: Women and Health in America</td>
<td>9</td>
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<tr>
<td>79-334</td>
<td>Climate Change and Climate Justice: Global Perspectives</td>
<td>6</td>
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<tr>
<td>79-380</td>
<td>Hostile Environments: The Politics of Pollution in Global Perspective</td>
<td>9</td>
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<tr>
<td>79-397</td>
<td>Environmental and Public Health Crises in the City</td>
<td>6</td>
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<tr>
<td><strong>Philosophy:</strong></td>
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<tr>
<td>80-244</td>
<td>Environmental Ethics</td>
<td>9</td>
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<tr>
<td>80-348</td>
<td>Health, Human Rights, and International Development</td>
<td>9</td>
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<td>80-447</td>
<td>Global Justice</td>
<td>9</td>
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<tr>
<td><strong>Social and Decision Sciences:</strong></td>
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<tr>
<td>88-344</td>
<td>Environmental Policy and Planning</td>
<td>9</td>
</tr>
<tr>
<td>51-377</td>
<td>Design Center: Sensing Environments</td>
<td>9</td>
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<tr>
<td><strong>Engineering and Public Policy:</strong></td>
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<tr>
<td>19-101</td>
<td>Introduction to Engineering and Public Policy</td>
<td>12</td>
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<tr>
<td>19-424</td>
<td>Energy and the Environment</td>
<td>9</td>
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<tr>
<td>19-440</td>
<td>Combustion and Air Pollution Control</td>
<td>9</td>
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<tr>
<td><strong>Ethics, History, &amp; Public Policy Concentration (81 units minimum)</strong></td>
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<tr>
<td>The BHA concentration in Ethics, History, &amp; Public Policy (EHPP) provides students with a rigorous, interdisciplinary humanistic and social-scientific education. The concentration in EHPP 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 EHPP 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 EHPP encourages specialization, internship experiences, and research in a wide range of policy areas.</td>
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<tr>
<td>Foundations of Public Policy Requirement (1 course, 9 units)</td>
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<tr>
<td>Choose one 9-unit course from the list below.</td>
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<tr>
<td>73-102</td>
<td>Principles of Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>84-104</td>
<td>Decision Processes in American Political Institutions</td>
<td>9</td>
</tr>
<tr>
<td>84-110</td>
<td>Foundations of Political Economy</td>
<td>9</td>
</tr>
<tr>
<td>History Core (3 courses, 27 units)</td>
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<tr>
<td>Choose one 9-unit course from each category below. (Students must earn a final grade of “C” or better for these courses to count toward the concentration).</td>
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<tr>
<td><strong>Policy History:</strong></td>
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<tr>
<td>79-300</td>
<td>History of American Public Policy</td>
<td>9</td>
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<tr>
<td><strong>U.S. History:</strong></td>
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<tr>
<td>79-204</td>
<td>American Environmental History</td>
<td>9</td>
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<tr>
<td>79-231</td>
<td>American Civil Rights Movement: From Garveyism to Black Power</td>
<td>9</td>
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<tr>
<td>79-240</td>
<td>Development of American Culture</td>
<td>9</td>
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<tr>
<td>79-242</td>
<td>African American History: Reconstruction to the Present</td>
<td>9</td>
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<td>79-244</td>
<td>Women in American History</td>
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<td>79-245</td>
<td>Capitalism and Individualism in American Culture</td>
<td>9</td>
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<tr>
<td>79-248</td>
<td>U.S. Constitution &amp; the Presidency</td>
<td>9</td>
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<tr>
<td>79-249</td>
<td>Politics and Social Change in 20th Century America</td>
<td>9</td>
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<tr>
<td>79-320</td>
<td>Women, Politics, and Protest</td>
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<tr>
<td><strong>Non-U.S. History:</strong></td>
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<tr>
<td>Non-US Survey</td>
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<tr>
<td>79-202</td>
<td>Flesh and Spirit: Early Modern Europe, 1400-1750</td>
<td>9</td>
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<tr>
<td>79-203</td>
<td>The Other Europeans: The Habsburgs, Communism, &amp; Central/Eastern Europe, 1740-1990</td>
<td>9</td>
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<tr>
<td>79-205</td>
<td>20th Century Europe</td>
<td>9</td>
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<tr>
<td>79-211</td>
<td>Modern Southeast Asia: Colonialism, Capitalism, and Cultural Exchange</td>
<td>9</td>
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<tr>
<td>79-222</td>
<td>Mexico: From the Aztec Empire to the Drug War</td>
<td>9</td>
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<tr>
<td>79-226</td>
<td>African History: Earliest Times to 1780</td>
<td>9</td>
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<td>79-227</td>
<td>Modern Africa: The Slave Trade to the End of Apartheid</td>
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<td>79-229</td>
<td>The Origins of the Palestinian-Israeli Conflict, 1880-1948</td>
<td>9</td>
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<tr>
<td>79-230</td>
<td>Arab-Israeli Conflict Since 1948</td>
<td>9</td>
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<tr>
<td>79-237</td>
<td>Comparative Slavery</td>
<td>9</td>
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<tr>
<td>79-261</td>
<td>The Last Emperors: Chinese History and Society, 1600-1900</td>
<td>9</td>
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<tr>
<td>79-262</td>
<td>Modern China: From the Birth of Mao ... to Now</td>
<td>9</td>
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<td>79-264</td>
<td>Tibet and China: History and Propaganda</td>
<td>6</td>
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<td>79-265</td>
<td>Russian History: Game of Thrones</td>
<td>9</td>
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<td>79-266</td>
<td>Russian History and Revolutionary Socialism</td>
<td>9</td>
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<tr>
<td>79-307</td>
<td>Religion and Politics in the Middle East</td>
<td>9</td>
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<tr>
<td><strong>Philosophy Core (3 courses, 27 units)</strong></td>
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<tr>
<td>Choose one course from three of the four categories below. No more than 9 units at the 100-level may be counted toward this requirement.</td>
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<tr>
<td><strong>Ethics:</strong></td>
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<tr>
<td>80-130</td>
<td>Introduction to Ethics</td>
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<tr>
<td>80-330</td>
<td>Ethical Theory</td>
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<tr>
<td><strong>Political Philosophy:</strong></td>
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<tr>
<td>80-135</td>
<td>Introduction to Political Philosophy</td>
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<tr>
<td>80-335</td>
<td>Social and Political Philosophy</td>
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<tr>
<td><strong>Foundations of Social Science:</strong></td>
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<td>80-221</td>
<td>Philosophy of Social Science</td>
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<td>80-321</td>
<td>Causation, Law, and Social Policy</td>
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<tr>
<td>80-324</td>
<td>Philosophy of Economics</td>
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<tr>
<td><strong>Applied Philosophy:</strong></td>
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<tr>
<td>80-136</td>
<td>Social Structure, Public Policy &amp; Ethics</td>
<td>9</td>
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<tr>
<td>80-244</td>
<td>Environmental Ethics</td>
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<tr>
<td>80-245</td>
<td>Medical Ethics</td>
<td>9</td>
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<tr>
<td>80-249</td>
<td>AI, Society, and Humanity</td>
<td>9</td>
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<tr>
<td>80-336</td>
<td>Philosophy of Law</td>
<td>9</td>
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<tr>
<td>80-348</td>
<td>Health, Human Rights, and International Development</td>
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<td>80-447</td>
<td>Global Justice</td>
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<tr>
<td><strong>Elective Courses (2 courses, 18 units)</strong></td>
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<tr>
<td>Choose any two courses from any of the following categories.</td>
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<tr>
<td><strong>Engineering and Public Policy:</strong></td>
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<td>19-424</td>
<td>Energy and the Environment</td>
<td>9</td>
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<tr>
<td><strong>Business:</strong></td>
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<tr>
<td>70-311</td>
<td>Organizational Behavior</td>
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<tr>
<td>70-321</td>
<td>Negotiation and Conflict Resolution</td>
<td>9</td>
</tr>
<tr>
<td>70-332</td>
<td>Business, Society and Ethics</td>
<td>9</td>
</tr>
<tr>
<td>70-364</td>
<td>Business Law</td>
<td>9</td>
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<tr>
<td>70-365</td>
<td>International Trade and International Law</td>
<td>9</td>
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<tr>
<td>70-430</td>
<td>International Management</td>
<td>9</td>
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</tbody>
</table>
**Economics:**
- 73-352 Public Economics 9
- 73-359 Benefit-Cost Analysis 9
- 73-365 Firms, Market Structures, and Strategy 9
- 73-372 International Money and Finance 9
- 73-408 Law and Economics 9
- 73-476 American Economic History 9

**History:**
- 79-206 Crime and Punishment in Early Modern Europe 9
- 79-228 The Civil Rights Movement and the World 9
- 79-233 The United States and the Middle East since 1945 9
- 79-234 Technology and Society 9
- 79-242 African American History: Reconstruction to the Present 9
- 79-247 African Americans, Imprisonment, and the Carceral State 9
- 79-267 The Soviet Union in World War II: Military, Political, and Social History 9
- 79-280 Coffee and Capitalism 9
- 79-288 Bananas, Baseball, and Borders: Latin America and the United States 9
- 79-291 American Popular Culture and the Entertainment Business: 1800 to the Present 9
- 79-298 Guns in American History: Culture, Violence, and Politics 6
- 79-299 From Newton to the Nuclear Bomb: History of Science, 1750-1950 9
- 79-301 History of Surveillance: From the Plantation to Data Capitalism 6
- 79-303 Pittsburgh and the Transformation of Modern Urban America 6
- 79-305 Moneyball Nation: Data in American Life 9
- 79-310 U. S. Business History: 1870 to the Present 9
- 79-315 Thirsty Planet: The Politics of Water in Global Perspective 9
- 79-320 Women, Politics, and Protest 9
- 79-322 Stalin and the Great Terror 9
- 79-325 U.S. Gay and Lesbian History 6
- 79-330 Medicine and Society 9
- 79-331 Body Politics: Women and Health in America 9
- 79-336 Oil & Water: Middle East Perspectives 6
- 79-338 History of Education in America 9
- 79-339 Juvenile Delinquency & Film: From Soul of Youth (1920) to West Side Story (1961) 6
- 79-340 Juvenile Delinquency & Film: From "Boyz N the Hood"(1991) to "The Wire"(2002-08) 6
- 79-342 Introduction to Science and Technology Studies 9
- 79-343 Education, Democracy, and Civil Rights 9
- 79-349 United States and the Holocaust 6
- 79-371 African American Urban History 9
- 79-381 Energy and Empire: How Fossil Fuels Changed the World 9
- 79-397 Environmental and Public Health Crises in the City 6

**Philosophy:**
- 80-256 Modern Moral Philosophy 9
- 80-305 Decision Theory 9
- 80-405 Game Theory 9

**Institute for Politics and Strategy:**
- 84-310 International Political Economy 9
- 84-380 US Grand Strategy 9

**Film & Visual Media Studies CONCENTRATION (81 units minimum)**

The BHA concentration in Film & Visual Media Studies trains students through a combination of coursework in visual media, film history and analysis, screenwriting, and production of film and other visual media. This concentration offers a comprehensive education in film and visual media, from theoretical framing and historical-cultural contextualization to training in skills both in creating and analyzing film, and developing a complex blend of creative, professional, and technical competencies. CMU's Department of English is an ideal home for the Film & Visual Media Studies concentration due to the department’s combination of creative writers, film and media studies scholars, film makers, digital humanities, and visual communication researchers.

**Introductory Courses (2 courses, 18 units)**
- 76-239 Introduction to Film Studies 9
- 76-259 Film History 9

**Production Course (1 course, 9 units)**
- 76-292 Film Production 9

**Screenwriting Course (1 course, 9 units)**
- 76-269 Survey of Forms: Screenwriting 9

**Topics in Film & Visual Media Studies (2 courses, 18 units)**
- 76-312 Crime and Justice in American Film 9
- 76-339 Topics in Film and Media (Can be taken more than once.) 9
- 76-353 Transnational Feminisms: Fiction and Film 9
- 76-367 Fact Into Film: Translating History into Cinema 9
- 76-377 Shakespeare on Film 9
- 76-438 The Wire: Crime, Realism, and Long-Form TV 9
- 76-439 Film Seminar: The Rise of the Art Film 9
- 76-448 Shakespeare on Film 9
- 76-449 Race and Media 9
- 79-225 West African History in Film 9
- 79-306 Fact into Film: Translating History into Cinema 9
- 79-308 Crime and Justice in American Film 9
- 79-309 The Chinese Revolution Through Film (1949-2000) 9
- 79-319 India Through Film 9
- 79-326 Shall We Dance? Culture, Politics, and Movement in the 20th Century 9
- 79-339 Juvenile Delinquency & Film: From Soul of Youth (1920) to West Side Story (1961) 6
- 79-340 Juvenile Delinquency & Film: From "Boyz N the Hood"(1991) to "The Wire"(2002-08) 6
- 79-341 The Cold War in Documents and Film 9
- 82-215 Arab Culture Through Dialogues, Film, and Literature 9
- 82-278 Japanese Film and Literature: The Art of Storytelling 9
- 82-284 Multicultural Pittsburgh: VR Storytelling 9
- 82-296 A Century of Russian Film 9
- 82-355 Tpcs in Hispanic Std: Beyond the Film Screen: The Hispanic World Through Film 9

Courses in Film Production, Screenwriting, Digital Media, Literature & Culture, and/or Film & Visual Media Studies (3 courses, 27 units)

Students may take an additional three Dietrich College courses for a minimum of 27 units of courses offered in the categories listed above.
Because there are dozens of options available, including many of the courses listed above, please consult with the Department of English academic advisor for guidance.

**French & Francophone STUDIES CONCENTRATION (81 UNITS MINIMUM)**

A BHA concentration in French & Francophone Studies promotes not just language proficiency but also an understanding of French and francophone cultures. Students who arrive at Carnegie Mellon with previous language study and/or who have high Advanced Placement, an International Baccalaureate, a Cambridge GCE Advanced level or internal placement exam scores will be able to begin taking courses in the concentration earlier in their undergraduate program. In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

**Prerequisites**

Intermediate level proficiency in French. This is equivalent to the completion of four courses (two at the 100-level and two at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

**Core Courses in French & Francophone Studies** (3 courses, 27 units)

82-303 French & Francophone Cultures 9
82-304 French & Francophone Sociolinguistics 9
82-3xx or 82-4xx 9

Note: 82-303 or 82-304 can be repeated with a different topic. A 400-level course may be substituted with the concentration advisor's approval.

**Core Courses in Modern Languages** (1 course, 9 units)

Complete one course.

82-180 Bilingual & Bicultural Experiences in the US 9
82-281 Tutoring for Community Outreach Var.
82-283 Language Diversity & Cultural Identity 9
82-284 Multicultural Pittsburgh: VR Storytelling 9
82-285 Podcasting: Language and Culture Through Storytelling 9
82-286 Understanding Cultural Complexities 9
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-480 Social and Cognitive Aspects of Bilingualism 9

Note: In consultation with the concentration advisor, students may substitute a Modern Languages course elective with one related to language analysis, language learning, or acquisition of language and culture from the listings in French & Francophone Studies or from another department. Examples: 80-180 Nature of Language, 85-421 Language and Thought. In addition, students may choose to take 82-580 Senior Seminar in Modern Languages (3 units).

**French & Francophone Studies and Interdisciplinary Electives** (5 courses, 45 units minimum)

Complete four courses from French & Francophone Electives and one course from Interdisciplinary Electives or three courses from French & Francophone Electives and two courses from Interdisciplinary Electives in consultation with the concentration advisor.

**French & Francophone Studies Electives:**

82-415/416 Topics in French and Francophone Studies * 9
82-501/502 Special Topics in French & Francophone Studies Var.
82-505 Undergraduate Internship Var.

* Students may repeat these courses with new topics.

**Interdisciplinary Electives:**

This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and the concentration advisor for the most up to date interdisciplinary electives appropriate for the French & Francophone Studies curriculum. Courses may be suggested to the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

**English**

76-239 Introduction to Film Studies 9
76-318 Communicating in the Global Marketplace 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9

**History**

79-202 Flesh and Spirit: Early Modern Europe, 1400-1750 9
79-205 20th Century Europe 9
79-227 Modern Africa: The Slave Trade to the End of Apartheid 9
79-258 Napoleon 6
79-275 Introduction to Global Studies 9
79-350 Early Christianity 9
79-385 Out of Africa: The Making of the African Diaspora 9
79-396 Music, Art, and Society in 19th and 20th Century Europe and the U.S. 9

**Institute for Politics and Strategy** (Choose in consultation with the concentration advisor.)

84-265 Political Science Research Methods 9
84-275 Comparative Politics 9
84-313 International Organizations and Law 9
84-322 Nonviolent Conflict and Revolution 9
84-324 The Future of Democracy 9
84-326 Theories of International Relations 9
84-362 Diplomacy and Statecraft 9
84-364 Comparative Presidential Behavior: Leadership, Personality, and Decision Making 9

**Modern Languages**

82-180 Bilingual & Bicultural Experiences in the US 9
82-281 Tutoring for Community Outreach Var.
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-480 Social and Cognitive Aspects of Bilingualism 9

**Philosophy**

80-180 Nature of Language 9
80-280 Linguistic Analysis 9
80-281 Language and Thought 9
80-282 Phonetics and Phonology I 9
80-380 Philosophy of Language 9
80-381 Meaning in Language 9

**Psychology**

85-241 Social Psychology 9
85-375 Crosscultural Psychology 9
85-421 Language and Thought 9

**German Studies Concentration (81 units minimum)**

A BHA concentration in German Studies promotes not just language proficiency but also an understanding of German culture. Students who arrive at Carnegie Mellon with previous language study and/or who have high Advanced Placement, an International Baccalaureate, a Cambridge GCE Advanced level or internal placement test scores will be able to begin taking courses in the concentration earlier in their undergraduate program. In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

**Prerequisites**

Intermediate level proficiency in German. This is equivalent to the completion of four courses (two at the 100-level and two at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

**Core Courses in German Studies** (3 courses, 27 units)

82-320 Contemporary Society in Germany, Austria and Switzerland 9
82-323 Germany, Austria and Switzerland in the 20th Century 9
82-327 The Emergence of the German Speaking World 9

Note: A 400-level course may be substituted with the concentration advisor's approval.
Core Courses in Modern Languages (1 course, 9 units)

Complete one course.

- 82-281 Tutoring for Community Outreach Var.
- 82-282 Community Service Learning Var.
- 82-383 Second Language Acquisition: Theories and Research 9
- 82-284 Multicultural Pittsburgh: VR Storytelling 9
- 82-285 Podcasting: Language and Culture Through Storytelling 9
- 82-286 Understanding Cultural Complexities 9
- 82-383 Second Language Acquisition: Theories and Research 9
- 82-388 Understanding Second Language Fluency 9
- 82-480 Social and Cognitive Aspects of Bilingualism 9

Note: In consultation with the concentration advisor, students may substitute a Modern Languages course elective with one related to language analysis, language learning, or acquisition of language and culture from the listings in German Studies or from another department. Examples: 80-180 Nature of Language, 85-421 Language and Thought. In addition, students may choose to take 82-580 Senior Seminar in Modern Languages (3 units).

German Studies and Interdisciplinary Electives (5 courses, 45 units minimum)

Complete four courses from German Studies Electives and one course from Interdisciplinary Electives or three courses from German Studies Electives and two courses from Interdisciplinary Electives in consultation with the concentration advisor.

German Studies Electives:

- 82-420 The Crucible of Modernity: Vienna 1900 9
- 82-425/426 Topics in German Literature and Culture * 9
- 82-427 Nazi and Resistance Culture 9
- 82-428 History of German Film 9
- 82-429 German Reading and Translation Workshop: German in Today’s World 9
- 82-505 Undergraduate Internship Var.
- 82-521/522 Special Topics in German Studies * Var.

* Students may repeat these courses with new topics.

Interdisciplinary Electives:

This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and the concentration advisor for the most up to date interdisciplinary electives appropriate for the German Studies curriculum. Courses may be suggested to the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

English

- 76-239 Introduction to Film Studies 9
- 76-386 Language & Culture 9
- 76-387 Writing in the Disciplines 6
- 76-483 Corpus Analysis in Rhetoric 9

History

- 79-205 20th Century Europe 9
- 79-257 Germany and the Second World War 9
- 79-249 United States and the Holocaust 6

Institute for Politics and Strategy (Choose in consultation with the concentration advisor.)

- 84-310 International Political Economy 9
- 84-326 Theories of International Relations 9
- 84-362 Diplomacy and Statecraft 9

Modern Languages

- 82-227 Germany & the European Union 9
- 82-281 Tutoring for Community Outreach Var.
- 82-282 Community Service Learning Var.
- 82-283 Language Diversity & Cultural Identity 9
- 82-284 Multicultural Pittsburgh: VR Storytelling 9
- 82-285 Podcasting: Language and Culture Through Storytelling 9
- 82-286 Understanding Cultural Complexities 9

Global Studies Concentration (81 units minimum)

The BHA concentration in Global Studies is designed for students interested in humanistic approaches to understanding past and present processes of globalization. Participating faculty in the departments of History, Modern Languages, and English conduct research in Africa, Asia, Europe, Latin America, the Middle East, and the Pacific. The rigorous yet flexible Global Studies curriculum combines anthropology, history, literary and cultural studies, and advanced language training in order to help students make sense of complex interactions among global processes, regional and local cultures, and societal structures. BHA concentration students in Global Studies develop a broad understanding of their prospects and responsibilities as citizens of the world confronting challenging contemporary problems.

There are two required courses for the concentration: Introduction to Global Studies (79-275) and Global Studies Research Seminar (79-400). Students also choose among several courses focused on theory, research methods, transnational histories, and regional/national histories and cultures.

In addition to coursework at Carnegie Mellon, BHA students with a concentration in Global Studies are encouraged to incorporate a semester of study abroad into their course of study in order to immerse themselves in society different from their own with unfamiliar cultural practices, language, and history.

Students should consult frequently with the BHA advisor, the Global Studies academic program manager, and the faculty director who will help students to craft a coherent course of study on specific topics and/or regions that may lead to the capstone research project (79-400 Global Studies Research Seminar I, the BHA capstone project [52-401 and 52-402] or a Dietrich College senior honors thesis ([https://www.cmu.edu/dietrich/students/undergraduate/programs/senior-honors/]). The faculty director and the academic program manager will also work with students to connect their academic interests and their participation in student organizations and/or organizations based in Pittsburgh with transnational reach.

Global Studies Introductory and Capstone Courses (2 courses, 21 units)

Students must earn a final grade of "C" or better for these courses to count toward the concentration.

- 79-275 Introduction to Global Studies 9
- 79-400 Global Studies Research Seminar 12

Language Proficiency Requirement

Demonstrating intermediate to advanced level proficiency in a language other than English is a crucial component of the concentration in Global Studies. Normally this requirement can be satisfied by successfully completing a course conducted in the second language at the 300-level or above for French, German, Italian, or Spanish, or the fourth semester (Intermediate II) level or above for Arabic, Chinese, Japanese, or Russian. Comparable proficiency for other languages can be considered. Additional advanced cultural, historical, and literary study in the second language is strongly recommended. If needed these courses may be counted toward the BHA General Education Communicating: Language and Interpretations category. Additional courses in a language other than English may also be counted as Global Studies transnational, global, regional courses or Global Studies electives as appropriate.
Transnational and Global Courses: (2 courses, 18 units)

To gain a solid foundation in the theories, methods, and analytical topics underpinning the concentration in Global Studies, students select 18 units (typically two courses) from the core courses listed below. Students must earn a final grade of “C” or better in these courses to fulfill the theoretical and topical core course requirement.

Theoretical and Topical Core Courses (2 courses, 18 units)

To gain insight into how complex transnational and global processes shape organizations and identifying an on-site supervisor available to collaborate with faculty director will assist students with matching their interests to local, national, and regional dynamics, students will select 27 units (typically three courses) from any subcategories below. Students are required to take an additional 15 units (typically two courses) from the core courses listed below. Students must earn a final grade of “C” or better in these courses to fulfill the theoretical and topical core course requirement.

Transnational, Global, and Regional Courses (3 courses, 27 units)

To gain insight into how complex transnational and global processes shape and are affected by local, national, and regional dynamics, students will select 27 units (typically three courses) from any subcategories below.

Transnational and Global Courses:

- 76-337 Intersectional Feminism 9
- 76-353 Transnational Feminisms: Fiction and Film 9
- 76-384 Race, Nation, and the Enemy 9
- 76-440 Postcolonial Theory: Diaspora and Transnationalism 9
- 79-224 Mayan America 9
- 79-233 The United States and the Middle East since 1945 9
- 79-237 Comparative Slavery 9
- 79-276 Beyond the Border 6
- 79-280 Coffee and Capitalism 9
- 79-282 Europe and the World Since 1800 9
- 79-283 Hungry World: Food and Famine in Global Perspective 9
- 79-288 Bananas, Baseball, and Borders: Latin America and the United States 9
- 79-313 “Unwanted”: Refugees, Asylum Seekers, and Patterns of Global Migration 6
- 79-333 Sex, Gender & Anthropology 9
- 79-350 Early Christianity 9
- 79-368 Un-natural Disasters: Societies and Environmental Hazards in Global Perspective 6
- 79-385 Out of Africa: The Making of the African Diaspora 9
- 80-348 Health, Human Rights, and International Development 9
- 80-447 Global Justice 9
- 82-283 Language Diversity & Cultural Identity 9
- 82-304 French & Francophone Sociolinguistics 9
- 82-345 Introduction to Hispanic Literary and Cultural Studies 9
- 84-322 Nonviolent Conflict and Revolution 9
- 84-326 Theories of International Relations 9
- 84-370 Global Nuclear Politics 9
- 84-389 Terrorism and Insurgency 9

Regional Courses:

Africa
- 79-225 West African History in Film 9
- 79-226 African History: Earliest Times to 1780 9

79-227 Modern Africa: The Slave Trade to the End of Apartheid 9
79-290 The Slave Passage: From West Africa to the Americas 6

Eastern and Southern Asia and the Pacific
79-264 Tibet and China: History and Propaganda 6
88-411 Rise of the Asian Economies 9

Europe
79-202 Flesh and Spirit: Early Modern Europe, 1400-1750 9
79-203 The Other Europes: The Habsburgs, Communism, & Central/Eastern Europe, 1740-1990 9
79-205 20th Century Europe 9
79-208 Witchcraft and Witch-Hunting 9
79-268 World War I: The Twentieth Century’s First Catastrophe 9
79-270 Anti-Semitism Then and Now: Perspectives from the Middle Ages to the Present 6
79-323 Family, Gender, and Sexuality in European History, 500-1800 9
82-320 Contemporary Society in Germany, Austria and Switzerland 9
82-415 Topics in French and Francophone Studies 9
82-441 Studies in Peninsular Literature and Culture 9

The Middle East
79-225 The Origins of the Palestinian-Israeli Conflict, 1880-1948 9
79-230 Arab-Israeli Conflict Since 1948 9
79-307 Religion and Politics in the Middle East 9
79-336 Oil & Water: Middle East Perspectives 6
79-398 Documenting the 1967 Arab-Israeli War 9
84-323 War and Peace in the Contemporary Middle East 9

The Americas
79-223 Mexico: From the Aztec Empire to the Drug War 9
82-245 New Directions in Hispanic Studies 9
82-343 Latin America: Language and Culture 9
82-451 Studies in Latin American Literature and Culture 9
82-455 Topics in Hispanic Studies 9
82-456 Topics in Hispanic Studies 9
84-308 Political Economy of Latin America 9

Electives (2 courses, 15 units minimum)

Students are required to take an additional 15 units (typically two courses) of electives, selected from one or both of the subcategories below. A "Theoretical and Topical Core Courses" and "Transnational, Global, and Regional Courses" listed above that are not used to fulfill those requirements may be counted as electives in addition to the courses listed below.

Global Studies offers students the opportunity to gain credit for a 9 unit elective while gaining first-hand experience interning with Pittsburgh-based organizations that work across borders. 79-506 Global Studies Internship is offered every semester and students should register for the course after consulting with the academic advisor and faculty director. The faculty director will assist students with matching their interests to local organizations and identifying an on-site supervisor available to collaborate in the ongoing and final evaluation of the student’s work.

Thematic Courses:

- 57-306 World Music 9
- 70-365 International Trade and International Law 9
- 76-241 Introduction to Gender Studies 9
- 76-386 Language & Culture 9
- 76-449 Race and Media 9
- 76-450 Law, Culture, and the Humanities 9
- 76-468 Space and Mobilities 9
- 79-204 American Environmental History 9
- 79-228 The Civil Rights Movement and the World 9
- 79-281 Introduction to Religion 9
- 79-286 Archaeology: Understanding the Ancient World 6
The BHA concentration in Global Systems & Management (GSM) is intended for students wishing to develop skills essential for participating in emerging opportunities in global business systems, systems development, product development and global project management. GSM exposes students to contemporary issues and practices facing organizations, managers and individuals working on a global scale across political, cultural and temporal boundaries. GSM presents an opportunity for students to learn about being part of an organization that works globally with its employees, business partners, customers and supply chains.

Students will learn about global project management, outsourcing and cross-cultural communications from theoretical and practical viewpoints. An organized elective structure enables students to tailor the concentration to reflect their specific interests.

### Required Information Systems Course (1 course, 9 units)
Students must earn a final grade of "C" or better for these courses to count toward the concentration. This course introduces the effective fundamentals of global project management and the mechanics of sourcing arrangements including offshore outsourcing.

- 67-329 Contemporary Themes in Global Systems 9

### Required Communications Courses (2 courses, 18 units)
Students must take two courses from the list below. Other courses may fulfill these requirements, with permission of the BHA GSM advisor. Courses from this category focus on expanding students’ communication skills, particularly those necessary to be successful in a professional environment. These skills may include written, oral, and interpersonal communication, as well as presentation, teamwork, and public speaking skills.

- 05-341 Organizational Communication 9
- 70-321 Negotiation and Conflict Resolution 9
- 70-340 Business Communications 9
- 70/85/88-341 Team Dynamics and Leadership 9
- 70-342 Managing Across Cultures 9
- 70-350 Acting for Business 9
- 70-483 Advertising and Marketing Communications 9
- 73-341 Within the Firm: Managing through Incentives 9
- 76-270 Writing for the Professions 9
- 76-318 Communicating in the Global Marketplace 9
- 76-386/786 Language & Culture 9
- 76-428 Visual Verbal Communication 9
- 85-375 Crosscultural Psychology 9
- 88-418 Domestic Negotiation 9
- 88-419 International Negotiation 9

### Global Systems Management Electives (6 courses, 54 units)
Students distribute their electives between the two categories listed below. Students must complete a minimum of 18 units in each category.

#### Humans, Heritage and Culture:
Courses from this category focus on expanding students’ knowledge and understanding of societies and cultures outside of the United States. Students are expected to gain a broader cultural understanding of individuals with whom they will interact in global business systems.

- 82-215 Arab Culture Through Dialogues, Film, and Literature 9
- 82-238 Topics in Chinese Culture 9
- 82-253 Korean Culture Through Film 9
- 82-254 World of Korea, Then and Now 9
- 82-273 Introduction to Japanese Language and Culture 9
- 82-278 Japanese Film and Literature: The Art of Storytelling 9
- 82-293 Russian Cinema: From the Bolshevik Revolution to Putin’s Russia 9
- 82-294 19th Century Russian Masterpieces 9
- 82-303 French & Francophone Cultures 9
- 82-305 French in its Social Contexts 9
- 82-333 Introduction to Chinese Language and Culture 9
- 82-342 Spain: Language and Culture 9
- 82-344 U.S. Latinos: Language and Culture 9
- 82-361 Italian Language and Culture I 9
- 82-402 The Crucible of Modernity: Vienna 1900 9
- 82-425 Topics in German Literature and Culture 9
- 82-427 Nazi and Resistance Culture 9
- 82-428 History of German Film 9
- 82-433 Topics in Contemporary Culture of China 9
- 82-434 Studies in Chinese Traditions 9
- 82-473 Topics in Japanese Studies 9

#### International Negotiation and Conflict Resolution:
Courses from this category focus on expanding students’ knowledge and understanding of societies and cultures outside of the United States. Students are expected to gain a broader cultural understanding of individuals with whom they will interact in global business systems.

- 82-215 Arab Culture Through Dialogues, Film, and Literature 9
- 82-238 Topics in Chinese Culture 9
- 82-253 Korean Culture Through Film 9
- 82-254 World of Korea, Then and Now 9
- 82-273 Introduction to Japanese Language and Culture 9
- 82-278 Japanese Film and Literature: The Art of Storytelling 9
- 82-293 Russian Cinema: From the Bolshevik Revolution to Putin’s Russia 9
- 82-294 19th Century Russian Masterpieces 9
- 82-303 French & Francophone Cultures 9
- 82-305 French in its Social Contexts 9
- 82-333 Introduction to Chinese Language and Culture 9
- 82-342 Spain: Language and Culture 9
- 82-344 U.S. Latinos: Language and Culture 9
- 82-361 Italian Language and Culture I 9
- 82-402 The Crucible of Modernity: Vienna 1900 9
- 82-425 Topics in German Literature and Culture 9
- 82-427 Nazi and Resistance Culture 9
- 82-428 History of German Film 9
- 82-433 Topics in Contemporary Culture of China 9
- 82-434 Studies in Chinese Traditions 9
- 82-473 Topics in Japanese Studies 9
82-362 Italian Language and Culture II 9
82-399 Special Topics: Russian in Context 9
82-400 Russian Studies Topics 6
82-415/416 Topics in French and Francophone Studies 9
82-425 Topics in German Literature and Culture 9
82-433 Topics in Contemporary Culture of China 9
82-441 Studies in Peninsular Literature and Culture 9
82-450 Advanced Research in Hispanic Language & Culture 9
82-456 Topics in Hispanic Studies 9
82-473/474 Topics in Japanese Studies 9
84-275 Comparative Politics 9
84-312 Gender and Development in Sub-Saharan Africa 6
84-315 Contemporary Debates in Human Rights 9
84-389 Terrorism and Insurgency 9

Note: History Department courses numbered 79-200 or above covering international/regional studies that are outside of U.S. history may also count in this category, with prior approval of the GSM advisor.

International Management:
Courses from this category focus on expanding students’ ability to effectively manage and make decisions that are important in operating and navigating a global business. Students are expected to gain an understanding of how to be an effective part of an organization that works globally with its employees, business partners, customers and supply chains.

19-411 Science and Innovation Leadership for the 21st Century: Firms, Nations, and Tech 9
70-342 Managing Across Cultures 9
70-364 Business Law 9
70-365 International Trade and International Law 9
70-430 International Management 9
70-480 International Marketing 9
73-341 Within the Firm: Managing through Incentives 9
73-372 International Money and Finance 9
84-310 International Political Economy 9
84-311 International Development: Theory and Praxis 9
84-319 U.S. Foreign Policy and Interventions in World Affairs 9
84-320 Global Perspectives on International Affairs 6
84-321 Autocrats and Democrats 9
84-322 Nonviolent Conflict and Revolution 9
84-323 War and Peace in the Contemporary Middle East 9
84-362 Diplomacy and Statecraft 9
84-363 Comparative Legal Systems 9
84-387 Technology and Policy of Cyber War 9
84-388 Concepts of War and Cyber War 6
84-405 The Future of Warfare 9
84-414 International and Subnational Security 9
88-411 Rise of the Asian Economies 9
88-419 International Negotiation 9

Hispanic Studies Electives: (81 UNITS MINIMUM)
A BHA concentration in Hispanic Studies promotes not just language proficiency but also an understanding of its varied cultures. Students who arrive at Carnegie Mellon with previous language study and/or who have high Advanced Placement, an International Baccalaureate, a Cambridge GCE Advanced level or internal placement exam scores will be able to begin taking courses in the concentration earlier in their undergraduate program. In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

Prerequisites
Intermediate level proficiency in Spanish. This is equivalent to the completion of four courses (two at the 200-level and two at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

Core Courses in Hispanic Studies (3 courses, 27 units)
Complete two courses.
82-342 Spain: Language and Culture 9
82-343 Latin America: Language and Culture 9
82-344 U.S. Latinos: Language and Culture 9

Complete required course.
82-345 Introduction to Hispanic Literary and Cultural Studies 9

Core Courses in Modern Languages (1 course, 9 units)
Complete one course.
82-281 Tutoring for Community Outreach Var.
82-282 Community Service Learning Var.
82-283 Language Diversity & Cultural Identity 9
82-284 Multicultural Pittsburgh: VR Storytelling 9
82-285 Podcasting: Language and Culture Through Storytelling 9
82-286 Understanding Cultural Complexities 9
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-480 Social and Cognitive Aspects of Bilingualism 9

Note: In consultation with the concentration advisor, students may substitute a Modern Languages course elective with one related to language analysis, language learning, or acquisition of language and culture from the listings in Hispanic Studies or from another department. Examples: 80-180 Nature of Language, 85-421 Language and Thought. In addition, students may choose to take 82-580 Senior Seminar in Modern Languages (3 units).

Hispanic Studies and Interdisciplinary Electives (5 courses, 45 units)
Complete five courses from Hispanic Studies Electives or four courses from Hispanic Studies Electives and one course from Interdisciplinary Electives in consultation with the concentration advisor.

Hispanic Studies Electives:
82-441 Studies in Peninsular Literature and Culture * 9
82-443 Spanish Reading and Translation Workshop 9
82-444 The Structure of Spanish 9
82-451 Studies in Latin American Literature and Culture * 9
82-455/456 Topics in Hispanic Studies * 9
82-506 Hispanic Studies Internship Var.
82-541/542 Special Topics in Hispanic Studies * Var.
* Students may repeat these courses with new topics.

Interdisciplinary Electives:
This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

English
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
76-387 Writing in the Disciplines 6
76-484 Discourse Analysis 9

History
79-223 Mexico: From the Aztec Empire to the Drug War 9
79-224 Mayan America 9
79-235 Caribbean Cultures 9
79-237 Comparative Slavery 9
79-276 Beyond the Border 6
79-288 Bananas, Baseball, and Borders: Latin America and the United States 9
79-295 Archaeology of Technology 6

Institute for Policy and Strategy (Choose in consultation with the concentration advisor.)
Three core courses from the following list:

- Political Economy of Latin America (9 units)
- New Directions in Hispanic Studies (9 units)
- The Hispanic World: History, Culture and Globalization (9 units)
- Hispanic Language & Cultures for the Professions (9 units)
- Tutoring for Community Outreach (Var. units)
- Community Service Learning (Var. units)
- Language Diversity & Cultural Identity (9 units)
- Multicultural Pittsburgh: VR Storytelling (9 units)
- Podcasting: Language and Culture Through Storytelling (9 units)
- Understanding Cultural Complexities (9 units)
- Second Language Acquisition: Theories and Research (9 units)
- Understanding Second Language Fluency (9 units)
- Social and Cognitive Aspects of Bilingualism (9 units)
- Nature of Language (9 units)
- Linguistic Analysis (9 units)
- Natural Language Syntax (9 units)
- Words and Word Formation: Introduction to Morphology (9 units)
- Philosophy (9 units)
- Meaning in Language (9 units)
- Crosscultural Psychology (9 units)
- Language and Thought (9 units)

Humanities Analytics Concentration (81 Units Minimum)

The human experience that is traditionally at the core of a humanities education is being dramatically transformed by the emergence of big data, digital platforms, computational thinking, and digital connectivity. Spurred by such developments, the concentration in Humanities Analytics (HumAn), offered by the Department of English, trains students in the processes involved in analyzing, digitizing, quantifying and visualizing different types of humanities and cultural phenomena, including printed books, manuscripts, historical records, art, music and film. The HumAn concentration trains students to work with cultural objects (like texts, film, historical records, etc.) but also to turn words and images into data; to move from one cultural object (like a Victorian novel, for instance) to a corpus consisting of tens of thousands of other novels published in the same period, and to combine close reading with distant reading (aggregating and analyzing massive amounts of data) for maximum insight and accuracy.

Students will develop a broad technical understanding of state-of-the-art computer-assisted methods for humanistic study, such as: social network analysis, text analysis and data mining, topic modeling, classification techniques and visualization. Students will also investigate the histories and historical contexts of such methods, learning to consider their applicability in specific domains. Finally, students will learn to turn a critical eye on the corpora and infrastructures that increasingly underpin humanistic research.

Required Courses (5 courses, 45 units)

- Critical Writing Workshop (9 units)
- Methods in Humanities Analytics (9 units)
- Data Stories (9 units)
- Corpus Rhetorical Analysis (9 units)
- Coding for Humanists (9 units)
- Media in a Digital Age (9 units)
- Rhetoric, Science, and the Public Sphere (9 units)
- Introduction to Digital Humanities (9 units)
- Corpus Analysis in Rhetoric (9 units)
- Data Science for Human Minds (9 units)
- Programming and Data Analysis for Social Scientists (9 units)

Electives (4 courses, 36 units minimum)

Choose four courses from the following categories. One course must come from List A, two from List B, and the fourth in consultation with your Humanities Analytics advisor.

List A:

One elective course relevant to digital and analytics methods (at least 9 units):

- Designing Human Centered Software (12 units)
- Machine Learning in Practice (10 units)
- Natural Language Processing (12 units)
- Machine Learning for Text Mining (9 units)
- Introduction to Computing for Creative Practice (10 units)
- Principles of Computing (10 units)
- IDeATe Portal: Creative Kinetic Systems (10 units)
- Computer Vision (12 units)
- Green Computing (9 units)
- Crafting Software (12 units)
- Law of Computer Technology (9 units)
- Twisted Signals: Multimedia Processing for the Arts (10 units)
- Statistical Reasoning and Practice (9 units)
- Methods for Statistics & Data Science (9 units)
- Discovering the Data Universe (3 units)
- Introduction to Statistical Inference (9 units)
- Statistical Analysis of Networks (9 units)
- Special Topics: Methods of Statistical Learning (9 units)
- Statistical Graphics and Visualization (9 units)
- Statistical Computing (9 units)
- Spatial Concepts for Non-Architecture Majors (10 units)
- Digital Media I (6 units)
- Digital Photographic Imaging (9 units)
- Research Issues in Game Development: Designing for XR (12 units)
- IDeATe Portal: Creative Kinetic Systems (10 units)

List B:

Two elective courses relevant to broad humanities expertise (at least 18 units):

- Banned Books (9 units)
- Shakespeare's Dark Plays (9 units)
- Comedies and Romances (9 units)
- Intertextuality (9 units)
- Argument (9 units)
- Introduction to Discourse Analysis (9 units)
- Language & Culture (9 units)
- History of Books and Reading (9 units)
- Topics in Journalism: Storytelling in a Digital Age (9 units)
- Rhetoric of Science (9 units)
- Rhetorical Analysis (9 units)
- Introduction to Historical Research & Writing (9 units)
- Technology and Society (9 units)
- Data in American Life (9 units)
- Nature of Language (9 units)
- Linguistic Analysis (9 units)
- Meaning in Language (9 units)
- Language in Use (9 units)
- Community Service Learning (Var. units)
- Language Diversity & Cultural Identity (9 units)
- Second Language Acquisition: Theories and Research (9 units)
- Social and Cognitive Aspects of Bilingualism (9 units)
Note: Additional courses not on List A or List B may also be approved as electives; new courses are added every semester so please speak with Humanities Analytics advisor.

Information Systems CONCENTRATION (81 UNITS MINIMUM)

Did you enjoy computer science or more technical courses in high school, but are mostly interested in the practical and social applications of technology? Do you have a passion for business and want to use advanced technology to change how companies work? Do you want to learn how data and technology can be harnessed for social good?

The BHA concentration in Information Systems combines aspects of computer science, information technology, and business management to provide you with an uncommonly well-rounded portfolio. You will be uniquely positioned for an impactful career in an increasingly digitized and connected world and able to adapt to rapid evolution across industries.

In addition to building a solid foundation in computing, communications, and software development, you will also study social sciences and organizational theory to develop "big picture" critical thinking and understand the human impacts of technological change. This blend prepares you to take a leading role in our digital future.

Students must earn a final grade of "C" or better for these courses to count toward the concentration.

Mathematics and Computer Science Prerequisite Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>15-112</td>
<td>Fundamentals of Programming and Computer Science</td>
<td>12</td>
</tr>
<tr>
<td>15-121</td>
<td>Introduction to Data Structures</td>
<td>10</td>
</tr>
<tr>
<td>or 15-122</td>
<td>Principles of Imperative Computation</td>
<td>10</td>
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</table>

Choose one:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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<tbody>
<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>
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<tr>
<td>21-127</td>
<td>Concepts of Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>21-240</td>
<td>Matrix Algebra with Applications</td>
<td>10</td>
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Information Systems Professional Core (7 courses, 72 units)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>67-250</td>
<td>The Information Systems Milieux -Spring</td>
<td>9</td>
</tr>
<tr>
<td>67-262</td>
<td>Database Design and Development -Fall</td>
<td>9</td>
</tr>
<tr>
<td>67-272</td>
<td>Application Design and Development -Spring</td>
<td>9</td>
</tr>
<tr>
<td>67-373</td>
<td>Information Systems Consulting Project -Spring</td>
<td>12</td>
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<tr>
<td>05-391</td>
<td>Designing Human Centered Software</td>
<td>12</td>
</tr>
<tr>
<td>or 05-410</td>
<td>User-Centered Research and Evaluation</td>
<td>12</td>
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<tr>
<td>or 05-452</td>
<td>Service Design</td>
<td>12</td>
</tr>
<tr>
<td>17-313</td>
<td>Foundations of Software Engineering</td>
<td>12</td>
</tr>
<tr>
<td>95-422</td>
<td>Managing Digital Transformation</td>
<td>9</td>
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</tbody>
</table>

IS Breadth Category (1-2 courses, 9 units minimum)

Choose two courses from any of the four IS Breadth categories (Professional Communication, Quantitative Analysis, IS & Society and Innovation & Entrepreneurship).

Professional Communications:

Information systems professionals communicate with a wide range of people in most organizations and often facilitate communications between diverse groups of stakeholders. Consequently, the most successful professionals typically are those with strong communication skills. These courses help students see that the structure and presentation of information affects how well (and how easily) it can be understood and used.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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<tbody>
<tr>
<td>36-315</td>
<td>Statistical Graphics and Visualization</td>
<td>9</td>
</tr>
<tr>
<td>51-261</td>
<td>Design Center: Communication Design Fundmnts: IxD for Communications</td>
<td>9</td>
</tr>
<tr>
<td>or 51-262</td>
<td>Design Center: CD Fundamentals: Design for Interactions for Communications</td>
<td>9</td>
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Quantitative Analysis and Research Methods: This area focuses on decision making and data analysis — essential to development of useful information systems. This area exposes students to analytic methods in the social sciences and quantitative methods for approaching complex methods.

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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<tbody>
<tr>
<td>36-202</td>
<td>Methods for Statistics &amp; Data Science</td>
<td>9</td>
</tr>
<tr>
<td>36-225</td>
<td>Introduction to Probability Theory</td>
<td>9</td>
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<tr>
<td>36-303</td>
<td>Sampling, Survey and Society</td>
<td>9</td>
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<tr>
<td>36-309</td>
<td>Experimental Design for Behavioral &amp; Social Sciences</td>
<td>9</td>
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<tr>
<td>36-315</td>
<td>Statistical Graphics and Visualization</td>
<td>9</td>
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<tr>
<td>36-401</td>
<td>Modern Regression</td>
<td>9</td>
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<tr>
<td>36-402</td>
<td>Advanced Methods for Data Analysis</td>
<td>9</td>
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<tr>
<td>36/70-208</td>
<td>Regression Analysis</td>
<td>9</td>
</tr>
<tr>
<td>67-364</td>
<td>Practical Data Science</td>
<td>9</td>
</tr>
<tr>
<td>84-205</td>
<td>Decision Theory</td>
<td>9</td>
</tr>
<tr>
<td>88-223</td>
<td>Decision Analysis</td>
<td>12</td>
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<tr>
<td>88-251</td>
<td>Empirical Research Methods</td>
<td>9</td>
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<tr>
<td>88-252</td>
<td>Causal Inference in the Field</td>
<td>9</td>
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IS and Society:

The focus of this area is on students developing a greater understanding of how social policy and technology influence organizations and how they operate.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>79-234</td>
<td>Technology and Society</td>
<td>9</td>
</tr>
<tr>
<td>79-301</td>
<td>History of Surveillance: From the Plantation to Data Capitalism</td>
<td>6</td>
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<tr>
<td>79-305</td>
<td>Moneyball Nation: Data in American Life</td>
<td>9</td>
</tr>
<tr>
<td>79-342</td>
<td>Introduction to Science and Technology Studies</td>
<td>9</td>
</tr>
<tr>
<td>80-249</td>
<td>AI, Society, and Humanity</td>
<td>9</td>
</tr>
<tr>
<td>84-373</td>
<td>Emerging Technologies and the Law</td>
<td>9</td>
</tr>
<tr>
<td>84-387</td>
<td>Technology and Policy of Cyber War</td>
<td>9</td>
</tr>
<tr>
<td>84-390</td>
<td>Social Media, Technology, and Conflict</td>
<td>9</td>
</tr>
<tr>
<td>84-405</td>
<td>The Future of Warfare</td>
<td>9</td>
</tr>
<tr>
<td>88-275</td>
<td>Bubbles: Data Science for Human Minds</td>
<td>9</td>
</tr>
</tbody>
</table>

Innovation and Entrepreneurship:

The focus of this area is to apply disciplined techniques to generate ideas that have value in a market, and bring them through design, feasibility testing, and frequent revision, towards a potential launch.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-470</td>
<td>Digital Service Innovation</td>
<td>12</td>
</tr>
<tr>
<td>67-443</td>
<td>Mobile Application Design and Development</td>
<td>12</td>
</tr>
<tr>
<td>67-476</td>
<td>Innovation in Information Systems: Health Care</td>
<td>9</td>
</tr>
</tbody>
</table>

International Relations and Politics Concentration (81 units minimum)

Offered through the Institute for Politics and Strategy (IPS), the International Relations and Politics (IRP) BHA concentration analyzes the role of politics at the national, regional, international, and transnational levels; examines political and institutional arrangements within and among these levels; and investigates the grand strategy of nation-states.

Statesmen, scholars, and policy makers often define grand strategy as the combination of diplomatic, economic, military, and political factors used by leaders to defend their respective nation-states. The IRP concentration investigates the way in which leaders and citizens construct grand strategy and national security policy more generally; the impact of domestic and international forces on states’ security and economic policies; and the significance of alliances, coalitions, and international institutions for world politics. Although the study of grand strategy and political institutions is the flagship initiative of the concentration, students are also able to study the effects of culture, economics, and society on the international system through a rich set of elective courses.

Thinking systematically about international and domestic politics is the core objective of the IRP concentration. The concentration is rooted in the discipline of political science but also utilizes the interdisciplinary strengths of decision science, economics, and political history. Thus, students pursuing this concentration will use the analytic tools of game theory, economic and statistical analysis, qualitative analysis, rational choice theory, and theories of behavioral decision making as they study alliances, coalitions, institutions, and political strategy.
The name of the concentration signifies that those studying IRP learn about international relations and domestic politics from the standpoint of the discipline of political science. Also, the concentration taps into and contributes to CMU's strengths in other social sciences that combine analytical and empirical methods. IRP includes an innovative initiative that incorporates decision science in international relations. It enables students to apply the burgeoning science of judgment and decision making to understanding political actors' strategies and foibles, the strengths and weaknesses of formal methods of policy analysis (e.g., cost, risk, benefit, analysis), and the factors shaping public responses to politics and policies.

Recognizing the influence of language and culture on politics, students are required to complete the intermediate (200) level, or its equivalent, in a modern language other than English. Advanced-level study is strongly encouraged.

Open to all Carnegie Mellon undergraduates, the Carnegie Mellon University Washington Semester Program (CMU/WSP) allows students to study public policy and intern in Washington for one semester. Courses taken through CMU/WSP will count toward the elective sequence in politics and public policy for the IRP concentration.

IRP students interested in developing their research skills are encouraged to apply for a research position with the Center for International Relations and Politics will provide additional opportunities for students. Students are also encouraged to submit their work for publication in the CIRP Journal (https://www.cmu.edu/ir/cirp-journal/), an online and print publication that analyzes current problems and contributes to CMU's strengths in other social sciences that combine analytical and empirical methods.

Prerequisite

84-110 Foundations of Political Economy 9
or 73-102 Principles of Microeconomics

Core Courses (6 courses, 54 units)

84-104 Decision Processes in American Political Institutions 9
84-265 Political Science Research Methods 9
84-275 Comparative Politics 9
84-326 Theories of International Relations 9
84-369 Decision Science for International Relations 9
84-450 Policy Seminar 6
36-202 Methods for Statistics & Data Science 9

Language Requirement

BHA IRP students are required to complete the intermediate (200) level or the equivalent in a modern language other than English. The language requirement may be satisfied by the BHA General Education Modern Languages requirement if the 200-level is reached. Advanced level study is strongly encouraged.

Electives (3 courses, 21 units minimum)

International Relations and Politics BHA students will either:

Option 1

Take 21 units (three courses) from the elective lists below. At least two courses must be from the Institute for Politics and Strategy (84-xxx).

Grand Strategy and Political Institutions

66-221 Topics of Law: Introduction to Intellectual Property Law 9
79-203 The Other Europe: The Habsburgs, Communism, & Central/Eastern Europe, 1740-1990 9
79-301 History of Surveillance: From the Plantation to Data Capitalism 6
80-135 Introduction to Political Philosophy 9
80-321 Causation, Law, and Social Policy 9
80-335 Social and Political Philosophy 9
84-250 Writing for Political Science and Policy 9
84-309 Political Behavior 9
84-319 U.S. Foreign Policy and Interventions in World Affairs 9
84-320 Global Perspectives on International Affairs 6
84-321 Autocrats and Democrats 9
84-322 Nonviolent Conflict and Revolution 9
84-323 War and Peace in the Contemporary Middle East 9
84-324 The Future of Democracy 9
84-325 Contemporary American Foreign Policy 9
84-350 America and the World 6
84-352 Representation and Redistricting 9
84-362 Diplomacy and Statecraft 9
84-363 Comparative Legal Systems 9
84-364 Comparative Presidential Behavior: Leadership, Personality, and Decision Making 9
84-365 Psychology and International Relations 9
84-366 The American Presidency 9
84-370 Global Nuclear Politics 9
84-372 Space and National Security 9
84-373 Emerging Technologies and the Law 9
84-380 US Grand Strategy 9
84-382 Conflicts in the Middle East: Iran, Iraq, and Proxy Warfare 9
84-383 War Powers 9
84-386 The Privatization of Force 9
84-387 Technology and Policy of Cyber War 9
84-388 Concepts of War and Cyber War 6
84-389 Terrorism and Insurgency 9
84-390 Social Media, Technology, and Conflict 9
84-393 Legislative Decision Making: US Congress 6
84-402 Judicial Politics and Behavior 9
84-405 The Future of Warfare 9
84-414 International and Subnational Security 9
88-281 Topics in Law: 1st Amendment 9
88-284 Topics in Law: The Bill of Rights 9

Economics and Society

19-452 EPP Projects II 12
70-342 Managing Across Cultures 9
70-365 International Trade and International Law 9
70-430 International Management 9
73-103 Principles of Macroeconomics 9
73-328 Health Economics 12
73-332 Political Economy 9
80-136 Social Structure, Public Policy & Ethics 9
80-244 Environmental Ethics 9
80-249 AI, Society, and Humanity 9
80-348 Health, Human Rights, and International Development 9
80-447 Global Justice 9
84-307 Economic and Political History of Contemporary China 9
84-308 Political Economy of Latin America 9
84-310 International Political Economy 9
84-311 International Development: Theory and Praxis 9
84-312 Gender and Development in Sub-Saharan Africa 6
84-313 International Organizations and Law 9
84-315 Contemporary Debates in Human Rights 9
84-318 Politics of Developing Nations 9
88-411 Rise of the Asian Economies 9

International Cultures

76-318 Communicating in the Global Marketplace 9
76-386 Language & Culture 9
79-205 20th Century Europe 9
79-223 Mexico: From the Aztec Empire to the Drug War 9
79-224 Mayan America 9
79-227 Modern Africa: The Slave Trade to the End of Apartheid 9
79-229 The Origins of the Palestinian-Israeli Conflict, 1880-1948 9
In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

**Prerequisites**

Low-intermediate level proficiency in Japanese. This is equivalent to the completion of three courses (two at the 100-level and one at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, a Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

**Core Courses in Japanese Studies (4 courses, 39 units)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-272 Intermediate Japanese II</td>
<td>12</td>
</tr>
<tr>
<td>82-273 Introduction to Japanese Language and Culture</td>
<td>9</td>
</tr>
<tr>
<td>82-371 Advanced Japanese I</td>
<td>9</td>
</tr>
<tr>
<td>82-372 Advanced Japanese II</td>
<td>9</td>
</tr>
</tbody>
</table>

* Students who place out of 82-272 Intermediate Japanese II must take 12 units chosen from the Japanese Studies and Interdisciplinary Electives category below.

**Core Courses in Modern Languages (1 course, 9 units)**

Complete one course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-281 Tutoring for Community Outreach</td>
<td>Var.</td>
</tr>
<tr>
<td>82-282 Community Service Learning</td>
<td>Var.</td>
</tr>
<tr>
<td>82-283 Language Diversity &amp; Cultural Identity</td>
<td>9</td>
</tr>
<tr>
<td>82-284 Multicultural Pittsburgh: VR Storytelling</td>
<td>Var.</td>
</tr>
<tr>
<td>82-285 Podcasting: Language and Culture Through Storytelling</td>
<td>9</td>
</tr>
<tr>
<td>82-286 Understanding Cultural Complexities</td>
<td>9</td>
</tr>
<tr>
<td>82-383 Second Language Acquisition: Theories and Research</td>
<td>9</td>
</tr>
<tr>
<td>82-388 Understanding Second Language Fluency</td>
<td>9</td>
</tr>
<tr>
<td>82-480 Social and Cognitive Aspects of Bilingualism</td>
<td>9</td>
</tr>
</tbody>
</table>

**Japanese Studies and Interdisciplinary Electives (4 courses, 33 units minimum)**

Complete three courses from Japanese Studies Electives and one course from Interdisciplinary Electives or two courses from Japanese Studies Electives and two courses from Interdisciplinary Electives in consultation with the concentration advisor. With permission of the concentration advisor, students are encouraged to complete at least one Japanese history course that qualifies for Japanese Studies and Interdisciplinary Electives at the University of Pittsburgh, one in Japan when they study abroad or in a summer program at any other university.

**Japanese Studies Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-373 Structure of the Japanese Language</td>
<td>9</td>
</tr>
<tr>
<td>82-374 Issues in Japanese Technology &amp; Society</td>
<td>9</td>
</tr>
<tr>
<td>82-473/474 Topics in Japanese Studies</td>
<td>9</td>
</tr>
<tr>
<td>82-505 Undergraduate Internship</td>
<td>Var.</td>
</tr>
<tr>
<td>82-571/572 Special Topics in Japanese Studies</td>
<td>Var.</td>
</tr>
</tbody>
</table>

* Students may repeat these courses with new topics.

**Interdisciplinary Electives**

This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and concentration advisor for the most up to date interdisciplinary electives appropriate for the Japanese Studies curriculum. Courses may be suggested to the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>76-239 Introduction to Film Studies</td>
<td>9</td>
</tr>
<tr>
<td>76-386 Language &amp; Culture</td>
<td>9</td>
</tr>
<tr>
<td>76-387 Writing in the Disciplines</td>
<td>6</td>
</tr>
<tr>
<td>History</td>
<td></td>
</tr>
<tr>
<td>79-261 The Last Emperors: Chinese History and Society</td>
<td>9</td>
</tr>
</tbody>
</table>
Course options include but are not limited to the following:

Required Introductory Courses (2 courses, 18 units)

76-245 Shakespeare’s Dark Plays
or 76-247 Shakespeare: Comedies and Romances
76-275 Critical Writing Workshop

200-Level Literature & Culture Course (1 course, 9 units)

Course options include but are not limited to the following:

76-203 Literature & Culture in the 18th Century
76-207 Special Topics in Literature & Culture
76-210 Banned Books
76-217 Literature & Culture of the 20th and 21st Century
76-221 Books You Should Have Read By Now
76-223 Contemporary Black Literature
76-230 Literature & Culture in the 19th Century
76-233 Literature & Culture in the Renaissance
76-232 Introduction to Black Literature
76-238 What Was the Hip-Hop Generation?
76-245 Shakespeare’s Dark Plays
76-281 Modern American Drama
76-290 Literature & Culture in the 20th Century

300-Level Course (1 course, 9 units)

Course options include but are not limited to the following:

76-310 Advanced Studies in Film and Media
76-311 Acting Out in the London Theatre
76-313 Creative Visual Storytelling in Film Production
76-314 Data Stories
76-337 Intersectional Feminism
76-341 Gender and Sexuality in Performance
76-343 Rise of the American Novel
76-346 Angels and Diplomats -- Renaissance Poetry from Wyatt to Milton
76-352 Music, Technology, and Culture
76-353 Transnational Feminisms: Fiction and Film
76-361 Corpus Rhetorical Analysis
76-367 Fact Into Film: Translating History into Cinema
76-377 Shakespeare on Film
76-388 Coding for Humanists

400-Level Course (1 course, 9 units)

Course options include but are not limited to the following:

76-410 The Long Eighteenth Century
76-412 Performance and 18th Century Theatrical Culture
76-414 Politics, Media, and Romantic Literature 1789-1830
76-429 Introduction to Digital Humanities
76-440 Postcolonial Theory: Diaspora and Transnationalism
76-443 Restoration & 18th-Century Theatre
76-444 History of Books and Reading
76-448 Shakespeare on Film
76-452 Generations and Culture
76-458 Crosscultural Psychology
85-421 Language and Thought

Language & Culture CONCENTRATION (81 UNITS MINIMUM)

The BHA concentration in Literature & Culture teaches students how to read, interpret and write persuasively about novels, poems, plays and other imaginative works across a variety of genres and media forms. Along with teaching students the analytical skills and methodological tools to interpret these works, this major teaches the importance of understanding imaginative works within their cultural and historical contexts. In addition, the concentration is designed to train students in strong professional and academic skills like critical thinking, inductive reasoning and persuasive argumentation that are applicable to other fields of study and a variety of career paths.

Prerequisite Course

76-26x Survey of Forms (Creative Nonfiction, Fiction, Poetry, Screenwriting)

Required Introductory Courses (2 courses, 18 units)

76-245 Shakespeare’s Dark Plays
or 76-247 Shakespeare: Comedies and Romances
76-275 Critical Writing Workshop
Linguistics Concentration (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

Linguistics Core (2 courses, 18 units)
Take one course each in two of the following three areas.

Sounds:
80-282 Phonetics and Phonology I 9

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

Meaning:
80-381 Meaning in Language 9
80-383 Language in Use 9

Extended Core (3 courses, 27 units)
Choose three courses from Extended Core or additional courses from the Linguistics Core above.
80-283 It Matters How You Say It 9
80-284 Invented Languages 9
80-286 Words and Word Formation: Introduction to Morphology 9
80-287 Language Variation and Change 9
80-288 Intonation: Transcription and Analysis 9
80-382 Phonetics and Phonology II 9
80-384 Linguistics of Turkic Languages 9
80-385 Linguistics of Germanic Languages 9
80-388 Linguistic Typology: Diversity and Universals 9
80-488 Acoustics of Human Speech: Theory, Data, and Analysis 9

Elective Courses (3 courses, 27 units)
Take three additional electives. These can be additional courses from the Core or Extended Core courses listed above, the electives list below, or any other course which must be 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 that are consistent with their goals and interests. A list of these courses must be filed in the BXA office.

English Electives (2 courses, 18 units)
Complete two additional courses from the English Department’s offerings. One course must be at the 300-level, and one must be at the 400-level. Electives may include any courses offered by the English Department from any specialization area, with the exception of creative writing workshops.

Philosophy Concentration (81 units minimum)
The BHA Concentration in Philosophy provides students with a broad humanities education and sharpens their analytical skills. We encourage, but do not require, students to choose a thematic concentration through their electives. Sample curricula emphasizing Pre-Law, Metaphysics and
Epistemology, Ethics and Social Philosophy, and Philosophy of Mind are suggested below. However, alternative emphases can be proposed and approved by the Director.

In any of the areas listed, substitutions of courses that cohere with a student’s interest may be allowed with approval from the Advisor.

**Introduction to Philosophy** (1 course, 9 units)

**Area 1: Values and Normative Theory (1 course, 9 units)**

- 80-130 Introduction to Ethics
- 80-135 Introduction to Political Philosophy
- 80-136 Social Structure, Public Policy & Ethics
- 80-244 Environmental Ethics
- 80-245 Medical Ethics
- 80-246 Moral Psychology
- 80-248 Engineering Ethics
- 80-249 AI, Society, and Humanity
- 80-330 Ethical Theory
- 80-335 Social and Political Philosophy
- 80-336 Philosophy of Law
- 80-348 Health, Human Rights, and International Development
- 80-430 Ethics and Medical Research
- 80-447 Global Justice

**Area 2: Philosophy of Mind/Language/Metaphysics (1 course, 9 units)**

- 80-180 Nature of Language
- 80-270 Problems of Mind and Body: Meaning and Doing
- 80-271 Mind and Body: The Objective and the Subjective
- 80-276 Philosophy of Religion
- 80-280 Linguistic Analysis
- 80-281 Language and Thought
- 80-282 Phonetics and Phonology I
- 80-283 It Matters How You Say It
- 80-284 Invented Languages
- 80-285 Natural Language Syntax
- 80-286 Words and Word Formation: Introduction to Morphology
- 80-287 Language Variation and Change
- 80-288 Intonation: Transcription and Analysis
- 80-327 Philosophy of Neuroscience
- 80-380 Philosophy of Language
- 80-381 Meaning in Language
- 80-382 Phonetics and Phonology II
- 80-383 Language in Use
- 80-384 Linguistics of Turkic Languages
- 80-385 Linguistics of Germanic Languages
- 80-388 Linguistic Typology: Diversity and Universals
- 80-580 Seminar on the Philosophy of Language

**Area 3: Logic/Philosophy of Mathematics (1 course, 9 units)**

- 80-110 Nature of Mathematical Reasoning
- 80-210 Logic and Proofs
- 80-211 Logic and Mathematical Inquiry
- 80-212 Arguments and Logical Analysis
- 80-310 Formal Logic
- 80-311 Undecidability and Incompleteness
- 80-312 Mathematical Revolutions
- 80-314 Causal Discovery, Statistics, and Machine Learning
- 80-315 Modal Logic
- 80-411 Proof Theory
- 80-413 Category Theory
- 80-419 Interactive Theorem Proving
- 80-513 Seminar on Philosophy of Mathematics

**Area 4: Epistemology/Metaphysics (1 course, 9 units)**

- 80-150 Nature of Reason
- 80-201 Knowledge and Justified Belief
- 80-208 Critical Thinking
- 80-220 Philosophy of Science
- 80-221 Philosophy of Social Science
- 80-222 Measurement and Methodology
- 80-223 Causality and Probability
- 80-224 Race, Gender and Science
- 80-226 Revolutions in Science
- 80-305 Decision Theory
- 80-321 Causation, Law, and Social Policy
- 80-322 Philosophy of Physics
- 80-324 Philosophy of Economics
- 80-327 Philosophy of Neuroscience
- 80-405 Game Theory
- 80-515 Seminar on the Foundations of Statistics
- 80-516 Causality and Machine Learning
- 80-520 Seminar on Philosophy Science
- 80-521 Seminar on Formal Epistemology: Belief and Evidence

**Area 5: History of Philosophy (1 course, 9 units)**

- 80-150 Nature of Reason
- 80-226 Revolutions in Science
- 80-250 Ancient Philosophy
- 80-251 Modern Philosophy
- 80-252 Kant
- 80-253 Continental Philosophy
- 80-254 Analytic Philosophy
- 80-255 Pragmatism
- 80-256 Modern Moral Philosophy
- 80-257 Nietzsche
- 80-261 Experience, Reason, and Truth
- 80-263 Approaching Chinese Philosophy: Basic Texts and Implications
- 80-358 Hume
- 80-362 Russell
- 80-363 19th Century Foundations of Science

**Area 6: Electives (3 courses, 27 units)**

Three other philosophy courses, or appropriate courses from other departments, with the permission of the Director.

**Politics & Public Policy CONCENTRATION (81 UNITS MINIMUM)**

Rooted in the discipline of political science, the concentration in Politics & Public Policy investigates US public policy issues and other matters of domestic politics while providing students hands-on and practical learning experiences.

Students pursuing the Politics & Public Policy Concentration must participate in the Carnegie Mellon University Washington Semester Program (CMU WSP) for one semester during their undergraduate experience. The CMU/WSP allows students to study public policy and intern in Washington for one semester. In this semester-long program, students live, intern, and study in Washington, DC, coming into direct contact with political, business, and community leaders and learning about the most pressing policy issues of the day. Students earn 48 units for the Carnegie Mellon University Washington Semester Program, interning about twenty-four hours per week in any sector or field of interest within Washington, DC, while taking classes taught by Carnegie Mellon faculty. The Institute for Politics and Strategy sponsors events and policy-oriented opportunities in Washington for students participating in the program to further enrich their experience and enhance their understanding of how Washington functions as a hub of international and public policy decision making.

Foundation Courses (2 courses, 18 units)

Students must complete the following course:
84-104 Decision Processes in American Political Institutions 9

Students must complete one of the following two courses:
84-275 Comparative Politics 9
or 84-326 Theories of International Relations 9

Economics Course (1 course, 9 units)
Students must complete one of the following two courses:
84-310 Foundations of Political Economy 9
or 73-102 Principles of Microeconomics 9

CMU/WSP Core Seminars (2 courses, 24 units)
Students must take the following two courses while participating in the CMU/WSP:
84-360 CMU/WSP: Internship Seminar 12
84-450-84-450 Policy Seminar-Policy Seminar 12
(2 mins, 6 units each)

CMU/WSP Elective Seminars (3 courses, 24 units minimum)
Students must take 24 units from the below list of elective seminars offered in the CMU/WSP. Offerings vary by semester:
84-330 The Shading of Democracy: The Influence of Race on American Politics 6
84-331 Money, Media, and the Power of Data in Decisionmaking 6
84-332 Effects of US Policy on Businesses: Perspectives of Asian Americans 6
84-333 Power and Levers for Change in Washington, DC 12
84-334 Presidential Power in a Constitutional System 6
84-335 Intelligence and Policy 6
84-336 Implementing Public Policy: From Good Idea To Reality 12
84-337 Biomedical Science Research, Policy, and Governance 6
84-338 Political News Coverage in the Era of Trump, Twitter, and “Fake News” 6
84-343 Language and Power: How to Understand and Use Political Speech 6
84-346 Legal Issues in Public Administration 6
84-348 Advocacy, Policy and Practice 6

American Politics Elective (1 course, 6 units minimum)
Students must take one course from the below list of electives taught in Pittsburgh:
84-309 Political Behavior 9
84-325 Contemporary American Foreign Policy 9
84-350 America and the World 6
84-352 Representation and Redistricting 9
84-366 The American Presidency 9
84-380 US Grand Strategy 9
84-383 War Powers 9
84-393 Legislative Decision Making: US Congress 6
84-402 Judicial Politics and Behavior 9

Professional Writing Concentration (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 professionals 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 communications professionals with both the skills needed 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.

Prerequisite English Elective
Students with a concentration in Professional Writing must complete one prerequisite course from the English Department’s offerings, which focuses on the relationships between texts and their cultural and historical contexts. The course must be at or above the 200 level. 76-270 Writing for the Professions, and 76-271 Introduction to Professional and Technical Writing may not count as English electives. Appropriate courses are advertised every semester in the English department’s “What Counts for What” publication.

Foundation Courses (5 courses, 39 units)
76-26x Survey of Forms (Nonfiction, Fiction, Poetry, or Screenwriting) 9
76-271 Introduction to Professional and Technical Writing 9
76-300 Professional Seminar 3
76-373 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 three additional, Advanced Writing/Rhetoric courses and include but are not limited to the following list.
76-319 Environmental Rhetoric 9
76-351 Rhetorical Invention 9
76-355 Leadership, Dialogue, and Change 9
76-386 Language & Culture 9
76-388 Coding for Humanists 9
76-396 Non-Profit Message Creation 9
76-415 Mediated Power and Propaganda 9
76-419 Media in a Digital Age 9
76-428 Visual Verbal Communication 9
76-474 Software Documentation 9
76-476 Rhetoric of Science 9
76-484 Discourse Analysis 9
76-491 Rhetorical Analysis 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. All students with a concentration in PW, regardless of their career focus, are encouraged to take 76-391 Document & Information Design and 76-487 Web Design 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.
76-301 Internship Var.
76-302 Communication Support Tutoring Practicum 6
76-319 Environmental Rhetoric 9
76-351 Rhetorical Invention 9
76-355 Leadership, Dialogue, and Change 9
76-372 News Writing 9
76-375 Magazine Writing 9
76-386 Language & Culture 9
A BHA concentration in Russian Studies promotes not just language proficiency but also an understanding of Russian culture. Students who arrive at Carnegie Mellon with previous language study and/or who have high Advanced Placement, an International Baccalaureate, a Cambridge GCE Advanced level or internal placement exam scores will be able to begin taking courses in the concentration earlier in their undergraduate program. In all cases, progress in the concentration will be accelerated by study abroad, which is recommended for all students.

Prerequisites

Intermediate level proficiency in Russian. This is equivalent to the completion of three courses (two at the 100-level and one at the 200-level) or exemption based on Advanced Placement, International Baccalaureate, Cambridge GCE Advanced level or Carnegie Mellon internal placement test scores.

Core Courses in Russian Studies (3 courses, 33 units)

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-292</td>
<td>Intermediate Russian II</td>
<td>12</td>
</tr>
<tr>
<td>or 82-295</td>
<td>19th Century Russian Masterpieces</td>
<td>9</td>
</tr>
<tr>
<td>79-265</td>
<td>Russian History: Game of Thrones</td>
<td>9</td>
</tr>
<tr>
<td>or 79-266</td>
<td>Russian History and Revolutionary Socialism</td>
<td>9</td>
</tr>
</tbody>
</table>

Core Courses in Modern Languages (1 course, 9 units)

Complete one course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-281</td>
<td>Tutoring for Community Outreach</td>
<td>Var.</td>
</tr>
<tr>
<td>82-282</td>
<td>Community Service Learning</td>
<td>Var.</td>
</tr>
<tr>
<td>82-283</td>
<td>Language Diversity &amp; Cultural Identity</td>
<td>9</td>
</tr>
<tr>
<td>82-284</td>
<td>Multicultural Pittsburgh: VR Storytelling</td>
<td>9</td>
</tr>
<tr>
<td>82-285</td>
<td>Podcasting: Language and Culture Through Storytelling</td>
<td>9</td>
</tr>
<tr>
<td>82-286</td>
<td>Understanding Cultural Complexities</td>
<td>9</td>
</tr>
<tr>
<td>82-383</td>
<td>Second Language Acquisition: Theories and Research</td>
<td>9</td>
</tr>
<tr>
<td>82-388</td>
<td>Understanding Second Language Fluency</td>
<td>9</td>
</tr>
<tr>
<td>82-480</td>
<td>Social and Cognitive Aspects of Bilingualism</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: In consultation with the concentration advisor, students may substitute a Modern Languages course elective with one related to language analysis, language learning, or acquisition of language and culture from the listings in Russian Studies or from another department. Examples: 80-180 Nature of Language, 85-421 Language and Thought. In addition, students may choose to take 82-580 Senior Seminar in Modern Languages (3 units).

Russian Studies and Interdisciplinary Electives (5 courses, 39 units minimum)

Complete two courses from Russian Studies Electives or one course from Interdisciplinary Electives in consultation with the concentration advisor.

Russian Studies Electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-293</td>
<td>Russian Cinema: From the Bolshevik Revolution to Putin’s Russia</td>
<td>Var.</td>
</tr>
<tr>
<td>82-391</td>
<td>Advanced Russian I – Berlin/Paris/New York/Harbin</td>
<td>9</td>
</tr>
<tr>
<td>82-392</td>
<td>Advanced Russian II: Great Short Works</td>
<td>9</td>
</tr>
<tr>
<td>82-394</td>
<td>Russian for Heritage Speakers: Babushka’s Russia &amp; Beyond</td>
<td>9</td>
</tr>
<tr>
<td>82-397</td>
<td>Topics in Russian Language &amp; Culture</td>
<td>Var.</td>
</tr>
<tr>
<td>82-599</td>
<td>Russian Studies Thesis</td>
<td>9</td>
</tr>
</tbody>
</table>

* Students may repeat these courses with new topics.

Interdisciplinary Electives:

This list is compiled from possibilities such as but not limited to the following. Students should consult SIO and the concentration advisor for the most up to date interdisciplinary electives appropriate for the Russian Studies curriculum. Courses may be suggested to the concentration advisor for approval as a substitute. Note that not all courses are offered each semester.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-239</td>
<td>Introduction to Film Studies</td>
<td>9</td>
</tr>
<tr>
<td>76-386</td>
<td>Language &amp; Culture</td>
<td>9</td>
</tr>
<tr>
<td>76-387</td>
<td>Writing in the Disciplines</td>
<td>6</td>
</tr>
<tr>
<td>79-205</td>
<td>20th Century Europe</td>
<td>9</td>
</tr>
</tbody>
</table>
toward the concentration.

Students must earn a final grade of "C" or better for these courses to count

**Required History Courses (2 courses, 21 units)**

Students must earn a final grade of "C" or better for these courses to count toward the concentration.

79-200  Introduction to Historical Research & Writing - Sophomore or Junior year 9

79-420  Historical Research Seminar -Fall, Senior year 12

**Required Survey Courses (2 courses, 18 units)**

79-202  Flesh and Spirit: Early Modern Europe, 1400-1750 9

79-203  The Other Europes: The Habsburgs, Communism, & Central/Eastern Europe, 1740-1990 9

79-204  American Environmental History 9

79-205  20th Century Europe 9

79-206  Crime and Punishment in Early Modern Europe 9

79-211  Modern Southeast Asia: Colonialism, Capitalism, and Cultural Exchange 9

79-223  Mexico: From the Aztec Empire to the Drug War 9

79-225  West African History in Film 9

79-226  African History: Earliest Times to 1780 9

79-227  Modern Africa: The Slave Trade to the End of Apartheid 9

79-229  The Origins of the Palestinian-Israeli Conflict, 1880-1948 9

79-230  Arab-Israeli Conflict Since 1948 9

79-231  American Civil Rights Movement: From Garveyism to Black Power 9

79-233  The United States and the Middle East since 1945 9

79-240  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

79-244  Women in American History 9

79-245  Capitalism and Individualism in American Culture 9

79-249  Politics and Social Change in 20th Century America 9

79-261  The Last Emperors: Chinese History and Society, 1600-1900 9

79-262  Modern China: From the Birth of Mao ... to Now 9

79-265  Russian History: Game of Thrones 9

79-266  Russian History and Revolutionary Socialism 9

79-269  Russian History: From Socialism to Capitalism 9

79-288  Bananas, Baseball, and Borders: Latin America and the United States 9

79-291  American Popular Culture and the Entertainment Business: 1800 to the Present 9

79-307  Religion and Politics in the Middle East 9

79-320  Women, Politics, and Protest 9

Social & Political History Elective Courses (5 courses, 42 units minimum)

A minimum of 42 additional History units must be approved with the History advisor. Any History courses not fulfilling another major requirement may be chosen as an elective. Any History (79-xxx) class can count as an SPH elective except for 79-198, 79-200, 79-400, 79-420, 79-449, 79-491. See the History Department website (www.cmu.edu/dietrich/history) or contact the History advisor for the most current elective offerings.

Students may satisfy the elective requirements in SPH with up to 27 units of the following courses offered by other departments in Dietrich College:

73-476  American Economic History 9

76-230  Literature & Culture in the 19th Century 9

76-239  Introduction to Film Studies 9

76-295  Russian Cinema: From the Bolshevik Revolution to Putin's Russia 9

76-449  Race and Media 9

80-125  Introduction to Political Philosophy 9

80-226  Revolutions in Science 9

80-335  Social and Political Philosophy 9

82-208  European Society & Culture Between and After the Two Great Wars of the 20th Cent 9

82-245  New Directions in Hispanic Studies 9

82-247  The Hispanic World: History, Culture and Globalization 9

82-293  Russian Cinema: From the Bolshevik Revolution to Putin's Russia 9

82-327  The Emergence of the German Speaking World 9

82-420  The Crucible of Modernity: Vienna 1900 9

82-427  Nazi and Resistance Culture 9

84-275  Comparative Politics 9

84-308  Political Economy of Latin America 9

84-322  Nonviolent Conflict and Revolution 9

84-324  The Future of Democracy 9

84-325  Contemporary American Foreign Policy 9

84-362  Diplomacy and Statecraft 9
Statistics Concentration (81 UNITS MINIMUM)

In the BHA concentration in Statistics, students develop and master a wide array of skills in computing, mathematics, statistical theory, and the interpretation and display of complex data. In addition, students with a BHA concentration in Statistics gain experience in applying statistical tools to real problems in other fields and learn the nuances of interdisciplinary collaboration.

Mathematics Prerequisites

These courses are not counted as part of your DC Concentration. They may be used to satisfy general education or free elective requirements.

- 21-210 Differential and Integral Calculus
- 21-256 Multivariate Analysis or 21-259 Calculus in Three Dimensions
- 21-240 Matrix Algebra with Applications or 21-242 Matrix Theory

Note: 21-240, 21-241, 21-242 must be completed before taking 36-401 Modern Regression. 21-241 and 21-242 are intended only for students with a very strong mathematical background.

Statistics Core (5 courses, 45 units)

- 36-202 Methods for Statistics & Data Science
- 36-225 Introduction to Statistical Research Methodology
- 36-226 Introduction to Statistical Inference
- 36-350 Statistical Computing
- 36-401 Modern Regression

Statistics Electives (1 course, 9 units)

- 36-402 Advanced Methods for Data Analysis

Data Analysis Electives (1 course, 9 units)

Students must take one course from the Statistics Electives listed below. Students will consult with the Statistics advisor to select the Special Topics and Electives courses that best fit for their areas of interest.

- 36-225 Introduction to Probability Theory
- 36-226 Introduction to Statistical Inference
- 36-350 Statistical Computing
- 36-401 Modern Regression
- 36-402 Advanced Methods for Data Analysis

Machine Learning Core (2 courses, 22 units)

- 15-122 Principles of Imperative Computation
- 15-301 Introduction to Machine Learning (Undergrad)

Machine Learning Elective (1 course, 9 units minimum)

Students must take one course from the ML Electives listed below. Students will consult with the Statistics & Machine Learning advisor to choose an elective that best fits their area of interest. This course may have additional pre-requisites. Keep in mind this is not an exhaustive list and other applicable courses can be reviewed to be approved as an ML elective – please speak with your Statistics & Machine Learning advisor about this.

- 15-122 Principles of Imperative Computation
- 15-301 Introduction to Machine Learning (Undergrad)

Technical Writing Concentration (81 units minimum)

The concentration in Technical Writing is specifically designed to prepare students for successful careers involving scientific, technical, and computer-related communication, including writing and designing for digital media. Technical communicators develop and design web sites, explain science and technology to the public, develop print and multimedia materials, develop information management systems, design and deliver corporate training, and develop support systems for consumer products ranging from software for word processing or personal finances to complex data management systems. The Technical Writing concentration includes with a common core of foundation courses in print and on-line communication as well as a set of prerequisites in math, statistics, and computer programming.

Students with a TW concentration take two Theory/Specialization courses specific to either the Technical Communication or the Scientific and Medical Communication track. In addition, students in the SMC track take two courses in the natural sciences or engineering relevant to their areas of

Statistics & Machine Learning Concentration (81 UNITS MINIMUM)

In the BHA concentration in Statistics & Machine Learning, develop and master a wide array of skills in computing, mathematics, statistical theory, and the interpretation and display of complex data. In addition, students interested in statistical computation, data science, or “Big Data” problems.

Mathematics and Computer Science Prerequisites

These five courses are not counted as part of your DC Concentration. They may be used to satisfy general education or free elective requirements.

- 21-120 Differential and Integral Calculus
- 21-127 Concepts of Mathematics
- 21-256 Multivariate Analysis
- 21-259 Calculus in Three Dimensions
- 21-240 Matrix Algebra with Applications or 21-241 Matrices and Linear Transformations or 21-242 Matrix Theory

Note: 21-240, 21-241, 21-242 must be completed before taking 36-401 Modern Regression. 21-241 and 21-242 are intended only for students with a very strong mathematical background.

Statistics Core (5 courses, 45 units)

- 36-225 Introduction to Probability Theory
- 36-226 Introduction to Statistical Inference
- 36-350 Statistical Computing
- 36-401 Modern Regression
- 36-402 Advanced Methods for Data Analysis

Machine Learning Core (2 courses, 22 units)

- 15-122 Principles of Imperative Computation
- 15-301 Introduction to Machine Learning (Undergrad)

Machine Learning Elective (1 course, 9 units minimum)

Students must take one course from the ML Electives listed below. Students will consult with the Statistics & Machine Learning advisor to choose an elective that best fits their area of interest. This course may have additional pre-requisites. Keep in mind this is not an exhaustive list and other applicable courses can be reviewed to be approved as an ML elective – please speak with your Statistics & Machine Learning advisor about this.

- 15-122 Principles of Imperative Computation
- 15-301 Introduction to Machine Learning (Undergrad)
interest, while TC students take two electives in management, technology, and social issues.

Prerequisite Courses

21-111 Calculus I
21-112 or 21-111 Calculus II
21-120 or 21-120 Differential and Integral Calculus
21-127 Concepts of Mathematics
15-110 Principles of Computing
15-112 or 15-112 Fundamentals of Programming and Computer Science

Technical Writing Core Courses (6 courses, 54 units)

76-26x Survey of Forms (Nonfiction, Fiction, Poetry, or Screenwriting) 9
76-271 Introduction to Professional and Technical Writing 9
76-300 Professional Seminar 3
76-391 Document & Information Design 12
76-487 Web Design 12

Theory/Specialization Courses (2 courses, 18 units minimum)

Complete two courses to deepen your area of specialty in Technical Communication (TC) or Scientific and Medical Communication (SMC). One course must be chosen from among courses designated as Recommended Options. Check with the English department each semester for additional options.

Recommended Options:

76-319 Environmental Rhetoric 9
76-361 Corpus Rhetorical Analysis 9
76-388 Coding for Humanists 9
76-395 Science Writing 9
76-425 Rhetoric, Science, and the Public Sphere 9
76-428 Visual Verbal Communication 9
76-474 Software Documentation 9
76-476 Rhetoric of Science 9
76-481 Introduction to Multimedia Design 12
76-491 Rhetorical Analysis 9
76-494 Healthcare Communications 9

Additional Options include but are not limited to the following:

76-301 Internship 3
76-302 Communication Support Tutoring Practicum 6
76-318 Communicating in the Global Marketplace 9
76-319 Environmental Rhetoric 9
76-325 Intertextuality 9
76-351 Rhetorical Invention 9
76-355 Leadership, Dialogue, and Change 9
76-359 User Experience Methods for Documents 9
76-360 Literary Journalism Workshop 9
76-361 Corpus Rhetorical Analysis 9
76-372 News Writing 9
76-375 Magazine Writing 9
76-378 Literary: Educational Theory and Community Practice 9
76-386 Language & Culture 9
76-388 Coding for Humanists 9
76-389 Rhetorical Grammar 9
76-391 Document & Information Design 12
76-395 Science Writing 9
76-396 Non-Profit Message Creation 9
76-419 Media in a Digital Age 9
76-420 The Cognition of Reading and Writing: Introduction to a Social/Cognitive Process 9
76-425 Rhetoric, Science, and the Public Sphere 9
76-428 Visual Verbal Communication 9
76-472 Topics in Journalism: Storytelling in a Digital Age 9
76-474 Software Documentation 9
76-475 Law, Performance, and Identity 9
76-476 Rhetoric of Science 9
76-481 Introduction to Multimedia Design 12
76-484 Discourse Analysis 9
76-487 Web Design 12
76-491 Rhetorical Analysis 9
39-605 Engineering Design Projects 12

Electives (1 course, 9 units)

Students with a TW concentration take one course outside of English to deepen their area of specialty in their track. Typically, students in the SMC track select courses in the natural sciences, psychology, and social and decision sciences, or (for example) healthcare-related courses in the Heinz School. Students in the TC track typically select courses from engineering, design, HCI, computer science, math or statistics. Students should work with their faculty advisor to select courses that are meaningful for their track.

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

ARCHITECTURE CONCENTRATION (108 UNITS MINIMUM)

Architecture Required Courses (7 courses, 52 units minimum)

48-100 Architecture Design Studio: Foundation I - Fall, 10-15 Freshman year
or 48-095 Spatial Concepts for Non-Architecture Majors
62-122 Digital Media I - Fall, Freshman year 6
62-125 Drawing I - Fall, Freshman year 6
62-123 Digital Media II - Spring, Freshman year 6
62-126 Drawing II - Spring, Freshman year 6
48-240 Historical Survey of World Architecture and Urbanism I - Spring, Freshman year 9
48-241 Modern Architecture - Fall, Sophomore year 9

Architecture Electives (56 units minimum)

A minimum of 56 additional Architecture units must be approved by the Architecture advisor. A list of these selected courses must be filed in the BXA office.

ART CONCENTRATION (108 UNITS MINIMUM)

Transdisciplinary Research Studios (2 courses, 20 units)

Complete two courses:

60-101 Transdisciplinary Research Studio I: Risk, Assignment, Failure 10
60-201 Transdisciplinary Research Studio II: Publics 10
60-202 Transdisciplinary Research Studio III: Futures 10

Media Studios (3 courses, 30 units minimum)

Complete three courses. 3D II mini courses count as half a course:

60-150 2D Media Studio: Drawing 10
60-160 2D Media Studio: Imaging 10
60-131 3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication 10
60-133 3D Media Studio II (mini-3) 5
60-134 3D Media Studio II (mini-4) 5
60-250 2D Media Studio: Painting 10
Design Required Courses (13 courses, 95 units)

Note: Critical Theory I & II are strongly recommended.

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

**Critical Theory I & II are strongly recommended.**

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

- Design Required Courses (13 courses, 95 units)
  - 60-251: 2D Media Studio: Print Media (Fall, Freshman year)
  - 60-110: Electronic Media Studio: Introduction to the Moving Image (Fall, Freshman year)
  - 60-210: Electronic Media Studio: Introduction to Interactivity (Fall, Freshman year)
  - or 60-212: Electronic Media Studio: Interactivity and Computation for Creative Practice (Fall, Freshman year)

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.

- 60-401/402: Senior Studio (Fall, Sophomore year)
- 60-403: Senior Critique Seminar (Fall, Sophomore year)

Advanced Electronic and Time-Based Work (ETB) (course numbers 60-410 through 60-429) (Fall, Sophomore year)

Advanced Sculpture, Installation and Site-Work (SIS) (course numbers 60-430 through 60-447) (Fall, Sophomore year)

Advanced Contextual Practice (CP) (course numbers 60-448 through 60-449) (Fall, Sophomore year)

Advanced Drawing, Painting, Print Media and Photography (DP3) (course numbers 60-450 through 60-498) (Fall, Sophomore year)

60-499: Studio Independent Study (Fall, Sophomore year)

* Courses offered intermittently; speak with a BXA advisor to determine course availability.

Critical Studies (2 courses, 18 units)

- 60-205: Critical Theory in Art III -Fall (Fall, Sophomore year)
- 60-206: Critical Theory in Art IV -Spring (Fall, Sophomore year)

Note: Critical Theory I & II are strongly recommended.

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 (Spring, Sophomore year)
- 60-400: Senior Review -Spring (Spring, Senior year)

**DESIGN CONCENTRATION (108 UNITS MINIMUM)**

Design Required Courses (13 courses, 95 units)

- 51-101: Studio: Survey of Design (Fall, Freshman year)
- 51-121: Visualizing (Fall, Freshman year)
- 51-171: Placing (Fall, Freshman year)
- 51-102: Design Lab: Michigan (Spring, Freshman year)
- 51-122: Collaborative Visualizing (Spring, Freshman year)
- 51-172: Systems (Spring, Freshman year)

Choose Two Studios (Fall, Sophomore year): 4.5+4.5

- 51-225: Communications Studio I: Understanding Form & Context (Spring, Sophomore year)
- 51-245: Products Studio I: Understanding Form & Context (Spring, Sophomore year)
- 51-265: Environments Studio I: Understanding Form & Context (Spring, Sophomore year)

Choose Two Corresponding Labs (Fall, Sophomore year): 4.5+4.5

- 51-227: Prototyping Lab I: Communications (Spring, Sophomore year)
- 51-247: Prototyping Lab I: Products (Spring, Sophomore year)
- 51-267: Prototyping Lab I: Environments (Spring, Sophomore year)

- 51-271: How People Work (Fall, Sophomore year)
- 51-371: Futures I (Fall, Junior year or later)
- 51-373: Futures II (Fall, Junior year or later)

Design Electives (13 units)

A minimum of 13 additional Design units must be approved by the Design advisor. A list of these selected courses must be filed in the BXA office.

**DRAMA CONCENTRATION (108 UNITS MINIMUM)**

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

Note: There is no BHA Acting or Musical Theatre option.

Required Courses for All Concentration Options (5 courses, 20 units)

54-175-54-176: Conservatory Hour-Conservatory Hour (Fall, Sophomore year)

54-177: Foundations of Drama I (Fall, Sophomore year)

54-281: Foundations of Drama II (Fall, Sophomore year)

54-381: Special Topics in Drama: History, Literature and Criticism (Fall, Sophomore year)

Work with Drama Faculty Option Coordinator to Approve Concentration Option (88 units minimum):

Design Required Courses (2 courses, 26 units)

54-151-54-152: Stagecraft-Stagecraft (Fall, Sophomore year)

A minimum of 62 additional Design units must be approved by the Design faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Directing Required Courses (10 courses, 52 units)

54-121-54-122: Directing I: Sources-Directing I: Sources (Fall, Sophomore year)

54-221-54-222: Directing II: Fundamentals-Directing II: Fundamentals (Fall, Sophomore year)

54-159-54-159: Production Practicum-Production Practicum (Fall, Sophomore year)

54-517: Director's Colloquium (Fall, Sophomore year)

A minimum of 36 additional Directing units must be approved by the Directing faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Dramaturgy Required Courses (9 courses, 53 units minimum)

54-109: Dramaturgy 1: Approaches to Text (Fall, Sophomore year)

54-184: Dramaturgy 2: Introduction to Production Dramaturgy (Fall, Sophomore year)

54-121: Directing I: Sources (Fall, Sophomore year)

54-159-54-159: Production Practicum-Production Practicum (Fall, Sophomore year)

54-200-54-200: Dramaturgy Forum-Dramaturgy Forum (Fall, Sophomore year)

A minimum of 29 additional Dramaturgy units must be approved by the Dramaturgy faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Production Technology and Management Required Courses (2 courses, 26 units)

54-151-54-152: Stagecraft-Stagecraft (Fall, Sophomore year)

A minimum of 62 additional PTM units must be approved by the PTM faculty option coordinator. A list of these selected courses must be filed in the BXA office.

**MUSIC CONCENTRATION (108 UNITS MINIMUM)**

Options available in the following areas: 1) Music Performance (instrumental, piano, organ, voice), 2) Composition 3) Musicology, 4) Audio Recording & Production 5) Sound Theory & Practice
Required Course for All Concentration Options (1 course, 9 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-152</td>
<td>Harmony I</td>
<td>9</td>
</tr>
<tr>
<td>or 57-149</td>
<td>Basic Harmony I</td>
<td></td>
</tr>
</tbody>
</table>

Work with Music Advisor to Approve Concentration Option (99 units minimum):

Music Performance and Composition Required Courses (12 courses, 76 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-161</td>
<td>Eurhythmics I</td>
<td>3</td>
</tr>
<tr>
<td>(recommended co-requisite: 57-181)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
<td></td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
<td></td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>(co-requisite: 57-188)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
<tr>
<td>57-49x</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>

A minimum of 23 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Musicology Required Courses (8 courses, 45 units)

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

Choose 36 units from:

<table>
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<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</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>9</td>
</tr>
<tr>
<td>57-404</td>
<td>String Quartet: A Social History</td>
<td>9</td>
</tr>
<tr>
<td>57-405</td>
<td>Concerto: Virtuosity and Contrast</td>
<td>9</td>
</tr>
<tr>
<td>57-409</td>
<td>Puccini’s Operas</td>
<td>9</td>
</tr>
<tr>
<td>57-427</td>
<td>Advanced Seminar in Film Musicology</td>
<td>9</td>
</tr>
<tr>
<td>57-476</td>
<td>How Music Works: An Affective History</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</td>
<td>6</td>
</tr>
<tr>
<td>57-485</td>
<td>History of the Symphony</td>
<td>9</td>
</tr>
</tbody>
</table>

A minimum of 18 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Audio Recording & Production Required Courses (7 courses, 40 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>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>or 57-171</td>
<td>Introduction to Music Technology (self-paced)</td>
<td></td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
<td></td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
<td></td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>(co-requisite: 57-188)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
<td>6</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 59 units from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
<td>9</td>
</tr>
<tr>
<td>or 57-150</td>
<td>Basic Harmony II</td>
<td></td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
<td>3</td>
</tr>
</tbody>
</table>

or 57-186 Advanced Solfege II

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-104</td>
<td>Introduction to Computing for Creative Practice</td>
<td>10</td>
</tr>
<tr>
<td>18-090</td>
<td>Twisted Signals: Multimedia Processing for the Arts</td>
<td>10</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
<td>9</td>
</tr>
<tr>
<td>54-166</td>
<td>Introduction to Sound Design for Theatre</td>
<td>6</td>
</tr>
<tr>
<td>54-275</td>
<td>History of Sound Design</td>
<td>3</td>
</tr>
<tr>
<td>54-666</td>
<td>Production Audio</td>
<td>6</td>
</tr>
<tr>
<td>57-344</td>
<td>Experimental Sound Synthesis</td>
<td>9</td>
</tr>
<tr>
<td>57-421</td>
<td>Exploded Ensemble</td>
<td>6</td>
</tr>
<tr>
<td>57-425</td>
<td>Expanded Music Performance</td>
<td>9</td>
</tr>
<tr>
<td>57-427</td>
<td>Advanced Seminar in Film Musicology</td>
<td>9</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-622</td>
<td>Independent Study in Sound Recording Production</td>
<td>3</td>
</tr>
<tr>
<td>60-131</td>
<td>3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication</td>
<td>10</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Students completing an IDEATe minor may double-count up to two of the IDEATe minor courses towards the Audio Recording & Production concentration.

Sound Theory & Practice Required Courses (7 courses, 47 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>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>or 57-171</td>
<td>Introduction to Music Technology (self-paced)</td>
<td></td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
<td></td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
<td></td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>(co-requisite: 57-188)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
<tr>
<td>18-090</td>
<td>Twisted Signals: Multimedia Processing for the Arts</td>
<td>10</td>
</tr>
<tr>
<td>57-191</td>
<td>Music Since 1945</td>
<td>9</td>
</tr>
<tr>
<td>57-616</td>
<td>Independent Study in Sound Studies</td>
<td>9</td>
</tr>
</tbody>
</table>

Choose 52 units from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
<td>9</td>
</tr>
<tr>
<td>or 57-150</td>
<td>Basic Harmony II</td>
<td></td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
<td>3</td>
</tr>
<tr>
<td>or 57-186</td>
<td>Advanced Solfege II</td>
<td></td>
</tr>
<tr>
<td>15-104</td>
<td>Introduction to Computing for Creative Practice</td>
<td>10</td>
</tr>
<tr>
<td>15-322</td>
<td>Introduction to Computer Music (pre-requisite: 15-112)</td>
<td>9</td>
</tr>
<tr>
<td>15-323</td>
<td>Computer Music Systems and Information Processing (pre-requisite: 15-122)</td>
<td>9</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
<td>9</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-343</td>
<td>Music, Technology, and Culture</td>
<td>9</td>
</tr>
<tr>
<td>57-344</td>
<td>Experimental Sound Synthesis</td>
<td>9</td>
</tr>
<tr>
<td>57-347</td>
<td>Electronic and Computer Music</td>
<td>6</td>
</tr>
<tr>
<td>(pre-requisite: 57-101 or 57-171)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57-421</td>
<td>Exploded Ensemble</td>
<td>6</td>
</tr>
<tr>
<td>57-425</td>
<td>Expanded Music Performance</td>
<td>9</td>
</tr>
<tr>
<td>57-438</td>
<td>Multitrack Recording</td>
<td>9</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-829</td>
<td>Contemporary Soundscapes</td>
<td>9</td>
</tr>
<tr>
<td>60-131</td>
<td>3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication</td>
<td>10</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Students completing an IDEATe minor may double-count up to two of the IDEATe minor courses towards the Sound Theory & Practice concentration.
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 QPA.

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 General Education coursework, 2) CFA concentration coursework, and 3) MCS concentration coursework.

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 associate director 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 for their fine arts concentration 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 General Education</td>
</tr>
<tr>
<td>II. MCS Concentration</td>
</tr>
<tr>
<td>III. CFA Concentration</td>
</tr>
<tr>
<td>IV. Free Electives</td>
</tr>
</tbody>
</table>

BSA General Education

(18 courses, 129 units minimum)
- Mathematics (2 courses, 20 units, 21-120 and 21-122 or 21-124 required)
- Science (3 courses, 31 units, 03-121, 09-105, and 33-121 or 33-151 required)
- First-year Courses (2 courses, 12 units, 76-101 and 99-101 required)
- ENGAGE (3 courses, 3 units)
- Cultural/Global Understanding (1 course, 9 units)
- Humanities and Social Sciences (2 courses, 18 units)
- BXA Required Courses (5 courses, 36 units minimum, 52-190 or 52-291, 52-391, 52-392, 52-401, 52-402)

Technical Breadth Requirements (5 courses, 51 units)

As a 21st Century practicing scientist or mathematician, our graduates will work with others from a variety of technical backgrounds. Therefore, all of our students will be broadly trained within the technical fields of science and math. Students will fulfill this training by completing five (5) introductory technical courses in the Mellon College of Science at Carnegie Mellon University.

A student must take the five (5) courses listed below. AP/IB/Cambridge credit may be used to fulfill some of these requirements, but STEM electives must be taken at CMU or at another university for transfer credit to reach the total of five (5) Technical Breadth courses. A list of STEM electives can be found in the MCS general education requirements (http://

coursecatalog.web.cmu.edu/schools-colleges/melloncollegeofscience/ #generaleducationrequirements#textcontainer)

Mathematics (2 courses, 20 units)

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-120</td>
</tr>
<tr>
<td>21-122</td>
</tr>
<tr>
<td>or 21-124</td>
</tr>
</tbody>
</table>

Science (3 courses, 31 units)

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-121</td>
</tr>
<tr>
<td>09-105</td>
</tr>
<tr>
<td>33-121</td>
</tr>
<tr>
<td>or 33-151</td>
</tr>
</tbody>
</table>

Nontechnical Breadth Requirements (8 courses, 42 units)

MCS aspires for all of our undergraduates to leave our campus with a strong sense of personal integrity, social responsibility, ethics, working with diverse others, global engagement, and personal health and well-being. The following non-technical breadth requirements will require students to develop a personalized plan for their course selection and meta-curricular participation to maximize their CMU experience. Our graduates will be well trained to be life-long and life-wide learners that will lead the scientific community and the world at large.

All candidates for BSA degree must complete the following non-technical breadth requirements:

First-year Courses (2 courses, 12 units)

76-101 | Interpretation and Argument | 9 |
| or 76-102 | Advanced First Year Writing: Special Topics |
| or 76-106 | Writing about Literature, Art and Culture |
| & 76-107 | Writing about Data |
| & 76-108 | Writing about Public Problems |

All undergraduate students must complete the First-Year Writing requirement—the Department of English does not accept any Advanced Placement exemptions. This requirement can be completed in two different ways. Enroll in one of two full-semester courses 101 or 102 (by invitation only), 9 units, or enroll in two of three half-semester mini courses (back-to-back within a single semester) 106/107/108, 4.5 + 4.5 units.

COURSE OPTIONS AND TOPICS: www.cmu.edu/hss/english/first_year/index.html

99-101 | Computing @ Carnegie Mellon | 3 |

ENGAGE (3 courses, 3 units)

The ENGAGE courses are self-directed learning opportunities (using the MyCORE online platform) designed to enhance students’ engagement with wellness and community service. Choose three courses from the list below:

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>38-110</td>
</tr>
<tr>
<td>38-230</td>
</tr>
<tr>
<td>38-330</td>
</tr>
<tr>
<td>38-430</td>
</tr>
</tbody>
</table>

Cultural/Global Understanding (1 course, 9 units)

Cultural or global understanding course(s) may be taken at any time. Nine (9) or more units from the following group of courses will fulfill this requirement. Any student who finds an appropriate Carnegie Mellon course not on the list below that might fulfill this requirement should contact their academic advisor to review the course description to determine if it can be substituted. Cultural and global understanding courses that are taken while studying abroad can be used to fulfill this category. In addition, transfer courses will also be considered for this category. However, this course requirement cannot be satisfied with AP/IB/Cambridge exam credit.

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-173</td>
</tr>
<tr>
<td>57-209</td>
</tr>
<tr>
<td>57-306</td>
</tr>
<tr>
<td>70-342</td>
</tr>
<tr>
<td>76-211</td>
</tr>
<tr>
<td>76-232</td>
</tr>
<tr>
<td>76-239</td>
</tr>
<tr>
<td>76-241</td>
</tr>
<tr>
<td>76-386</td>
</tr>
</tbody>
</table>
Humanities and Social Sciences (2 courses, 18 units)
To fulfill this requirement, students must complete a minimum of two (2) non-technical courses totaling at least 18 units in the Tepper School of Business and/or the Dietrich College of Humanities and Social Sciences. Courses counted toward the Cultural/Global Understanding requirement, and 76-101, do not count toward this requirement.

Check our website for courses from DC, CFA, and Tepper that may not be used (http://www.cmu.edu/mcs/undergrad/advising/hss-finearts/deletions.html) to satisfy this requirement because they are too technical in nature, plus a list of courses in other colleges (including SCS, CIT, Tepper, and Heinz College) that do satisfy this requirement. (http://www.cmu.edu/mcs/undergrad/advising/hss-finearts/additions.html) this requirement.

BXA Required Courses (5 courses, 36 units minimum)
BXA-specific courses give students the opportunity to integrate their areas of concentration by focusing on interdisciplinary approaches and arts-based research techniques.

<table>
<thead>
<tr>
<th>BXA Seminar I: Building the Wunderkammer</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-190</td>
</tr>
<tr>
<td>or 52-291</td>
</tr>
<tr>
<td>BXA Seminar II: Transferring Knowledge</td>
</tr>
<tr>
<td>52-391</td>
</tr>
<tr>
<td>BXA Junior Portfolio</td>
</tr>
<tr>
<td>52-392</td>
</tr>
<tr>
<td>BXA Seminar III: Deconstructing Disciplines</td>
</tr>
<tr>
<td>52-401</td>
</tr>
<tr>
<td>BXA Seminar IV: Capstone Project Research</td>
</tr>
<tr>
<td>52-402</td>
</tr>
<tr>
<td>BXA Seminar V: Capstone Project Production</td>
</tr>
</tbody>
</table>

Mellon College of Science Concentration
(number of courses vary, 114-134 units)
BSA students declare one of the following concentrations, through consultation with their BXA advisor and the MCS concentration advisors. A completed MCS Concentration Declaration form must be approved by the concentration advisor and submitted to the BXA office, by spring mid-semester break of the student’s first year.

- Biological Sciences (114 units)
- Chemistry (121 units)
- Mathematical Sciences (123 units)
- Neurobiology (114 units)
- Physics (134 units)

BSA students who are admitted as freshmen are undeclared until they have met with a concentration advisor and have submitted their signed Declaration form. BSA students who are admitted through internal transfer must have chosen an MCS concentration at the time of their application (which serves as declaration). All BSA students wishing to change their MCS concentration at any time following the initial declaration must meet with the advisor of their intended concentration area to complete a new Declaration form, which will be reviewed during the internal transfer application period.

Biological Sciences Concentration (114 units minimum)

Biological Sciences Required Courses (11 courses, 96 units minimum)

<table>
<thead>
<tr>
<th>03-201</th>
<th>Undergraduate Colloquium for Sophomores</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-220</td>
<td>Genetics (co-requisite: 03-343)</td>
<td>9</td>
</tr>
<tr>
<td>03-231</td>
<td>Honors Biochemistry - Spring, Sophomore year</td>
<td>9</td>
</tr>
<tr>
<td>03-320</td>
<td>Cell Biology - Fall, Junior year</td>
<td>9</td>
</tr>
<tr>
<td>03-343</td>
<td>Experimental Techniques in Molecular Biology - Fall, Junior year</td>
<td>12</td>
</tr>
<tr>
<td>09-106</td>
<td>Modern Chemistry II</td>
<td>10</td>
</tr>
<tr>
<td>09-207</td>
<td>Techniques in Quantitative Analysis</td>
<td>9</td>
</tr>
<tr>
<td>09-208</td>
<td>Techniques for Organic Synthesis and Analysis</td>
<td></td>
</tr>
<tr>
<td>or 03-344</td>
<td>Experimental Biochemistry</td>
<td>9</td>
</tr>
<tr>
<td>or 03-345</td>
<td>Experimental Cell and Developmental Biology</td>
<td></td>
</tr>
<tr>
<td>or 03-346</td>
<td>Experimental Neuroscience</td>
<td>9</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>33-122</td>
<td>Physics II for Biological Sciences &amp; Chemistry Students</td>
<td>9</td>
</tr>
</tbody>
</table>

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 (121 units minimum)

Chemistry Required Courses (14 courses, 103 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 |
| or 09-345 | Physical Chemistry (Thermo): Macroscopic Principles of Physical Chemistry |
| 09-348 | Inorganic Chemistry                     | 10 |
| 09-221 | Laboratory I: Introduction to Chemical Analysis | 12 |
Neurobiology Required Courses (12 courses, 96 units)

- Molecules to Mind (03-161) 9
- Biological Foundations of Behavior (85-219) 9
- Undergraduate Colloquium for Sophomores (03-201) 2
- Genetics - Fall, Sophomore year (03-220) 9
- Honors Biochemistry - Spring, Sophomore year (03-231) 9
- Cell Biology - Fall, Junior year (03-320) 9
- Introduction to Biological Laboratory Practices - Fall, Junior year (03-342) 1
- Experimental Techniques in Molecular Biology - Fall, Junior year (03-343) 12
- Cellular Neuroscience (03-362) 9
- Systems Neuroscience (03-363) 9
- Organic Chemistry I (09-217) 9
- Laboratory: Organic Synthesis and Analysis (09-222) 12
- Laboratory III: Molecular Design and Synthesis (09-321) 12
- Biogenic Chemistry Laboratory (09-323) 9
- Professional Communication Skills in Chemistry (09-204) 3
- Undergraduate Seminar I - Undergraduate Seminar II: Safety and Environmental Issues for Chemists - Undergraduate Seminar III (09-201-09-202) 3
- Undergraduate Seminar VI (09-402) 3
- Physics II for Biological Sciences & Chemistry Students (33-122) 9

Note: Students who have a strong chemistry background, should enroll in 09-107 rather than 09-105. Students who complete 09-107 with an "A" grade will be exempted from the requirement to take 09-106 Modern Chemistry II.

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 Required Courses (9 courses, 87 units minimum)

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

- Principles of Computing (15-110) 10
- Concepts of Mathematics (21-127) 10
- Discrete Mathematics (21-228) 9
- Matrices and Linear Transformations (21-241) 10
- Matrix Theory (21-242) 9
- Calculus in Three Dimensions (21-259) 9
- Multidimensional Calculus (21-268) 9
- Differential Equations (21-269) 9
- Introduction to Ordinary Differential Equations (21-261) 9
- Physical Analysis (21-331) 10
- Principles of Real Analysis I (21-355) 9
- Algebraic Structures (21-373) 9
- Physics II for Engineering and Physics Students (33-142) 10
- Matter and Interactions II (33-152) 10

Mathematical Sciences Electives (2 courses, 18 units)
Students with a Music concentration should take 21-469 Computational Introduction to Partial Differential Equations.

Mathematical Sciences, Statistics, or Computer Science Electives (2 courses, 18 units)
May be computer science course above the 100-level, mathematical science courses beyond the calculus sequence, and statistics courses at the level of 36-225 or higher.

Neurobiology Electives (2 courses, 18 units)
One course must be an advanced elective selected from 03-33x or higher.

Physics Concentration (134 units minimum)

Physics Required Courses (16 courses, 116 units)

- Calculus in Three Dimensions (21-259) 9
- Experimental Physics (33-104) 9
- Physics II for Engineering and Physics Students (33-142) 12
- Modern Physics Laboratory (33-154) 10
- Quantum Physics (33-301) 10
- Modern Physics Laboratory (33-302) 10
- Modern Physics Laboratory (33-311) 10
- Physics of Musical Sound (33-114) 9

Qualifying Physics Electives (2 courses, 18 units)
Two courses to be pre-approved by the Physics Department.

- Two Qualifying Physics Electives (33-xxx) 18

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

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 (7 courses, 52 units minimum)

- Architecture Design Studio: Foundation I - Fall, Freshman year (48-100) 10-15
- Spatial Concepts for Non-Architecture Majors (48-095) 10-15
- Digital Media I - Fall, Freshman year (62-122) 6
- Drawing I - Fall, Freshman year (62-125) 6
- Digital Media II - Spring, Freshman year (62-123) 6
- Drawing II - Spring, Freshman year (62-126) 6
- Historical Survey of World Architecture and Urbanism I - Spring, Freshman year (48-240) 9
- Modern Architecture - Fall, Sophomore year (48-241) 9

Architecture Electives (56 units minimum)
A minimum of 56 additional Architecture units must be approved by the Architecture advisor. A list of these selected courses must be filed in the BXA office.
ART CONCENTRATION (108 UNITS MINIMUM)

Transdisciplinary Research Studios (2 courses, 20 units)
Complete two courses:
- 60-101 Transdisciplinary Research Studio I: Risk, Agency, Failure 10
- 60-201 Transdisciplinary Research Studio II: Publics 10
- 60-202 Transdisciplinary Research Studio III: Futures 10

Media Studios (3 courses, 30 units minimum)
Complete three courses. 3D II mini courses count as half a course:
- 60-133 3D Media Studio II (mini-3) 5
- 60-134 3D Media Studio II (mini-4) 5
- 60-250 2D Media Studio: Painting 10
- 60-251 2D Media Studio: Print Media 10
- 60-110 Electronic Media Studio: Introduction to the Moving Image 10
- 60-210 Electronic Media Studio: Introduction to Interactivity or 60-212 Electronic Media Studio: Interactivity and Computation for Creative Practice

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.
- 60-401/402 Senior Studio 10
- 60-403 Senior Critique Seminar 10
- Advanced Electronic and Time-Based Work (ETB) (course numbers 60-410 through 60-429) 10
- Advanced Sculpture, Installation and Site-Work (SIS) (course numbers 60-430 through 60-447) 10
- Advanced Contextual Practice (CP) (course numbers 60-448 through 60-449) 10
- Advanced Drawing, Painting, Print Media and Photography (DP3) (course numbers 60-450 through 60-498) 10
- 60-499 Studio Independent Study (one only) 10

* Courses offered intermittently; speak with a BXA advisor to determine course availability.

Critical Studies (2 courses, 18 units)
- 60-205 Critical Theory in Art III - Fall 9
- 60-206 Critical Theory in Art IV - Spring 9

Note: Critical Theory I & II are strongly recommended.

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)

Design Required Courses (13 courses, 95 units)
- 51-101 Studio: Survey of Design (Fall, Freshman year) 10
- 51-121 Visualizing (Fall, Freshman year) 10
- 51-171 Placing (Fall, Freshman year) 10
- 51-102 Design Lab (Spring, Freshman year) 10
- 51-122 Collaborative Visualizing (Spring, Freshman year) 10
- 51-172 Systems (Spring, Freshman year) 9
- Choose Two Studios (Fall, Sophomore year): 4.5+4.5
  - 51-225 Communications Studio I: Understanding Form & Context
  - 51-245 Products Studio I: Understanding Form & Context
  - 51-265 Environments Studio I: Understanding Form & Context
- Choose Two Corresponding Labs (Fall, Sophomore year): 4.5+4.5
  - 51-227 Prototyping Lab I: Communications or 51-247 Prototyping Lab I: Products
  - 51-267 Prototyping Lab I: Environments
- 51-271 How People Work (Fall, Sophomore year) 9
- 51-371 Futures I (Fall, Junior year or later) 4.5
- 51-373 Futures II (Fall, Junior year or later) 4.5

Design Electives (13 units)
A minimum of 13 additional Design units must be approved by the Design advisor. A list of these selected courses must be filed in the BXA office.

DRAMA CONCENTRATION (108 UNITS MINIMUM)

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

Note: There is no BHA Acting or Musical Theatre option.

Required Courses for All Concentration Options (5 courses, 20 units)
- 54-175-54-176 Conservatory Hour-Conservatory Hour 2
  (one unit each)
- 54-177 Foundations of Drama I 6
- 54-281 Foundations of Drama II 6
  (prerequisite: 54-177)
- 54-381 Special Topics in Drama: History, Literature and Criticism 6

Work with Drama Faculty Option Coordinator to Approve Concentration Option (88 units minimum):

Design Required Courses (2 courses, 26 units)
- 54-151-54-152 Stagecraft-Stagecraft 26
  (13 units + 13 units)

A minimum of 62 additional Design units must be approved by the Design faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Directing Required Courses (10 courses, 52 units)
- 54-121-54-122 Directing I: Sources-Directing I: Sources 18
- 54-221-54-222 Directing II: Fundamentals-Directing II: Fundamentals 18
- 54-159-54-159 Production Practicum-Production Practicum 12
  (two times, 12 units total)
- 54-517 Director’s Colloquium (four times, 4 units total) 1

A minimum of 36 additional Directing units must be approved by the Directing faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Dramaturgy Required Courses (9 courses, 53 units minimum)
- 54-109 Dramaturgy 1: Approaches to Text 9
- 54-184 Dramaturgy 2: Introduction to Production 9
  Dramaturgy
- 54-121 Directing I: Sources 9
- 54-159-54-159 Production Practicum-Production Practicum 12
  (two times, 12 units total)
- 54-200-54-200 Dramaturgy Forum-Dramaturgy Forum - Fall 2
  (minimum of two; every semester it is offered while enrolled)

Note: Critical Theory I & II are strongly recommended.

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.
- 54-200 Sophomore Review - Spring 0
- 54-400 Senior Review - Spring 0
A minimum of **29** additional Dramaturgy units must be approved by the Dramaturgy faculty option coordinator. A list of these selected courses must be filed in the BXA office.

Production Technology and Management Required Courses (2 courses, 26 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>54-151-54-152</td>
<td>Stagecraft-Stagecraft (13 units + 13 units)</td>
</tr>
</tbody>
</table>

A minimum of **62** additional PTM units must be approved by the PTM faculty option coordinator. A list of these selected courses must be filed in the BXA office.

**MUSIC CONCENTRATION (108 UNITS MINIMUM)**

Options available in the following areas: 1) Music Performance (instrumental, piano, organ, voice), 2) Composition 3) Musicology, 4) Audio Recording & Production 5) Sound Theory & Practice

Required Course for All Concentration Options (1 course, 9 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-152</td>
<td>Harmony I</td>
</tr>
<tr>
<td>or 57-149</td>
<td>Basic Harmony I</td>
</tr>
</tbody>
</table>

Work with Music Advisor to Approve Concentration Option (99 units minimum):

Music Performance and Composition Required Courses (12 courses, 76 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-161</td>
<td>Eurhythmics I (recommended co-requisite: 57-181)</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History (co-requisite: 57-188)</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
</tr>
<tr>
<td>57-49x</td>
<td>BXA Studio (4 semesters)</td>
</tr>
<tr>
<td>57-xxx</td>
<td>Major Ensemble (4 semesters)</td>
</tr>
</tbody>
</table>

A minimum of **23** additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Musicology Required Courses (8 courses, 45 units)

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

Choose **36** units from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-209</td>
<td>The Beatles</td>
</tr>
<tr>
<td>57-306</td>
<td>World Music</td>
</tr>
<tr>
<td>57-404</td>
<td>String Quartet: A Social History</td>
</tr>
<tr>
<td>57-405</td>
<td>Concerto: Virtuosity and Contrast</td>
</tr>
<tr>
<td>57-409</td>
<td>Puccini's Operas</td>
</tr>
<tr>
<td>57-427</td>
<td>Advanced Seminar in Film Musicology</td>
</tr>
<tr>
<td>57-476</td>
<td>How Music Works: An Affective History</td>
</tr>
<tr>
<td>57-477</td>
<td>Music of the Spirit</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
</tr>
<tr>
<td>57-480</td>
<td>History of Black American Music</td>
</tr>
<tr>
<td>57-485</td>
<td>History of the Symphony</td>
</tr>
</tbody>
</table>

A minimum of **18** additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BX A office.

Audio Recording & Production Required Courses (7 courses, 40 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-101</td>
<td>Introduction to Music Technology</td>
</tr>
<tr>
<td>or 57-171</td>
<td>Introduction to Music Technology (self-paced)</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History (co-requisite: 57-188)</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
</tr>
<tr>
<td>57-338</td>
<td>Sound Editing and Mastering</td>
</tr>
<tr>
<td>57-438</td>
<td>Multitrack Recording</td>
</tr>
</tbody>
</table>

Choose **59** units from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
</tr>
<tr>
<td>or 57-150</td>
<td>Basic Harmony II</td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
</tr>
<tr>
<td>or 57-186</td>
<td>Advanced Solfege II</td>
</tr>
<tr>
<td>15-104</td>
<td>Introduction to Computing for Creative Practice</td>
</tr>
<tr>
<td>18-090</td>
<td>Twisted Signals: Multimedia Processing for the Arts</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
</tr>
<tr>
<td>54-166</td>
<td>Introduction to Sound Design for Theatre</td>
</tr>
<tr>
<td>54-275</td>
<td>History of Sound Design</td>
</tr>
<tr>
<td>54-666</td>
<td>Production Audio</td>
</tr>
<tr>
<td>57-344</td>
<td>Experimental Sound Synthesis</td>
</tr>
<tr>
<td>57-421</td>
<td>Exploded Ensemble</td>
</tr>
<tr>
<td>57-425</td>
<td>Expanded Music Performance</td>
</tr>
<tr>
<td>57-427</td>
<td>Advanced Seminar in Film Musicology</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
</tr>
<tr>
<td>57-622</td>
<td>Independent Study in Sound Recording Production</td>
</tr>
<tr>
<td>60-131</td>
<td>3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity</td>
</tr>
</tbody>
</table>

Note: Students completing an IDeATe minor may double-count up to two of the IDeATe minor courses towards the Audio Recording & Production concentration.

Sound Theory & Practice Required Courses (7 courses, 47 units)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-101</td>
<td>Introduction to Music Technology</td>
</tr>
<tr>
<td>or 57-171</td>
<td>Introduction to Music Technology (self-paced)</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
</tr>
<tr>
<td>or 57-180</td>
<td>Basic Solfege I</td>
</tr>
<tr>
<td>or 57-185</td>
<td>Advanced Solfege I</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History (co-requisite: 57-188)</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
</tr>
<tr>
<td>18-090</td>
<td>Twisted Signals: Multimedia Processing for the Arts</td>
</tr>
<tr>
<td>57-911</td>
<td>Music Since 1945</td>
</tr>
<tr>
<td>57-616</td>
<td>Independent Study in Sound Studies</td>
</tr>
</tbody>
</table>

Choose **52** units from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-153</td>
<td>Harmony II</td>
</tr>
<tr>
<td>or 57-150</td>
<td>Basic Harmony II</td>
</tr>
<tr>
<td>57-182</td>
<td>Solfege II</td>
</tr>
<tr>
<td>or 57-186</td>
<td>Advanced Solfege II</td>
</tr>
<tr>
<td>15-104</td>
<td>Introduction to Computing for Creative Practice</td>
</tr>
<tr>
<td>15-322</td>
<td>Introduction to Computer Music (pre-requisite: 15-112)</td>
</tr>
<tr>
<td>15-323</td>
<td>Computer Music Systems and Information Processing (pre-requisite: 15-122)</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
</tr>
<tr>
<td>57-337</td>
<td>Sound Recording</td>
</tr>
<tr>
<td>57-343</td>
<td>Music, Technology, and Culture</td>
</tr>
<tr>
<td>57-344</td>
<td>Experimental Sound Synthesis</td>
</tr>
</tbody>
</table>
Research techniques. Of concentration by focusing on interdisciplinary approaches and arts-based
BXA-specific courses give students the opportunity to integrate their areas
BXA Required Courses (5 courses, 36 units minimum)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-347</td>
<td>Electronic and Computer Music</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(pre-requisite: 57-101 or 57-171)</td>
<td></td>
</tr>
<tr>
<td>57-421</td>
<td>Exploded Ensemble</td>
<td>6</td>
</tr>
<tr>
<td>57-425</td>
<td>Expanded Music Performance</td>
<td>9</td>
</tr>
<tr>
<td>57-438</td>
<td>Multitrack Recording</td>
<td>9</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
<td>6</td>
</tr>
<tr>
<td>57-829</td>
<td>Contemporary Soundscapes</td>
<td>9</td>
</tr>
<tr>
<td>60-131</td>
<td>3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication</td>
<td>10</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Students completing an IDEATe minor may double-count up to two of the IDEATe minor courses towards the Sound Theory & Practice concentration.

Free Electives

(approximately 1-3 courses, 9-29 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 GPA.

Engineering and Arts Additional Major

Carnegie Mellon recognizes that there are STEM-minded students who want the opportunity to formally incorporate their fine arts talents with their current study in engineering. In order to accommodate students who wish to pursue an education in both areas, while retaining the full engineering curriculum, we offer an additional major that combines the strengths of the College of Fine Arts (CFA) and the College of Engineering (E). The Engineering and Arts (EA) additional major is an interdisciplinary program that offers a unique group of qualified Engineering students the foundation to develop their skills and interests in an area of the fine arts and engineering.

The EA curriculum has two main components: BXA requirements and fine arts concentration requirements. Each student's course of study is structured so it can be completed alongside their primary engineering major.

The EA Additional Major Program is governed by faculty and administrators from both colleges and led by the director of the BXA Intercollege Degree Programs. Students receive extensive advising support. The academic advisors in the BXA Intercollege Degree Programs are the advisors and liaisons between CFA and Engineering. Each student has two additional academic advisors: an advisor in the admittng school of CFA to guide their focus in the arts, and their primary advisor in Engineering to guide their full major in engineering.

EA Curriculum

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. BXA Requirements</td>
<td>36</td>
</tr>
<tr>
<td>II. CFA Concentration</td>
<td>108</td>
</tr>
<tr>
<td>Total EA Additional Major Requirements</td>
<td>144</td>
</tr>
</tbody>
</table>

BXA Requirements

BXA Required Courses (5 courses, 36 units minimum)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-190</td>
<td>BXA Seminar I: Building the Wunderkammer</td>
<td>9</td>
</tr>
<tr>
<td>or 52-291</td>
<td>BXA Seminar II: Transferring Knowledge</td>
<td>9</td>
</tr>
<tr>
<td>52-391</td>
<td>BXA Junior Portfolio</td>
<td>0</td>
</tr>
<tr>
<td>52-392</td>
<td>BXA Seminar III: Deconstructing Disciplines</td>
<td>9</td>
</tr>
<tr>
<td>52-401</td>
<td>BXA Seminar IV: Capstone Project Research</td>
<td>9</td>
</tr>
<tr>
<td>52-402</td>
<td>BXA Seminar V: Capstone Project Production</td>
<td>9</td>
</tr>
</tbody>
</table>

College of Fine Arts Concentration

(number of courses vary, 108 units minimum)

EA students choose one of the following concentrations:

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

ARCHITECTURE CONCENTRATION (108 UNITS MINIMUM)

Architecture Required Courses (7 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, Freshman year</td>
<td>10</td>
</tr>
<tr>
<td>or 48-095</td>
<td>Spatial Concepts for Non-Architecture Majors</td>
<td>10</td>
</tr>
<tr>
<td>62-122</td>
<td>Digital Media I - Fall, Freshman year</td>
<td>6</td>
</tr>
<tr>
<td>62-125</td>
<td>Drawing I - Fall, Freshman year</td>
<td>6</td>
</tr>
<tr>
<td>62-123</td>
<td>Digital Media II - Spring, Freshman year</td>
<td>6</td>
</tr>
<tr>
<td>62-126</td>
<td>Drawing II - Spring, Freshman year</td>
<td>6</td>
</tr>
<tr>
<td>48-240</td>
<td>Historical Survey of World Architecture and Urbanism I - Spring, Freshman year</td>
<td>9</td>
</tr>
<tr>
<td>48-241</td>
<td>Modern Architecture - Fall, Sophomore year</td>
<td>9</td>
</tr>
</tbody>
</table>

Architecture Electives (56 units minimum)

A minimum of 56 additional Architecture units must be approved by the Architecture advisor. A list of these selected courses must be filed in the BXA office.

Art Concentration (108 units minimum)

Transdisciplinary Research Studios (2 courses, 20 units)

Complete two courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-101</td>
<td>Transdisciplinary Research Studio I: Risk, Agency, Failure</td>
<td>10</td>
</tr>
<tr>
<td>60-201</td>
<td>Transdisciplinary Research Studio II: Publics</td>
<td>10</td>
</tr>
<tr>
<td>60-202</td>
<td>Transdisciplinary Research Studio III: Futures</td>
<td>10</td>
</tr>
</tbody>
</table>

Media Studios (3 courses, 30 units minimum)

Complete three courses. 3D II mini courses count as half a course:

<table>
<thead>
<tr>
<th>Course 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>60-131</td>
<td>3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication</td>
<td>10</td>
</tr>
<tr>
<td>60-133</td>
<td>3D Media Studio II (mini-3)</td>
<td>5</td>
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<tr>
<td>60-134</td>
<td>3D Media Studio II (mini-4)</td>
<td>5</td>
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<tr>
<td>60-250</td>
<td>2D Media Studio: Painting</td>
<td>10</td>
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<tr>
<td>60-251</td>
<td>2D Media Studio: Print Media</td>
<td>10</td>
</tr>
<tr>
<td>60-110</td>
<td>Electronic Media Studio: Introduction to the Moving Image</td>
<td>10</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity</td>
<td>10-12</td>
</tr>
</tbody>
</table>

Advanced Studies (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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-401/402</td>
<td>Senior Studio</td>
<td>10</td>
</tr>
<tr>
<td>60-403</td>
<td>Senior Critique Seminar</td>
<td>10</td>
</tr>
<tr>
<td>Advanced Electronic and Time-Based Work (ETB) (course numbers 60-410 through 60-429)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Advanced Sculpture, Installation and Site-Work (SIS) (course numbers 60-430 through 60-447)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Advanced Contextual Practice (CP) (course numbers 60-448 through 60-449)</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
Choose Musicology Required Courses (8 courses, 45 units)
60-499 Studio Independent Study
(one only)

* Courses offered intermittently; speak with a BXA advisor to determine course availability.

Critical Studies (2 courses, 18 units)
60-205 Critical Theory in Art III -Fall
60-206 Critical Theory in Art IV -Spring

Note: Critical Theory I & II are strongly recommended.

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
60-400 Senior Review -Spring

MUSIC CONCENTRATION (108 UNITS MINIMUM)
Options available in the following areas: 1) Music Performance (instrumental, piano, organ, voice), 2) Composition 3) Musicology, 4) Audio Recording & Production 5) Sound Theory & Practice

Required Course for All Concentration Options (1 course, 9 units)
57-152 Harmony I
or 57-149 Basic Harmony I

Work with Music Advisor to Approve Concentration Option (99 units minimum):

Music Performance and Composition Required Courses (12 courses, 76 units)
57-161 Eurhythmics I
or 57-180 Basic Solfege I
or 57-181 Solfege I
or 57-185 Advanced Solfege I

57-173 Survey of Western Music History
(co-requisite: 57-188)
57-178 Repertoire and Listening for Musicians
57-49x BXA Studio (4 semesters)
57-xxx Major Ensemble (4 semesters)

A minimum of 23 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Musicology Required Courses (8 courses, 45 units)
57-283 Music History I
(co-requisite: 57-190)
57-284 Music History II
(co-requisite: 57-289)
57-285 Music History III
(co-requisite: 57-290)
57-189 Introduction to Repertoire and Listening for Musicians
57-190 Repertoire and Listening for Musicians I
57-289 Repertoire and Listening for Musicians II
57-290 Repertoire and Listening for Musicians III
57-611 Independent Study in History

Choose 36 units from:
57-209 The Beatles
57-306 World Music
57-404 String Quartet: A Social History
57-405 Concerto: Virtuosity and Contrast
57-409 Puccini’s Operas
57-427 Advanced Seminar in Film Musicology
57-476 How Music Works: An Affective History
57-477 Music of the Spirit
57-478 Survey of Historical Recording

57-480 History of Black American Music
57-485 History of the Symphony

A minimum of 18 additional Music units must be approved by the Music advisor. A list of these selected courses must be filed in the BXA office.

Audio Recording & Production Required Courses (7 courses, 40 units)
57-101 Introduction to Music Technology
or 57-171 Introduction to Music Technology (self-paced)
57-181 Solfege I
or 57-180 Basic Solfege I
or 57-185 Advanced Solfege I
57-173 Survey of Western Music History
(co-requisite: 57-188)
57-188 Repertoire and Listening for Musicians
57-337 Sound Recording
57-338 Sound Editing and Mastering
57-438 Multitrack Recording

Choose 59 units from:
57-153 Harmony II
or 57-150 Basic Harmony II
57-182 Solfege II
or 57-186 Advanced Solfege II
15-104 Introduction to Computing for Creative Practice
18-090 Twisted Signals: Multimedia Processing for the Arts
33-114 Physics of Musical Sound
54-166 Introduction to Sound Design for Theatre
54-275 History of Sound Design
54-666 Production Audio
57-344 Experimental Sound Synthesis
57-421 Exploded Ensemble
57-425 Expanded Music Performance
57-427 Advanced Seminar in Film Musicology
57-478 Survey of Historical Recording
57-622 Independent Study in Sound Recording Production
60-131 3D Media Studio I: Remote Introduction to Sculpture + Digital Fabrication
60-210 Electronic Media Studio: Introduction to Interactivity

Note: Students completing an iDeATe minor may double-count up to two of the iDeATe minor courses towards the Audio Recording & Production concentration.

Sound Theory & Practice Required Courses (7 courses, 47 units)
57-101 Introduction to Music Technology
or 57-171 Introduction to Music Technology (self-paced)
57-181 Solfege I
or 57-180 Basic Solfege I
or 57-185 Advanced Solfege I
57-173 Survey of Western Music History
(co-requisite: 57-188)
57-188 Repertoire and Listening for Musicians
18-090 Twisted Signals: Multimedia Processing for the Arts
57-911 Music Since 1945
57-616 Independent Study in Sound Studies

Choose 52 units from:
57-153 Harmony II
or 57-150 Basic Harmony II
57-182 Solfege II
or 57-186 Advanced Solfege II
15-104 Introduction to Computing for Creative Practice
15-322 Introduction to Computer Music
(pre-requisite: 15-112)
Academic Policies

Professional and Community Standards

As a condition of enrollment BXA, and as a student in the College of Fine Arts, we expect you to positively contribute to the community in order to fully engage in the intellectual life at CFA. Classrooms, studios, rehearsal and performance spaces, exhibition venues and off-campus curricular destinations are safe spaces for expression and self-identification. Students are expected to treat everyone with respect, regardless of race, country of origin, gender identity and expression, sexual orientation, disability, physical appearance, age, religion, political affiliation or marital status. Lack of respect and harassment includes offensive comments related to any protected personal characteristic, deliberate intimidation, sustained disruption of speech, inappropriate physical contact and unwelcome sexual attention. Violations of this agreement are subject to a response to be determined by the BXA Director and CFA Associate Deans.

Academic Standards and Actions

Academic standards are established to ensure a student is progressing well in their desired CMU degree. Deviation from these standards will prompt an academic action, which notifies both the student and their advisors so appropriate responses can be considered.

At the end of every semester, the academic performance of each BXA student is evaluated based on the established academic standards listed below. As the College of Fine Arts is the unifying body among the BXA degrees, the BXA Director presents recommendations for academic actions to the College of Fine Arts Academic Advisory Council (CFA-AAC) for a final review and council vote in accordance with CFA-AAC protocol. Once the actions are approved, the student will receive written notice of the action. Copies of all communications will also be sent to their BXA, CFA and academic college advisors.

Academic Standards

BXA students are expected to maintain a cumulative QPA of 2.0 or higher and to make satisfactory progress toward their academic degree. Meeting one or more of the following conditions in the semester will result in an academic action. Note that meeting a singular criterion more than once within the current semester is equivalent to meeting 2 or more criteria:

- Semester QPA below 2.0
- Cumulative QPA below 2.0
- Grade of D or R in a required concentration course*
- Grade of R in a general education course
- Completing fewer than 27 factorable units toward intended degree in a semester (free electives do not count toward total)

*as defined by each degree option.

Academic Actions

All academic actions are cumulative and sequential. Should a student resume good standing and later meet the criteria for another academic action, they will continue where they previously left off. All academic actions also transfer between colleges. BXA students who enter the program through internal transfer on action, will continue on the equivalent action. After an action of probation, the student’s BXA advisor will initiate an intervention team. This team will include the student’s BXA college liaison and all three of their associated advisors (BXA, CFA and academic college advisors) to strategize a path to success and discuss available resources.

Students on an academic action are not allowed to overload classes, cross-register for classes or participate in study abroad during the semesters the action is in effect.

First Academic Action:

**Warning:** Warning will be administered if a student meets 1 criterion for an academic action within the current semester.

**Probation:** Probation will be administered if a student meets 2 or more criteria for an academic action.

Second Academic Action:

**Probation:** Probation will be administered if a student was previously on a “Warning” and now meets 1 or more criteria for an academic action within the current semester.

**Suspension:** Suspension will be administered if a student was previously on a “Probation” and now meets 1 or more criteria for an academic action within the current semester.

Third Academic Action:

**Final Probation:** Final Probation will be administered if a student was previously on a “Probation” and now meets 1 or more criteria for an academic action within the current semester.

**Suspension:** Suspension will be administered if a student was previously on a “Final Probation” and now meets only 1 criterion for an academic action within the current semester.

**Drop:** Drop will be administered if a student was previously on Final Probation and now meets 2 or more criteria for an academic action within the given semester. **OR:** If a student was previously on a “Suspension” and now meets 1 or more of the criteria for an academic action within the current semester, the student will also be dropped from the university.

Fourth Academic Action:

**Suspension:** Suspension will be administered if a student was previously on a “Final Probation” and now meets 1 or more of the criteria for an academic action within the current semester.

**Drop:** Drop will be administered if a student was previously on a “Suspension” and now meets 1 or more of the criteria for an academic action within the current semester. (If the student has failed to secure admittance to a different program by this time, the student will also be dropped from the university.)

Fifth Academic Action:

**Drop:** Drop will be administered if a student was previously on a “Suspension” and now meets 1 or more of the criteria for an academic action within the current semester. (If the student has failed to secure admittance to a different program by this time, the student will also be dropped from the university.)

Appeal of Academic Action

Students have the right to appeal academic actions. If a student believes an academic action is inconsistent with BXA policies or merits additional review, a student should submit a formal written appeal, as specified in the initial academic action letter, to the assistant/associate deans listed below, with a copy to the deans of both CFA and their academic college. Appeals should include all relevant materials to substantiate their case and support their concerns.

A student may appeal to the relevant assistant/associate deans within seven days from the date of their academic action letter. All appeals should be in written form, under three pages in length (not including appendices) and authored by the student.

BCSA Appeals should be addressed to:
Kris Letts Kovak, Senior Associate Dean for Academics, College of Fine Arts
Guy Belloch, Associate Dean for Undergraduate Education, Computer Science Department
BHA Appeals should be addressed to:
Kristen Letts Kovak, Senior Associate Dean for Academics, College of Fine Arts
Ana Maria Ulloa-Shields, Assistant Dean and Director, Dietrich College Academic Advisory Center

BSA Appeals should be addressed to:
Kristen Letts Kovak, Senior Associate Dean for Academics, College of Fine Arts
Maggie Braun, Associate Dean for Undergraduate Affairs, Mellon College of Science

If, after carrying out the steps of the process described above, the student believes that the matter has not been adequately resolved, or if no decision has been rendered by the appropriate date, the student may appeal at the university level. To appeal at the university level, the student must present copies of all previously submitted documents and a formal letter of appeal to the provost. The provost or another designated university officer will respond in writing with a final resolution, including the basis for it, within thirty (30) days when possible.

Disabilities
Students with a learning disability or a physical disability are encouraged to email access@andrew.cmu.edu. The circumstances will remain confidential to the extent desired. The university has a formal procedure for documenting disabilities, notifying advisors and faculty, and making arrangements to utilize university resources in support of expressed needs, but will take no action until contacted by the student. The BXA academic advisors will work with the student to coordinate assistance. Please note that requests for accommodations are not retroactive; you must ask that accommodation requests be put in place before you anticipate needing them.

Grading Policies
University grading policies may vary depending on the particular school/department. Please consult the Undergraduate Academic Regulations (http://coursescatalog.web.cmu.edu/servicesandoptions/undergraduateacademicregulations/).

Intercollege Deans’ List
Students who earn 36 graded units (no “pass/no pass” grades) with a grade point average of 3.5 or higher, no “incomplete” and “no grades” qualify for BCSA, BHA or BSA Deans’ List. The BXA Intercollege Deans’ List Honors are posted online each semester.

Intercollege Honors
BXA students who successfully complete a BXA Capstone Project under the guidance of a faculty member will graduate with BCSA, BHA, BSA or EA Intercollege Honors if all of the following conditions are met:
• grade of “A” achieved in 62-401 and 62-402
• overall QPA of 3.25 or higher
• research results presented at Meeting of the Minds Undergraduate Research Symposium

As a citizen of two colleges, a BXA student also has the opportunity to graduate with CFA College Honors, DC College Honors, E College Honors and MCS College Honors. These particular honors are defined by each college. BXA students will receive honors color cords during the BXA/CFA Commencement Honors Ceremony and EA additional major students at the College of Engineering Commencement Honors Ceremony.

University Honors
Students who graduate with an overall QPA of 3.5 or higher will graduate with University Honors. Students will receive an honors medallion during the BXA/CFA Commencement Honors Ceremony.

Internal Transfer/Additional Major Process
For current Carnegie Mellon students who wish to apply to a BXA program, an internal transfer and additional major (EA) application process takes place in both the fall and spring semester. Applications are available online and in the BXA office and are reviewed by a committee of BCSA, BHA, BSA and EA advisors in October and in March. However, certain concentrations consider applications only once a year; please consult with a BXA advisor for guidance on scheduling your application.

All students applying for internal transfer should meet with their current advisor, a BXA advisor, and an advisor in their target area, as well as take preliminary coursework in their target area before applying. For all concentrations, there are required courses that must be taken before an application will be considered; please consult with a BXA advisor for guidance on scheduling these courses.

Current BXA students who wish to change their BXA program (e.g., BHA to BCSA) or change their CFA concentration (e.g., BHA architecture to BHA art) or delineated options within CFA concentrations (e.g., music performance to music composition) must apply for that change through the internal transfer process. Current BHA and BSA students who wish to change their academic college concentration after declaring (e.g., BHA creative writing to BHA psychology, BSA physics to BSA mathematical sciences) must submit a new DC/MCS Concentration Declaration form for approval of that change, which will be reviewed at the internal transfer committee meeting each semester. Current BXA students seeking internal transfer out of BXA into another college program must apply and meet entry requirements to that program.

Study Abroad
Studying abroad is encouraged to broaden BXA students’ interdisciplinary experiences through traditional and non-traditional study abroad, from coursework and artistic studios to for-credit internships, volunteer service and research opportunities.

Courses taken while studying abroad may count toward your BXA concentration requirements, your general education requirements or your free electives. Studying abroad should not delay your graduation, as long as you work with your study abroad advisor and your BXA advisor to plan the most appropriate courses.

The timing and length of program are important considerations while planning. Due to required BXA coursework, students should avoid studying abroad in their last three semesters (junior spring, senior fall/spring). Spending an entire year abroad is not typically possible for BXA students without intending to take an additional semester at Carnegie Mellon. Many students study abroad during the spring of their sophomore year or the fall semester of their junior year, as well during the summer, and over winter and spring breaks. Talk to your BXA academic advisor early in your academic career to identify the best time for study abroad.

When studying abroad, students are still enrolled at Carnegie Mellon. A student never takes a leave of absence to study abroad. Prior to studying abroad, all students must attend a required pre-departure orientation offered by the Office of International Education (OIE). Students must also complete a Study Abroad Transfer Credit (SATC) form prior to departure for study abroad, which must be signed after completion by the BXA advisor. The SATC will guarantee transfer credit for courses taken abroad, and is filled out by the corresponding departments to the coursework being transferred. Unlike regular transfer credit, there is no limit to the number of courses transferable from study abroad, but there may exist stricter limits on the use of coursework to fulfill concentration or general education requirements.

Students will receive credit for courses for which they receive a grade of “C” or better. However, grades received abroad do not count toward a student’s Carnegie Mellon University QPA.

Transfer Credit
Once a BXA student enrolls at Carnegie Mellon University as a degree candidate, they may transfer a maximum of five courses from another institution (excluding official study abroad programs through the CMU Office of International Education) for credit towards their BXA degree. This applies to courses taken at other institutions in the United States, as well as courses taken internationally in the student’s homecountry.

Individual departments may impose stricter limits regarding the number or type of courses students propose to take elsewhere to fulfill requirements. Some departments may not accept transfer credit from online courses.

Students must have prior approval to transfer courses from their BXA advisor, as well as concentration advisors, to use coursework towards requirements. To receive permission, students must complete the BXA Transfer Credit Request form and provide course information (syllabi) to the corresponding department for evaluation of appropriate credit. When the course is finished, official transcripts must be sent to Carnegie Mellon University before credit will be recorded.
Transfer courses must be taken for a letter grade and students must earn a C (2.00) or above (B or above at a community college). Transfer credit is not factored into a student’s CMU QPA.

The following courses must be taken at CMU and cannot be transferred in:

- First-Year Writing Requirement Course (76101, 76102, 76106/7/8)
- 79-104: Global Histories
- 36-200: Statistical Reasoning (AP credit only)
- 99-101: Computing @ Carnegie Mellon

Students currently on university suspension are permitted to take no more than three courses per semester at another institution and no more than a total of five courses.

Withdrawal or Leave of Absence

A student who decides to leave the university must meet with their BXA advisor and complete a Withdrawal or Leave of Absence form. Withdrawal means leaving the university with no intention of returning. Leave of Absence means temporarily leaving the university with a stated intention to return. A withdrawal or leave of absence from the university at any time up to and including the last day of classes (excluding the final examination period), means that grades of W will be recorded for all classes for the semester. Financial responsibility for the semester is dependent upon the date of and the reasons for filing the form. Questions about financial responsibility should be directed to the HUB.

A leave of absence may be voluntary or involuntary. If the leave is voluntary, the student may return any time within four years following the beginning of the leave by filing an Application for Return from Leave of Absence form. If the leave is involuntary, that is, required for academic or disciplinary reasons, the conditions for return will be stated.