

School of Music

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The School of Music at Carnegie Mellon University offers the best aspects of conservatory training within a great university, combining preparation for a lifetime in performance, composition or music and technology with the advantages of learning in an intense academic environment. Every student in the School of Music is a performance, composition or music and technology major. The School of Music is an accredited institutional member of the National Association of Schools of Music.

Each performance major is challenged to develop through individual instruction with a master teacher. The School's relationship with the renowned Pittsburgh Symphony Orchestra is among the strongest conservatory-symphony orchestra relationships in the United States, and Pittsburgh's uniquely strong sense of musical community fosters close relationships with the Pittsburgh Opera, Opera Theater of Pittsburgh, Pittsburgh Chamber Music Society, and a host of other professional musical organizations.

Regular performing ensembles include the Carnegie Mellon Philharmonic, Wind Ensemble, Baroque Ensemble, Contemporary Ensemble, Jazz Orchestra, Jazz Vocal Ensemble, Chorus, and Opera. Some of the School's ensembles are instrument specific: Chamber Music ensembles and the Percussion Ensemble, among others. Opportunities for performance are stressed – undergraduate performance majors perform junior and senior recitals, chamber music is publicly presented, frequent performance opportunities on and off campus are provided, and community outreach is vigorously supported.

The School of Music has an intense commitment to new music, led by composition faculty, conductors who devote fully rehearsed cycles of the Philharmonic to works by student composers, and studio faculty whose own performing careers regularly feature new works, and including regular performances of student works in almost every Contemporary Ensemble Program, frequent opportunities with the Wind Ensemble and Chorus, and inclusion on student recitals. The School's state-of-the-art recording facilities are an especially important resource for composers beginning their public careers.

All teaching is entrusted to professional faculty — there are no assistant studio teachers or doctoral teaching fellows — and specialists in Musicology, Theory, Analysis, Counterpoint, Composition, Computer Music, Eurhythmics, Solfège, Music Education, Pedagogy, Collaborative Piano and Coaching, Acting and Movement, Diction, Literature and Repertoire, Baroque Music, Chamber Music, Conducting, and Sound Recording and Production provide a broad and rich platform for comprehensive musical preparation. At the same time, the university provides the greatest possible support for students combining their majors with minors in all disciplines, unique joint degree programs, and double major programs. These opportunities significantly increase a student's career options and marketability in the changing professional world of music.

Facilities

The teaching facilities of the School of Music are located on the ground, main, and mezzanine floors of the College of Fine Arts, on the first floor of Margaret Morrison Hall, and in Skibo Gymnasium. Teaching, rehearsal, and practice rooms are equipped with Steinway pianos. Music students also have access to a state-of-the-art recording studio and music technology cluster. Performances take place in Kresge Recital Hall, Carnegie Music Hall, Alumni Concert Hall, and Mellon Institute Auditorium. The Hunt Library houses a fine collection of books, records, and scores. Listening and conference rooms are also available in the library.

School of Music Options

The School of Music offers a Bachelor of Fine Arts in the following areas:

- Performance (Instrumental, Organ, Piano, Voice)
- Composition

To earn a Bachelor's degree in either of these options, a candidate must satisfactorily fulfill all the requirements of the School of Music.

The School of Music jointly with the School of Computer Science and the Carnegie Institute of Technology offers a Bachelor of Science in the following area:

- Music and Technology

Within the options listed above eligible students may elect specializations in the following areas:

- Dalcroze Eurhythmics Certificate
- Piano Pedagogy Certificate
- Collaborative Piano Minor
- Conducting Minor
- Music Education Certification Minor
- Music Technology Minor
- Music Theory Minor
- Sound Design Minor

Dalcroze Eurhythmics Certificate

This program is designed to prepare teachers in the Dalcroze approach to music learning. The course of study includes eurhythmics, piano improvisation, and Dalcroze pedagogy. Carnegie Mellon undergraduates may enter the Dalcroze Training Program during their junior year. However, the certificate will be granted only upon completion of their undergraduate degree. This program is recommended particularly to students who would like to incorporate Dalcroze principles into their teaching and to those who want to obtain more experience in this field.

Piano Pedagogy Certificate

A two-year program leading to certification in piano pedagogy is open to current Carnegie Mellon keyboard majors. Piano and organ majors learn to teach piano in a closely supervised environment of class piano instruction. This program has received national acclaim as a model of excellence, with Carnegie Mellon children consistently capturing prestigious awards in national piano competitions.

Collaborative Piano Minor

The collaborative piano minor consists of a six-semester sequence of courses designed to give the students experience with vocalists and instrumentalists. There are individual coaching sessions as well as practical experience in vocal and instrumental studios.

Conducting Minor

This minor is designed for students who are interested in acquiring conducting skills, in anticipation of either graduate study in conducting or a music education career. It includes required courses in conducting techniques for both choral and instrumental ensembles, orchestration, score reading/keyboard harmony, and elective courses in instrumental and vocal methods, diction, and literature and repertoire.

Music Education Minor

This is a five-year minor, with courses starting in the sophomore year. Bachelor of Fine Arts candidates who complete this minor and pass the Praxis tests will receive Pennsylvania state certification in music (K-12), which is recognized in almost all other states.

Music Technology Minor

The student will take a series of courses which may include electronic and computer music, recording technology, the physics of sound, and computer programming. A rich computer music research environment enables talented students to work as programmers with outstanding faculty researchers, whose current projects are gaining international recognition in the areas of computer music and artificial intelligence.

Music Theory Minor

This minor is designed for students who are interested in advanced theory and analysis skills, in anticipation of either graduate study in theory or graduate study that requires a substantial level of theory knowledge. The student will take advanced theory and analysis courses and also support courses in the physics of musical sound and the psychology of music.

Sound Design Minor

Students in this minor will explore the processes and products of digital sound and music. They will receive basic training in key component areas: principles of computer music, hybrid instrument building, concepts in sound design. Combining this training with courses that bring together experts from many disciplines, they will create experimental music or explore new,

technology-enabled, applications and markets for sound design, music creation, and performance.

Performances and Activities of the School of Music

The School of Music sponsors performances, master classes, and lectures by outstanding national and international guest artists. Announcements of faculty, student, and guest performances are released every week to the students and the community.

General Requirements for BFA Candidates

Candidates for the Bachelor of Fine Arts degree in composition are required to complete a composition for orchestra in their senior year.

Candidates for the Bachelor of Fine Arts degree in performance are required to give public performances in their junior and senior years. Candidates for the Bachelor of Fine Arts degree in string performance are required to give public performances in their sophomore, junior, and senior years.

Candidates for the Bachelor of Fine Arts degree in performance are required to pass one semester (piano majors must pass two semesters) of a course that includes experience with pedagogy for their major studio area.

- Instrumental majors must take the class for their area to fulfill the Pedagogy Course requirement on the Instrumental curriculum (57-023 Bassoon Studio Performance Class, 57-448 Brass Pedagogy, 57-022 Clarinet Studio Performance Class, 57-018 Double Bass Studio Performance Class, 57-020 Flute Studio Performance Class, 57-021 Oboe Studio Performance Class, 57-030 Percussion Studio Performance Class, 57-016 Viola Studio Performance Class, 57-015 Violin Studio Performance Class, 57-437 Literature and Repertoire).
- Bagpipe, organ and saxophone majors must fulfill the pedagogy requirement as part of satisfying all demands outlined in their Major Studio syllabi, 57-522 Major Studio (Bagpipe), 57-502 Major Studio (Organ) and 57-514 Major Studio (Saxophone).
- Piano majors must take 57-273 Piano Pedagogy I and 57-274 Piano Pedagogy II.
- Voice majors must take 57-010 Voice Studio Performance Class.

Candidates for the Bachelor of Fine Arts degree in applied areas other than piano are required to pass a piano proficiency test.

Candidates for all School of Music degrees are required to pass four repertoire proficiency tests, and to pass a major choral ensemble or a major instrumental ensemble as assigned and to pass Convocation every semester of residence in the School of Music.

BFA Curriculum

The music curriculum is based on the following five building blocks:

- Studio
- Theory
- History
- Ensemble
- Academics

1. Studio — This is the heart of the school. Students receive individualized instruction with senior faculty in their major area of study: performance or composition.

2. Theory — These courses are designed to help students develop listening skills, to acquire theoretical knowledge, to recognize structural techniques and manipulate technological resources. It includes courses in sight-reading, ear-training, eurhythmics, harmony, contrapuntal techniques, analysis of musical forms, 20th-21st century techniques, orchestration, score reading, and electronic and computer music for compositional and educational purposes. One music support course in the piano, organ, and instrumental curricula must be a theory course.

3. History - These courses cover in depth the music of the western world and survey the styles and musical structures of non-western music.

4. Ensemble — This area includes student participation in some of the following ensembles: Carnegie Mellon Philharmonic, Wind Ensemble, Baroque Ensemble, Contemporary Ensemble, Jazz Orchestra, Jazz Vocal Ensemble, Chorus, Opera, Chamber Music ensembles, and Percussion Ensemble.

5. Academics — The School of Music requires one general studies course (outside of the School) each semester and six semesters of elective courses for graduation. These accumulated credits may be applied to minors or majors in other disciplines. Exceptional students in good academic and musical standing within the School are permitted to take additional courses beyond the number required for graduation. There is no charge for extra credits taken at Carnegie Mellon. One elective course in the performance curricula must be a course that includes experience with pedagogy for the student's major studio area.

Minimum units required for B.F.A. in Music

Voice majors	407
Composition majors	392
Instrumental, Organ, and Piano majors	386

Piano

First Year

Fall		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-193	Collaborative Piano Skills I	3
57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3
57-101	Introduction to Music Technology	6
99-101	Computing @ Carnegie Mellon	3
76-101	Interpretation and Argument	9
		55

Spring

57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-194	Collaborative Piano Skills II	3
57-153	Harmony II	9
57-162	Eurhythmics II	3
57-182	Solfege II	3
57-190	Repertoire and Listening for Musicians I	3
57-283	Music History I	9
79-xxx	Designated History Course	9
		55

Second Year

Fall		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-228	Chamber Music: Woodwind and Mixed	3
57-151	Counterpoint in Theory and Application	6
57-163	Eurhythmics III	3
57-183	Solfege III	3
57-289	Repertoire and Listening for Musicians II	3
57-284	Music History II	9
xx-xxx	General Studies Course	6
		49

Spring

57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-228	Chamber Music: Woodwind and Mixed	3
57-408	Form and Analysis	6
57-164	Eurhythmics IV	3
57-184	Solfege IV	3
57-290	Repertoire and Listening for Musicians III	3

57-285	Music History III	9
xx-xxx	Elective	6
		49

Third Year

Fall		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-228	Chamber Music: Woodwind and Mixed	3
57-273	Piano Pedagogy I	6
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	6
		52

Spring		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-4xx	Major Ensemble	6
57-228	Chamber Music: Woodwind and Mixed	3
57-274	Piano Pedagogy II	6
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	6
		52

Fourth Year

Fall		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-xxx	Performance Elective	9
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3
		43

Spring		Units
57-100	Convocation	1
57-501	Major Studio (Piano)	9
57-xxx	Performance Elective	9
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3
		43

Organ

First Year

Fall		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3
57-101	Introduction to Music Technology	6
99-101	Computing @ Carnegie Mellon	3
76-101	Interpretation and Argument	9
		55

Spring		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6

57-191	Keyboard Studies	3
57-153	Harmony II	9
57-162	Eurhythmics II	3
57-182	Solfege II	3
57-190	Repertoire and Listening for Musicians I	3
57-283	Music History I	9
79-xxx	Designated History Course	9
		55

Second Year

Fall		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-151	Counterpoint in Theory and Application	6
57-163	Eurhythmics III	3
57-183	Solfege III	3
57-289	Repertoire and Listening for Musicians II	3
57-284	Music History II	9
xx-xxx	General Studies Course	6
		49

Spring		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-408	Form and Analysis	6
57-164	Eurhythmics IV	3
57-184	Solfege IV	3
57-290	Repertoire and Listening for Musicians III	3
57-285	Music History III	9
xx-xxx	Elective	6
		49

Third Year

Fall		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-459	Score Reading/Keyboard Harmony	6
57-xxx	Music Support Course (Theory/History)	12
57-xxx	Pedagogy Course	var.
xx-xxx	General Studies Course	9
xx-xxx	Elective	3
		46

Spring		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	9
		46

Fourth Year

Fall		Units
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-xxx	Performance Elective	3
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3
		43

Spring		
57-100	Convocation	1
57-502	Major Studio (Organ)	9
57-4xx	Major Ensemble	6
57-xxx	Performance Elective	3
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3
		43

Voice

A voice major must also complete an advanced language course of at least 9 units. Recommended: a domestic or international program, after the sophomore year, which includes intensive study for credit in the Italian, German, or French language.

First Year

Fall		Units
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-467	Production: Crew	3
57-191	Keyboard Studies	3
57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfège I	3
57-221	Italian Diction	3
57-240	Acting I	6
57-111	Movement and Dance I	3
82-161	Elementary Italian I	12
		61

Spring		
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-468	Production: Crew	3
57-191	Keyboard Studies	3
57-153	Harmony II	9
57-162	Eurhythmics II	3
57-182	Solfège II	3
57-431	Italian Literature and Repertoire	3
57-241	Acting II	6
57-112	Movement and Dance II	3
76-101	Interpretation and Argument	9
99-101	Computing @ Carnegie Mellon	3
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Second Year

Fall		Units
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-191	Keyboard Studies	3
57-163	Eurhythmics III	3
57-183	Solfège III	3
57-189	Introduction to Repertoire and Listening for Musicians	3
82-121	Elementary German I	12
57-223	German Diction	3
57-339	Acting III	6
57-211	Movement and Dance III	3
		52

Spring		
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-191	Keyboard Studies	3

57-164	Eurhythmics IV	3
57-184	Solfège IV	3
57-190	Repertoire and Listening for Musicians I	3
57-283	Music History I	9
57-435	German Literature and Repertoire	3
57-340	Acting IV	6
57-212	Movement and Dance IV	3
		49

Third Year

Fall		Units
57-100	Convocation	1
57-010	Voice Studio Performance Class	0
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-xxx	Production Course	6
57-151	Counterpoint in Theory and Application	6
57-289	Repertoire and Listening for Musicians II	3
57-284	Music History II	9
82-101	Elementary French I	12
57-222	French Diction	3
		55

Spring		
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-xxx	Production Course	6
57-408	Form and Analysis	6
57-290	Repertoire and Listening for Musicians III	3
57-285	Music History III	9
57-432	French Literature and Repertoire	3
57-101	Introduction to Music Technology	6
79-xxx	Designated History Course	9
		58

Fourth Year

Fall		Units
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-xxx	Production Course	6
57-220	English Diction	3
57-434	Musical Theatre Literature and Repertoire	3
xx-xxx	Elective	9
		37

Spring		
57-100	Convocation	1
57-500	Major Studio (Voice)	9
57-417	Major Vocal Performance Ensemble	6
57-xxx	Production Course	6
57-436	English/Contemporary Literature and Repertoire	3
57-434	Musical Theatre Literature and Repertoire	3
xx-xxx	Elective	9
		37

Instrumental

A string major must also complete two semesters of Chamber Music in the sophomore year.

First Year

Fall		Units
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-152	Harmony I	9

57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3
57-101	Introduction to Music Technology	6
99-101	Computing @ Carnegie Mellon	3
76-101	Interpretation and Argument	9

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Spring		
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-153	Harmony II	9
57-162	Eurhythmics II	3
57-182	Solfege II	3
57-190	Repertoire and Listening for Musicians I	3
57-283	Music History I	9
79-xxx	Designated History Course	9

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Second Year

Fall		Units
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-151	Counterpoint in Theory and Application	6
57-163	Eurhythmics III	3
57-183	Solfege III	3
57-289	Repertoire and Listening for Musicians II	3
57-284	Music History II	9
xx-xxx	General Studies Course	6

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Spring		
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-408	Form and Analysis	6
57-164	Eurhythmics IV	3
57-184	Solfege IV	3
57-290	Repertoire and Listening for Musicians III	3
57-285	Music History III	9
xx-xxx	Elective	6

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Third Year

Fall		Units
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-xxx	Chamber Music	3
57-xxx	Music Support Course (Theory/History)	12
57-xxx	Pedagogy Course	var.
xx-xxx	General Studies Course	9
xx-xxx	Elective	6

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Spring		
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-xxx	Chamber Music	3
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9

xx-xxx	Elective	6
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Fourth Year

Fall		Units
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-xxx	Chamber Music	3
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3

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Spring		
57-100	Convocation	1
57-xxx	Studio	9
57-4xx	Major Ensemble	6
57-xxx	Chamber Music	3
57-xxx	Music Support Course (Theory/History)	12
xx-xxx	General Studies Course	9
xx-xxx	Elective	3

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Composition

One music support course is recommended to be Creative Orchestration.

First Year

Fall		Units
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3
57-101	Introduction to Music Technology	6
99-101	Computing @ Carnegie Mellon	3
76-101	Interpretation and Argument	9

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Spring		
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-153	Harmony II	9
57-162	Eurhythmics II	3
57-182	Solfege II	3
57-190	Repertoire and Listening for Musicians I	3
57-283	Music History I	9
79-xxx	Designated History Course	9

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Second Year

Fall		Units
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-151	Counterpoint in Theory and Application	6
57-163	Eurhythmics III	3
57-183	Solfege III	3
57-289	Repertoire and Listening for Musicians II	3
57-284	Music History II	9
57-257	Orchestration I	6

xx-xxx	Elective	6
		55
Spring		
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-191	Keyboard Studies	3
57-408	Form and Analysis	6
57-164	Eurhythmics IV	3
57-184	Solfege IV	3
57-290	Repertoire and Listening for Musicians III	3
57-285	Music History III	9
57-271	Orchestration II	6
57-258	20th-21st Century Techniques	6
		55

Third Year

Fall		Units
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-234	Performance for Composers	3
57-332	Introduction to Conducting	6
57-347	Electronic and Computer Music	6
57-xxx	Music Support Course	6
xx-xxx	General Studies Course	12
		43

Spring		
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-236	Performance for Composers	3
57-336	Instrumental/Choral Conducting	6
57-459	Score Reading/Keyboard Harmony	6
57-xxx	Music Support Course	6
xx-xxx	General Studies Course	12
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Fourth Year

Fall		Units
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-xxx	Music Support Course	6
xx-xxx	General Studies Course	9
xx-xxx	Elective	12
		43

Spring		
57-100	Convocation	1
57-521	Major Studio (Composition)	9
57-4xx	Major Ensemble	6
57-349	Supervised Theory Teaching	6
57-xxx	Music Support Course	6
xx-xxx	General Studies Course	9
xx-xxx	Elective	6
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Dalcroze Eurhythmics Certificate		33 units
57-465	Eurhythmics Applications for Performing and Teaching	6
57-466	Eurhythmics Applications for Performing and Teaching	6
57-691	Dalcroze Pedagogy/Practice Teaching	3
57-692	Dalcroze Pedagogy/Practice Teaching	3
57-350	Dalcroze Piano Improvisation	6
xx-xxx	Creative Movement/Choreography	3
57-641	Dalcroze Research Paper	3

57-642	Dalcroze Research Paper	3
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Piano Pedagogy Certificate 36 units

57-273	Piano Pedagogy I	6
57-274	Piano Pedagogy II	6
57-275	Piano Pedagogy III	6
57-276	Piano Pedagogy IV	6
57-429	Beginning Piano for Children I	6
57-449	Beginning Piano for Children II	6

Bachelor of Science in Music and Technology

The Bachelor of Science in Music and Technology is offered jointly by the School of Music, the School of Computer Science (SCS), and the Carnegie Institute of Technology (CIT).

This program consists of a set of courses that span both music and technology, as well as a capstone composition/design/performance project. Courses in all three areas of study are stipulated in the music and technology undergraduate curriculum and provide for students coming from any of the three areas. In other words, regardless of a student's entry point — an interest in computer science, electrical engineering, or music — the coursework prescribed will allow the student to gain the requisite knowledge and experience in all three areas. Students will work closely with advisors and will be guided in both course selection and capstone projects.

Curriculum

Minimum units required for B.S. in Music and Technology 380

General Requirements 85 units

Seminar

57-570	Sound and Music Computing Seminar (8 semesters for a total of 8 units)	1
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University

99-10x	Computing @ Carnegie Mellon	3
76-101	Interpretation and Argument	9
79-104	Global Histories	9

Humanities

xx-xxx	Cognition, Choice and Behavior course	9
xx-xxx	English, History, Modern Languages, Philosophy, or Psychology course	9

Mathematics

21-120	Differential and Integral Calculus	10
21-122	Integration and Approximation	10

Science

33-114	Physics of Musical Sound	9
33-106	Physics I for Engineering Students	12

Electives 33 units

Music Core 87 units

57-152	Harmony I	9
57-153	Harmony II	9
57-408	Form and Analysis	6
57-151	Counterpoint in Theory and Application	6
57-258	20th-21st Century Techniques	6
57-257	Orchestration I	6
57-xxx	Music Support Course	6
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
57-181	Solfege I	3
57-182	Solfege II	3
57-183	Solfege III	3

57-184	Solfege IV	3
57-161	Eurhythmics I	3
57-162	Eurhythmics II	3
57-173	Survey of Western Music History	9

Music and Technology Core 120 units

15-112	Fundamentals of Programming and Computer Science	12
15-122	Principles of Imperative Computation	10
15-322	Introduction to Computer Music	9
18-100	Introduction to Electrical and Computer Engineering	12
18-202	Mathematical Foundations of Electrical Engineering	12
18-290	Signals and Systems	12
57-101	Introduction to Music Technology	6
57-347	Electronic and Computer Music	6
57-337	Sound Recording	6
57-338	Sound Editing and Mastering	6
57-438	Multitrack Recording	9
57-571	Music and Technology Project	12
57-572	Music and Technology Project	12

Concentration

Students complete either the Music Concentration or the Technical Concentration:

Music Concentration 60 units

57-5xx	Studio (4 semesters)	36
57-4xx	Major Ensemble (4 semesters)	24

Technical Concentration 57 or 55 units

21-127	Concepts of Mathematics	10
15/18-213	Introduction to Computer Systems	12

AND EITHER:

18-220	Electronic Devices and Analog Circuits	12
18-240	Structure and Design of Digital Systems	12
15-2xx/18-3xx	Electives in ECE or CS	12

or above

OR:

15-128	Freshman Immigration Course	1
15-210	Parallel and Sequential Data Structures and Algorithms	12
15-323	Computer Music Systems and Information Processing	9
15-2xx/18-3xx	Electives in ECE or CS	12

or above

Minors

Minor in Collaborative Piano for Piano Majors in the School of Music

Admission Requirements:

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

36 units Required Courses

57-381	Collaborative Piano I	6
57-382	Collaborative Piano II	6
57-383	Collaborative Piano III	6
57-384	Collaborative Piano IV	6
57-385	Collaborative Piano V	6
57-386	Collaborative Piano VI	6

18 units Electives

(choose from the following courses)

57-220	English Diction	3
57-221	Italian Diction	3
57-222	French Diction	3
57-223	German Diction	3
57-332	Introduction to Conducting	6
57-336	Instrumental/Choral Conducting	6
57-431	Italian Literature and Repertoire	3
57-432	French Literature and Repertoire	3
57-433	Musical Theatre Literature and Repertoire	3
57-434	Musical Theatre Literature and Repertoire	3
57-435	German Literature and Repertoire	3
57-436	English/Contemporary Literature and Repertoire	3
57-459	Score Reading/Keyboard Harmony	6
57-607	Vocal Methods	3

Minimum units required for Collaborative Piano Minor: 54

Minor in Conducting for Students in the School of Music

Admission Requirements:

1. The student must apply to enter the program in the office of the Director of Student Services (CFA 108).
2. A 3.0 cumulative overall QPA and good academic standing are required.
3. In addition to passing the prerequisite courses listed below, the student must display superior solfege skills, by passing Advanced Solfege I and II with "A" or "B" grades or by passing Solfege I and II with "A" or "B" grades and with the recommendation of the student's solfege instructor; and the student must also pass Introduction to Conducting with an "A" grade or with a "B" grade and with the recommendation of the student's conducting instructor.

ACADEMIC REQUIREMENTS:

1. Immediately after acceptance into the minor in conducting, the student must schedule an advising appointment with the faculty supervisor of the conducting minor.
2. Instrumental/Choral Conducting must be completed before the senior year with an "A" grade or with a "B" grade and with the recommendation of the student's conducting instructor before the student can register for the advanced conducting courses (see #3).
3. Conducting Practicum must be taken during the same semester as Independent Study in Conducting. Both courses must be taken after completing Introduction to Conducting and Instrumental/Choral Conducting.
4. A 3.0 cumulative overall QPA is required for graduation with the minor in conducting.

30 units Prerequisite Courses

57-152	Harmony I	9
57-153	Harmony II	9
57-161	Eurhythmics I	3
57-162	Eurhythmics II	3
57-189	Introduction to Repertoire and Listening for Musicians	3
57-191	Keyboard Studies	3

39 units Required Courses

Also choose two of the following courses as recommended by the faculty supervisor of the conducting minor:

57-360	Brass Methods	
57-361	Percussion Methods	
57-362	Woodwind Methods	
57-363	String Methods	
57-557	Vocal Methods	
57-332	Introduction to Conducting	6
57-336	Instrumental/Choral Conducting	6
57-257	Orchestration I	6
57-459	Score Reading/Keyboard Harmony	6
57-364	Conducting Practicum	3
57-618	Independent Study in Conducting	6

15 units Electives

(choose from the following courses)

57-220	English Diction	3
57-221	Italian Diction	3
57-222	French Diction	3
57-223	German Diction	3
57-258	20th-21st Century Techniques	6
57-337	Sound Recording	6
57-338	Sound Editing and Mastering	6
57-431	Italian Literature and Repertoire	3
57-432	French Literature and Repertoire	3
57-435	German Literature and Repertoire	3
57-607	Vocal Methods	3
57-227	Jazz Orchestra	3
57-230	Baroque Ensemble	3
57-231	Chamber Ensemble	3
57-420	Jazz Vocal Ensemble	3
57-423	Repertoire Orchestra	3

Minimum units required for Conducting minor: 54

Minor in Music Education for Students in the School of Music

Admission Requirements:

The student should apply to the music education faculty no earlier than spring of the freshman year.

45 units Corequisite General Courses

76-101	Interpretation and Argument	9
21-xxx	Mathematics Course #1	9
21-xxx	Mathematics Course #2	9
76-xxx	English Literature Course	9
85-xxx	Educational Psychology Course	9

18 units Corequisite Music Courses

57-391	Keyboard Studies (Music Ed)	3
57-392	Keyboard Studies (Music Ed)	3
57-393	Keyboard Studies Test (Music Ed)	0
57-332	Introduction to Conducting	6
57-336	Instrumental/Choral Conducting	6

36 units GENERAL EDUCATION Courses

Also required are three classes offered at other Pittsburgh schools: EDUC 333 Assessment & Adaptation: Students with Special Needs AND EDUC 634 Inclusion: Issues and Strategies, both at Chatham University; and IL 2257 Teaching English Language Learners, at the University of Pittsburgh (27 units).

57-331	Principles of Education	9
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48 units Music Education Methods Courses

General Methods Courses

57-375	Music in the Elementary School	6
57-356	Elementary Guided Teaching	3
57-376	Music in the Secondary School	6
57-355	Secondary Guided Teaching	3

Applied Area Methods Courses

57-207	Secondary Studio	Var.
57-360	Brass Methods	3
57-361	Percussion Methods	3
57-363	String Methods	3
57-362	Woodwind Methods	3
57-607	Vocal Methods	3

Band Methods Courses

Required is either Fundamentals of Marching Band or Stage Direction.

57-334	Fundamentals of Marching Band	3
57-370	Stage Direction	3
57-333	Band and Choral Arranging	6

15 units Music Education Teaching Courses

57-608	Observation	3
57-603	Practice Teaching (Elementary)	6
57-604	Practice Teaching (Secondary)	6

Minimum units required for Music Education Minor: 99

Minor in Music Technology for Students in the School of Music

Admission Requirements:

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

18 units Prerequisite Courses

57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3

21 units Sound Recording Courses

57-337	Sound Recording	6
57-338	Sound Editing and Mastering	6
57-438	Multitrack Recording	9

21 units Music Technology/Sound Courses (Choose 3)

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.

15-104	Introduction to Computing for Creative Practice	10
15-322	Introduction to Computer Music	9
15-323	Computer Music Systems and Information Processing	9
18-090	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
54-505	Ear Training	1
54-666	Production Audio	6
57-344	Experimental Sound Synthesis	9
57-347	Electronic and Computer Music	6
57-478	Survey of Historical Recording	6
60-352	NOISE: Toward a Critical Theory of Sound and Hearing	9

Minimum units required: 67

Minor in Music Theory for Students in the School of Music

Admission Requirements:

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

18 units Prerequisite Courses

57-152	Harmony I	9
57-161	Eurhythmics I	3
57-181	Solfege I	3
57-189	Introduction to Repertoire and Listening for Musicians	3

21 units Upper Level Theory Courses (Choose 3)

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.

6-9 units graduate theory course (choose 1)

See graduate theory courses on the Music Support Courses Two-Year Rotation list. It is available on the Inside Music website (<http://music.cfa.cmu.edu>). The course is to be chosen with the advisor's approval.

18 units Support Courses

33-114	Physics of Musical Sound	9
57-377	Psychology of Music	9
Minimum units required for Music Theory Minor:		70

Minor in Sound Design – IDeATe

The minor in Sound Design 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 state-of-the-art 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 interrelated concentration 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, Learning Media, Sound Design, Innovation and Entrepreneurship, Intelligent Environments, and Physical Computing. For more information about the IDeATe network, please see IDeATe (<http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/#ideate>).

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

Curriculum

Required Courses:

One Portal Course		Units
18-090	Twisted Signals: Multimedia Processing for the Arts	10
62-150	IDeATe: Introduction to Media Synthesis and Analysis	10

Four Collaborative or Supportive Courses

57-344	Experimental Sound Synthesis	9
57-345	Hacking the Music World	9
15-322	Introduction to Computer Music	9
33-114	Physics of Musical Sound	9
54-166	Introduction to Sound Design for Theatre	6
54-367	Lighting Design Skills	6
57-337	Sound Recording	6
57-347	Electronic and Computer Music	6
60-352	NOISE: Toward a Critical Theory of Sound and Hearing	9

Electives

Students may take a collaborative or supportive course from one of the other IDeATe areas as one of their four collaborative or supportive courses toward the Sound Design minor.

Double-Counting Restriction

Students may double-count two of their Sound Design minor courses for other requirements.

Full-Time Faculty

DOUGLAS AHLSTEDT, Professor of Voice – M.M., Eastman School of Music; Carnegie Mellon, 1998–.

CHRISTOPHER ALLEN, Artist Lecturer in Percussion.

ALBERTO ALMARZA, Associate Professor of Flute – M.F.A., Carnegie Mellon University; Carnegie Mellon, 1991–.

DONNA AMATO, Artist Lecturer in Piano and Staff Pianist – B.M., University of Arizona; Carnegie Mellon, 1998–.

JENNIFER AYLNER, Assistant Professor of Voice.

LEONARDO BALADA, University Professor of Composition – Diploma, The Juilliard School of Music; Carnegie Mellon, 1970–.

NEAL BERNTSEN, Artist Lecturer in Trumpet – M.M., Northwestern University; Carnegie Mellon, 2003–.

JEREMY BRANSON, Artist Lecturer in Percussion Carnegie Mellon, 2009–.

WILLIAM CABALLERO, Associate Teaching Professor in Horn – B.M., New England Conservatory; Carnegie Mellon, 2007–.

JUDITH CAGLEY, Artist Lecturer in Solfege – M.S.Ed., Duquesne University; Carnegie Mellon, 2006–.

CHRISTOPHER CAPIZZI, Artist Lecturer in Jazz Piano – M.A.M., Carnegie Mellon University; Carnegie Mellon, 2004–.

ANDRES CARDENES, Dorothy Richard Starling and Alexander Speyer, Jr. University Professor of Violin Carnegie Mellon, 1989–.

ANDREW CARLISLE, Director of Piping.

L. MARK CARVER, Associate Teaching Professor in Collaborative Piano – M.M., Carnegie Mellon University; Carnegie Mellon, 1995–.

TATJANA CHAMIS, Artist Lecturer in Viola Carnegie Mellon, 2016–.

REBECCA CHERIAN, Artist Lecturer in Trombone Carnegie Mellon, 1993–.

ALEC CHIEN, Artist Lecturer in Piano Literature and Repertoire.

DENIS COLWELL, Head and Associate Professor Carnegie Mellon, 1980–.

DANIEL CURTIS, Resident Conductor.

MICHELE DE LA REZA, Assistant Teaching Professor of Dance – M.S., University of Pittsburgh; Carnegie Mellon, 2007–.

CYNTHIA DEALMEIDA, Associate Teaching Professor in Oboe – M.M., Temple University; Carnegie Mellon, 1991–.

JEFF DEE, Artist Lecturer in Bass Trombone Carnegie Mellon, 2017–.

ERIC DEFADE, Director of Jazz Ensemble Carnegie Mellon, 2002–.

ROBERT DELL, Artist Lecturer in Music Education.

MARK DOMENCIC, Artist Lecturer in Music Theory – M.M., Carnegie Mellon University; Carnegie Mellon, 2007–.

THOMAS DOUGLAS, Teaching Professor of Voice – M.M., Duquesne University; Carnegie Mellon, 1991–.

PAUL EVANS, Artist Lecturer in Percussion – MM, Temple University; Carnegie Mellon, 1995–.

JAMES FERLA, Artist Lecturer in Guitar – M.F.A., Carnegie Mellon University; Carnegie Mellon, 1977–.

CYRUS FOROUGH, Professor of Violin Carnegie Mellon, 2001–.

NANCY GALBRAITH, Professor of Composition – M.M., West Virginia University; Carnegie Mellon, 1984–.

PAUL GERLACH, Artist Lecturer in Music Education – M.F.A., Carnegie Mellon University; Carnegie Mellon, 1982–.

NANCY GOERES, Artist Lecturer in Bassoon – B.M., Boston University; Carnegie Mellon, 1988–.

CANDICE GU, Percussion Ensemble Director Carnegie Mellon, 2015–.

PETER GUILD, Artist Lecturer in Double Bass.

DAVID HARDING, Associate Professor in Viola and Chamber Music.

MICAH HOWARD, Artist Lecturer in Double Bass Carnegie Mellon, 2010–.

ROSEANNA IRWIN, Associate Teaching Professor of Coaching and Accompanying – M.M., Duquesne University; Carnegie Mellon, 1990–.

JOHN PAUL ITO, Assistant Professor of Music Theory Carnegie Mellon, 2011–.

PAUL JOHNSTON, Artist Lecturer in Music History Carnegie Mellon, 2005–.

ANNABELLE JOSEPH, Professor of Music – D.A., Carnegie Mellon University; Carnegie Mellon, 1986–.

- KENNETH KEELING, Associate Head and Professor Emeritus of Music – D.M.A., Catholic University of America; Carnegie Mellon, 1996–.
- SUNG-IM KIM, Staff PianistCarnegie Mellon, 2011–.
- CRAIG KNOX, Artist Lecturer in TubaCarnegie Mellon, 2005–.
- PETER KOPE, Assistant Teaching Professor of DanceCarnegie Mellon, 2007–.
- STEPHEN KOSTYNIK, Artist Lecturer in French Horn.
- LANCE LADUKE, Artist Lecturer in Euphonium – B.M., Michigan State University; Carnegie Mellon, 2003–.
- CARLA LAROCCA, Associate Teaching Professor of Keyboard Studies – M.F.A., Carnegie Mellon University; Carnegie Mellon, 1991–.
- ELIZABETH LAWRENCE, Artist Lecturer in Jazz Voice and Director of Jazz Vocal Ensemble – M.M., Manhattan School of Music; Carnegie Mellon, 1996–.
- HANNA WU LI, Professor of Piano and Piano Pedagogy – M.M., Northwestern University; Carnegie Mellon, 1969–.
- JASON KUSH, Artist Lecturer in SaxophoneCarnegie Mellon, 2017–.
- LUZ MANRIQUEZ, Associate Teaching Professor in Collaborative Piano – M.M., Carnegie Mellon University; Carnegie Mellon, 1992–.
- JOHN MARCINIZYN, Artist Lecturer in Guitar and Composition – Ph.D., University of Pittsburgh; Carnegie Mellon, 1991–.
- JOHN MCCARTHY, String Methods Instructor.
- LORNA MCGHEE, Artist Lecturer in FluteCarnegie Mellon, 2015–.
- MONIQUE MEAD, Director of Music Entrepreneurial Studies.
- ANNE MOSKAL, Artist Lecturer in Solfege.
- STEPHEN NEELY, Artist Lecturer in Eurhythmics – M.M., Carnegie Mellon University; Carnegie Mellon, 1998–.
- DJORDJE NESIC, Vocal Coach & AccompanistCarnegie Mellon, 2016–.
- RODRIGO OJEDA, Staff PianistCarnegie Mellon, 2011–.
- BENJAMIN OPIE, Artist Lecturer in Music Technology – M.M., Duquesne University; Carnegie Mellon, 2005–.
- NATALIE OZEAS, Professor of Music Education and Director of Graduate Studies – Ed.D., University of Pittsburgh; Carnegie Mellon, 1989–.
- DIMITRI PAPADIMITRIOU, Artist Lecturer in Chamber MusicCarnegie Mellon, 2015–.
- MILDRED MILLER POSVAR, Artist Lecturer in Voice – BM, Cleveland Institute of Music; Carnegie Mellon, 1981–.
- DAVID PREMO, Artist Lecturer in CelloCarnegie Mellon, 1994–.
- RICHARD RANDALL, Assistant Professor of Music Theory – Ph.D., Eastman School of Music; Carnegie Mellon, 2008–.
- MICHAEL RUSINEK, Artist Lecturer in ClarinetCarnegie Mellon, 1998–.
- CHRISTOPHER RUTH, Artist Lecturer in Music History.
- VAHAN SARGSYAN, Staff Pianist.
- SERGEY SCHEPKIN, Associate Professor of Piano – D.M.A., New England Conservatory; Carnegie Mellon, 2003–.
- STEPHEN SCHULTZ, Associate Teaching Professor of Music History and Flute – M.M., San Francisco State University; Carnegie Mellon, 2002–.
- RICCARDO SCHULZ, Associate Teaching Professor and Director of Recording Activities – M.A., University of Pittsburgh; Carnegie Mellon, 1988–.
- FRANCO SCIANNAMEO, Associate Teaching Professor of Film Musicology and CFA Associate Dean.
- WILLIAM VAN DER SLOOT, Assistant Teaching Professor of ViolinCarnegie Mellon, 2017–.
- MARIA SPACAGNA, Associate Professor of Voice.
- JESSE STILES, Assistant Teaching Professor of Sound MediaCarnegie Mellon, 2015–.
- STEPHEN STORY, Associate Conductor of Wind Ensemble.
- PETER SULLIVAN, Artist Lecturer in TromboneCarnegie Mellon, 2000–.
- DANIEL TEADT, Artist Lecturer in Voice.
- MARILYN TAFT THOMAS, Professor of Music – Ph.D., University of Pittsburgh; Carnegie Mellon, 1981–.
- THOMAS THOMPSON, Associate Teaching Professor of Clarinet and Co-Director of Wind Ensemble – M.M., Northwestern University; Carnegie Mellon, 1986–.
- KELLY TRUMBULL, Artist Lecturer in ActingCarnegie Mellon, 2015–.
- REZA VALI, Professor of Composition – Ph.D., University of Pittsburgh; Carnegie Mellon, 1988–.
- GRETCHEN VAN HOESEN, Artist Lecturer in Harp – M.M., The Juilliard School; Carnegie Mellon, 1985–.
- GEORGE VOSBURGH, Artist Lecturer in Trumpet and Co-Director of Wind Ensemble – B.A., University of Rochester; Carnegie Mellon, 2003–.
- JAMES WHIPPLE, Artist Lecturer in Music Theory – BA, Carnegie Mellon University; Carnegie Mellon, 1995–.
- ANNE MARTINDALE WILLIAMS, Artist Lecturer in Cello – Diploma, Curtis Institute of Music; Carnegie Mellon, 1987–.
- ALEXA WOLOSHYN, Assistant Professor of MusicologyCarnegie Mellon, 2016–.
- CHRISTOPHER WU, Artist Lecturer in ViolinCarnegie Mellon, 2009–.
- LENNY YOUNG, Artist Lecturer in SolfegeCarnegie Mellon, 2015–.