Minors Offered by the College of Fine Arts

The College of Fine Arts offers minors in Architecture, Art, Design, Drama, and Music to students from other colleges at Carnegie Mellon University. These minors allow students at Carnegie Mellon to take courses and develop a direction for electives in any of the five schools in CFA. Students in the College of Fine Arts may also earn minors outside of their major within other schools in the College. They may also study any of the minors offered by the other colleges to the University at large, thus taking advantage of the broad educational opportunities available at Carnegie Mellon University.

Minors Offered by the College of Fine Arts:

- Architectural Design Fabrication (available only to B. Arch candidates)
- Architectural Representation and Visualization (available also to B. Arch candidates)
- Architectural Technology
- Architecture
- Architecture History (available also to B. Arch candidates)
- Art
- Building Science (available only to B. Arch candidates)
- Collaborative Piano (available only to Piano majors in the School of Music)
- Conducting (available only to students in the School of Music)
- Design
- Drama
- History of the Arts
- Media Design (IDeATe)
- Music
- Music Education (available only to students in the School of Music)
- Music Technology
- Music Theory
- Musicology
- Photography
- Sonic Arts (IDeATe)
- Sound Design (IDeATe)

Guidelines for students are: 1) except where so designated, CFA students are not eligible to earn a minor in their own school; students from outside CFA may earn a minor in any school in CFA; 2) faculty advisors in the student’s home school (in consultation with the academic officer of the other unit involved) will advise students as to the structuring of the courses in each minor; 3) a minor is not to be considered an overload; rather, through the assistance of faculty advisors it should be integrated into a student’s overall units required for graduation; 4) the advisors will also monitor the student’s development in these minors and keep records in their files which indicate the fulfillment of the course requirements in the minors, as well as in the majors in the student’s own school. Courses listed as possible for the minors may be available, but not all courses are offered every semester. Students should consult with their advisors.

Students interested in earning a minor in any of the CFA schools should contact: Architecture: Heather Workinger; Art: Keni Jefferson; Design: Melissa Cicozi; Drama: Amy Nichols; Music: Sharon Johnston.

Architecture Minors

This sequence is for candidates who intend to develop intellectual links to the architectural profession. The scope of courses offered includes a full spectrum of professional issues in architecture.

**Prerequisite Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-104</td>
<td>Global Histories</td>
<td>9</td>
</tr>
<tr>
<td>or 62-110</td>
<td>Passport to the Arts</td>
<td>9</td>
</tr>
</tbody>
</table>

**Required Courses**

<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</td>
<td>12</td>
</tr>
<tr>
<td>or 48-095</td>
<td>Spatial Concepts for Non-Majors</td>
<td>9</td>
</tr>
<tr>
<td>48-240</td>
<td>Historical Survey of World Architecture and Urbanism I</td>
<td>9</td>
</tr>
</tbody>
</table>

Elective Courses*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-120</td>
<td>Digital Media I</td>
<td>6</td>
</tr>
<tr>
<td>48-121</td>
<td>Drawing I</td>
<td>6</td>
</tr>
<tr>
<td>48-125</td>
<td>Digital Media II</td>
<td>6</td>
</tr>
<tr>
<td>48-126</td>
<td>Drawing II</td>
<td>6</td>
</tr>
<tr>
<td>48-175</td>
<td>Descriptive Geometry</td>
<td>9</td>
</tr>
<tr>
<td>48-351</td>
<td>Human Factors in Architecture</td>
<td>9</td>
</tr>
<tr>
<td>48-324</td>
<td>Structures/Statics</td>
<td>9</td>
</tr>
<tr>
<td>48-452</td>
<td>Real Estate Design and Development</td>
<td>6</td>
</tr>
<tr>
<td>48-455</td>
<td>Urban Design Methods</td>
<td>6</td>
</tr>
<tr>
<td>48-383</td>
<td>Ethics and Decision Making in Architecture</td>
<td>6</td>
</tr>
<tr>
<td>48-xxx</td>
<td>Architecture History (Pre-Approval of coursework required)</td>
<td>9</td>
</tr>
</tbody>
</table>

**Minimum Units:** 54

*Students should consult the Architecture advisor regarding elective choices.

Minor in Architecture History

(available also to B. Arch Candidates)

This sequence is intended for candidates interested in the history of architecture in its many manifestations, including high style and vernacular buildings, western and non-western traditions, built and theoretical works, and rural to urban contexts. Non-architecture majors are required to take 54 units of architectural history. Architecture majors wishing to minor in Architectural History must fulfill the three core required courses in architectural history, plus four additional architectural history electives, for a total of 63 units. Students wishing to pursue the minor should meet with the Architecture advisor to determine if a course is eligible.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-240</td>
<td>Historical Survey of World Architecture and Urbanism I</td>
<td>9</td>
</tr>
<tr>
<td>48-241</td>
<td>Modern Architecture</td>
<td>9</td>
</tr>
</tbody>
</table>

**Elective Courses**

Students wishing to pursue the minor should meet with the Architecture advisor to determine course eligibility for electives.

**Minimum Units:** 54 (non architecture majors)

**Minimum Units:** 63 (architecture majors)

Minor in Architectural Representation and Visualization

This sequence is for candidates who intend to develop particular skills in architectural representation. The Minor in Architectural Representation and Media is intended for those students that want to deepen their knowledge in architectural representation and media and for those who are interested in gaining advanced placement (AMP) in the M.S. programs offered by the School in the areas of Computational Design, Tangible Interaction Design and/or Emerging Media. It is earned by completing the four required media courses and then an additional three elective courses in these areas. Architecture majors wishing to pursue a Minor in Architectural Representation and Visualization must complete the required 33 units and at least an additional 30 units to fulfill the minor for a total of 63 units.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-120</td>
<td>Digital Media I</td>
<td>6</td>
</tr>
<tr>
<td>48-125</td>
<td>Digital Media II</td>
<td>6</td>
</tr>
<tr>
<td>48-126</td>
<td>Drawing I</td>
<td>6</td>
</tr>
<tr>
<td>48-175</td>
<td>Drawing II</td>
<td>6</td>
</tr>
</tbody>
</table>

Elective Courses

Students wishing to pursue the minor should meet with the Architecture advisor to determine course eligibility for electives.

**Minimum Units:** 54 (non architecture majors)

**Minimum Units:** 63 (architecture majors)
**Minors Offered by the College of Fine Arts**

### Elective Courses  
**30-39 units**

- 48-568 Advanced CAD, BIM, and 3D Visualization  
- 48-576 Mapping Urbanism  
- 48-724 Scripting and Parametric Design  
- 48-3xx Architectural Drawing Elective (Pre-Approval of coursework required)  
- 48-xxx Architectural Representation/Visualization Elective (Pre-Approval of coursework required)  

**Minimum Units:** 54 (non-architecture majors)  
**Minimum Units:** 63 (architecture majors)

### Minor in Architectural Technology

This sequence is for candidates who intend to develop intellectual links to the technical aspects of the profession. It is not available to B. Arch Candidates.

#### Prerequisite Courses  
**22 units**

- 33-106 Physics I for Engineering Students  
- 21-120 Differential and Integral Calculus

#### Elective Courses  
**32 units**

- 48-116 Building Physics  
- 48-215 Materials & Assembly  
- 48-324 Structures/Statics  
- 48-315 Environment I: Climate & Energy in Architecture  
- 48-432 Environment II: Design Integration of Active Building Systems  
- 48-752 Zero Energy Housing

**Minimum Units:** 54

### Minor in Building Science

(Available only to B. Arch Candidates)

The Minor in Building Science is intended for those students that want to deepen their knowledge in the building sciences and for those who are interested in gaining advanced placement (AMP) in the M.S. programs offered by the School in the areas of Building Performance & Diagnostics and Sustainable Design. It is earned by completing the two required building technology and three environmental science courses and then an additional three elective courses in the building sciences.

#### Required Course  
**12 units**

- 48-722 Building Performance Modeling

#### Elective Courses  
**45 units**

- 48-795 LEED, Green Design and Building Rating in Global Context  
- 48-721 Building Controls and Diagnostics  
- 48-723 Performance of Advanced Building Systems  
- 48-729 Productivity, Health and the Quality of Buildings  
- 48-749 Special Topics in CD: Critical Perspectives and Technologies  
- 48-752 Zero Energy Housing

**Minimum Units:** 54

### Minor in Architectural Design Fabrication

(Available only to B. Arch Candidates)

The Minor in Architectural Design Fabrication is intended for those who wish to develop focused, disciplinary expertise in both analog and digital material methods for shaping the built environment and become involved in a community of practice dedicated to a rigorous pursuit of making as a mode of architectural research and cultural expression. It is also for students interested in gaining advanced placement in the SoA’s Master of Advanced Architectural Design (MAAD) program.

#### Required Courses  
**33 units**

- 48-545 Digital Fabrication  
- 48-555 Introduction to Architectural Robotics  
- 48-xxx Advanced Synthesis Options Studio with Digital Fabrication Emphasis

#### Elective Courses  
**30 units**

- 48-470 Exploring Pattern Through Lamination  
- 48-473 Hand and Machine Joinery, New Directions  
- 48-531 Fabricating Customization: Prototype  
- 48-564 Furniture Design & Construction  
- 48-xxx Advanced Design Fabrication  
- xx-xxx Pre-approved Design Fabrication Related Course

**Minimum Units:** 63
Art Minor

Concept Studio (choose one) 10 units
- 60-101 Concept Studio: The Self and the Human Being 10
- 60-201 Concept Studio: Space and Time 10
- 60-202 Concept Studio: Systems and Processes 10
- 60-280 Introduction to Contextual Practice 10

Media Studios (choose two) 20 units
- 60-110 Electronic Media Studio: Introduction to the Moving Image 10
- 60-210 Electronic Media Studio: Introduction to Interactivity 10
- 60-131 3D Media Studio I 5
- 60-132 3D Media Studio I 5
- 60-133 3D Media Studio II 5
- 60-134 3D Media Studio II 5
- 60-150 2D Media Studio: Drawing 10
- 60-160 2D Media Studio: Imaging 10
- 60-250 2D Media Studio: Painting 10
- 60-251 2D Media Studio: Print Media 10

Advanced Media (choose two) 20 units
- 60-4xx Advanced ETB: Electives 10
- 60-4xx Advanced SIS: Electives 10
- 60-4xx Advanced DP3: Electives 10
- 60-4xx Advanced CP: Electives 10

Critical Studies (choose one) 9 units
- 60-1xx Art History Elective 9
- 60-2xx Art History Elective 9
- 60-3xx Art History Elective 9

Minimum units: 59

Media Design Minor - IDeATe

The minor in Media Design is offered by the School of Art as part of the Integrative Design, Arts and Technology (IDeATe) network. IDeATe offers students the opportunity to become immersed in a collaborative community of faculty and peers who share expertise, experience, and passions at the intersection of arts and technology. Students will engage in active “learning by doing” in shared labs and maker spaces. The program addresses current and emerging real-world challenges that require disciplinary expertise coupled with multidisciplinary perspectives and collaborative integrative approaches.

The IDeATe undergraduate curriculum consists of eight areas, all of which can also be taken as minors. The themes of these areas integrate knowledge in technology and arts: Game Design, Animation & Special Effects, Media Design, Design for Learning, Sonic Arts, Innovation and Entrepreneurship, Intelligent Environments, and Physical Computing. For more information about the IDeATe network, please see Undergraduate Options (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduatedesignoptions#ideate).

The Media Design minor serves students who are interested in digital mediation of experiences. It explores the interconnected development of technology and content in new media systems and the meaning that arises from the resulting forms. Students learn to design mediated experiences across different platforms, from mobile to large-scale installations. They study the structure and function of different components of mediated experiences. They learn how to synthesize those components and how to connect modular structures for the creation of transmedia experiences.

Curriculum

One Computing Course - Minimum of 9 Units

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-104</td>
<td>Introduction to Computing for Creative Practice 10</td>
</tr>
<tr>
<td>15-110</td>
<td>Principles of Computing 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-112</td>
<td>Fundamentals of Programming and Computer Science 12</td>
</tr>
<tr>
<td>60-210</td>
<td>Electronic Media Studio: Introduction to Interactivity 10</td>
</tr>
<tr>
<td>60-212</td>
<td>Electronic Media Studio: Interactivity and Computation for Creative Practice 12</td>
</tr>
</tbody>
</table>

One IDeATe Portal Course - Minimum of 9 Units

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>62-150</td>
<td>IDeATe Portal: Introduction to Media Synthesis and Analysis 10</td>
</tr>
<tr>
<td>16-223</td>
<td>IDeATe Portal: Creative Kinetic Systems 10</td>
</tr>
<tr>
<td>18-090</td>
<td>Twisted Signals: Multimedia Processing for the Arts 10</td>
</tr>
<tr>
<td>60-218</td>
<td>IDeATe Portal: Real-Time Animation 10</td>
</tr>
<tr>
<td>60-223</td>
<td>IDeATe: Introduction to Physical Computing 10</td>
</tr>
<tr>
<td>99-361</td>
<td>IDeATe Portal 9</td>
</tr>
</tbody>
</table>

IDeATe Media Design Courses - Minimum of 27 Units

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/18-540</td>
<td>Rapid Prototyping of Computer Systems 12</td>
</tr>
<tr>
<td>15-294</td>
<td>Rapid Prototyping Technologies 5</td>
</tr>
<tr>
<td>15-394</td>
<td>Intermediate Rapid Prototyping 5</td>
</tr>
<tr>
<td>16/54-375</td>
<td>IDeATe: Robotics for Creative Practice 10</td>
</tr>
<tr>
<td>24-672</td>
<td>Special Topics in DIY Design and Fabrication 12</td>
</tr>
<tr>
<td>48/53-558</td>
<td>Reality Computing 12</td>
</tr>
<tr>
<td>51-236</td>
<td>Information Design 9</td>
</tr>
<tr>
<td>51-400</td>
<td>Transition Design 9</td>
</tr>
<tr>
<td>51-421</td>
<td>Design Center: Data Visualization 9</td>
</tr>
<tr>
<td>53-312</td>
<td>Guest Experience in Theme Park Design 9</td>
</tr>
<tr>
<td>53-376</td>
<td>360 Story and Sound 12</td>
</tr>
<tr>
<td>53-642</td>
<td>Themed Entertainment Design Studio 12</td>
</tr>
<tr>
<td>54-399</td>
<td>Decoding Media 9</td>
</tr>
<tr>
<td>60-110</td>
<td>Electronic Media Studio: Introduction to the Moving Image 10</td>
</tr>
<tr>
<td>62-362</td>
<td>Activating the Body: Physical Computing and Technology in Performance 10</td>
</tr>
<tr>
<td>62-478</td>
<td>IDeATe: digiTOOL 6</td>
</tr>
<tr>
<td>67-240</td>
<td>Mobile Web Design &amp; Development 9</td>
</tr>
<tr>
<td>76-374</td>
<td>IDeATe - Dietrich College Cuban Interactive Documentary Project 9</td>
</tr>
<tr>
<td>82-285</td>
<td>Podcasting: Language and Culture Through Storytelling 9</td>
</tr>
</tbody>
</table>

Double-Counting

Students may double-count up to two of their Media Design minor courses toward requirements for other majors or minors.

Design Minor

Minoring in Design is a great way for students to diversify their studies and incorporate design skills and thinking into their overall academic experiences. Students who are already School of Design majors are not eligible to earn a Design minor. The 54 required units must be unique to the Design minor. No courses may be double counted.

Requirements and Electives

For a design minor, students must complete 54 units: 36 units of required courses, plus 18 units of design electives.

Required Design Courses

Both of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>51-262</td>
<td>Design Center: CD Fundamentals: Design for Interactions for Communications (formerly CDF) 9</td>
</tr>
<tr>
<td>51-264</td>
<td>Design Center: Product Design Fundamentals: Design for Interactions for Products (formerly IDF) 9</td>
</tr>
</tbody>
</table>

Two of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>51-171</td>
<td>Placing 10</td>
</tr>
</tbody>
</table>
Music Minors

This sequence is for candidates who are majors from any discipline in the university other than music who have some background in music and would like to know more about music.

Admission Requirements:
1. The student must apply to enter the program in the office of the Director of Student Services (CFA 108).

Prerequisite Course 0-3 units
Beginning Piano for Minors is required of students who do not pass a beginning piano proficiency test.
57-294 Beginning Piano Test 0
57-329 Beginning Piano for Minors 3

Required Music Courses 25 units
Basic Harmony I and/or Basic Solfege I are required of students who do not qualify for entrance into Harmony I and/or Solfege I, based on their scores on the theory and solfege placement tests. These classes fulfill the harmony and solfege requirements.
57-152 Harmony I 9
57-161 Eurhythmics I 3
57-161 Solfege I 3
57-173 Survey of Western Music History 9
57-188 Repertoire and Listening for Musicians 1

Required Studio Courses (studio fee is charged) 24 units
57-1xx Elective Studio 6
57-3xx Elective Studio 6
57-3xx Elective Studio 6
57-3xx Elective Studio 6

Elective Courses 18 units
Elective courses are to be chosen from those courses listed for the School of Music in the current course catalog. Performance electives are encouraged. (An audition is required for all School of Music performance ensembles.)

Minor in Music Technology

This sequence is for candidates who are majors from any discipline in the university who have some background in music and would like to know more about music technology.

Note: Students in the School of Music have slightly different requirements for the Minor in Music Technology. See School of Music (http://coursecatalog.web.cmu.edu/collegeoffinearts/schoolofmusic/#minorinmusictechnologyforstudentsintheschoolofmusic).

Admission Requirements
The student must apply to enter the program in the office of the Director of Student Services (CFA 108).

Prerequisite Course 0-3 units
Beginning Piano for Minors is required of students who do not pass a beginning piano proficiency test.
57-294 Beginning Piano Test 0
57-329 Beginning Piano for Minors 3

Required Music Courses 25 units
Basic Harmony I and/or Basic Solfege I are required of students who do not qualify for entrance into Harmony I and/or Solfege I, based on their scores on the theory and solfege placement tests. These classes fulfill the harmony and solfege requirements.
57-152 Harmony I 9
57-161 Eurhythmics I 3
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
</tbody>
</table>

**Sound Recording Courses 21 units**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<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>

**Music Technology/Sound Courses (choose 3) 21 units**

Choose three courses. One of the three courses must be either Introduction to Computer Music or Electronic and Computer Music. (Note that 15-112 is a prerequisite for 15-322; 57-101 or 57-171 is a prerequisite for 57-347.) Other courses may be taken with the permission of the music technology minor advisor.

<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>15-322</td>
<td>Introduction to Computer Music</td>
<td>9</td>
</tr>
<tr>
<td>15-323</td>
<td>Computer Music Systems and Information Processing</td>
<td>9</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>54-505</td>
<td>Ear Training</td>
<td>1</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>57-347</td>
<td>Electronic and Computer Music</td>
<td>6</td>
</tr>
<tr>
<td>57-478</td>
<td>Survey of Historical Recording</td>
<td>6</td>
</tr>
<tr>
<td>60-352</td>
<td>NOISE: Toward a Critical Theory of Sound and Hearing</td>
<td>9</td>
</tr>
</tbody>
</table>

**Required Theory Courses 21 units**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-151</td>
<td>Counterpoint in Theory and Application</td>
<td>6</td>
</tr>
<tr>
<td>57-153</td>
<td>Harmony II</td>
<td>9</td>
</tr>
<tr>
<td>57-408</td>
<td>Form and Analysis</td>
<td>6</td>
</tr>
</tbody>
</table>

**Upper Level Theory Course (choose one) 6 units**

See theory courses on the Music Support Courses Two-Year Rotation list. It is available on the Inside Music website: http://music.cfa.cmu.edu/. A graduate course may be taken with the permission of the instructor.

**Elective Courses 18 units**

Elective courses are to be chosen from those courses listed for the School of Music in the current course catalog.

**Minor in Musicology**

Minimum units required: 70

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**Minor in Music Theory**

This sequence is for candidates who are majors from any discipline in the university who have some background in music and would like to know more about music theory.

Note: Students in the School of Music have slightly different requirements for the Minor in Music Theory. See School of Music (http://coursecatalog.web.cmu.edu/collegeoffinearts/schoolofmusic/#minorinnmusictechnologyforstudentsintheschoolofmusic).

**Admission Requirements**

The student must apply to enter the program in the office of the Director of Student Services (CFA 108).

**Prerequisite Course 0-3 units**

Beginning Piano for Minors is required of students who do not pass a beginning piano proficiency test.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-294</td>
<td>Beginning Piano Test</td>
<td>0</td>
</tr>
<tr>
<td>57-329</td>
<td>Beginning Piano for Minors</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Music Courses 25 units**

Basic Harmony I and/or Basic Solfege I are required of students who do not qualify for entrance into Harmony I and/or Solfege I, based on their scores on the theory and solfege placement tests. These classes fulfill the harmony and solfege requirements.

<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>57-161</td>
<td>Eurhythmics I</td>
<td>3</td>
</tr>
<tr>
<td>57-173</td>
<td>Survey of Western Music History</td>
<td>9</td>
</tr>
<tr>
<td>57-181</td>
<td>Solfege I</td>
<td>3</td>
</tr>
<tr>
<td>57-188</td>
<td>Repertoire and Listening for Musicians</td>
<td>1</td>
</tr>
</tbody>
</table>
This sequence is for candidates who are majors from any discipline in the university who have some background in music and would like to know more about music history.

**Admission Requirements**

The student must apply to enter the program in the office of the Director of Student Services (CFA 108).

**Prerequisite Course**

0-3 units

Beginning Piano for Minors is required of students who do not pass a beginning piano proficiency test.

57-294  Beginning Piano Test

3

**Required Music Courses**

15 units

Basic Harmony I and/or Basic Solfège I are required of students who do not qualify for entrance into Harmony I and/or Solfège I, based on their scores on the theory and solfège placement tests. These classes fulfill the harmony and solfège requirements.

57-152  Harmony I

9

57-161  Eurhythmics I

3

57-181  Solfège I

3

**Required Musicology Courses**

36 units

57-283  Music History I

9

57-284  Music History II

9

57-285  Music History III

9

57-190  Repertoire and Listening for Musicians I

3

57-289  Repertoire and Listening for Musicians II

3

57-290  Repertoire and Listening for Musicians III

3

**Upper Level Musicology Course (choose one)**

6 units

See musicology courses on the Music Support Courses Two-Year Rotation list. It is available on the Inside Music website: http://music.cfa.cmu.edu/. A graduate course may be taken with the permission of the instructor.

**Elective Courses**

18 units

Elective courses are to be chosen from those courses listed for the School of Music in the current course catalog.

Minimum units required: 75

**Sonic Arts Minor - IDeATe**

The minor in Sonic Arts is offered by the School of Music as part of the Integrative Design, Arts and Technology (IDeATe) network. IDeATe offers students the opportunity to become immersed in a collaborative community of faculty and peers who share expertise, experience, and passions at the intersection of arts and technology. Students will engage in active "learning by doing" in shared labs and maker spaces. The program addresses current and emerging real-world challenges that require disciplinary expertise coupled with multidisciplinary perspectives and collaborative integrative approaches.

The IDeATe undergraduate curriculum consists of eight areas, all of which can also be taken as minors. The themes of these areas integrate knowledge in technology and arts: Game Design, Animation & Special Effects, Media Design, Design for Learning, Sonic Arts, Innovation and Entrepreneurship, Intelligent Environments, and Physical Computing. For more information about the IDeATe network, please see Undergraduate Options (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/#ideate).

In the Sonic Arts minor, students create experimental music or explore new, technology-enabled applications and markets for sound design, music creation, and performance.

**Curriculum**

One Computing Course - Minimum of 9 Units

15-104  Introduction to Computing for Creative Practice

10

15-110  Principles of Computing

10

15-112  Fundamentals of Programming and Computer Science

12

60-210  Electronic Media Studio: Introduction to Interactivity

10

60-212  Electronic Media Studio: Interactivity and Computation for Creative Practice

12

One IDeATe Portal Course - Minimum of 9 Units

18-090  Twisted Signals: Multimedia Processing for the Arts

10

16-223  IDeATe Portal: Creative Kinetic Systems

10

60-223  IDeATe: Introduction to Physical Computing

10

62-150  IDeATe Portal: Introduction to Media Synthesis and Analysis

10

99-361  IDeATe Portal

9

IDeATe Sonic Arts Courses - Minimum of 27 Units

15-322  Introduction to Computer Music

9

15-323  Computer Music Systems and Information Processing

9

18-493  Electroacoustics

12

33-114  Physics of Musical Sound

9

53-376  360 Story and Sound

12

54-166  Introduction to Sound Design for Theatre

6

54-267  Conceptual Sound Design

9

54-509  Theatrical Sound System Design 2

9

57-337  Sound Recording

6

57-344  Experimental Sound Synthesis

9

57-347  Electronic and Computer Music

6

57-421  The Exploded Ensemble

6

57-425  Expanded Music Performance

9

Double-Counting

Students may double-count up to two of their Sonic Arts minor courses toward requirements for other majors or minors.

**CFA Dean's Office Minors**

**Minor in the History of Arts**

This minor of six or more courses as designated below, offers students flexibility to engage in a broad survey in the arts or can be tailored to reflect a more specific area of interest. For College of Fine Arts students, all courses meeting the requirements of the Minor in the History of the Arts must be taken outside of their major School, with the exception of the School of Architecture. Interested students should contact Patti Pavlus in the College of Fine Arts, Room 100.

**Introductory Level Courses**

27 units

(choose at least three, CFA students pick 3 outside of major)

48-240  Historical Survey of World Architecture and Urbanism I

9

48-241  Modern Architecture

9

54-239  History of Architecture and Decor 1: Ancients to Gothic

Var.

54-240  History of Architecture and Decor 2: Renaissance to the 21st Century

Var.

54-245  History of Clothing 1 (instructor permission only)

Var.

54-246  History of Clothing 2 (instructor permission only)

Var.

57-173  Survey of Western Music History (coreq: 57-188)

9

57-188  Repertoire and Listening for Musicians (coreq of 57-173)

1

60-105  Critical Theory in Art I (instructor permission only)

9
Minors Offered by the College of Fine Arts

Intermediate/Advanced Level Courses  
27 units
(choose at least three, CFA students pick 3 outside of major)*

- 60-106 Critical Theory in Art II  
  (instructor permission only; prereq: 60-105) 9
- 60-205 Critical Theory in Art III  
  (instructor permission only) 9
- 60-206 Critical Theory in Art IV  
  (instructor permission only; prereq: 60-205) 9

Intermediate/Advanced Level Courses  
27 units
(choose at least three, CFA students pick 3 outside of major)*

- 48-348 Architectural History of Mexico & Guatemala 9
- 48-374 History of Architecture in the Islamic World- A Primer  
  (prereq: 48-240) 9
- 48-440 American Regions & Regionalism: An Architectural History of Place, Time, and Cul  
  (prereq: 48-240) 9
- 51-376 Semantics & Aesthetics 4.5
- 57-209 The Beatles 9
- 57-476 How Music Works: An Affective History 6
- 57-477 Music of the Spirit 6
- 57-478 Survey of Historical Recording 6
- 57-480 History of Black American Music 6
- 57-485 History of the Symphony 9

Art Critical Studies Electives: 60-352 to 60-398 (instructor permission only)

- 62/60-141 Black and White Photography I  
  (prereq: 60-105) 10
- 62/60-142 Digital Photography I 10
- 62/60-241 Black and White Photography II 10

Minimum units required for minor: 54

*Other courses not on this list may qualify as approved by CFA Dean's Office (College of Fine Arts, Room 100).

Minor in Photography
The Photography Minor exposes students to the breadth of offerings from traditional photography (i.e. film exposure and silver printing) to digital shooting and output. The student will become familiar with photography's craft, its history and significant practitioners, and develop their own distinct engagement with the medium.

Students may apply for the Photography Minor after they have taken a beginning photography course. Students will be admitted to the minor based on their aptitude, appropriate level of photography skills, and space availability within the program. Once admitted, students will be assigned a faculty advisor who will help them determine a sequence of courses that best fits their needs and interests.

Application Requirements
The application process for the Photography Minor requires submission of: a completed application form signed by the home department advisor, a personal statement, and a portfolio of photographs. Contact the CFA Photography Administrator, Jamie Gruzska, MM B18, for further information and an application form.

Photography Required Courses (3) minimum 27 units

- 62-60-141 Black and White Photography I  
  (prereq: 60-105) 10
- 62-60-142 Digital Photography I 10
- 62-60-241 Black and White Photography II 10

Photography Elective (1) minimum 9 units

Choose one (1) or more additional photography courses from the list below in consultation with the photo advisor; consult Jamie Gruzska for current offerings.

- 62-208 Alternative Photography: Contemporary Antiquarian Printmaking 5
- 62-214 Photography and the Narrative of Place 5
- 62-235 Photographing America 10
- 62-245 Portrait Photography 10
Minors Offered by the College of Fine Arts

**Photo History Required Course (1) minimum 9 units**

62-371 Photography, The First 100 Years, 1839-1939 * 9
or 62-360 Photographers and Photography Since World War II

**History, Theory, or Criticism of the Visual Arts Elective (1) minimum 9 units**

Choose one (1) additional History, Theory or Criticism of the Arts course in consultation with the photo advisor. A second Photo History course (62-360 or 62-371) can be used for this requirement.

*or course approved by the photography advisor

Minimum units required for minor: 54