COLUMBIA COLLEGE CHICAGO

Department of
Audio Arts and Acoustics

Creating a sound world

Student Handbook

colum.edu/aaahandbook

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Cover Design and Artwork: Isaac Teo

(Last update 20171020)

MESSAGE FROM THE CHAIRMAN

Whether you are new or returning, I'd like to warmly welcome you to the Audio Arts and Acoustics Department of Columbia College Chicago!

Sound plays an important, often hidden, role in our lives, and if you're interested in learning how to use its power you have come to the right place. Audio, the electrical representation of sound, is an interdisciplinary field that stands firmly at the intersection of science, design, art and technology and this is reflected in the very makeup of our department and the courses we teach.

In our Acoustics courses, you'll learn about the physical properties of sounds and how to alter them in repeatable ways. This analysis and transformation of sounds is normally undertaken with distinct goals in mind: the accurate representation of acoustic events, the extraction and enhancement of signal information and the removal of noise. In our Psychoacoustics courses, you'll learn the science of sound perception–the biological and psychological effects that sounds (including speech and music) have on us.

Acoustics and Psychoacoustics are the scientific foundations that support the Audio Arts: that diverse collection of disciplines in which sound design is used as a medium of expression for cultural and artistic purposes. These disciplines range from live sound reinforcement, recording and distribution, to computer music, soundscapes, data sonification and sound installations, to name but a few. They are heavily reliant on computer technologies at the same time as needing to be aesthetically interesting.

We are proud of the expertise and experience that our department offers in all of these areas. I have a longstanding inquisitiveness about sound and how to use it effectively in music composition, sonification and public installations and I am delighted to join the faculty and team of experienced staff in our outstanding facilities to create an environment which is conducive to you exploring and developing your passion for sound in creative, exciting and educationally vital ways.

As fellow enthusiasts and sound professionals, we recognize that this will require substantial commitments from you and your families. We assure you that we take your investment, sacrifices and trust very seriously, and guarantee that we will always strive to exceed your expectations.

This handbook introduces you to our Department, faculty, programs, and courses as well as to useful Departmental and College-wide information on scholarships, internships, campus employment, student organizations, studio policies, and more. Take time to scan through this resource and use it throughout the year as a tool to assist you in your journey with us in exploring the audio arts and acoustics.

Again, welcome to our Department and best of luck with your studies!

Professor David Worrall, Ph.D.
Chair, Department of Audio Arts & Acoustics
School of Media Arts
Columbia College Chicago
33 E. Congress Parkway, Suite 601M
Chicago, IL 60605-1996
O: 312 369 8821 - F: 312 369 8427
E: dworrall@colum.edu

AUDIO ARTS AND ACOUSTICS

DEPARTMENT OUTLINE

creating a sound world

WHO WE ARE AND WHAT WE DO

Upon successful completion of their program of study, Audio Arts and Acoustics students are able to demonstrate the knowledge, skills, and aesthetic awareness necessary to systematically control sound, within specific application contexts of interest, and reliably render aesthetic intent into aesthetic experience.

We offer comprehensive undergraduate study, facilities, and expertise in

- Live and recorded sound design, engineering, and production/post-production.
- Sound art composition, maker-oriented audio electronics and data sonification.
- Environmental and architectural acoustics.
- Hearing physiology/conservation and sound perception and cognition and
- Design and management of audio installations.

Our faculty provides expertise in a variety of fields, exposing students to multiple perspectives on sound:

- *Physics* – Mechanics, acoustics, electronics, and the underlying basic mathematics
- *Physiology, Psychology, Aesthetics* – perceptual, cognitive, and cultural bases of hearing, making sense of, and evaluating sound.
- *Technology* – the analog and digital resources used to capture, process, analyze, model, store, and distribute/transmit sound.
- *Sound Art and Design* – the creative basis of artistic expression and design solutions in sound.

Our students engage in theoretical and practical study that covers a variety of media, technologies, practices, and aesthetics:

- Audio production/post-production for music, sound art, cinema, broadcast, and multimedia.
- Sound synthesis, signal processing, sound art and data sonification.
- Sound for live music, theater, dance, worship, and other cultural events.
- Sound system design for performance, civic, commercial, and recording spaces.
- Acoustical engineering for evaluation and design of physical or virtual spaces.
- Noise measurement and control.
- Research on sound generation, perception, measurement, control, and acoustical design.

A passion for sound has shaped our lives as artists, scientists, and professionals. As teachers, we focus our expertise and energy on student learning and development. To those who aspire to become experts in the art and science of sound, the Department of Audio Arts and Acoustics provides the knowledge, skills, intellectual space, and resources necessary for them to accomplish their goal.

Website: http://colum.edu/aaa - **Facebook:** https://www.facebook.com/groups/aaacolum
reception email: aaacontact@colum.edu - **'phone:** 312-369-8820 - **fax:** 312-369-8427

OUR MISSION

As practitioners of sound arts and sciences, the faculty and staff of the Audio Arts and Acoustics Department at Columbia College Chicago are committed to advancing the foundation, practice, and aesthetic criteria necessary to maintain and enhance our discipline as the principal medium of communication and personal expression.

We are committed to offering our students the tools and the opportunities to build, reinforce, and maintain the fundamental knowledge and skills that are required for a successful career in a technologically intensive environment.

We believe that we must nurture a strong liberal arts component as an integral part of our program. We are dedicated to offering our students every reasonable opportunity to express their creativity in a fashion compatible with and complimentary to the academic standards of our department.

We are committed to enhancing the reputation of our programs among industry and other peer institutions. We encourage dialogue with industry, and we foster the interaction between our students and their peers.

We pledge to actively promote the Mission of Columbia College Chicago by engendering an educational climate where the value of social and cultural diversity is recognized.

EXPECTATIONS

WE EXPECT OUR STUDENTS TO:

- Be willing to demonstrate their knowledge to us in a variety of ways.
- Realize that academe and the “real world” are mutually enriching.
- Recognize the value of foundation knowledge.
- Realize that their education must constitute their first priority.
- Respect our knowledge and our experience.
- Respect our privacy.

STUDENTS CAN EXPECT US TO:

- Be committed to high standards of academic excellence.
- Maintain and enhance our professional stature.
- Enhance the quality and the recognition of our program.
- Outline and achieve clear objectives for each class.
- Set forth and apply clear and objective testing guidelines.
- Welcome their comments pertaining to teaching methods.
- Be accessible to them for academic guidance and for advising.
- Respect their thirst for knowledge and their enthusiasm.
- Respect their privacy.

All phone numbers: 312-369-xxxx – Use only the 4-digit extension while on campus

CONTACT AND COMMUNICATION INFORMATION

Website: http://colum.edu/aaa - **Facebook:** https://www.facebook.com/groups/aaacolum
reception email: aaacontact@colum.edu - **'phone:** 312-369-8820 - **fax:** 312-369-8427

DEPARTMENT OF AUDIO ARTS & ACOUSTICS
FACULTY AND ADMINISTRATIVE CONTACTS

Administrative Staff and Technical Support			**Ext.**
Reception Desk		aaacontact@colum.edu	8820
Chair	David Worrall	dworrall@colum.edu	8821
Assistant to the Chair	Elliott Scott	escott@colum.edu	8802
Associate Chair	Ben Sutherland	bsutherland@colum.edu	8808
Director of Academic Operations	Scott Lee	slee@colum.edu	8846
Director of Audio Eng. and Oper.	David Knuth	dknuth@colum.edu	8272
Assistant Technical Engineer	Ray Morales	rmorales@colum.edu	8276
Assistant Technical Engineer/IT	Robert Zilligen	rzilligen@colum.edu	8280
Studio Manager	Tony Miccolis	tmiccolis@colum.edu	8274
Studio Shift Manager	Michael Gastala	mgastala@colum.edu	8267
Equipment Center Coordinator	Chris Brickley	cbrickley@colum.edu	8268

Full-Time Faculty			
Data Sonification	David Worrall	dworrall@colum.edu	8821
Psychoacoustics, Perception	Peter Zhang	pzhang@colum.edu	8810
Music Recording	Benj Kanters	bkanters@colum.edu	8807
Electronics and Sound Studies	Jesse Seay	jeseay@colum.edu	8804
Synthesis and Digital Initiatives	Ben Sutherland	bsutherland@colum.edu	8808
Live Sound	Jack Alexander	jalexander@colum.edu	8812
Audio Core, College Core	Ted Uzzle	tuzzle@colum.edu	8809
Audio Theory and Acoustics	Florian Hollerweger	fhollerweger@colum.edu	8806
Audio Theory UX, VR	Visda Goudarzi	vgoudarzi@colum.edu	8831
Sound Art	Howard Sandroff	hsandroff@colum.edu	8805
Acoustics	Doug Jones (*Emeritus*)	djones@colum.edu	8820

Adjunct Faculty

Phone contact for Adjunct faculty goes through AAA reception area 8820

Arbetter, Andrew A	aarbetter@colum.edu
Berrios, Anthony Jorge	aberrios@colum.edu
Brickley, Christopher	cbrickley@colum.edu
Cassell, Chris	ccassell@colum.edu

All phone numbers: 312-369-xxxx – Use only the 4-digit extension while on campus

Christianson, Ken W.	kchristianson@colum.edu
Coyle, Michael F.	mcoyle@colum.edu
Davis, Aaron I.	aadavis@colum.edu
Dietrich, Daniel John	ddeitrich@colum.edu
Dunaj, Kathy Ann	kdunaj@colum.edu
Eipers, Nicholas R.	neipers@colum.edu
Freeman, Michael Robert	mfreeman@colum.edu
Gastala, Michael J.	mgastala@colum.edu
Gresham, Ronald O.	rgresham@colum.edu|
Sandra Guzman	sguzman@colum.edu
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Mack, Bernard P.	bmack@colum.edu
Marolt, Curt	cmarolt@colum.edu
Mazurek, Mary G	mmazurek@colum.edu
Miccolis, Antonio	tmiccolis@colum.edu
Nudd, James	jnudd@colum.edu
Oswalt, Lanny V.	loswalt@colum.edu
Ryan, Monica E	mryan@colum.edu
Shapera, Joshua M.	jshapera@colum.edu
Slaboch, Michael A.	mslaboch@colum.edu
Stevison, Brad A.	bstevinson@colum.edu
Strathmann, Alan A	astrathmann@colum.edu
Taylor, Michael D.	mtaylor@colum.edu

School of Media Arts – Dean's Office

Dean	Eric Freedman	efreedman@colum.edu	8821
Assistant to the Dean	Lisa D'Acquisto	dacquisto@colum.edu	8821
Associate Dean	Tom Dowd	tdowd@colum.edu	8837
Assistant Dean	Charles Castle	ccastle@colum.edu	8820
Director of Technology	Jeff Meyers	jmeyers@colum.edu	7745

COLUMBIA COLLEGE CHICAGO - USEFUL CONTACTS

All phone numbers: 312-369-xxxx – Use only the 4-digit extension while on campus

Security	8888
IT Help Desk	7001
Bursar's office (Cashier Office)	7708
Dean of Students	7721
Financial Services and Aid	7140
Library	7152

Records Office	7351
Residence Life	7803
Scholarships http://www.colum.edu/students	3202

College Advising Center

http://www.colum.edu/advising		collegeadvising@colum.edu	7645
Director of College Advising	Brian Marth	bmarth@colum.edu	7933

Key Rooms

Conference Room (601A)	8813
Conference Room (610A)	8555
Conference Room (201)	8921
Equipment Center (check out)	8267
Part-time faculty Office 6th Fl.	8814
Part-time faculty Office 6th Fl.	8816
Studio Scheduling Office	8267

USING YOUR COLUMBIA COLLEGE EMAIL

Departmental communications will be sent exclusively to your Columbia email accounts. Doing so allows you to clearly separate college/work-related communications from personal ones and represents good professional practice with which you should become accustomed prior to entering the industry as our colleagues. Check this account daily and use it for all college-related communications.

ACADEMIC CALENDAR

For deadlines on adding, dropping, or withdrawing from courses and for other important dates see relevant links at: www.colum.edu/academics/academic-calendar.html

AAandA IS ON FACEBOOK!

Go to our Departmental home-page http://colum.edu/aaa, click on the Facebook icon, and join our groups, also accessible directly at https://www.facebook.com/groups/aaacolum. With over 1300 student, alumni, and faculty/staff members so far, this is the virtual center of AAandA news and activity.

Liberal Arts & Science (General Education) Requirements for Entering Students

General Notes:

Most up-to-date version of this information at: http://www.colum.edu/academics/las-core-curriculum/

B.A. Degree majors must complete/transfer at least 42 **credits** of General Education courses from the College's **Liberal Arts and Sciences** [LAS] Core Curriculum.

LAS CORE COURSE REQUIREMENTS (B.A.)

- First Semester Experience [3 credits]
- 52-1151 & 52-1152 Writing and Rhetoric I & II (*EN*) [6 credits]
- History (*HI*) [6 credits]
- Humanities (*HU*) [6 credits]
- Humanities Literature (*HL*) [3 credits]
- Mathematics (*MA*) [3 credits]
- Oral Communication (*SP*) [3 credits]
- Science or Science with lab component *(SC or SL)* [3 credits]
- Science with lab component *(SL)* [4 credits]
- Social Science (*SS*) [6 credits]

I. B.A. students are expected to fulfill their

a. **Mathematic requirement** in their 1st semester, receiving C or better
   - Eligibility for the minimum MA requirement (56-1720 *College Mathematics*, 56-1723 *Liberal Arts Mathematics*, OR 56-1728 *Quantitative Reasoning*) is based on a College-approved placement exam score (e.g. Compass: 34-66; ACT: 17-22; SAT: 420-540).
   - If a student's score falls below these ranges, their 1st semester will only include LAS Core courses (no courses in the major) and must contain a remedial math-skills course.
   - If a student's math placement score is sufficiently above the minimum required scores (*e.g.* Compass: 70+; ACT: 23+; SAT: 570+) they should register in a more advanced math course (e.g. 56-2710 College Algebra or higher) during their first or second semester.
   - The minimum MA requirement for the major may be satisfied by appropriate transfer credits.

b. ***One of the SC/SL* requirements** by completing/transferring 56-2820 *The Science of Acoustics I* (or equivalent).

The indicated Science and Mathematics Department courses constitute **prerequisites for intermediate and upper level B.A. Degree Major courses** and must be successfully completed (C or better) for advancement in the major.

II. Writing and Rhetoric I and II must be taken by the time you have accrued 45 total credits.

III. 24 credits of LAS Core courses must be completed by the time you have accrued 60 total credits.
At least 6 credits of LAS courses must be taken at a level of 2000 or above.

IV. College-wide elective (CWE) options can be fulfilled by completing any College course, including AAandA courses additional to those required for the major, and will ideally contribute towards a minor.

V. Students must satisfy a "Writing Intensive" (WI) requirement and can do so with any course labeled as such, including 43-2720 *History of Audio*, which also counts as an AAandA or CWE course.

VI. Students must satisfy a "U.S., Pluralism" (PL) and a "Global Awareness" (GA) requirement, ideally by selecting appropriate LAS courses, while also fulfilling the degree's LAS Core requirements.

Transfer and 2nd Bachelor's Overview

[***LAS****: Liberal Arts & Science (i.e. General Education) courses;* ***CWE****: College-Wide Elective courses*]

- **All *LAS* and *CWE* course requirements may be satisfied through completion of appropriate college-level courses, subject to College-wide transfer policies and the following exceptions:**
  - The *LAS* "Writing Intensive" (WI) requirement is only waived for 2nd Bachelors students.
  - You may satisfy the "Mathematics" (MA) *LAS* requirement for this major if your transcript includes a college-level course equivalent to or beyond "College Mathematics" (*e.g.* introduction to number theory, algebra, geometry, trigonometry, etc.). Lower-level MA courses may only transfer as CWEs. An appropriate math placement score (*e.g.* Compass: 70+; ACT: 23+; SAT: 570+), will satisfy the MA *LAS* requirement for 2nd Bachelors students who have no appropriate MA course in their transcripts. Such score will also permit transfer students with no MA course in their transcript to proceed with our major, but will still necessitate completion of a MA *LAS* requirement to graduate.
  - At least one of the "Science" or "Science with Lab" *LAS* requirements for this major must be satisfied through 56-2820 "The Science of Acoustics" or a sophomore or higher college-level physics course in *Waves.*

- **Course 43-1115 *Audio Production I*** (*3 credits – in the major*) **may be transferred/waived, subject to individual review.** To be considered, please **submit at least one of the following** to Benj Kanters, MM (bkanters@colum.edu) or Ben Sutherland, PhD (bsutherland@colum.edu)
  - syllabus for and grade in course(s) addressing DAWs and analog signal flow and/or
  - an audio recording accompanied by a document outlining your role in the production and the equipment/software plug-ins/processes used.

Bachelor of Arts Degree

Audio Design & Production **(ADP)**

Description

In Columbia's Audio Design and Production program, we believe that audio is both an art and a science. We'll train you in both as they relate to the recording, editing, and processing techniques commonly used in all media productions. We emphasize lab-based practice and building versatile, marketable skills for a technologically dynamic industry. Our graduates are prepared for careers in music recording, audio post-production, audio for multimedia communications, sound design, and sound art.

Audio is ubiquitous: it's essential to TV, video games, movies, radio (and of course, music); we hear it in our homes, in our earbuds, and in public spaces. Because it's everywhere, we often take it for granted.

Performers, media makers, and product manufacturers depend on audio professionals to help them create and deliver their messages. In Columbia's Audio Design and Production program, you'll study audio as both an art and a science. You'll learn how to translate the unique, creative demands of musicians, filmmakers, game designers, and sound designers to achieve precise, technical results in their work. As an ADP student, you'll take an in-depth look at the many forms of sound recording. The core of the program includes multitrack recording and mixing in studio and live environments. As you progress, you'll take advanced practicum courses that will further develop your skills in recording, sound design, sound art, data sonification, and synthesis/signal processing.

The goal of the Audio Design & Production Program is to prepare students for careers in music recording, audio post-production, audio for multi-media communications, sound design, and sound art. It provides "core" coursework that covers the science of audio, basic and advanced recording, editing, and processing techniques common to all audio production and post-production fields. Students then choose courses that focus on the specific techniques, technologies and aesthetics of the music industry and/or of sound as an independent art form, and become versed in a variety of set-ups, from large-format recording studios to "desk-top" environments.

The specific goal of the program is to provide a foundational understanding of audio theory (*Introduction to Audio* and *Audio Theory and Systems*), along with production fundamentals (*Audio Production I* and *Audio Production II*), supported by relevant Science & Mathematics courses and our Hearing/Psychoacoustics curriculum. Our intermediate courses (*Recording I*, *Recording II*, and *Live Sound Recording*) apply core curriculum theory and practice in the context of studio and live/location recording/production, using both complex and simple microphone techniques as well as "live-to-two-track" and multi-track recording. A selection of advanced courses (two are required) provides capstone, "master class" experiences in the areas of studio recording, live/location recording, sound art, and synthesis/signal processing. In addition, students are required to elect at least three courses in the department, outside of the minimum specified major requirements.

It is important that students recognize the ever-changing and increasingly diverse nature of our technologically sensitive industries. To this end we explore new media forms, in which audio

production and post-production are integral parts. These may include web design and authoring, real-time web media, CD/DVD publishing, sound design for theater, broadcast, and multi-media, and sound art as a stand-alone, independent means of artistic expression.

As part of a liberal arts education, this program also supports the development of student communication skills in, and aesthetic understanding of the various related industries, and helps prepare them to interact more effectively with peers and clients.

Complete program B.A. in *Audio Design & Production* (ADP)

- 38 courses; 8 semesters (4 years); 120 credits
- 14 courses in Liberal Arts and Sciences (General Education)
- 14 courses in the Major
- 10 courses in College-Wide Electives

Program Major Requirements (49 credits)

(See the "*General Notes*" on pages 8-9)

Core Requirements	**17 credits**
• 43-1111 - Introduction to Audio *Co-Requisite: LAS MA Requirement (see the LAS requirements section)*	[3 credits]
• 43-1115 - Audio Production I *Co-Requisite: 43-1111 Introduction to Audio OR 36-1400 Sound for Interaction*	[3 credits]
• 43-1112 – Audio Theory and Systems *Pre-Requisites: 43-1111 Introduction to Audio;* *Co-Requisite: 56-2820 The Science of Acoustics*	[3 credits]
• 43-1152 – Audio Electronics	[2 credits]
• 43-2725 - Studies in Hearing *Pre-Requisite: 43-1112 Audio Theory and Systems*	[3 credits]
• 56-2820 - The Science of Acoustics *Pre-Requisites: 56-1720 College Level Mathematics*	[3 credits]
Intermediate Level Requirements	**14 credits**
• 43-2215 - Audio Production II *Pre-Requisite: 43-1115 Audio Production I*	[3 credits]
• 43-2210 - Recording I *Pre-Requisite: 43-2215 Audio Production II* *Co-Requisite: 43-1112 Audio Theory and Systems*	[4 credits]
• 43-3210 - Recording II *Pre-Requisites: 43-2210 Recording I* *Co-Requisite: 43-2725 Studies in Hearing*	[4 credits]
• 43-2220 - Live Sound Recording *Pre-Requisite: 43-2215 Audio Production II* *Co-Requisite: 43-1112 Audio Theory and Systems* ***OR***	[3 credits]
• 43-2261 Experimental Audio Electronics	[3 credits]
Advanced Level Requirements (*select a minimum of* ***three*** *of the following*) ***Notes:*** *a) 43-3220 & 43-3230 may not be taken concurrently* *b) 43-3290 & 43-2241 may be taken by Juniors*	**9-12 credits**
• 43-3220 – Advanced Practicum in Studio Recording *Pre-Requisites: 43-3210 Recording II AND Dept. Permission*	[4 credits]

- 43-3230 - Advanced Practicum in Music Design [3 credits]
  Pre-Requisites: 43-3210 Recording II AND Dept. Permission
- 43-3240 - Advanced Practicum in Live Sound Recording [3 credits]
  Pre-Requisites: 43-3210 Recording II; 43-2220 Live Sound Recording; AND Dept. Permission
- 43-3250 - Advanced Practicum in Classic Studio Techniques [4 credits]
- *Pre-Requisites: 43-3220~Advanced Practicum in Studio Recording OR 43-3230 - Advanced Practicum in Music Design AND Dept. Permission*
- 43-3290 - Master Class in Sound Art [3 credits]
  Pre-Requisite: Instructor Permission
- 43-2241 - Audio Processes and Programming [3 credits]
  Pre-Requisite: Instructor Permission
- 43-3252 – Advanced Sound Art Electronics Workshop [3 credits]
  Pre-Requisite: 43-2261 Experimental Audio Electronics (min: B-) OR Instructor Permission
- 43-3292 - College Studio Operations [4 credits]
  Pre-Requisites: 43-3220~Advanced Practicum in Studio Recording OR 43-3230 - Advanced Practicum in Music Design AND Dept. Permission

Audio Arts and **Acoustics Electives** (***three minimum*** - *some suggested courses, below*) **9-12 credits**
Note: *Any 2000/ 3000 level AAandA course qualifies, including courses beyond the two required from the Advanced Level Requirements list. – 3, minimum required for students not waiving Psychoacoustics*

- 43-2310 – Psychoacoustics [3 credits]
  Pre-Requisite: 43-2725 Studies in Hearing
- 43-2420 - Audio for Visual Media I [4 credits]
  Pre-Requisite: 43-2215 Audio Production II
- 43-2510 - Aesthetics of Live Sound I [3 credits]
  Pre-Requisite: 43-1111 Introduction to Audio
- 43-2515 - Live Sound Reinforcement [3 credits]
  Co-Requisite: 43-1112 Audio Theory and Systems
- 43-2610 - Project Planning, Process and Implementation [3 credits]
  Pre-Requisites: 43-1111 Introduction to Audio AND 52-1151 Writing and Rhetoric I (or SAT:710+; ACT:30+)
- 43-2720 - History of Audio (*WI*) [3 credits]
  Pre-Requisites: 43-1112 Audio Theory and Systems AND 52-1152 Writing and Rhetoric II
- 43-3115 - Audio Production III [3 credits]
  Pre-Requisites: 43-2210 Recording I OR 43-2420 Audio for Visual Media I
- 43-3243 - Principles of Audio Deliverables Mastering and Preservation [3 credits]
- 43-3288 - Internship *(Minimum 3 credits at senior-level – Subject to Departmental. Approval)* [Variable:1-6]
- 43-ELEC – AAA Elective [3 credits]

College-Wide Electives (***strongly recommended courses;*** *all AAandA courses qualify as CWEs*) **28-32 credits**
Note: *Successful completion of the 6* Business & Entrepreneurship *courses, will earn you a B&E Minor in Management*

- 28-1110 - Intro to MGMT OR 28-1115 Entertainment MKTG **(B&E Minor** Core**)** [3 credits]
- 28-1410 - Business of Music OR 28-1610 Business of Media **(B&E Minor** Elective**)** [3 credits]
- 28-2111 - Entertainment Law **(B&E Minor** Core**)** [3 credits]
- 28-2435 - Music Publishing **(B&E Minor** Elective**)** [3 credits]

- 28-2712 - Self-MGMT & F.L. OR 28-4040 AEMMP Record Label Practicum [3 credits]
  OR 28-3430 Music Publishing II: Licensing Strategies **(B&E Minor** Electives**)**
- 28-3130 - Entrepreneurship **(B&E Minor** Core**)** [3 credits]
- 32-1100 - Introduction to Music Theory (*or higher - Music Dept.)* [3 credits]
- 32-1110 - Aural Skills I & any "Techniques" OR "Ensemble" courses *(Music Dept.)* [3 credits]
- 32-1620 - Popular Contemporary Music *(Music Dept.)* [3 credits]
- 56-1881 - Physics of Musical Instruments *(honors sections also available – SCMT Dept.)* [4 credits]

B.A. in *Audio Design & Production* (ADP)

Sample Four-Year Plan

38 courses; *8* semesters (4 years); *120* credits

- 14 courses in *Liberal Arts and Sciences*
- 14 courses in the *Major*
- 10 courses in *College-Wide Electives*

1st Semester	**15**
LAS 1: 56-1720 College Mathematics *OR* 56-1723 *OR* 56-1728	3
43-1111 Introduction to Audio	3
43-1115 Audio Production I	3
LAS 2: First Semester Experience	3
LAS 3: 52-1151 Writing and Rhetoric 1	3

2nd Semester	**14**
43-2215 Audio Production II	3
LAS 4: 56-2820 The Science of Acoustics	3
LAS 5: 52-1152 Writing and Rhetoric 2	3
43-1152 Audio Electronics	2
43-1112 Audio Theory and Systems	3

3rd Semester	**16**
43-2210 Recording I	4
AAandA Elective 1	3
LAS 6	3
LAS 7	3
CWE 1	3

4th Semester	**16**
43-2725 Studies in Hearing	3
43-3210 Recording II	4
43-2220 Live Sound Recording	3
LAS 8	3
LAS 9	3

5th Semester	**15(16)**
AAandA Elective 2	3(4)
LAS 10	3
LAS 11	3
CWE 2	3
CWE 3	3

6th Semester	**15(16)**
Advanced ADP 1	3(4)
LAS 12	3
LAS 13	3
CWE 4	3
CWE 5	3

7th Semester	**16**
Advanced ADP 2	4
LAS 14	3
CWE 6	3
CWE 7	3
CWE 8	3

8th Semester	**13(14)**
Advanced ADP 3	4
AAandA Elective 3	3(4)
CWE 9	3
CWE 10	3

B.A. in *Audio Design & Production* (ADP)
Transfer and 2nd Bachelor's Overview

SAMPLE 4-SEMESTER PLAN (*47 credits*)

Minimum number of successfully completed courses/semesters/credits to graduation:
***13* courses; *4* semesters (2 years), *47* credits** (*subject to fulfillment of all conditions, above*)

1st SEMESTER (*6 Credits*)		**2nd SEMESTER** (*13 Credits*)	
43-1111 Introduction to Audio	(3)	43-1112 Audio Theory and Systems	(3)
43-2215 Audio Production II	(3)	43-2210 Recording I	(4)
43-1152 Audio Electronics	(2)	43-2*** *Or* 43-3*** AAandA elective	(3)
56-2820 Science of Acoustics	(3)	43-2220 Live Sound Recording	(3)
3rd SEMESTER (*13-14 Credits*)		**4th SEMESTER** (*9-12 Credits*)	
43-2725 Studies in Hearing	(3)	43-3*** (*Choice of Advanced Level Course*)	(3-4)
43-3210 Recording II	(4)	43-3*** (*Choice of Advanced Level Course*)	(3-4)
43-2*** *Or* 43-3*** AAandA elective	(3)	43-2*** *Or* 43-3*** AAandA elective	(3-4)
43-3*** (*Choice of Advanced Level Course*)	(3-4)		

Bachelor of Arts Degree

Live & Installed Sound (LIS)

Description

As a Live and Installed Sound major, you'll learn how to listen critically to live produced sound, the most important skill you can master in this field. We'll train you to mic and mix just about every genre of music, work with the acoustics of different spaces, and deliver a performer's message in an authentic, effective way. You'll become an expert at thinking critically, troubleshooting, and problem solving so you can adapt as the industry changes.

The digital era is completely transforming the music industry. Concerts and music festivals are more popular than ever—and so is the demand for highly trained live sound engineers, as well as experts in designing sound systems. In this program, you'll master the art of listening. You'll learn the best ways to amplify each instrument and vocal style, how to work in a variety of venues, and how to operate and troubleshoot sound equipment. Our lab-based training prepares you for the unique challenges of managing sound at a live performance. We won't just focus on the latest software for its own sake. Instead, you'll learn to use technology as a tool to deliver a performer's creative message in a way that's effective and authentic. You'll develop your critical thinking skills and prepare for a career in engineering sound at music and sports venues, places of worship, hotels, and convention centers. We strive to teach you what you can immediately put into practice—preferably on your gig this weekend!

The Live & Installed Sound Program addresses the technology and art of configuring, installing, and operating sound systems for everything from music and theater performances to civic or corporate events, religious services, and public announcement environments, through equal parts theory, aesthetics, and hands-on operation. As different as they may appear, live sound engineers and systems contractors are joined by a common goal: to successfully accomplish a desired sonic outcome in real-time contexts. Live & Installed Sound skills are comprehensively taught in our Department and are widely sought after by the relevant industries, where many of our alumni thrive.

Input from working alumni in Live & Installed Sound has contributed to curriculum design and updates within the program. Early in the program the classes are directed toward theory and aesthetics, with hands-on experience becoming increasingly the focus of small-group projects as the course sequence progresses. Cooperative effort is encouraged at all levels of the program, reflecting the professional expectations of the live sound and sound systems design environments. Opportunity is also provided for students to expand their individual capabilities in lab and in external production contexts.
As live sound production often incorporates other media arts, students are encouraged to take classes in acoustics, and audio production as a means of expanding their personal viability in the professional world. The course material is driven by the realities of that world and the less volatile requirements of a classic liberal arts education.

B.A. in *Live & Installed Sound* (LIS)

Program Major Requirements (53 credits)

(See the "*General Notes*" on pages 8-9)

Core Requirements	**17 credits**
• 43-1111 - Introduction to Audio *Co-Requisite: LAS MA Requirement (see the LAS requirements section)*	[3 credits]
• 43-1115 - Audio Production I *Co-Requisite: 43-1111 Introduction to Audio OR 36-1400 Sound for Interaction*	[3 credits]
• 43-1112 - Audio Theory and Systems *Pre-Requisites: 43-1111 Introduction to Audio And 56-1720 College Level Mathematics* *Co-Requisite: 56-2820 The Science of Acoustics I*	[3 credits]
• 43-1152 - Audio Electronics *Pre-Requisites:56-1720 College Level Mathematics*	[2 credits]
• 43-2725 - Studies in Hearing *Pre-Requisite: 43-1112 Audio Theory and Systems*	[3 credits]
• 56-2820 - The Science of Acoustics *Pre-Requisites: 56-1720 College Level Mathematics*	[3 credits]
Intermediate Level	**6 credits**
• 43-2510 - Aesthetics of Live Sound I *Pre-Requisite: 43-1111 Introduction to Audio*	[3 credits]
• 43-2515 - Live Sound Reinforcement *Pre-Requisite: 43-1112 Audio Theory and Systems*	[3 credits]
Advanced Level Requirements	**18 credits**
• 43-3511 - Aesthetics of Live Sound II *Pre-Requisites: 43-2510 Aesthetics of Live Sound I AND 43-1112 Audio Theory and Systems*	[3 credits]
• 43-3525 - Live Sound Engineering Practicum *Pre-Requisites: 43-2510 Aesthetics of Live Sound I AND 43-2515 Live Sound Reinforcement*	[3 credits]
• 43-3526 - Digital Equalization and System Management *Pre-Requisite: 43-3525 Live Sound Engineering Practicum*	[3 credits]
• 43-3527 - Digital Audio Console Practicum *Pre-Requisite: 43-2515 Live Sound Reinforcement*	[3 credits]
• 43-3528 - Monitor Mixing *Pre-Requisite: 43-3525 Live Sound Engineering Practicum*	[3 credits]
• 43-3623 - Loudspeaker System Applications (*Note: effective Fall 2017, this is now an elective in list below*) *Pre-Requisite: 43-3619 Installed Systems Doc, / Co-Requisite: 43-3515 Studies in Loudspeaker Theory*	[3 credits]
Required Electives (Choose 4 from the following – 12 credits total) :	**12 credits**
• 28-2712 - Self- Management and Freelancing	[3 credits]
• 28- 3832 - Producing & Touring Live Entertainment *Pre-Requisite: 60+ credit hours*	[3 credits]

- 31-1520 - Lighting Technologies I *(Theatre Dept.)* [3 credits]
- 43-2215 - Audio Production II [3 credits]
  Pre-Requisites:43-1115 Audio Production I
- 43-2220 - Live Sound Recording [3 credits]
  Pre-Requisites: 43-2215 Audio Production II Co-: 43-1112 Audio Theory and Systems
- 43-2610 - Project Planning, Process and Implementation [3 credits]
  Pre-Requisites: 43-1111 Introduction to Audio AND 52-1151 Writing and Rhetoric I (or SAT:710+; ACT:30+)
- 43-3240 - Advanced Practicum in Live Sound Recording [3 credits]
  Pre-Requisites: 43-2220 Live Sound Recording AND 43-3210 Recording II. Department Permission
- 43-3515 - Studies in Loudspeaker Theory [3 credits]
  Pre-Requisite: 43-3610 Sound System Design
- 43-3520 - Sound for the Theater [3 credits]
  Pre--Requisites: Pre-: 43-1112 Audio Theory and Systems AND 43-2310 Psychoacoustics
- 43-3610 - Sound System Design [3 credits]
  Pre-Requisite: 43-2725 Studies in Hearing
- 43-3611 - Level, Intelligibility and Feedback [3 credits]
  Pre-Requisite: 43-2725 Studies in Hearing
- 43-3619 - Installed Systems Documentation [3 credits]
  Pre-Requisites: Pre-: 43-3610 Sound System Design
- 43- 3621 - The Art of Troubleshooting [3 credits]
  Pre-Requisite: 43-1112 Audio Theory and Systems
- 43-3623 - Loudspeaker System Applications [3 credits]
  Pre-Requisites: Pre-: 43-3619 Installed Systems Doc. Co-: 43-3515 Studies in Loudspeaker Theory
- 43-4473 - Audio Visual System Design [3 credits]
  Pre-Requisites: Pre-: 43-3610 Sound System Design

College-Wide Electives (***strongly recommended courses;*** *all AAandA courses qualify as CWEs*) **26 credits**
Note: *Successful completion of the 6* Business & Entrepreneurship *courses, below, will result in earning a B&E Minor in Management*

- 28-1110 - Intro to MGMT OR 28-1115 Entertainment MKTG **(B&E Minor** Core**)** [3 credits]
- 28-1113 - Information Management OR 28-2110 Accounting (**B&E Minor** Core**)** [3 credits]
- 28-3130 - Entrepreneurship **(B&E Minor** Core**)** [3 credits]
- 28-1718 - Business of Live and Performing Arts **(B&E Minor** Elective**)** [3 credits]
- 28-3832 - Producing & Touring Live Entertainment **(B&E Minor** Elective**)** [3 credits]
- 28-4090 - Event Managem Practic. OR 28-4080 Club Managem Practic. **(B&E Minor** Elective**)** [3 credits]
- 43-2241 - Audio Processes and Programming [3 credits]
- 43-2310 - Psychoacoustics [3 credits]
- 43-2720 - History of Audio (*WI*) [3 credits]
- 43-3288 - AAandA Internship *and/or* 43-3291 - AAandA Indep. Project *[variable credits]* [1-6 credits]
- 43-3622 - Networks and Networking for Media *(currently under revision)* [3 credits]
- 32-1100 - Introduction to Music Theory *(or higher - Music Dept.)* [3 credits]
- 32-1620 - Popular Contemporary Music *(Music Dept.)* [3 credits]
- 56-1881 - Physics of Musical Instruments *(honors sections also available – SCMT Dept.)* [4 credits]

B.A. in *Live & Installed Sound* (LIS)

Sample Four-Year Plan

39 courses; *8* semesters (4 years); *120* credits

- 14 courses in *Liberal Arts and Sciences*
- 18 courses in the *Major*
- 9 courses in *College-Wide Electives*

1st Semester	**15**
LAS 1: 56-1720 College Mathematics *OR* 56-1723 *OR* 56-1728	3
43-1111 Introduction to Audio	3
43-1115 Audio Production I	3
LAS 2: First Semester Experience	3
LAS 3: 52-1151 Writing and Rhetoric 1	3

2nd Semester	**15**
43-2510 Aesthetics of Live Sound I	3
LAS 4: 56-2820 The Science of Acoustics	3
LAS 5: 52-1152 Writing and Rhetoric 2	3
LAS 6:	3
CWE 1	3

3rd Semester	**14**
43-1112 Audio Theory and Systems	3
43-2515 Live Sound Reinforcement	3
43-3621 The Art of Troubleshooting	3
43-1152 Audio Electronics	2
LAS 7	3

4th Semester	**15**
43-3525 Live Sound Engineering Practicum	3
43-2725 Studies in Hearing	3
43-3610 Sound System Design	3
LAS 8	3
LAS 9	3

5th Semester	**15**
43-3619 Installed Systems Documentation	3
Intermediate Level Elective 1	3
LAS 10 (possibly WI – only 1 needed)	3
LAS 11	3
CWE 2 (Suggested: B&E course)	3

6th Semester	**15**
Intermediate Level Elective 2	3
Intermediate Level Elective 3	3
LAS 12	3
LAS 13	3
CWE 3 (Suggested: B&E course)	3

7th Semester	**15**
43-3528 Monitor Mixing	3
43-3515 Studies in Loudspeaker Theory	3
LAS 14	3
CWE 4 (Suggested: B&E course)	3
CWE 5 (possibly WI – only 1 needed)	3

8th Semester	**16**
43-3526 Digital Equalization and Syst…	3
43-3623 Loudspeaker System Applications	3
Management	3
CWE 6 (Suggested: B&E course)	3
CWE 7 (Suggested: B&E course)	3
CWE 8	1

B.A. in *Live & Installed Sound* (LIS)
Transfer and 2nd Bachelor's Overview

SAMPLE 4-SEMESTER PLAN (*51 credits*)

Minimum number of successfully completed courses/semesters/credits to graduation:
***17* courses; *4* semesters (*2* years); *51* credits** (*subject to fulfillment of all conditions, above*)

1st SEMESTER (*9 Credits*)	
43-1111 Introduction to Audio	(3)
43-1152 Audio Electronics	(2)
43-2510 Aesthetics of Live Sound I	(3)
43-2515 Live Sound Reinforcement	(3)
56-2820 Science of Acoustics	(3)

2nd SEMESTER (*15 Credits*)	
43-1112 Audio Theory and Systems	(3)
43-3610 Sound System Design	(3)
43-3621 The Art of Troubleshooting	(3)
43-2725 Studies in Hearing	(3)
43-3525 Live Sound Engineering Practicum	(3)

3rd SEMESTER (*15 Credits – 2 courses + 3 of 6*)	
43-3619 Installed Systems Documentation	(3)
43-3515 Studies in Loudspeaker Theory	(3)
43-3511 Aesthetics of Live Sound II	(3)
43-3527 Digital Audio Console Practicum	(3)
43-3611 Level, Intelligibility, and Feedback	(3)
43-4473 Audio Visual System Design	(3)
43-2610 Project Planning, Proc. & Implem.	(3)
43-3520 Sound for the Theater	(3)

4th SEMESTER (*9-12 Credits – 3 + 1 courses*)	
43-3528 Monitor Mixing	(3)
43-3623 Loudspeaker System Applications	(3)
43-3526 Digital Equalization & Syst. Mgmnt	(3)
43-2720 History of Audio (WI) (transfers only)	(3)

Bachelor of Science Degree
Applied Acoustics

Description

As an Applied Acoustics major, you'll study a branch of physics that examines the generation, transmission, and modification of acoustic waves. You'll learn how we perceive sounds and how to analyze them. This highly technical program emphasizes math, science, critical thinking skills, lab-based projects, and collaboration. Working closely with a faculty of working professionals and a cohort of your peers, you'll prepare for a career in architectural acoustics, environmental noise control, sound perception, cognition and communication, or audio signal and vibration analysis.

Our Applied Acoustics program provides a rigorous, in-depth and complete set of Acoustics course offerings. As a student in this discipline, you'll take foundational classes in the art and science of audio while you complete a sequence of math and science courses. We also emphasize physiology, neurobiology, and psychology as they relate to how we hear and perceive sounds. You'll learn how acoustical design creates spaces, environments, and products that are safer, more useful, and more engaging. You'll be part of a cohort of 10 to 12 students who will work and study together until graduation. Our small, selective program is a one-of-a-kind opportunity to learn from innovative researchers and practitioners and build a strong network of colleagues. You'll be poised for a career in architectural acoustics, environmental noise control, sound perception and cognition, or audio signal and vibration analysis. Many graduates of the program go on to further studies in the fields of hearing sciences, engineering, or architecture.

The Bachelor of Science degree program in Applied Acoustics offered by the Audio Arts & Acoustics (AAandA) Department provides students with extensive undergraduate level preparation in the fields of Architectural Acoustics (e.g. sound isolation; design of concert halls, studios, etc), Environmental Acoustics (e.g. noise measurement and control; noise pollution; regulatory standards; etc.), Sound Perception and Cognition (e.g. physical, physiological, and cognitive bases of communication through sound), and audio and vibration studies in markets as diverse as loudspeaker manufacturing, automotive research & development, and musical instrument construction. Graduates of the program are represented at major consulting firms in the country and at world-renowned manufacturers. The program also prepares students for graduate studies in Hearing Sciences and Architectural Acoustics.

The main educational goal of the program is to offer students a holistic understanding of acoustics as a discipline, by presenting all of its components, i.e. theory, practicum, and aesthetics, through a combination of survey and in-depth courses. Theoretical and applied theory elements of acoustics are introduced in courses such as *Architectural Acoustics*, *Environmental Acoustics*, *Fundamentals of Vibration Analysis*, *Studies in Hearing*, and *Psychoacoustics*, while courses like *Acoustical Testing I*, *Acoustical Testing II*, and *Acoustical Modeling* give students the opportunity to analyze and solve "real-world" problems, while developing a professional portfolio. Practical "real-world" exposure to the discipline is further emphasized in advanced courses such as *Acoustics of Performance Spaces*, and *Engineered Acoustics*, while the aesthetic element of the discipline, yet presented in every class, is furthered in courses such as *Perception & Cognition of Sound*, and *Studies in Applied Acoustics*.

In all, we have developed a curriculum that provides both, the fundamental elements that any practitioner in acoustics should be intimately familiar with, as well as a series of courses that the student can choose from in order to match her/his specific educational and career goals. Students are also encouraged to become better practitioners in the field of acoustics by considering elective courses that truly reflect the foundation of an enlightened liberal arts education.

Students advance through the program in a cohort fashion, with a typical class of 12-15 students graduating in the spring semester. The cohort is expected to develop study groups, bring forth to the attention of the faculty common issues of interest to the students, and plan for and schedule research activities suitable for presentation in refereed conferences.

Although the Applied Acoustics program aims at fostering a climate that develops team work, it also emphasizes individual attention to the students during all phases of their academic careers. Registration for most courses requires instructor permission, leading to regular one-on-one advising sessions between student and faculty members. In addition, office hours are held after every class and a wide range of individual tutoring options are available.

As part of the AAandA Department, students benefit from both, a liberal arts education and a curriculum that emphasizes the science and mathematics behind the sounds we love (and sometimes hate). This 128-credit degree program prepares its students to successfully compete in the workplace and for graduate admission into relevant advanced academic programs.

B.S. in *Applied Acoustics*

Liberal Arts & Science (General Education) Requirements for Entering Students

Most up-to-date version of this information at:
http://www.colum.edu/academics/las-core-curriculum/index.html

B.S. in *Applied Acoustics* students must complete/transfer at least **39 credits** of General Education courses from the College's **Liberal Arts and Sciences** [LAS] Core Curriculum.

LAS CORE COURSE REQUIREMENTS (B.S.)

- First Semester Experience [3 credits]
- 52-1151 & 52-1152 Writing and Rhetoric I & II (*EN*) [6 credits]
- History (*HI*) [6 credits]
- Humanities (*HU*) [6 credits]
- Humanities Literature (*HL*) [3 credits]
- Oral Communication (*SP*) [3 credits]
- Mathematics (*MA*) [3 credits]
- Science *(SC/SL*) [3 credits]
- Social Science (*SS*) [6 credits]

Notes

I. Only students eligible to register in *56-2720 Calculus I* within their first two semesters of study will be able to complete their degree major within 4 years, without the need to take additional summer courses.

II. Writing and Rhetoric I and II must be taken by the attainment of 45 total credits.

III. 24 credits of LAS Core courses must be completed by the attainment of 60 total credits.
At least 6 credits of LAS courses must be taken at a level of 2000 or above.

IV. College-wide elective (CWE) options can be fulfilled by completing any College course, including AAandA courses additional to those required for the major.

V. Students must satisfy a "Writing Intensive" (WI) requirement and can do so with any course labeled as such, including 43-2720 *History of Audio*, which also counts as an AAandA or CWE course.

VI. Students must satisfy a "U.S., Pluralism" (PL) and a "Global Awareness" (GA) requirement, ideally by selecting appropriate LAS courses, while also fulfilling the degree's LAS Core requirements.

B.S. in *Applied Acoustics*

Program Major Requirements (77 credits)

(See the "*General Notes*" at the end of the section)

Applied Acoustics Requirements *(Must take/transfer all 11 courses)*	**32 credits**
• 43-1112 – Audio Theory and Systems *Pre-Requisites: 43-1111 Introduction to Audio* *Co-Requisite: 56-2820 The Science of Acoustics I (this course fulfils a major requirement)*	[3 credits]
• 43-1115 - Audio Production I *Co-Requisite: 43-1111 Introduction to Audio OR 36-1400 Sound for Interaction*	[3 credits]
• 43-1152 – Audio Electronics	[2 credits]
• 43-2310 - Psychoacoustics *Pre-Requisite: 43-2725 Studies in Hearing*	[3 credits]
• 43-2315 - Architectural Acoustics *Pre-Requisites: 43-2725 Studies in Hearing AND 56-2720 Calculus I* *Co-Requisite: 43-2310 Psychoacoustics*	[3 credits]
• 43-2725 - Studies in Hearing *Pre-Requisite: 43-1112 Audio Theory and Systems*	[3 credits]
• 43-3315 - Environmental Acoustics (*Instructor permission required*) *Pre-Requisite: 43-2725 Studies in Hearing AND Instructor Permission* *Co-Requisites: 43-2310 Psychoacoustics*	[3 credits]
• 43-3320 - Acoustical Modeling (*Instructor permission required*) *Pre-Requisite: 43-3325 Acoustical Testing I AND Instructor Permission*	[3 credits]
• 43-3325 - Acoustical Testing I *Pre-Requisite: 43-3315 Environmental Acoustics AND Instructor Permission*	[3 credits]
• 43-3326 - Acoustical Testing II (*Instructor permission required*) *Pre-Requisite: 43-3325 Acoustical Testing I AND Instructor Permission*	[3 credits]
• 43-3610 - Sound System Design *Co-Requisite: 43-2725Studies in Hearing*	[3 credits]
Science & Mathematics Requirements *(Must take/transfer all 9 courses)*	**30-34 credits**
REQUIRED – 5 COURSES	**18 credits**
• 56-1820 - Science of Electronics *Pre-Requisite: Any College-Level Math course*	[4 credits]
• 56-2720 - Calculus I *(must be completed before 60 credit hours)* *Pre-Requisite: 56-2713 Pre-Calculus (or ACT 27+ or SAT 620+ or COMPASS 80+)*	[4 credits]
• 56-2721 - Calculus II *(must be completed before completing 12 hours of Acoustics requirements)* *Pre-Requisite: 56-2720 Calculus I*	[4 credits]
• 56-2820 - The Science of Acoustics *Pre-Requisite: Any College-Level Math course*	[3 credits]
• 56-3720 – Elementary Differential Equations *Pre-Requisite: 56-2721 Calculus II*	[3 credits]

Plus SELECT 4 OUT OF THE FOLLOWING 11 COURSES (at least two at 3000-level)	**12-16 credits**
• 56-1240 – Material Science Technology *(suggested pre-req.: any College-Level Math course)(Last offered SP16)*	[4 credits]
• 56-1881 – Physics of Musical Instruments *(honors sections also available)* *Pre-Requisite: Any College-Level Math course*	[4 credits]
• 56-2270 – General Chemistry I *Pre-Requisite: 56-2710 College Algebra or higher*	[4 credits]
• 56-2271 – General Chemistry II *Pre-Requisite: 56-2271 General Chemistry I*	[4 credits]
• 56-2706 – Introduction to Statistics *Pre-Requisite: Any College-Level Math course*	[3 credits]
• 56-2830 – Fundamentals of Physics I *Pre-Requisite: 56-2710 College Algebra (or higher)*	[3 credits]
• 56-3700 – Discrete Mathematics *Pre-Requisite: 56-2720 Calculus I*	[3 credits]
• 56-3710 – Calculus III *Pre-Requisite: 56-2721 Calculus II*	[3 credits]
• 56-3730 – Numerical Analysis *Pre-requisites: 56-2721 Calculus II AND 36-1501 Introduction to Programming*	[4 credits]
• 56-3740 – Linear Algebra *Pre-Requisite: 56-2720 Calculus I*	[4 credits]
• 56-3810 – Foundations of Electricity & Magnetism *Pre-Requisites: Both 56-2721 Calculus I AND 56-2830 Fundamentals of Physics – OR Inst. Approval*	[3 credits]
Applied Acoustics Electives *(Must select 5 from the following 15 courses)*	**15 credits**
• 43-1111 – Introduction to Audio *Co-Requisite: Any College-Level Math course*	[3 credits]
• 43-2241 – Audio Processes and Programming *Pre-Requisite: Instructor Permission – Junior status or higher*	[3 credits]
• 43-2610 – Project Planning, Process and Implementation *Pre-Requisites: 43-1111 Introduction to Audio AND 52-1151 Writing and Rhetoric I*	[3 credits]
• 43-2720 – History of Audio (*WI*) *Pre-Requisites: 43-1112 Audio Theory and Systems AND 52-1152 Writing and Rhetoric II*	[3 credits]
• 43-3120 – Perception and Cognition of Sound *Pre-Requisite: 43-2310 Psychoacoustics*	[3 credits]
• 43-3290 – Master Class in Sound Art *Pre-Requisite: Instructor Permission – Junior status or higher*	[3 credits]
• 43-3310 – Acoustics of Performance Spaces *Pre-Requisites: 43-2310 Psychoacoustics AND 43-2315 Architectural Acoustics*	[3 credits]
• 43-3340 – Fundamentals of Vibration Analysis (*Acoustics Majors only*) *Pre-Requisites: 56-2720 Calculus I AND 43-2315 Architectural Acoustics*	[3 credits]
• 43-3330 – Engineered Acoustics (*Acoustics Majors only*) *Pre-requisites: Instructor Permission*	[3 credits]
• 43-3515 – Studies in Loudspeaker Theory *Pre-Requisite: 43-3610- Sound System Design*	[3 credits]

- 43-3583 – Research Methods: An Interdisciplinary Approach [3 credits]
  Pre-Requisite: Any College-Level Math course; All English requirements; Junior status
- 43-3619 – Installed Systems Documentation [3 credits]
  Pre-Requisite: 43-3610 Sound System Design
- 43-3621 - The Art of Troubleshooting [3 credits]
  Pre-Requisite: 43-1112 Audio Theory and Systems
- 43-4473 – Audio Visual System Design [3 credits]
  Pre-Requisite: 43-3610 Sound System Design

College-Wide Electives (***suggested courses;*** *all AAandA courses qualify as CWEs*) **9-13 credits**

- [3 credits]
- 36-2600 - Object-Oriented Programming *(Interactive Arts & Media Dept.)* [3 credits]

Note: Any programming course that will allow students to develop custom applications prior to taking Acoustical Modeling will be accepted

- 28-2110 - Accounting *(Business & Entrepreneurship Dept.)* [3 credits]
- 28-1115 - Introduction to Management *(Business & Entrepreneurship Dept.)* [3 credits]
- 28-3130 - Entrepreneurship *(Business & Entrepreneurship Dept.)* [3 credits]
- 33-1261 - Tai-Chi Chuan. Beginning (*Dance Dept.*) [2 credits]
- 22-1131 - History of Architecture I (*Art + Design Dept.*) [3 credits]
- 22-1220 - Fundamentals of 2D Design (*Art + Design Dept.*) [3 credits]

B.S. in *Applied Acoustics*

Sample Four-Year Plan

40 courses; *8* semesters (4 years); *128* credits

- 13 courses in *Liberal Arts and Sciences (to remove the current LAS MA redundant requirement)*
- 25 courses in the *Major*
- 3 courses in *College-Wide Electives*

1st Semester		**16**
LAS 1: First Semester Experience		3
LAS 2: 52-1151 Writing & Rhetoric I		3
56-1820 Science of Electronics		4
LAS 3		3
Acoustics Elect (Suggested Intro to Audio)		3

2nd Semester	**16**
43-1112 Audio Theory and Systems	3
LAS 4: 52-1152 Writing & Rhetoric II	3
56-2820 The Science of Acoustics	3
56-2720 Calculus I	4
43-1152 Audio Electronics	2
CWE 1	*1*

3rd Semester		**16**
43-2725 Studies in Hearing		3
56-2721 Calculus II		4
LAS 5: e.g. Statistics course (2xxx)	*???*	3
LAS 6		3
43-1115 Audio Production I		3

4th Semester	**16**
43-2310 Psychoacoustics	3
43-2315 Architectural Acoustics	3
LAS 7 (possibly WI; 1 needed)	3
Science & Math Elective 1	3
CWE 2	4

5th Semester	**16**
43-3610 Sound System Design	3
Acoustics Elect. 2	3
Science & Math Elective 2	4
LAS 8	3
LAS 9	3

6th Semester	**16**
43-3315 Environmental Acoustics	3
56-3720 Elementary Differential Eqs	3
CWE 3 (Programming course suggested)	4
LAS 10	3
LAS 11	3

7th Semester	**16**
43-3325 Acoustical Testing I	3
Acoustics Elect. 3	3
Acoustics Elect. 4	3
LAS 12	3
Science & Math Elective 3	4

8th Semester	**16**
43-3320 Acoustical Modeling	3
43-3326 Acoustical Testing II	3
Science & Math Elective 4	4
Acoustic Elect. 5	3
LAS 13	3

B.S. in *Applied Acoustics*
Transfer and 2nd Bachelor's Overview

[***LAS**: Liberal Arts & Science (i.e. General Education) courses; **CWE**: College-Wide Elective courses*]

- **All *LAS* and *CWE* course requirements may be satisfied through completion of appropriate college-level courses, subject to College-wide transfer policies and the following exceptions:**
  - The LAS "Writing Intensive" (WI) requirement is only waived for 2nd Bachelors students.
  - To satisfy the "Mathematics" LAS requirement for this major, your transcript must include a Math course above and beyond the Math requirements for this major.
  - To satisfy the "Science" LAS requirement for this major, your transcript must include a Science course above and beyond the Science requirements for this major.

- **The following courses in the major may be transferred/waived, subject to College-wide transfer policies:**

56-2706 Introduction to Statistical Methods
56-2720 Calculus I
56-2721 Calculus II
56-3700 Discrete Mathematics
56-3710 Calculus III
56-3720 Elementary Differential Equations
56-3740 Linear Algebra
56-3730 Numerical Analysis
56-1240 Material Science Technology
56-1820 Science of Electronics
56-2270 General Chemistry I
56-2271 General Chemistry II
56-2820 The Science of Acoustics I
56-2830 Fundamentals of Physics I

- **Course 43-1115 *Audio Production I*** (*3 credits – in the major*) **may be transferred/waived, subject to individual review.** To be considered, please **submit at least one of the following** to Benj Kanters, MM (bkanters@colum.edu) or Ben Sutherland, PhD (bsutherland@colum.edu)
  - syllabus for and grade in course(s) addressing DAWs and analog signal flow and/or
  - an audio recording accompanied by a document outlining your role in the production and the equipment/software plug-ins/processes used.

SAMPLE 4-SEMESTER PLAN (*42 credits*)

Minimum number of successfully completed courses/semesters/credits to graduation:
***14* courses; *4* semesters (*2* years); *43* credits** (*subject to fulfillment of all conditions, above*)

1st SEMESTER (*12 Credits*)		**2nd SEMESTER** (*12 Credits*)	
43-1112 Audio Theory and Systems	(3)	43-3315 Environmental Acoustics	(3)
43-2725 Studies in Hearing	(3)	43-3610 Sound System Design	(3)
43-2310 Psychoacoustics	(3)	43-2720 History of Audio *(WI)* (or any 43-2***/ or	
43-2315 Architectural Acoustics	(3)	43-3*** *Acoustics* Elective for 2nd Bachelors)	(3)
		43-2*** Or 43-3*** *Acoustics* elective	(3)
3rd SEMESTER (*9-10 Credits*)		**4th SEMESTER** (*9 Credits*)	
43-3325 Acoustical Testing I	(3)	43-3326 Acoustical Testing II	(3)
43-2*** Or 43-3*** *Acoustics* elective	(3)	43-3320 Acoustical Modeling	(3)
43-2*** Or 43-3*** *Acoustics* elective	(3-4)	43-2*** Or 43-3*** *Acoustics* elective	(3)

Bachelor of Science Degree

Music Technology

Description

The Bachelor of Science in Music Technology connects course work in music, audio arts, and information technology to educate artists and designers in the interdisciplinary foundations of modern musical practice. This curriculum focuses on the impact of technology on music's creation, presentation, representation, and distribution since the beginning of the 20th century while preparing our students for professional musical life in the 21st century.

The Bachelor of Science degree program in Music Technology is an interdisciplinary degree that combines coursework in Audio Arts & Acoustics (AA&A), Interactive Arts & Media (IAM), and Music to equip students with the knowledge, theory, contexts, and practices necessary for them to participate in, understand, and advance professional musical life in the 21st century. Graduates of the program are prepared for a wide range of music-related careers, including Composition, Performance, Recording, Producing, Sound Design, and Software/ Hardware Development, as well as advanced graduate studies in fields that include Music, Programming, Human Computer Interaction (HCI), and User Experience (UX).

The primary mission of the program is to educate artists and designers in the interdisciplinary foundations of modern musical practice, through a rigorous yet flexible curriculum that focuses on the impact of technology on music's creation, presentation, representation, and distribution since the beginning of the 20th century. This curriculum is delivered in two distinct stages. The first two years of the program are a candidacy phase, comprising primary core coursework in one of the three "home" departments (AA&A, IAM, or Music). In years three and four, after students are officially admitted into the program, coursework consists of secondary core work in the other two departments, advanced electives drawn from any of the departments, advanced science and math requirements, and four semesters of the central pillar course, The Sonic Experience.

Students begin the program by declaring their major as a "Music Technology Candidate" associated with one of the three constituent departments (AA&A, IAM, or Music). Then with the help of close advising by one or more of the Music Technology faculty, they prepare to apply (after 45 credits completed) for admittance into the Bachelor of Science program. This preparation includes primary core coursework, the completion of Calculus I, a CGPA of 3.0 or higher, and the assembly of a portfolio of creative and/or scholarly works in one or more of the related disciplines. In year three, having been admitted to the program, students advance through the program in a cohort of no more than 15 students (projected increase to 18 students, beginning Fall 2018). Although the flexibility in curricular paths in years one and two leads naturally to students in a cohort pursuing divergent and/or asynchronous paths in their advanced studies, their studies are unified by the four-semester course sequence, The Sonic Experience, which functions as a crucible and laboratory in which the cohort uses its collective knowledge and experience to explore a range of advanced aesthetic, creative, theoretical, and technical issues and applications in Music Technology. Their coursework will include select core offerings in the two disciplines outside their primary core (providing breadth), advanced electives (providing depth), and a robust selection of science and mathematics courses (providing

advanced facility with the mathematical principles underlying sound, music, acoustics, and digital signal processing).

As with all of the majors at Columbia College Chicago, the degree requirements described above are situated in the context of -and enhanced by-the college's liberal arts core curriculum.

The Bachelor of Science degree program in Music Technology is an interdisciplinary degree that combines coursework in Audio Arts & Acoustics (AAandA), Interactive Arts & Media (IAM), and Music to equip students with the knowledge, theory, contexts, and practices necessary for them to participate in, understand, and advance professional musical life in the 21st century. Graduates of the program are prepared for a wide range of music-related careers, including Composition, Performance, Recording, Producing, Sound Design, and Software/ Hardware Development, as well as advanced graduate studies in fields that include Music, Programming, Human Computer Interaction (HCI), and User Experience (UX).

The primary mission of the program is to educate artists and designers in the interdisciplinary foundations of modern musical practice, through a rigorous yet flexible curriculum that focuses on the impact of technology on music's creation, presentation, representation, and distribution since the beginning of the 20th century. This curriculum is delivered in two distinct stages. The first two years of the program are a Candidacy phase, comprising Primary Core coursework in one of the three "home" departments (AAandA, IAM, or Music). In years three and four, after students are admitted officially into the program, coursework consists of Secondary Core work in the other two departments, Advanced Electives drawn from any of the departments, Advanced Science and Math requirements, and four semesters of the central pillar course, *The Sonic Experience*.

Students begin the program by declaring their major as a "Music Technology Candidate" associated with one of the three constituent departments (AAandA, IAM, or Music). Then with the help of close advising by one or more of the Music Technology faculty, they prepare to apply (after 45 credits completed) for admittance into the Bachelor of Science program. This preparation includes Primary Core coursework, the completion of Calculus I, a CGPA of 3.0 or higher, and the assembly of a portfolio of creative and/or scholarly works in one or more of the related disciplines. In year three, having been admitted to the program, students advance through the program in a cohort of no more than 15 students (projected increase to 18 students, beginning Fall 2018). Although the flexibility in curricular paths in years one and two leads naturally to students in a cohort pursuing divergent and/or asynchronous paths in their advanced studies, their studies are unified by the four-semester course sequence, *The Sonic Experience*, which functions as a crucible and laboratory in which the cohort uses its collective knowledge and experience to explore a range of advanced aesthetic, creative, theoretical, and technical issues and applications in Music Technology. Their coursework will include select Core offerings in the two disciplines outside their Primary Core (providing breadth), Advanced Electives (providing depth), and a robust selection of Science and Mathematics courses (providing advanced facility with the mathematical principles underlying sound, music, acoustics, and digital signal processing).

As with all of the majors at Columbia College Chicago, the degree requirements described above are situated in the context of – and enhanced by – the College's liberal arts core curriculum.

B.S. in *Music Technology*

Liberal Arts & Science (General Education) Requirements for Entering Students

Most up-to-date version of this information at:
http://www.colum.edu/academics/las-core-curriculum/index.html

B.S. in *Music Technology* students must complete/transfer at least **39 credits** of General Education courses from the College's **Liberal Arts and Sciences** [LAS] Core Curriculum.

LAS CORE COURSE REQUIREMENTS (B.S.)

- 48-1100 - First–year Seminar (*FYS*) [3 credits]
- 52-1151 & 52-1152 Writing and Rhetoric I & II (*EN*) [6 credits]
- History (*HI*) [6 credits]
- Humanities (*HU*) [6 credits]
- Humanities Literature (*HL*) [3 credits]
- Oral Communication (*SP*) [3 credits]
- Mathematics (*MA*) [3 credits]
- Science *(SC/SL*) [3 credits]
- Social Science (*SS*) [6 credits]

Notes

VII. Students are expected to have completed *56-2720 Calculus I* by the end of their fourth semester (sophomore year), at the time of their separate application for entry into the B.S. in Music Technology program.

VIII. Because of the close one-on-one advising and tracking during the Candidacy stage, students at the stage of the separate application will already have a sense of the likelihood of their admittance into the B.S. program. Students not accepted into the program can apply the Primary Core coursework already completed to one of the B.A. degree programs in their home department.

IX. Writing and Rhetoric I and II must be taken by the attainment of 45 total credits.

X. 24 credits of LAS Core courses must be completed by the attainment of 60 total credits.
At least 6 credits of LAS courses must be taken at a level of 2000 or above.

XI. College-wide elective (CWE) options can be fulfilled by completing any College course, including Music Technology courses additional to those required for the major.

XII. Students must satisfy a "Writing Intensive" (WI) requirement and can do so with any course labeled as such, including 43-2720 *History of Audio*, which also counts as an AAandA or CWE course.

XIII. Students must satisfy a "U.S., Pluralism" (PL) and a "Global Awareness" (GA) requirement, ideally by selecting appropriate LAS courses, while also fulfilling the degree's LAS Core requirements.

B.S. in *Music Technology (AAandA Candidate Path)*

Program Major Requirements (76 credits)

(See the "*General Notes*" at the end of the section)

AAandA Primary Core Requirements *(Must select 7-8 courses, minimum 24 credits)* *(for IAM and Music Candidate Paths, consult departments directly*	**24 credits**
• 43-1111 – Introduction to Audio *Co-Requisite: 56-1720 College Mathematics OR 56-1723 Liberal Arts Mathematics OR 56-1728 Quantitative Reasoning OR SAT Math 550 OR COMPASS Test Math 67 OR ACT Math 23*	[3 credits]
• 43-1112 – Audio Theory and Systems *Pre-Requisites: 43-1111 Introduction to Audio* *Co-Requisite: 56-2820 The Science of Acoustics I (this course fulfils a major requirement)*	[3 credits]
• 43-1115 – Audio Production I *Pre-Requisite: 43-1111 Introduction to Audio*	[3 credits]
• 43-1152 – Audio Electronics	• [2 credits]
• 43-2210 – Recording I *Pre-Requisites: 43-2215 Audio Production II*	[4 credits]
• 43-2215 – Audio Production II *Pre-Requisite: 43-1115 Audio Production I*	[3 credits]
• 43-2220 – Live Sound Recording *Co-Requisite: 43-1112 Audio Theory and Systems* *Pre-Requisites: 43-2215 Audio Production II*	[3 credits]
• 43-2261 – Experimental Audio Electronics	[3 credits]
• 43-2310 – Psychoacoustics *Pre-Requisite: 43-2725 Studies in Hearing*	[3 credits]
• 43-2725 - Studies in Hearing *Pre-Requisite: 43-1112 Audio Theory and Systems*	[3 credits]
• 43-3210 – Recording II *Pre-Requisite: 43-2210 Recording I* *Co-Requisite: 43-2725 Studies in Hearing*	[4 credits]
Secondary Core Requirements *(Must select 5-7 courses, minimum 15 credits)*	**15 credits**
• 32-1131- Keyboard I *Pre-Requisite: Music Theory Exam "Beginner" or 32-1100 Music Prep* *Co-Requisite: 32-1110 Aural Skills I or 32-1170 Music Theory for Musical Theatre*	[2 credits]
• 32-1132 - Keyboard II *Pre-Requisite: 32-1131 Keyboard I*	[2 credits]
• 32-2111 - Aural Skills II *Pre-Requisite: 32-1110 Aural Skills I* *Co-Requisite: 32-1131 Keyboard I*	[2 credits]
• 32-2121 - Theory II *Pre-Requisite: 32-1120 Theory I or Music Theory Exam "Intermediate"* *Co-Requisite: 32-1131 Keyboard I*	[2 credits]
• 32-2122 - Theory III *Pre-Requisite: Music Theory Exam "Advanced" or 32-2121 Theory II*	[3 credits]

Co-Requisite: 32-1132 Keyboard II

- 32-2211 - Composition I: The Composer in the Modern World [3 credits]
  Co-Requisite: 32-1120 Theory I and 32-2910 Notation and Recording Lab
- 32-2612 - Music, Time, and Place II [3 credits]
  Pre-Requisite: 32-2111 Aural Skills II and 32-2121 and Theory II
- 36-1010 - Fundamentals of Interaction [3 credits]
- 36-1501 - Introduction to Programming [3 credits]
  Co-Requisite: 56-172 or 56-27** or SAT Math 550 or COMPASS Test Math 67 or ACT Math 23*
- 36-2310 - Prototyping Strategies [1 credit]
- 36-3400 - Sound Design for Games II [3 credits]
  Pre-Requisite: 36-2400 Sound Design for Games I

Music Technology Requirements *(Must take all four semesters consecutively)* **13 credits**

- 75/74-3101 – The Sonic Experience [3 credits]
  Pre-Requisite: By Instructor Permission
- 75/74-3101 – The Sonic Experience [3 credits]
  Pre-Requisite: By Instructor Permission
- 75/74-3101 – The Sonic Experience [3 credits]
  Pre-Requisite: By Instructor Permission
- 75/74-3101 – The Sonic Experience [3 credits]
  Pre-Requisite: By Instructor Permission
- 43-3291 – Independent Project: Audio Arts and Acoustics [1 credit]
  Pre-Requisite: By Instructor Permission

Advanced Courses *(Must select 3 courses from the following)* **9 credits**

- 32-2212 - Composition II [3 credits]
- 32-3262 - Digital Music Composition and Performance II [3 credits]
- 32-3665 - Advanced Seminar in Musicology [3 credits]
- 36-2600 - Object-Oriented Programming [3 credits]
- 36-2550 - C++ Programming I [3 credits]
- 36-2551 - C++ Programming II [3 credits]
- 36-3405 - Authoring Interactive Media II [3 credits]
- 36-3444 - Emergent Web Technologies [3 credits]
- 36-3520 - Data Design [3 credits]
- 36-3630 - Physical Computing II [3 credits]
- 43-2241 – Audio Processes and Programming [3 credits]
  Pre-Requisite: Instructor Permission – Junior status or higher
- 43-2720 – History of Audio (*WI*) [3 credits]
  Pre-Requisites: 43-1112 Audio Theory and Systems AND 52-1152 Writing and Rhetoric II
- 43-3120 – Perception and Cognition of Sound [3 credits]
  Pre-Requisite: 43-2310 Psychoacoustics
- 43-3252 - Advanced Sound Art Electronics Workshop [3 credits]

Pre-Requisite: 43-2261 Experimental Audio Electronics

- 43-3290 – Master Class in Sound Art [3 credits]
  Pre-Requisite: Instructor Permission – Junior status or higher
- 43-3315 - Environmental Acoustics (*Instructor permission required*) [3 credits]
  Pre-Requisite: 43-2725 Studies in Hearing AND Instructor Permission
  Co-Requisites: 43-2310 Psychoacoustics
- 43-3320 - Acoustical Modeling (*Instructor permission required*) [3 credits]
  Pre-Requisite: 43-3325 Acoustical Testing I AND Instructor Permission
- 43-3325 - Acoustical Testing I [3 credits]
  Pre-Requisite: 43-3315 Environmental Acoustics AND Instructor Permission
- 43-3610 - Sound System Design [3 credits]
  Pre-Requisite: 43-1112 Audio Theory and Systems

Science Requirement *(Must take a minimum of 1 course from the following)* **3-4 credits**

- 56-1881 – Physics of Musical Instruments *(honors sections also available)* [4 credits]
  Pre-Requisite: Any College-Level Math course
- 56-1820 - Science of Electronics [4 credits]
  Pre-Requisite: Any College-Level Math course
- 56-2820 - The Science of Acoustics [3 credits]
  Pre-Requisite: Any College-Level Math course
- 56-2830 – Fundamentals of Physics I [3 credits]
  Pre-Requisite: 56-2710 College Algebra (or higher)

Advanced Mathematics Requirements *(Must take 4 courses from the following)* **13-16 credits**

- 56-2720 - Calculus I *(must be completed before 60 credit hours)* [4 credits]
  Pre-Requisite: 56-2713 Pre-Calculus (or ACT 27+ or SAT 620+ or COMPASS 80+)
- 56-2721 - Calculus II *(must be completed before completing 12 hours of Acoustics requirements)* [4 credits]
  Pre-Requisite: 56-2720 Calculus I
- 56-3700 – Discrete Mathematics [3 credits]
  Pre-Requisite: 56-2720 Calculus I
- 56-3710 – Calculus III [3 credits]
  Pre-Requisite: 56-2721 Calculus II
- 56-3720 – Elementary Differential Equations [3 credits]
  Pre-Requisite: 56-2721 Calculus II
- 56-3730 – Numerical Analysis [4 credits]
  Pre-requisites: 56-2721 Calculus II AND 36-1501 Introduction to Programming
- 56-3740 – Linear Algebra [4 credits]
  Pre-Requisite: 56-2720 Calculus I

B.S. in *Music Technology*

Sample Four-Year Plan

40-41 courses; *8* semesters (4 years); *128* credits

- 13 courses in *Liberal Arts and Sciences (to remove the current LAS MA redundant requirement)*
- 26 courses in the *Major*
- 2-3 courses in *College-Wide Electives*

1st Semester	**16**
Primary Core 1	3
Primary Core 2	3
LAS 1: 48-1100 First Year Experience	3
LAS 2: 52-1151 Writing and Rhetoric I	3
LAS 3: Math Course Suggested	3
CWE 1	1

2nd Semester	**16**
Primary Core 3	4
Primary Core 4	3
LAS 4: 56-2820 Science of Acoustics	3
LAS 5: 52-1152 Writing and Rhetoric II	3
LAS 6	3

3rd Semester	**16**
Primary Core 5	4
Primary Core 6	3
36-1010 Computational Media Development (IAM)	3
LAS 7	3
LAS 8	3

4th Semester	**16**
Primary Core 7	3
Secondary Core 1	2
Secondary Core 2	2
Secondary Core 3	2
Math Requirement 1	4
Science Requirement	3

th Semester	**16**
74- or 75-3101 The Sonic Experience	3
Secondary Core 4	2
Secondary Core 5	2
Secondary Core 6	3
LAS 9	3
LAS 10	3

6th Semester	**16**
74- or 75-3101 The Sonic Experience	3
Secondary Core 7	3
Math Requirement 2	4
LAS 11	3
LAS 12	3

7th Semester	**16**
74- or 75-3101 The Sonic Experience	3
Math Requirement 3	4
Advanced Course 1	3
LAS 13	3
CWE 2	3

8th Semester	**16**
74- or 75-3101 The Sonic Experience	3
Math Requirement 4	3
Advanced Course 2	3
Advanced Course 3	3
CWE 3	3
Independent Project	1

Transfer and 2nd Bachelor's Overview

[***LAS**: Liberal Arts & Science (i.e. General Education) courses; **CWE**: College-Wide Elective courses*]

- **Acceptance into the Music Technology BS program is selective, based on an independent application process, which consists of an essay, portfolio work, and evidence of academic work in higher mathematics (Calculus I) as well as one or more of the key focal areas of the program: audio, programming, and music. Comparable life experience will be considered in lieu of academic achievements.**
- **All *LAS* & *CWE* course requirements may be satisfied through completion of appropriate college-level courses, subject to College-wide transfer policies and these exceptions:**
  - The LAS "Writing Intensive" (WI) requirement is only waived for 2nd Bachelors students.
  - To satisfy the "Mathematics" LAS requirement for this major, your transcript must include a Math course above and beyond the Math requirements for this major.
  - To satisfy the "Science" LAS requirement for this major, your transcript must include a Science course above and beyond the Science requirements for this major.
- **The following courses in the major may be transferred/waived, subject to College-wide transfer policies:**

56-2720 Calculus I
56-2721 Calculus II
56-3700 Discrete Mathematics
56-3710 Calculus III
56-3720 Elementary Differential Equations
56-3740 Linear Algebra
56-3730 Numerical Analysis
56-1820 Science of Electronics
56-2820 The Science of Acoustics I
56-2830 Fundamentals of Physics I

- ***The length of time to degree completion may also be lessened by transferring in applicable major coursework in one or more of the related disciplines (e.g. Audio, Acoustics, Computer Science, Music)*.** For consideration, send evidence of coursework to Ben Sutherland, Director of the B.S. in Music Technology (bsutherland@colum.edu – 312-369-8808).

Bachelor of Arts Degree in *Audio Arts & Acoustics*

Concentration in ***Audio for Visual Media*** **(AVM)**

[The *AAandA, AVM* Degree Major has been retired and is being replaced by the *Sound for Cinema BFA* at the CA+S Department, beginning Fall'14 – Information only applicable to existing AAandA, AVM students]

Description

Complete program: *36* courses; *8* semesters (4 years); *120* credits

- 14 courses in *Liberal Arts and Sciences;* 15 in the *Major;* 7 in *College-Wide Electives*

This Program prepares students for audio careers in the film, video, and game industries. Students explore the theory and practices of soundtrack design, as well as recording, editing, and mixing in relationship to story structure. The key theoretical framework of the concentration is "cross-modal interaction in perception": *exploring how the presence of a sound changes what we "see" and the presence of an image changes what we "hear."* As members of a liberal arts program, students develop an understanding of aesthetic principles as well as communication and professional skills that will allow them to effectively pursue their future goals. *Audio for Visual Media* is a collaboration among the Cinema Art + Science, Audio Arts & Acoustics, and Interactive Arts & Media Departments. Students in this Program are required to complete courses in all three areas. The Program is evolving to incorporate additional forms of visual media, and we encourage students to consult with faculty members/advisors to tailor their studies to best meet their interests & career objectives.

Benjamin Kanters, M.M Director, *Audio for Visual Media*

LAS Requirements (*see page 9 or page 15*)	**42 credits**

Degree Major Requirements (54 credits)

AAandA Department Core Requirements	**15 credits**
• 43-1111 - Introduction to Audio	[3 credits]
• 43-1115 - Audio Production I	[3 credits]
• 43-1112 – Audio Theory and Systems	[3 credits]
• 43-2725 - Studies in Hearing	[3 credits]
• 43-2310 - Psychoacoustics	[3 credits]
Cinema Art + Science Department Foundation	**8 credits**
• 24-1030 - Moving Image Art	[4 credits]
• 24-1031 - Moving Image Production I	[4 credits]
Advanced Level *AAandA* and *CA+S* Requirements	**30 credits**
• 43-2215 - Audio Production II	[3 credits]
• 24-2401 - Editing I	[4 credits]
• 43-2420 - Audio for Visual Media I	[4 credits]
• 24-2102 - Post-Production Audio II	[4 credits]

- 24-3122 - Post-Production Audio III [4 credits]
- 24-2103 - Location Sound Recording OR 24-3101 - Advanced Location Sound Recording [4 credits]
- 43-2410 - Aesthetics of the Motion Picture Soundtrack [3 credits]
- 43-3290 - Master Class in Sound Art [3 credits]

College-Wide Electives (***recommended courses;*** *all AAandA courses qualify as CWEs*) **24 credits**

- 24-2106 - The Art and Craft of Foley [2 credits]
- 24-2107 - The Art and Craft of ADR [2 credits]
- 24-3126 - Sound Mixing for the Cinema [4 credits]
- 24-2104 - Music for Film & Video [3 credits]
- 24-3089 - F&V Internship and/or 43-3288 – AAandA Internship [*variable credits*] [1-6 credits]
- 24-3198/99 - F&V Indep. Proj. and/or 43-3291 - AAandA Indep. Proj. [*variable credits*] [1-6 credits]
- 36-2610 - Sound and Music for Interactive Visual Media [3 credits]
- 36-2400 - Sound Design for Games I [3 credits]
- 36-3400 - Sound Design for Games II [3 credits]
- 43-2261 – Experimental Audio Electronics [3 credits]
- 43-2241 - Audio Processes and Programming [3 credits]
- 43-2720 - History of Audio (*WI*) [3 credits]
- 43-2610 - Project Planning, Process and Implementation [3 credits]

General Notes

- All **AAandA students must complete all AAandA major requirements with a grade of C or better** to continue in the Department of Audio Arts & Acoustics.
- All **AAandA students meet with their Program Director(s) and/or their designated AAandA faculty advisor before registration each semester to review/discuss their progress to degree.** It is the students' responsibility to be aware of their academic record, degree progress, and paths outlined in this handbook.
- **To be able to register to any course**, students must have
  a) successfully completed all pre-requisites,
  b) successfully completed or at least registered in all co-requisites, and
  c) addressed any other restrictions (e.g. obtaining Departmental or Instructor approval).

B.A. in *Audio Arts & Acoustics*
Concentration: *Audio for Visual Media* (AVM)
Sample Four-Year Degree Plan
36 courses; *8* semesters (4 years); *120* credits

- 14 courses in *Liberal Arts and Sciences*
- 15 courses in the *Major*
- 7 courses in *College-Wide Electives*

1st Semester	**16**
LAS 1: 56-1720 College Mathematics	
OR 56-1723 *OR* 56-1728	3
43-1111 Introduction to Audio	3
43-1115 Audio Production 1	4
LAS 2: 48-1100 First Year Seminar	3
LAS 3: 52-1151 Writing and Rhetoric 1	3

2nd Semester	**16**
24-1030 Moving Image Art	4
24-1031 Moving Image Production 1	4
43-2215 Audio Production 2	4
LAS 4: 56-1820 Science of Electronics	4

3rd Semester	**16**
LAS 5: 56-2820 Science of Acoustics	3
43-1112 Audio Theory and Systems	3
43-2420 Audio for Visual Media 1	4
43-2725 Studies in Hearing	3
LAS 6: 52-1152 Writing and Rhetoric 2	3

4th Semester	**14**
43-2310 Psychoacoustics	3
24-2102 Post Production Audio 2	4
24-2401 Editing 1	4
LAS 7	3

5th Semester	**16**
43-2410 Aesthetics of the Motion Picture…	3
24-2103 Location Sound Recording	4
LAS 8	3
LAS 9	3
LAS 10	3

6th Semester	**16**
24-3122: Post Production Audio 3	4
LAS 11	3
LAS 12	3
CWE 1	3
CWE 2	3

7th Semester	**13**
43-3290 Master Class in Sound Art	3
LAS 13	3
CWE 3	3
CWE 4	4

8th Semester	**13**
LAS 14	3
CWE 5	3
CWE 6	3
CWE 7	4

Audio Arts and Acoustics Courses sorted by Course name and number

C	CORE	E.G.A-3/9 OF ADVANCED LEVEL COURSES/PICK 3 OF 9 FROM ADVANCED COURSE LIST. + OPTIONS AVAILABLE IN OTHER DEPARTMENTS
I	INTERMEDIATE	
A	ADVANCED	
E	ELECTIVE	
R	REQUIRED	

List of AAA Courses sorted by Name

Course Num.	Cr. Hrs.	By Course Name (alphabetical Sort)	Majors ADP	LIS	AA	BSMT
43-3320	3	Acoustical Modeling			C	A-3/8+
43-3325	3	Acoustical Testing I			C	A-3/8+
43-3326	3	Acoustical Testing II			C	
43-3310	3	Acoustics of Performance Spaces			E-5/15	
43-3240	3	Advanced Practicum in Live Sound Recording	A-3/8	E-4/14		
43-3230	3	Advanced Practicum in Music Design	A-3/8			
43-3220	4	Advanced Practicum in Studio Recording	A-3/8			
43-3252	3	Advanced Sound Art Electronics Workshop	A-3/8			
43-3510	3	Advanced Sound Reinforcement	E		E	E
43-2510	3	Aesthetics of Live Sound I	E	I		
43-3511	3	Aesthetics of Live Sound II		A		
43-2410	3	Aesthetics of Motion Picture Soundtracks	E		E-5/15	
43-2315	3	Architectural Acoustics			C	
43-1182	2	Audio Electronics	C	C	C	C-8/11
43-2710	3	Audio Equipment Overview	E			
43-2420	3	Audio for Visual Media	E			
43-2715	3	Audio Measurement Techniques	E		E	E
43-2241	3	Audio Processes and Systems	A-3/8		E-3/8	
43-1115	3	Audio Production I	C	C	C	C-8/11
43-2215	3	Audio Production II	I-4/5	E-4/14		C-8/11
43-3115	3	Audio Production III	E			
43-1112	3	Audio Theory and Programming	C	C	C	C-8/11
43-4473	3	Audio Visual System Design		E-4/14	E-5/15	
43-2115	1	Careers in Audio	E			E
43-3292	4	College Studio Operations	A-3/8			
43-3562	3	Data Sonification	E			E
43-3527	3	Digital Audio Console Practicum	E	A		
43-3525	3	Digital Equalization and System Management		A		
43-3098	2-3	Directed Study: Audio Arts and Acoustics	E		E	E
43-3330	3	Engineered Acoustics			E-5/15	
43-3315	3	Environmental Acoustics			C	A-3/8+
43-2261	3	Experimental Audio Electronics	I-4/5			C-8/11
43-2381	3	Fundamentals of Loudspeaker Systems	E			E
43-3340	3	Fundamentals of Vibration Analysis			E-5/15	

Course Num.	Cr. Hrs.	Course Name (Continued) (alphabetical sort)	Majors ADP	LIS	AA	BSMT
43-2720	3	History of Audio	E-3/12		E-5/15	A-3/8+
43-3291	1-6	Independent Project	E		E	R
43-3288	1-6	Internship	E-3/12		E	E
43-3619	3	Installed Systems Documentation	E	E-4/14	E-5/15	
43-1111	3	Introduction to Audio	C	C	E-5/15	C-8/11
43-3611	3	Levels, Intelligibility, and Feedback	E	E-4/14		
43-3525	3	Live Sound Engineering Practicum	E	A		
43-2220	3	Live Sound Recording	I-4/5	E-4/14		C-8/11
43-2515	3	Live Sound Reinforcement	E	I		
43-3623	3	Loudspeaker System Applications	E	A		
43-3290	3	Master Class in Sound Art	A-3/8		E-5/15	A-3/8+
43-3528	3	Monitor Mixing	E	A		
43-3333	3	Music Industry Immersion Recording Workshop	A-3/8			E
43-3622	3	Networks and Networking for Media	E			E
43-3120	3	Perception and Cognition of Sound			E-5/15	A-3/8+
43-3243	3	Principles of Audio Deliverables Mastering and Preservation	E			
43-2610	3	Project Planning Process and Implementation	E	E-4/14	E-5/15	
43-2310	3	Psychoacoustics	E		C	
43-3210	3	Recording II	I-4/5			C-8/11
43-3583	3	Research Methods: An Interdisciplinary Approach			E-5/15	
75-3101	3	Sonic Experience				R
43-3520	3	Sound for the Theater		E-4/14		
43-2725	3	Studies in Hearing	C	C	C	
43-3515	3	Studies in Loudspeaker Theory		A	C	
43-3621	3	The Art of Troubleshooting		E-4/14	E-5/15	
43-3615	3	Topics Systems Contracting	E			

List of AAA Courses sorted by Number

Course Number	Cr. Hrs.	Course Name Course number sort	Course Number	Cr. Hrs.	Course Name Course number sort
43-1111	3	Introduction to Audio	43-3252	3	Adv. Sound Art Electronics Workshop
43-1112	3	Audio Theory and Systems	43-3288	1-6	Internship
43-1115	3	Audio Production I	43-3290	3	Master Class in Sound Art
43-1182	2	Audio Electronics	43-3291	1-6	Independent Project
43-2215	1	Careers in Audio	43-3292	4	College Studio Operations
43-2210	3	Recording I	43-3310	3	Acoustics of Performance Spaces
43-2215	4	Audio Production II	43-3315	3	Environmental Acoustics
43-2220	3	Live Sound Recording	43-3320	3	Acoustical Modeling
43-2241	3	Audio Processes and Programming	43-3325	3	Acoustical Testing I
43-2261	3	Experimental Audio Electronics	43-3326	3	Acoustical Testing Ii
43-2310	3	Psychoacoustics	43-3330	3	Engineered Acoustics
43-2315	3	Architectural Acoustics	43-3333	3	Music Industry Immersion Rec. Workshop
43-2325	3	Studies in Applied Acoustics	43-3340	3	Fundamentals of Vibration Analysis
43-2381	3	Fundamentals of Loudspeaker Systems	43-3510	3	Advanced Sound Reinforcement
43-2410	3	Aesthetics of Motion Picture Soundtracks	43-3510	3	Aesthetics of Live Sound II
43-2420	3	Audio for Visual Media	43-3515	3	Studies in Loudspeaker Theory
43-2510	3	Aesthetics of Live Sound	43-3520	3	Sound for the Theater
43-2515	3	Live Sound Reinforcement	43-3525	3	Live Sound Engineering Theory
43-2610	3	Project Planning, Process and Implement.	43-3526	3	Digital Equalization and System Mgmt.
43-2710	3	Audio Equipment Overview	43-3527	3	Digital Audio Console Practicum
43-2715	3	Audio Measurement Techniques	43-3528	3	Monitor Mixing
43-2720	3	History of Audio	43-3562	3	Data Sonification
43-2725	3	Studies in Hearing	43-3583	3	Research Methods: An Interdisciplinary
43-3098	2-3	Directed Study: Audio Arts and Acoustics	43-3610	3	Sound System Design
43-3115	3	Audio Production III	43-3611	3	Level, Intelligibility, and Feedback
43-3120	3	Perception and Cognition of Sound	43-3615	3	Topics Systems Contracting
43-3210	3	Recording II	43-3619	3	Installed Systems Documentation
43-3220	4	Advanced Practicum in Studio Recording	43-3621	3	The Art of Troubleshooting
43-3230	3	Advanced Practicum in Music Design	43-3622	3	Networks and networking for Media
43-3240	3	Advanced Practicum in Live Sound Recording	43-4473	3	Audio Visual System Design
43-3243	3	Principles of Audio Deliverables Mastering and Pres.	75-3101	3	Sonic Experience

COURSE DESCRIPTIONS

COURSES IN THE AUDIO ARTS & ACOUSTICS DEPARTMENT 2017-2018

(*listed by ascending course number*)

Course Descriptions

43-1111 Introduction to Audio **3 Credits**

This course provides an overview of the world of sound and audio in its various manifestations, including music, communications, sound in linear and non-linear media, sound art, and sonification. It introduces students to basic concepts and terminology related to sound, audio, and audio equipment and systems, but it is not a theory course. Rather, the course examines aspects of our sonic world through the lenses of audio production, live sound reinforcement, and acoustics, constructing a survey of practices and trends, practitioners, and examples; of history, context, and politics; and of art and aesthetics. Along the way it challenges students to examine and open themselves to difference ways of listening. This course is open to all majors.
Requisites: Co-: 56-1720 College Math OR 56-1723 Liberal Arts Math OR 56-1728 Qualitative Reasoning

43-1112 Audio Theory and Systems **3 Credits**

This course immerses students in the language, theories, and technical knowledge common to all fields in which audio is used. Topics include sound waves and propagation, the analog and digital audio signal, signal analysis and processing (frequency, amplitude and time-based), and basic audio systems (transducers, amplifiers, mixers). To contextualize these theoretical aspects, students are introduced to equipment used in professional audio systems from a technical and functional point of view.

Requisites: Pre-: 43-1111 Introduction to Audio AND College Level Mathematics

Co-: 56-2820 The Science of Acoustics I

43-1115 Audio Production I **3 Credits**

Course introduces students to basic theories and techniques of recording, editing, and mixing. Instruction covers fundamentals of microphone usage, mixing console operation, and non-linear digital recording and editing. Course is taught in a classroom laboratory where lectures and labs focus on the production of short-form audio works of voice, music, and sound effects to develop and improve engineering and production skills.

Requisites: None

43-1182 Audio Electronics **2 Credits**

In this course, students build simple audio components to understand the electronics fundamentals that drive complex audio systems. Students also gain proficiency with an understanding of the quantitative relationship between the basic elements of electricity (voltage, resistance, current, and power) as they pertain to the projects they are building.

Requisites: Pre-: College Level Mathematics

43-2115 Careers in Audio **1 Credits**

Course provides an overview of career opportunities in the field of audio. Recognized experts from a variety of fields discuss employment options for sound majors in this lecture class. Students also begin the process of developing resumes and portfolios as they explore the possibilities of their own futures in professional audio.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-2210 Recording I **4 Credits**

Course introduces students to the theories, technologies, and practice of multi-track recording sessions. This is the first studio techniques class to be taken by students who select the Audio Design & Production concentration. Classes focus on the fundamentals of multi-track recording, building upon the fundamentals of console design and signal processing systems as presented in Production I Audio, Basic Audio Systems, and Audio Production II. The class includes lecture-demonstrations, in-class group tracking sessions, and additional lab assignments, which are completed in the studios and labs of the Audio Arts and Acoustics Department.

Requisites: Pre-: 43-1115 Audio Production II

Co-: 43-1112 Audio Theory and Systems

43-2215 Audio Production II **3 Credits**

Course provides students with a solid foundation in working with digital audio workstations. Through lecture/demonstration/discussions, in-class and homework assignments, and a series of creative projects, students gain experience with fundamental practices in digital audio production, including editing, signal processing, automation, mixing, and preparing audio deliverables. Students participate in a series of exercises to develop and refine critical listening, evaluation, and judgment abilities. In the process, students adopt techniques and strategies for organizing and managing sessions, developing effective communication and presentation skills, and acquiring a sense of professionalism in the field.

Requisites: Pre-: 43-1115 Audio Production I

43-2220 Live Sound Recording **3 Credits**

Hands-on course explores minimal microphone location recording. These techniques are fundamental to those employed in multi-track studio recording. Course highlights understanding, selection, and placement of microphones through a wide variety of acoustical environments and instruments. Emphasis is placed on classical and acoustic music, ambient sound recording, and sound effects recording. Students check out location recording equipment and record a number of events during the semester.

Requisites: Pre-: 43-2215 Audio Production II

Co-: 43-1112 Audio Theory and Systems

43-2241 Audio Processes and Programming **3 Credits**

Course demystifies the principles of sound and music synthesis techniques currently used by Sound Designers, Synthesizer Programmers, Recording and Post Production Engineers, Audio Artists, and Composers. Learning these techniques from the ground up on synthesis software gives students the opportunity to master the fundamentals and principles of sound synthesis and audio processing. Students are also able to apply these principles to designing their own plug-ins as well as mastering a variety of commercial hardware and software packages for digital synthesis and signal processing.

Requisites: Instructor Permission

43-2261 Experimental Audio Electronics **3 Credits**

Students learn to solder, breadboard a circuit, build and experiment with basic components of electronic music, such as: contact mics, amplifiers, filters, oscillators, and sequencers. Reading homework and quizzes focus on practical knowledge necessary to complete a circuit. Projects are assessed for both craftsmanship and creative results. Students should expect to use Open Workshop time to complete projects outside of class.

Requisites: None

43-2310 Psychoacoustics 3 Credits

Class provides the necessary basis for understanding how we hear the world around us. The course is multidisciplinary, with contributions from the academic disciplines of auditory physiology, physics, and psychology. It examines how the human auditory system processes the information it receives, that is, how physical attributes of sound translate into perceptual attributes such as loudness, pitch, and timbre. Topics extend to the perception of music, sound localization, speech, and beyond. Numerous audio-visual demonstrations are used to reinforce the theoretical material presented.

Requisites: Pre-: 43-2725 Studies in Hearing

43-2315 Architectural Acoustics 3 Credits

Course reviews the fundamentals of acoustics covered in previous classes and presents all of the materials within the context of the behavior of sound in a bounded space. Practical aspects of the class are emphasized by dedicating a large portion of the semester to case studies. Demonstrations are provided throughout the semester to emphasize both theoretical and practical concepts.

Requisites: Pre-: 56-2720 Calculus I AND 43-2725 Studies in Hearing

Co-: 43-2310 Psychoacoustics

43-2325 Studies in Applied Acoustics 3 Credits

Course combines the curricula of a traditional introductory musical acoustics course with special topics on electro-acoustics, room acoustics, and spatial hearing perception. An in-depth presentation of the vibration and sound propagation issues pertaining to a wide range of musical instruments is presented in the context of timbre, tuning, and temperament. The course provides students with the opportunity to investigate and report on a specific project to be conducted as part of a team.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-2381 Fundamentals of Loudspeaker Systems 3 Credits

This course is aimed at individuals who want to gain a solid understanding of the fundamentals associated with the operation, construction, measurements, and critical evaluation of loudspeaker systems, i.e. audio transducers and associated signal crossovers devices. The course strikes a balance between a detailed presentation of theoretical concepts (using college level math & physics), the practical experience associated with constructing and testing speakers and crossovers, and the aesthetic component that results from critical listening of various loudspeaker systems.

Requisites: Instructor Permission

43-2410 Aesthetics of the Motion Picture Soundtrack 3 Credits

This course examines Classical Hollywood as well as more recent film soundtrack practices, focusing on the interpretation of film sound relative to 'expectancy' theories of meaning and emotion. Film sound (i.e. the combination of dialogue, music, sound effects, and silence) is viewed through the perspectives of psychology, aesthetics, and criticism, providing students with opportunities to (a) cultivate sharply-honed critical listening/viewing skills (b) develop a vocabulary for intellectual discussion about a film's soundtrack (c) learn about the perceptual processes associated with intellectual and emotional responses to sound and (d) discuss compositional tools and techniques that contribute to effective film sound practices. The course examines theoretical, aesthetic, and analytical perspectives and does not focus on the mechanics of film sound, addressed in a separate course.

Requisites: Pre-: 52-1152 Writing and Rhetoric II AND 43-2420 Audio for Visual Media I OR 43-2310

Psychoacoustics

43-2420 Audio for Visual Media I **4 Credits**

Studio course presemts the technology and techniques used in creating sound tracks for TV, film, and multi-media. Students learn the technology and techniques of synchronizing video with all audio platforms, including analog and both linear and non-linear digital recording and editing systems.

Requisites: Pre-: 43-2215 Audio Production II

43-2510 Aesthetics of Live Sound I **3 Credits**

Course defines in a structured fashion the psychology of the musician and physics of the instrument within the framework of sound reinforcement and analysis. The goal is to familiarize students with one instrument-musician-sound reinforcement approach per week.

Requisites: Pre-: 43-1111 Introduction to Audio

43-2515 Live Sound Reinforcement **3 Credits**

Course is designed to teach techniques and tools of sound reinforcement. Content combines product awareness with ear training and hands-on practice. Students complete lab assignments in the Audio Technology Center Live Sound Lab and spend two lab sessions at local music clubs.

Requisites: Co-: 43-1112 Audio Theory and Systems

43-2610 Project Planning, Process and Implementation **3 Credits**

A project is a task with a definite cycle: beginning (planning), middle (execution, supervision), and end (assessment and, often, payment). Most work in audio and acoustics is project work, from recording and mixing a demo in one day, to the design and construction of a concert hall, which can take years. This course blends project management, personal time management, and quick analysis for decision making into a set of key skills for those who must juggle multiple projects.

Requisites: Pre-: 43-1111 Introduction to Audio AND 52-1151 Writing and Rhetoric I

43-2710 Audio Equipment Overview **3 Credits**

Course is an orientation to major lines and manufacturers of professional audio equipment. Content focuses on understanding, interpreting, and evaluating manufacturers' specifications in light of subjective performance. Course includes presentations and demonstrations by manufacturers representatives and field trips when possible.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-2715 Audio Measurement Techniques **4 Credits**

Course introduces analog and computer-based analysis of electronic, electro-acoustic, and acoustic systems. Students gain experience using various techniques including computer systems such as TDS from Techron and Audio Precision.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-2720 History of Audio **3 Credits**

Course offers a way to evaluate claims made by the history of technology, which is a new and exciting branch of historiography, not only because it reveals human and social struggles to create and to adapt, but also because it has practical effects on the business aspects of today's audio and acoustics industries. Today's profits and livelihoods depend on novelty and exclusivity, and the history of audio is in play every time

something is offered as new and better.

Requisites: Pre-: 43-1112 Audio Theory and Systems AND 52-1152 Writing and Rhetoric II

43-2725 Studies in Hearing 3 Credits

Course introduces students to the fundamentals of human hearing physiology as well as issues relating to hearing loss and conservation. It is important for any audio professional to understand how complex and delicate the human hearing system is. We must also realize the significance of the fact that society is, only now, beginning to address the problem of environmentally induced hearing loss. The first part of the course will address hearing physiology. Course will focus on the mechanical systems of hearing, starting with the reception of acoustic energy and ending with the delivery of neural signals to the brain. This will give students the necessary foundation knowledge to engage in presentations and discussions covering the topics of hearing loss and conservation.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-3098 Directed Study: Audio Arts and Acoustics 6 Credits

Course consists of learning activities involving student independence within the context of regular guidance and direction from a faculty advisor. Directed Studies are appropriate for students who wish to explore a subject beyond what is possible in regular courses or for students who wish to engage in a subject or activity not otherwise offered that semester by the College. Directed Studies involve close collaboration with a faculty advisor who will assist in development and design of the project, oversee its progress, evaluate the final results, and submit a grade.

Requisites: Department Approval

43-3115 Audio Production III 3 Credits

Course provides students with an advanced creative practice in audio art using digital audio workstations, a basic tool in the field of sound and music production. Through lectures, demonstrations, and production assignments, students gain valuable knowledge of the theory and practices of audio art as a recognized form of artistic expression using advanced techniques of audio manipulation on digital audio workstations. In addition to classroom activities, students complete assigned work in the Digital Audio Production Laboratory.

Requisites: Pre-: 43-2210 Recording I OR 43-2420 Audio for Visual Media I

43-3120 Perception and Cognition of Sound 3 Credits

Course provides the necessary basis for understanding the cognitive processes involved in our auditory perception of complex signals such as environmental sounds, speech and music. It will examine the basic cognitive theories of memory and attention, as well as the underlying concepts of information processing and perceptual grouping. The course will systematically explore how humans respond intellectually and emotionally to complex auditory stimuli. Course is multidisciplinary, with contributions from music, biology, physics, psychology, philosophy, and computer science. Numerous demonstrations are used to reinforce the theoretical material presented in the lectures.

Requisites: Pre-: 43-2310 Psychoacoustics

43-3210 Recording II 4 Credits

Course helps students become proficient in the theories, technologies, and practice of multi-track recording and mixing. Building upon the concepts introduced in Recording I, students continue to study and practice studio recording with an increased focus on signal processing and mixing techniques. Students will conduct in-class as well as independent team recording projects. Class lectures and demonstrations focus on the team projects, including ongoing critiques of both recordings and mixes.

Requisites: Pre-: 43-2210 Recording I

Co-: 43-2725 Studies in Hearing

43-3220 Advanced Practicum in Studio Recording 4 Credits

Course gives an overview of current studio recording techniques, covering such topics as microphone usage, signal routing, and synchronization, as well as session set-up and psychology. Course is taught by leading Chicago recording engineers and is geared toward advanced students who desire a career in music engineering.

Requisites: Pre-: 43-3210 Recording II AND Department Permission

43-3230 Advanced Practicum in Music Design 3 Credits

Course introduces students to advanced concepts of musical design using tools of random access audio on a digital workstation. Each week, a component of musical design (for postproduction, editing, processing, and mixing) is introduced and illustrated by the instructor, who supervises the creation of a class project. This project serves as a model for techniques and aesthetics of DAW production. Students bring the weeks' instruction to their own team projects, which they complete in a time frame that parallels the class project.

Requisites: Pre-: 43-3210 Recording II AND Department Permission

43-3240 Advanced Practicum in Live Sound Recording 3 Credits

Course introduces students to advanced concepts and techniques of acoustic live sound recording and the relationship of acoustic recording with critical listening and high-definition playback systems. These techniques will help students gain essential knowledge of recording without the use of processing, such as equalization and compression, and to further understand how to properly assess such recordings through the assembly of high quality playback systems.

Requisites: Pre-: 43-2220 Live Sound Recording AND 43-3210 Recording II. Department Permission

43-3243 Principles of Audio Deliverables Mastering and Preservation 3 Credits

Audio design and production does not end with the final mix but rather leads to a series of critical considerations: how to prepare (master/ re-master) the recording for the intended audience; in what format(s) to best deliver the recording; how to ensure the fidelity and integrity of the recorded signal along the way; what of the production process to save for future use; and how to archive and preserve that material. In addition to original production work, many of these considerations apply to the entire legacy of recorded audio, as evidenced by a proliferation of commercial and nonprofit initiatives in audio archiving, preservation, and restoration. This course addresses the essential aspects of audio design and production related to the dissemination and preservation of audio recordings, from delivery (mastering and deliverables) to preservation (archiving, preservation, and restoration). Through readings, investigation and analysis assignments, and in-class lectures, discussions, and demonstrations, students will encounter critical questions, theories, processes, and practices which are necessary and useful in a range of professional applications.

Requisites: Pre-: 43-2210 Recording I AND Department Permission

43-3250 Master Class in Classic Studio Techniques 4 Credits

Course focuses on the craft of studio recording as it developed in the first era of the audio industry, prior to the advantages afforded us by digital technologies. This lecture/lab course is designed to teach the technologies, theories and creative processes engineers embraced in that era, such as live-to-stereo recording, linear-analog recording and editing, producing reverb using the analog plate and natural reverb chambers,

analog delay techniques, and hybrid processing (daisy-chains) using discrete signal processors.

Requisites: Pre-: 43-3220 Advanced Practicum in Studio Recording AND Department Permission

43-3252 Advanced Sound Art Electronics Workshop 3 Credits

Students will use electronic circuits and Arduino programming to create sound art: instruments, objects, and interactive installations. Students will be encouraged to take conceptual risks and use innovative approaches. Project assessments will focus on aesthetic originality as well as functionality. Because this is an advanced class, students should have prior experience with: reading circuit diagrams; prototyping on breadboards; soldering circuit boards; understanding resistors, capacitors, and ICs; and using a multimeter to measure voltage, current and resistance.

Requisites: Pre-: 43-2261 Experimental Audio Electronics OR Instructor Permission

43-3288 Internship: Sound 6 Credits

Course is designed specifically for the intermediate and advanced student to help bridge the skills taught in the classroom with those demonstrated in the marketplace. Typical internships are 10 to 20 hours per week, with a ratio of one credit for every five hours spent onsite. Internships are offered in each of the concentrations in Audio Arts and Acoustics.

Requisites: Completion of 43-1112 Audio Theory and Systems AND Department Approval

43-3290 Master Class in Sound Art 3 Credits

Course explores the aesthetics and techniques of sound art. A major component of the course is the ongoing analysis and critique of the students' work. In addition to readings, lecture, discussion, and analytical listening, students have opportunities for in-depth feedback from the instructor. Students are expected to work independently using the facilities of the AA&A Department on projects developed with the consent of the instructor.

Requisites: Instructor Permission

43-3291 Independent Project: Audio Arts and Acoustics 6 Credits

Course is designed for the advanced student who wishes to do advanced study in an area covered in the curriculum or basic study in an area not covered by the curriculum. The Independent Project is a student-lead initiative with a faculty advisor alongside to help. The Independent Project must be approved by the coodinator of the most closely related concentration or by the chair of the department.

Requisites: Department Approval

43-3292 College Studio Operations 4 Credits

Practicum/lab course explores theories, techniques, and procedures employed in complex audio and media productions. Content includes studying the manner in which individual skills of audio engineering are applied in the context of real-world environments. Students engineer for classes from Music, Television, and Film/Video Departments, producing four to six finished pieces by the end of the semester.

Requisites: Pre-: 43-3220 Advanced Practicum in Studio Recording OR 43-3230 Advanced Practicum in Music Design; AND Instructor Permission

43-3310 Acoustics of Performance Spaces 3 Credits

A continuation of Architectural Acoustics, course is dedicated to the design of performance spaces and recording aural environments. Course covers issues pertaining to architectural design and to sound reinforcement in various indoor contexts such as movie theaters, performance halls, control rooms, recording

studios, and Houses of Worship. Course combines case studies spanning many centuries with current foundation material to provide students with a critical understanding of acoustical design issues and a reinforcement of their aesthetic sense for music and voice performances.

Requisites: Pre-: 43-2310 Psychoacoustics AND 43-2315 Architectural Acoustics

43-3315 Environmental Acoustics 3 Credits

Course aims at providing a comprehensive understanding of issues pertaining to noise pollution and noise control in a wide range of environments such as urban, industrial, airport, entertainment venues, and so forth. Comprehensive course equally covers both theory and practice with field measurements performed by students and teacher. Data are used to reinforce theoretical models. Course emphasizes noise studies in the workplace and reviews current regulatory issues pertaining to noise pollution.

Requisites: Pre-: 43-2725 Studies in Hearing AND Instructor Permission

Co-: 43-2310 Psychoacoustics

43-3320 Acoustical Modeling 3 Credits

Modeling is rapidly becoming an essential component of the acoustical design process. This course reviews the modeling options currently available to acoustical designers and presents the strengths and the limitations of the various methods. Modeling exercises for a variety of acoustical environments are performed by the students using some of the relevant software currently available. A large portion of the class is devoted to student projects.

Requisites: Pre-: 43-3325 Acoustical Testing I AND Instructor Permission

43-3325 Acoustical Testing I 3 Credits

The testing of an acoustical space represents the proof of performance of the design phase. Course introduces students to a variety of testing tools and techniques to be used in a wide range of situations. The course makes extensive use of real world contexts to present the need for accurate testing and reinforce the methodology introduced during the lectures.

Requisites: Pre-: 43-3315 Environmental Acoustics AND Instructor Permission

43-3326 Acoustical Testing II 3 Credits

Course focuses on practical applications of the theory introduced in Acoustical Testing I.

Requisites: Pre-: 43-3325 Acoustical Testing I AND Instructor Permission

43-3330 Engineered Acoustics 3 Credits

Course investigates acoustical issues pertaining to engineered systems in a wide range of environmental settings. Topics covered include heating, ventilation, air conditioning (HVAC) noise issues and design; noise, vibration, and harshness (NVH) assessment; fundamentals of active noise control; and a primer on sound quality. A substantial amount of the course is dedicated to modeling various physical systems with computer tools in order to assess their behavior relating to noise or vibration excitation.

Requisites: Instructor Permission

43-3333 Music Industry Immersion: Recording Workshop 3 Credits

A unique experiential learning opportunity for students interested in music, music business, and audio arts to engage these disciplines in an accelerated, hands-on environment. Students will be coached on the development of their musical, technical, and management skills through collaborative projects encompassing song development and arranging, live performance, live sound reinforcement, recording, artist management,

and music company operations. The course will include students, faculty and facilities from the Departments of Music, Audio Arts and Acoustics (AA+A) and Business and Entrepreneurship (BusE). Students and faculty from Pop Akademie University Baden-Wuerttemberg, Germany (http://www.popakademie.de/english/welcome) will also participate in this collaborative experience.

Requisites: Instructor Permission

43-3333J Music Industry Immersion: Recording Workshop 3 Credits

A unique experiential learning opportunity for students interested in music, music business, and audio arts to engage these disciplines in an accelerated, hands-on environment. Students will be coached on the development of their musical, technical, and management skills through collaborative projects encompassing song development and arranging, live performance, live sound reinforcement, recording, artist management, and music company operations. The course will include students, faculty and facilities from the Departments of Music, Audio Arts and Acoustics (AA+A) and Business and Entrepreneurship (BusE). Students and faculty from Pop Akademie University Baden-Wuerttemberg, Germany (http://www.popakademie.de/english/welcome) will also participate in this collaborative experience.

Requisites: Instructor Permission

43-3340 Fundamentals of Vibration Analysis 3 Credits

Course provides students with an understanding of vibration theory, experimental analysis and vibration control. The class focuses on free and forced vibration of mechanical systems with an emphasis on practical applications in the areas of rotating machinery, isolation, and noise reduction. Excessive vibration is often the cause of unwanted sound or noise. Understanding the effects of vibration enhances the understanding of noise related issues in buildings and the environment, addressed in Engineered Acoustics and Environmental Acoustics. This class also provides the necessary background to understand the complex vibration of musical instruments.

Requisites: Pre-: 43-2315 Architectural Acoustics

43-3510 Advanced Sound Reinforcement 3 Credits

Course introduces students to various types of sound systems appropriate for large concert systems and deals with some non-audio aspects, such as rigging and power distribution. Design of systems for large concerts is a growing and complex field. Each semester class is taken behind the scenes of a major event. There are also opportunities for hands-on experience with smaller systems.

Requisites: Pre-: 43-2515 Live Sound Reinforcement

43-3511 Aesthetics of Live Sound II 3 Credits

Course expands of the Aesthetics I course and covers some of the more unusual instruments and ensembles. Instruments may include mandolin, bassoon, Hammond organ, digital keyboards, harp, and more, depending on availability. The course also covers groups such as world music ensembles, and DJ/dance forms such as Hip-Hop, House, R&B/Dusties, Drum & Bass, etc.

Requisites: Pre-: 43-1112 Audio Theory and Systems AND 43-2510 Aesthetics of Live Sound I

43-3515 Studies in Loudspeaker Theory 3 Credits

Course examines the principles of transduction as they apply to loudspeaker design. Throughout an audio system, from the microphone to the ear, energy is transformed, induced, and transduced. The class's primary focus is on loudspeakers and loudspeaker enclosures: how electrical and mechanical energy is transformed into acoustical energy. Students explore the trade-offs and byproducts of this transfer, engage in aesthetic analyses, learn to predict effects, and examine the challenges involved in constructing various loudspeaker

systems. Course analyzes loudspeaker characteristics, how they behave alone, and how they behave together supported by an introduction to loudspeaker performance predictive models.

Requisites: Pre-: 43-3610 Sound System Design

43-3520 Sound for the Theater 3 Credits

Course covers many aspects of sound engineering for the theater from first production meeting to final tech dress rehearsal. Subjects covered include sound effects, sound tracks, live pit orchestras, special miking techniques such as body miking, and ways engineers interact with other facets of theatrical productions.

Requisites: Pre-: 43-1112 Audio Theory and Systems AND 43-2310 Psychoacoustics

43-3525 Live Sound Engineering Practicum 3 Credits

Course presents extremely advanced live sound operational theory in a production context. Instructor presents a theory as it applies to a specific problem, followed by the application of that theory to an actual live performance. Students then apply this knowledge by operating the same systems themselves.

Requisites: Pre-: 43-2510 Aesthetics of Live Sound I AND 43-2515 Live Sound Reinforcement

43-3526 Digital Equalization and System Management 3 Credits

Course explores audio equalization methodology in the digital domain, within the context of loudspeaker management systems and digital console operations. In addition, loudspeaker management functions are explored through real-time operation of digitally controlled sound reinforcement systems. Course is largely hands-on, with real-time adjustments audible through a large-scale sound reinforcement system. All control functions, whether computer or digital console based, are concurrently presented for student evaluation on large-scale projection screens.

Requisites: Pre-: 43-3525 Live Sound Engineering Practicum

43-3527 Digital Audio Console Practicum 3 Credits

Course focuses on the role of the digital console in the context of the live sound reinforcement environment. It provides a detailed description and analysis of console operations, including setup, patching, routing, communications, file management, onboard and outboard effects, scenes, defined keys, and integration with other digital devices. Students will be asked to learn both the theory and practical application of console methodology. They will also be exposed to multiple platforms to illustrate the similarities and differences between different manufacturer approaches to digital consoles.

Requisites: Pre-: 43-2515 Live Sound Reinforcement

43-3528 Monitor Mixing 3 Credits

Total immersion stage monitor course for advanced live sound reinforcement students undertakes an in-depth exploration of feedback suppression, mix aesthetic, systems design, and signal flow.

Requisites: Pre-: 43-3525 Live Sound Engineering Practicum

43-3562 Data Sonification 3 Credits

Sonification is the use of designed or intentional sound to display system states and other informational data. This course introduces the concepts and design techniques used in sonification ranging from earcons, spearcons and auditory icons to translation techniques used in mapping data into sound for probing, monitoring, and auditory display for enhanced user interfaces and monitoring and purposes.

Requisites: Pre-: College Level Mathematics AND 43-2215 Audio Production II OR 43-2725 Studies in Hearing

Co-: 43-2241 Audio Processes and Programming

43-3583 Research Methods: An Interdisciplinary Approach 3 Credits

Understanding research on quantitative and observable data requires a thorough understanding of the scientific method, familiarity with multiple methodological approaches to research, as well as the ability to critically evaluate the strengths and limitations of methods and data collected within a research paradigm. This multidisciplinary course is designed particularly for students within Media Arts who will benefit from an understanding of research methods in science and communications, as distinct from research in humanities and creative arts. Students in this course will learn about the strengths and limitations of various types of research, as well as directly apply research methods through group and individual research proposals and projects, including projects within their discipline. This course is not discipline-specific and therefore can serve students outside the department.

Requisites: Pre-: College Level Mathematics AND 52-1152 Writing and Rhetoric II

43-3610 Sound System Design 3 Credits

Course offers an in-depth look at what goes into designing and installing permanent sound systems. Students learn to design systems for coverage, intelligibility, and cost effectiveness. Emphasis is placed on understanding specifications of system component and predicting system performance.

Requisites: Co-: 43-2725 Studies in Hearing

43-3611 Level, Intelligibility and Feedback 3 Credits

Course studies the three key issues in sound-system work: level, the distribution of loudspeaker sound in a room; intelligibility, the characteristics of sound that permit speech phonemes to be apprehended accurately; and feedback, runaway regeneration that can damage sound equipment or human hearing. Course studies all three from theoretical, predictive, and practical points of view.

Requisites: Pre-: 43-1112 Audio Theory and Systems

43-3615 Topics Systems Contracting I 3 Credits

Advanced course focuses on technical design issues in contracting. Students learn principles of power and signal networks through hands-on troubleshooting, design exercises, lecture, and critical analysis of real systems. Course includes exercises in writing system proposals and specifications.

Requisites: Pre-: 43-3610 Sound System Design

43-3619 Installed Systems Documentation 3 Credits

Course gives students familiarity with the graphical standards of the Construction Specifications Institute. Students will acquire skill at navigating architectural drawings at a workstation and an ability to generate audio system drawings.

Requisites: Pre-: 43-3610 Sound System Design

43-3621 The Art of Troubleshooting 3 Credits

Because complex, interactive systems fail in complex, interactive ways, course builds six essential competencies to assist system designers and system operators to cope with failure and limit immediate damage; to collect symptoms and understand systems rapidly; to apply inferential logic and avoid logical fallacies; to identify, trap, and limit failures; and to patch around them. This is not a course in equipment repair.

Requisites: Co-: 43-1112 Audio Theory and Systems

43-3622 Networks and Networking for Media **3 Credits**

Through lectures, readings and hands-on experience, this course provides a basic understanding of the networks and networking protocols necessary for reliable, secure communication in a digital media world. Intended for students who have completed the department's core curriculum, it is also offered to non-majors with instructor approval. Major topics include network topologies (LAN, WAN, WLAN, MAN) and protocols (primarily TCP/IP), IP addressing hierarchies, switching, routing, and VLANs, and network security.

Requisites: Instructor Permission

43-3623 Loudspeaker System Applications **3 Credits**

This advanced course builds upon theoretical/practical knowledge acquired by students in earlier courses (basic acoustics/psychoacoustics, loudspeaker parametes, signal processing, and live sound reinforcement) and synthesizes the information in the context of optimizing loudspeaker selection, placement, and processing to fulfill specific audio needs. Through practical and theoretical projects, as well as supporting lectures, students define the loudspeaker sysstem design goals for a small number of representative case studies. They then determine appropriate equipment and placement for the desired audio coverage, and utilize a combination of objective and subjective techniques for alignment and calibration of the designed systems.

Requisites: Pre-: 43-3619 Installed Systems Documentation

Co-: 43-3515 Studies in Loudspeaker Theory

43-4473 Audio Visual System Design **3 Credits**

Audio Visual Communication systems play a crucial role in delivering information and are a key part of almost all major installed projects. However, the end result is a tool for communication. Communication requires not just aural communication but visual as well. Audio and video are continually evolving into fully integrated systems. These systems require transmission, control and display subsystems as part of the whole integration. This course will expose students to a host of new terms and concepts, yet focus on several basic areas: Display, control, flow/distribution, and a general introduction to industry considerations and influences. Students in this course will apply fundamental knowledge and techniques learned in previous courses (Sound System Design, Installed System Documentation, and Project Planning, Process and Implementation) in order to create a complete AV system design.

Requisites: Pre-: 43-3610 Sound System Design

STUDENT RESOURCES AND INFORMATION

STUDENT PROFESSIONAL AND ACADEMIC ASSOCIATIONS

COLUMBIA COLLEGE CHICAGO STUDENT SECTION
OF THE **AUDIO ENGINEERING SOCIETY (AES)**
http://aescolum.tumblr.com - http://www.facebook.com/groups/aaacolum

The Audio Engineering Society [http://www.aes.org] is the major professional society dedicated specifically to the audio profession. Members receive the monthly Journal of the Audio Engineering Society, where many scientific audio-related research and innovations are introduced, as well as advance notification of conventions, conferences, and local chapter meetings. AES members include professionals from all areas of audio including acoustics, sound contracting, recording, live sound reinforcement, research, design, film and video sound, multi-media, marketing of audio-related products, education, and more.

The AAandA AES Student Section is the principle student group at our Department and functions as the AAandA liaison to the AES local Chapter. The group is committed to bringing together students with a mutual interest in audio technology. Through regular meetings, students have the opportunity to interact with other audio students at all levels of study, in effect networking with their potential future colleagues, employers, or employees. Any student enrolled at Columbia College with an interest in audio may join the group and attend AES events. Planned events often incorporate guest speakers such as local professionals, industry leaders, and audio innovators. Other possible monthly activities include critical listening sessions, student project presentations, equipment evaluations and comparisons, and audio facility tours.

Officers (elected annually):

President - *Vice-President* - *Secretary* - *Treasurer* - *Representative(s) to Columbia SOC*
Faculty Advisor: Ben Sutherland, Ph.D. bsutherland@colum.edu

E-mail: AES_Columbia@colum.edu (not case-sensitive)

COLUMBIA COLLEGE CHICAGO
WOMEN IN AUDIO
www.facebook.com/cccwomeninaudio

Women in Audio is designed to create a community for women in audio majors at Columbia College Chicago. Women account for about 15% of the AAA department, and can be even scarcer in the industry. We promote participation from women in a male dominated, technical field. Open to all women interested in audio-related fields. Like us on Facebook.

COLUMBIA COLLEGE CHICAGO STUDENT CHAPTER
OF THE **ACOUSTICAL SOCIETY OF AMERICA (ASA)**
http://groups.google.com/group/ccc_asa

The Acoustical Society of America [http://acousticalsociety.org] is a national organization dedicated to increasing the knowledge of acoustics, facilitate its dissemination, and promote its practical application. The AAandA student chapter of ASA is committed to helping students network, exchange information and ideas, and learn more about the world of acoustics at the local level. The chapter members are involved in activities like academic enrichment, professional development, resume building, technical presentations, and industry tours.

The student chapter elects four officers every year. At least two of the four officers must have junior or earlier status to ensure the continuity of the organization's leadership through the following years. Meetings are held twice a month, generally on a weekday evening. Anyone interested in acoustics is welcome!

Officers (elected annually):

President - Vice President - Treasurer - Secretary and Chapter Representative to ASA and to Columbia SOC

Faculty Advisor: Peter Zhang, Ph.D. pzhang@colum.edu

E-mail:

CCASA@loop.colum.edu (not case sensitive)

E-mail listserv:

ColumbiaASAChapter@gmail.com (not case sensitive)

COLUMBIA COLLEGE CHICAGO
STUDENT GOVERNMENT ASSOCIATION (SGA)
http://students.colum.edu/activities/SGA

The Student Government Association of Columbia College Chicago represents the student voice and endeavors to construct a more perfect union. It serves as a liaison between students and the faculty and staff, and administration in order to ensure the welfare of our unique and diverse art and communication community. Through leadership and strong representation, it strives to provide students with opportunities to grow academically, artistically, professionally, and personally.

SGA meetings take place every Tuesday at 5 p.m. in the Loft, located in the fourth floor of 916 S. Wabash, during the fall and spring semesters. It is comprised of five executive officers and 30 elected senators, each representing the needs of students in specific academic departments and the student body at large.

SGA President: sgapresident@colum.edu, 312 369-6657

AAandA Senator: *elected annually*

EMPLOYMENT OPPORTUNITIES AT COLUMBIA COLLEGE CHICAGO

To apply for jobs on campus, login to Handshake, http://students.colum.edu/career-center/job-board.php. Columbia's online career management system. For questions concerning on-campus jobs, call or email the Career Center at 312-369-7280 or columbiaworks@colum.edu. All open positions and application forms are posted on the Columbia Works Web-site.

http://students.colum.edu/career-center/on-campus-employment.php

Teaching Assistants in the Department of Audio Arts and Acoustics

A number of courses in the Department of Audio Arts and Acoustics involve lab or demonstration components that require the additional help of teaching assistants (TAs).
TA responsibilities typically include: maintaining attendance records in large classes, assisting in the set-up of demonstration systems and/or lab stations, providing additional one-on-one help to students, and assisting in the grading and/or evaluation of student work.

In addition to earning pay, working as a TA provides students with opportunities to hone in on their audio knowledge, improve their communication and organizational skills, and develop potentially valuable professional relationships with instructors.
Ask your instructors and AAandA advisor for details.

Studio Assistant in the Department of Audio Arts and Acoustics

The job of the studio assistant is to support students and faculty in the day-to-day use of the studios, classrooms, and audio equipment. Responsibilities include assisting faculty with room set-up and strike and occasionally helping with in-class demonstrations. They also include assisting students with studio and equipment checkout and general operation overview.
With the range of duties and depth of knowledge expected, these positions are generally filled with students who have completed at least one semester of post-BAS studio/lab courses. The most significant "perk" for the Studio assistant is the opportunity to take advantage of studio and equipment "down time." If a room is not booked and assuming all general duties have been covered, studio assistants are authorized to take advantage of that time to work on projects that will help them increase their knowledge and proficiency in the use of audio equipment and facilities.

Studio assistants work an average of 20 hours per week. Work schedules are adjusted from semester to semester to accommodate each student's class schedule.

For additional information contact: Tony Miccolis 312-369-8427 tmiccolis@colum.edu

Office Assistant in the Department of Audio Arts and Acoustics

The Office Assistant position is open to Audio Arts and Acoustics students who are at sophomore level or above. Office Assistants are responsible for keeping the Audio Arts and Acoustics office

running smoothly and for cultivating a professional atmosphere. Responsibilities include answering the department phones, addressing scheduling, tutoring, and other administrative questions by students, monitoring printers and other office equipment, organizing office supplies, entering data, and performing other duties as assigned. Candidates must have great interpersonal skills, advanced computer skills, and a propensity for self-organization.

In addition to earning pay, working as an Office Assistant provides students with opportunities develop professional-level communication, organizational, and administrative skills.
Contact: Scott Lee 312 369-8846 slee@colum.edu

Tutors in the Department of Audio Arts and Acoustics

Tutor positions in Audio Arts and Acoustics require a GPA of 3.0 or higher and completion of the Audio Theory and Systems course with a grade of B+ or better.
Tutors provide academic assistance to all students enrolled in the BAS course. Candidates should be prepared to function in a teaching capacity within both, group and one-on-one settings. Strong interpersonal skills are a must. Hired tutors are expected to seek advice on classroom instruction, pedagogy, and course content from the BAS instructors. Another recommended resource for tutor training is the Columbia College Chicago Learning Studio.

In addition to earning pay, and similarly to teaching assistants, AAandA tutors have opportunities to hone in on their audio knowledge, improve their communication and organizational skills, and develop potentially valuable professional relationships with instructors.
AAandA Contact: Tanya Harasym 312 369-8129 tharasym@colum.edu
Learning Studio Contact (for assistance to hired tutors): Brian Marth 312-369-7922

Academic Technology and Facilities Staff

The College maintains an A/V service department, which provides equipment such as audio, video, slide, film, and multi-media systems to classrooms and lecture halls throughout the college.
Responsibilities include working in the A/V office handling check-out and set-up, or set-up and operation of systems in lecture halls that include the Ferguson Auditorium and Hokin Hall.
These positions require a good base of knowledge and experience in audio-visual media and students with good mechanical and technical aptitude are especially sought out.
Contact: Tim Bodzioney 312 369-7127 tbodzioney@colum.edu

Music Department Audio-Visual Staff

The Music Department maintains an extensive inventory of audio and visual equipment for use in music classes, presentations, and concerts. Relevant positions require a good base of knowledge and experience in audio-visual media.
Contact: Steve Hadley 312 369-6244 shadley@colum.edu

Department of Exhibition and Performance Spaces

The Department of Exhibition and Performance Spaces maintains sound systems in numerous College Galleries, used for various College and student activities (e.g. lecture presentations, gallery installations, student-organized parties and dances, etc.). The Hokin Gallery also programs a wide variety of music concerts featuring local, national and international performers.
This position is officially part-time, but can involve as many as 30 hours of work in a single week, depending on event schedules. Duties include operation and maintenance of Gallery sound systems, purchasing/renting of additional equipment, technical coordination with event producers, student organizations, and bands, and other general organizational duties, as needed.

This position is usually awarded to Live and Installed Sound students at a sophomore status or lower. The Hokin directors generally look for someone who has a minimum 3.0 grade-point-average and is ready to commit to the position for at least one year.
Contact: Ted Cho 312 369-8572 tcho@colum.edu

SCHOLARSHIPS AND INTERNSHIPS

Columbia College Chicago offers several scholarships and awards to help you offset the cost of your education. We have listed a few that may be of interest to you
For a complete and up-to-date list of scholarships and application procedures and deadlines visit
http://www.colum.edu/student-financial-services/create-a-plan/scholarships/

(make sure to explore the "Other Scholarship Opportunities" area)
and speak with your advisor.

SAMPLE SCHOLARHSIP OPPORTUNITIES
COLUMBIA COLLEGE CHICAGO AWARDS

The Hillary R. Kalish Scholarship

The Hillary R. Kalish Scholarship assists students who are medically and financially challenged complete an undergraduate degree at Columbia College. Multiple awards are made each year at a maximum amount of $2,500 each. Applications are available through the Associate Provost's Office. Application deadline: May 1st.

The Faculty Recognition Award

The Presidential Scholarship is a competitive, merit-based, four-year program designed for entering freshmen. Scholarship applicants are expected to excel in their academic achievements as well as demonstrate significant accomplishment, talent or ability in their intended major. The number of awards each year varies and is dependent upon funding. Application deadline: February 1st.

Elizabeth L. Ferguson Trust Scholarship (for continuing undergraduate students)

The Elizabeth L. Ferguson Trust Scholarship was established to assist one outstanding full-time student who has graduated from a Chicago Public School in defraying tuition costs.
The Elizabeth L. Ferguson Trust Scholarship is open to: Full-time undergraduate students who have completed a minimum of 12 credit hours at Columbia at the time of application. Students who have earned a cumulative grade point average of 3.0 or higher. Students who are graduates of a Chicago Public School. Students who demonstrate financial need through a completed **F**ree **A**pplication for **F**ederal **S**tudent **A**id (**FAFSA**). Deadline to Apply: February 1st.

DEPARTMENT OF AUDIO ARTS AND ACOUSTICS AWARDS

The Jeremy Jefferies Hill Scholarship (for Acoustics seniors)

The Jeremy Jefferies Hill Memorial Scholarship was established to acknowledge academic achievement and special accomplishment of outstanding senior-level students at the Audio Arts and Acoustics Department, Columbia College Chicago, who major in acoustics. The $2,000 scholarship is awarded annually during the Spring semester to one (1) graduating senior on the

basis of demonstrated interest for advanced studies in architectural acoustics, scholastic abilities, and financial need. Application deadline: Changing each year; see the above link for current details. Deadline to Apply: February 01, 2017
http://www.colum.edu/Student_Financial_Services/create-a-plan/scholarships/jeremy-jefferies-hill.php

The Hammerman Scholarship (for AAandA majors with 60-90 credits completed)

The Hammerman Scholarship was established in 1998 thanks to a generous gift by Sol and Celia Hammerman, brought to the then "Radio and Sound" department by Ms. Enid Long, Columbia College Trustee and the donors' daughter. Currently the scholarship is stewarded by the Audio Arts and Acoustics Department and is awarded in Spring by AAandA faculty nomination. As this is an endowed scholarship, the precise award amount available each year fluctuates, depending on the investment performance of the College's endowment. Recipients will be notified by the scholarship committee by March 31.
http://www.colum.edu/Student_Financial_Services/create-a-plan/scholarships/hammerman.php

Austin Strelau Memorial Scholarship (for continuing undergraduate students)

The Austin Strelau Memorial Scholarship was established to assist in defraying tuition costs for Audio Arts and Acoustics students who show passion for their field of study and demonstrate financial need. The Austin Strelau Memorial Scholarship is open to: Full-time undergraduate Audio Arts and Acoustics students who will completed a minimum of 12 credit hours at Columbia at the time of application. Students who have earned a cumulative grade point average of 2.5 or higher. Students who demonstrate financial need through a completed **F**ree **A**pplication for **F**ederal **S**tudent **A**id **(FAFSA.)** Deadline to Apply: April 15.
http://www.colum.edu/student-financial-services/create-a-plan/scholarships/austin-strelau.php

OTHER SAMPLE SCHOLARSHIP OPPORTUNITIES

Columbia Internship Award (for continuing undergraduate and graduate students)

The Columbia Internship Award was established to provide funds to help defray the tuition expenses associated with an internship.

The Columbia Internship Award is open to Full-time undergraduate and graduate students who will complete an unpaid internship for academic credit in the Fall 2017 semester. Students who are eligible to receive academic credit for internships. Consult your internship coordinator through www.colum.edu/internships for additional information. Part-time Columbia employees and student workers may apply. Full-time Columbia College employees, Graduate Merit Award recipients, Graduate Assistantship recipients, graduate students-at-large, Laban certificate students, visiting students, and students enrolling in internship credits through Leap Semester are not eligible for the Columbia Internship Award. Check with your department before applying for the Columbia Internship Award, as certain majors do not permit students to receive financial support based on internships. Students who received the Columbia Internship Award during a previous semester are not eligible to apply. Zero-credit internships do not qualify for the Columbia Internship Award. Deadline to Apply: Fall Semester.

Diversity Award (for continuing undergraduate and graduate students)

The Diversity Award was established to encourage students to focus on the importance of diversity in higher education as preparation for life in a global society.

The Diversity Award is open to Full-time undergraduate students who have completed a minimum of 12 credits hours at Columbia at the time of application. Full-time graduate students who have completed a minimum of 9 credit hours at Columbia at the time of application. Students who have earned a cumulative grade point average of 3.0 or higher. Students who demonstrate financial need through a completed **F**ree **A**pplication for **F**ederal **S**tudent **A**id (**FAFSA**). Students who are U.S. citizens or permanent residence. Deadline to Apply: February 1st.

INTERNSHIPS

An internship can be one of the students' most exciting, challenging, and résumé-rewarding "capstone" experiences. Internships give students first-hand experience in their chosen field and an opportunity to explore how things learned in the classroom apply in the real world. One of the many added benefits of internships is that critical first "professional experience" entry on a student's résumé. For some, the internship supervisor also becomes one of the student's professional references. We have found that most students who successfully complete internships are employed in their chosen field shortly after graduation.

To be eligible for an internship, Audio Arts & Acoustics students must have a minimum 3.0 GPA in their area of concentration. Transfer students must also complete 2 semesters at Columbia College Chicago before they are eligible to register for an internship.

There is a five-to-one ratio of hours worked per week to credits earned, so students may register for 1-6 credits, depending on the amount of hours per week spent at the internship location. Typically, students register for 3 credits, which equates to 15 hours of work per week for an entire semester.

Registration must be completed by the end of the second week of the internship semester (i.e. approximately mid-September for Fall, the first week of February for Spring, and the first week of June for Summer).

Internship credits count as Audio electives and are not a requirement in any of the Department's concentrations. No more than 12 internship credits may count toward graduation.

Preparation is the key to a successful internship. Students should begin meeting with their advisor and the internship coordinator a semester in advance of their internship. This is an important time for the student and advisor to review transcripts and work with the internship coordinator to make the best "match" between a student and a potential internship host.

Currently, the Department of Audio Arts and Acoustics has ongoing relationships with leading companies in Chicago, representing all of the Department's concentrations.
http://students.colum.edu/career-center/internship-info.php

For an up-to-date list of companies and organizations that accept internship applications contact the AAandA Internship Coordinator, Tom Joyce (tjoyce@colum.edu - 312 369-8158).

AUDIO ARTS AND ACOUSTICS FACILITIES AND EQUIPMENT POLICIES

The educational facilities of the Audio Arts & Acoustics Department, located at 33 East Congress Parkway, are designed to serve the students enrolled in AAandA curriculum and, schedule permitting, provide recording, reinforcement, and other audio and acoustics services to the Columbia College community.

Our facilities include the following types of classrooms, studios, and labs:

- Digital audio production classrooms and labs for introductory and intermediate-level audio and audio-for-visual-media production classes
- Classrooms/labs for audio theory, installed sound, and acoustics classes
- Reverberation, semi-anechoic, and sound transmission chambers
- A live sound reinforcement lab
- Computer labs for audio production and acoustical modeling & measurement
- Advanced digital audio production “mini-suites”
- Three control rooms tied to two studio spaces for recording classes in recording
- Data Sonification lab with 3D sound field capabilities

Studio and Equipment Policies, Procedures and Forms

Contact Studio Staff at 312-369-8267

Within the following guidelines, classes have particular time limits and structures for lab bookings. Instructors provide that information at the beginning of each semester:

Open for Classes

Monday through Friday	8:30 AM to 11:00 PM
Saturday	9:30 AM to 6:00 PM
Sunday	CLOSED

Scheduling Office & Equipment Center Hours

Monday through Friday	10:00 AM to 10:00 PM
Saturday	10:00 AM to 5:30 PM
Sunday	CLOSED

Studio Reservations:

Monday through Friday	10:30 AM to 10:00 PM
Saturday	10:30 AM to 5:00 PM
Sunday	CLOSED

To manage requests for space and/or equipment utilization, the Department has developed a number of procedures for both faculty and students to follow. While almost no one likes the burden of complying with procedures and filling out forms, the Department believes that these are common sense protocols and that adherence to them by all concerned actually increases the likelihood that

equipment and facilities will be available for the greatest number of customers over the longest possible life of the equipment.

Preventing equipment damages and theft

Equipment theft and malicious damages are always surprising and disturbing. It only takes a small minority of users to undermine our operations, disrespect student needs, and hijack our educational mission. Our equipment and facilities are needed by all of us so, when it comes to damages and theft, protect it as your own. We need to minimize vandalism, disrespect, of a few that affects us all. You can help minimize & hopefully stop these anti-social activities.

Help us stop this now! If you see a fellow student engage in suspicious activity, confront them; give them a reason they should rethink what they are doing and an opportunity to avoid consequences. If you don't feel comfortable doing so, immediately alert a staff member.

Let's make our culture one of responsibility and respect that minimize the need for policing and allows us to proceed productively and in good spirit as colleagues.

INSTRUCTIONAL RESOURCE FEES

Note: *Funds raised by these fees are are managed as a whole by the College, not by the individual Department.*

Flat fee: $70.00 for each 2-3-credit courses $140.00 for each 4-or-greater-credit courses

For a list of current Instructional Resource Fees for all Departments at the College see
http://www.colum.edu/student-financial-services/create-a-plan/calculate-your-costs/index.php
In an effort to provide greater transparency and predictability for student costs, Columbia College has restructured mandatory course fees to better cover resources and materials used, based on a survey of course requirements across the College's arts, media and academic disciplines. The new Instructional Resource Fees (IRFs) have been effective since the Fall 2010 semester.

Prompted by student concerns – voiced by the Student Government Association – about the basis for the course fees, IRFs are the result of an exhaustive and comprehensive analysis of Columbia's historic course fee structure and are designed to better reflect the resources required for teaching the College's various disciplines. While fees will continue to be assessed by the College on a course-by-course basis, all courses in our Department currently carry the fee indicated above.

The College intends to hold the instructional resource fees at the current levels for the next three years. After that time, instructional expenditures will again be analyzed and fees may be reset.

The fee amounts will be included in the course catalog and on the Student Financial Services website.
http://www.colum.edu/Student_Financial_Services/index.php