

# Music

OFFICE: 110 Mandeville Center for the Arts  
Web page: <http://www.ucsd.edu/music>

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Anne Seshadri, Ph.D.  
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Erik Ulman, Ph.D.  
Stefani Walens, M.M.  
Robert Zelickman, M.F.A.

## Music Technology Director

Peter Otto, M.F.A.

## Ensembles In Residence

Improvisation Ensemble  
La Jolla Symphony and Chorus  
redfishbluefish (Percussion Ensemble)  
SONOR (Contemporary Faculty Ensemble)  
Concert Choir  
Chamber Singers  
Gospel Choir  
Jazz Ensemble  
Wind Ensemble

This department is dedicated to the development of musical intelligence and capacity, centering its quest on the music of our own time. The undergraduate programs intend to enhance the exercise and comprehension of the music-making process. The graduate programs aim to educate practitioners and researchers who can nourish the entire domain of music as well as extend its boundaries.

## Resources

### Production/Performance Facilities

During the academic year a diverse slate of more than 150 public concerts are presented in well-equipped venues: Mandeville Center Auditorium (792 seats), Mandeville Recital Hall (150 seats), Erickson Hall (150 seats), and Studio A (100 seats). These concerts provide both performance experience and a forum for examining the music of diverse eras and cultures. Substantial resources and staffing are dedicated to producing

the music of our time, including faculty and student works, by new music ensembles SONOR (faculty) and Twentieth-Century Ensemble (graduate students), experimental and improvisation ensembles, and student performance collectives (New Music Forum, Performers' Forum, et al.).

Practice facilities include a complement of grand pianos, disclaviers and uprights, an electronic keyboard lab, several harpsichords, a wide array of percussion, a percussion studio, and a limited collection of musical instruments.

### Concert and Recording Technology

Students can check out recording and concert production tools on a daily basis. All faculty and most student concerts are recorded by professional staff or their assistants, and qualified students can utilize the department's extensive high-tech resources for experimental projects resulting in public performance of new works.

### Music Technology Facilities

The Department of Music maintains highly sophisticated, continuously refurbished facilities for the support of graduate and undergraduate instruction. Please visit our Web site: <http://orpheus.ucsd.edu/dept.music/musictech>. These facilities consist of the following:

*Media Networking*—B-104, B-108, B-206 and all of UCSD Music's performance spaces are being upgraded for fast ethernet and ATM media networking as part of the CRCAnet project. CRCAnet will allow advanced students and researchers to "stream" digital video and audio among diverse on-campus facilities. The project is underwritten by grants from Intel, 3Com and the office of the Vice Chancellor for Academic Affairs. For more information on CRCAnet, see <http://www.crca.ucsd.edu>.

*Computer Music Instructional Laboratory (B-104)*—Mandeville Center, room B-104 was originally established in 1987 to support undergraduate and graduate studies in computer music. B-104 is a 900 square foot facility with recessed storage and printing areas, machine isolation, acoustical treatments, presentation console, ergonomic workstation components, high-resolution data projection system, and integrated digital and analogue audio equipment for student access to audio processing, duplicating, mixing, and high-quality quadrasonic audio monitoring.

A server is maintained with network connections, mass storage and archiving systems. New

for 2000 are Intel workstations running PD and CARL software. With the development of the CARL package by Professor F.R. Moore and Gareth Loy, UCSD earned an international reputation for computer music. The CARL software was adopted for use in computer music facilities around the world. PD is a new real-time, interactive musical and graphics programming environment written and under continuing development by UCSD Professor Miller Puckette. Other audio and graphics editing and processing software is also supported. One Intel system optimized for live performance applications is maintained in B-104.

B-104 also features SGI and Mac workstations. The facility is configured to support direct connection of musical instruments to computers for prototyping of real-time interactive performance and compositional routines using MAX and PD computer music software.

*Recording and MIDI Project Studio (B-108)*—The Mandeville Center room B-108 Recording and MIDI Project Studio is a 900 square foot facility, including an isolation booth, absorption and diffusion treatments, data connections and audio tie-lines to B-104 and Erickson Hall. This studio houses Macintosh and SGI workstations and many dedicated devices for music production and recording. ProTools 24 digital audio production package with eight channels of digital and analogue i/o for precise digital recording and editing is supported. Other upgrades include improved microphone preamps and an array of new software packages including ProTools plugins and spatialization tools. The studio features a Tascam DA88 digital multitrack recorder with synchronization and digital i/o, a Yamaha 02R digital mixer with all upgrades, Zsys digital patchers, surround sound, and sound-for-picture capabilities. The studio supports MIDI for synthesis, processing, and control in music composition and performance. Using these facilities it is possible for advanced students to “master” musical works on CDR with sufficient quality for later release as a music CD.

*Macintosh Laboratory (B-206)*—This facility occupies 1950 square feet, with audio and printer connections to B-104, and LAN connections. B-206 was established in 1990 to support many facets of the Music Department Curriculum, and has been upgraded incrementally nearly every year thereafter. It now comprises fourteen Macintosh computer workstations, (ten iMacs, three desktop G4s and an Intel) each with a MIDI interface and

Yamaha SY22/33 synthesizer. Coda Finale, Max/MSP, Soundhack, Metasynth, Deck II, and IRCAM Forum are some of the packages supported in the lab. Large format music and text printing are supported. For instructional presentation the room features L.C.D. projection and a classroom sound system. The presentation station also features a newly installed NT workstation with Sonic Foundry software, a G3 Mac with stereo ProTools editing, DAT, Bias Peak editor, and SpectraFoo signal display software and a CD burner. The principal current uses of B-206 are:

- Undergraduate Music Theory—Professor Gerald Balzano developed an innovative program that uses this facility to educate all entry level undergraduate music majors, and many minors. Subjects covered include music theory, ear training, and introductory composition.
- Acoustics—Undergraduate courses in basic acoustics and psychoacoustics use this facility as a laboratory, primarily to teach audio perception, digital recording, and editing techniques.
- Computer Music—Undergraduate courses, and Graduate Seminars in Computer Music Production and Composition use this facility as a laboratory. Many students continue to use this facility for composition after they complete course sequences.
- Music Notation—Students use dedicated software applications and the laser printer for notating and printing music..

### **Music Library**

The Music Library (located in Geisel Library) houses an extensive collection of holdings in all areas of Western music, and possesses one of the most exhaustive collections of twentieth-century music in this country. In addition, materials in non-Western music are being very aggressively expanded. The Music Library has a remote playback facility to support the course work and research of UCSD faculty and students. The listener can directly control any of the cassette decks, reel-to-reel tape decks, turntables, CD players, laser disc players, VHS HiFi VCRs, and BETA HiFi VCRs. Ten of the remote control listening stations are equipped with video monitors. An auxiliary studio and seminar room are equipped with full remote control of any of the audio or video equipment. The Music Library's innovative Digital/

Audio Reserve Project (DARP) uses networked audio streaming to maximize student access to listening assignments. The Music Library has a homepage on the World Wide Web—[<http://orpheus.ucsd.edu/music/index.html>].

### **Warren Studios**

The Warren Studios are state-of-the-art musical recording and faculty research facilities. The studios were designed to meet the following objectives:

- to serve as an unsurpassed facility for recording and mastering musical works;
- to serve as a reference-critical listening space for the evaluation of audio production;
- to support faculty research in psychoacoustics, computer music, audio signal processing, and musical performance.

These fully-professional studios support most formats of analog and digital audio, all phases of tracking, mixing, and CD mastering, and feature sufficient infrastructure to enable large video and film shoots with full synchronization. For more information visit [<http://orpheus.ucsd.edu/dept.music/musictech>] on the World Wide Web.

### **Center for Research in Computing and the Arts (CRCA)**

The Center for Research in Computing and the Arts (CRCA) is an organized research unit of the University of California, San Diego. CRCA exists to foster collaborative working relationships among artists, scientists, and technologists by identifying and promoting projects in which common research interests may be advanced through the application of computer-mediated strategies. Visit the CRCA homepage on the World Wide Web for more information [<http://www-crca.ucsd.edu>].

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## **The Undergraduate Program**

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Undergraduate courses offered in the Department of Music satisfy a wide range of interests for non-music majors as well as for students majoring in music.

Students wishing to acquire a musical background to support further study should take Music 1A-B-C, which develops skills musicians use in the analysis and performance of music. Students interested in “music appreciation” should choose from the following courses, which intro-

duce aspects of the rich heritage of music: Music 4–15. None of the aforementioned courses have prerequisites. For students with prior musical background who wish to continue in upper-division theory courses, Music 2A-B-C (in lieu of 1A-B-C) is essential.

## Music Major Programs

The undergraduate program at UCSD offers a bachelor of arts degree in *music* and in *music humanities*. The curriculum emphasizes the development of musical listening and performance skills as applied to both contemporary and traditional music.

The *music major* is intended for students who may choose to engage in music as a profession. This major thus requires extensive development of musical skills. A student without the appropriate level of those skills upon entrance to UCSD must devote considerable time to attaining them, either in lower-division courses or independent study. Students can concentrate in composition, performance, literature, or technology.

The Department of Music is committed to creative music making; thus all music majors are required to enroll in Music 95, 130, 131, or 134 ensemble performance for at least six quarters, with three quarters of participation in a choral ensemble chosen from Music 95C, 95D, or 95K.

The *music/humanities major* is intended for students who wish to pursue a broad liberal arts program that includes music as a central element. This program emphasizes music history and literature, and allows the individual student to select an area of interest for the major within the broad field of the humanities.

## Music Major Requirements

The lower-division prerequisites for the music major are Music 2A-B-C, and Music 2AK-BK-CK. To continue within the major, all students must pass Music 2C or an equivalent proficiency exam. Composition emphasis students must take Music 33, Introduction to Composition, or take a proficiency exam for the course. All required music major courses must be taken for a letter grade, with the exception of Music 143, which is taken on a Pass/No Pass basis. All courses to be counted toward satisfying the major requirements must be passed with a grade of C or better.

To complete the music major the following courses are required:

1. Music 101A-B-C.
2. Music 102A-B-C.
3. Music 120A-B-C.
4. Two quarters of Music 133 (normally taken in the winter quarters of the junior and senior years).
5. Music 111 or Music 114.
6. One of the following sequences: Music 103A-B-C (composition), three courses (in addition to Music 111 or 114) from the series Music 111-127 (literature), Music 170/171/175 (technology), or three quarters of Music 132 (performance).
7. Six quarters of Music 95, 130, 131, or 134. (three from 95C, 95D, or 95K).
8. Music 143 every quarter.

## Music/Humanities Major Requirements

The prerequisite for the music/humanities major is Music 1A-B-C (or 2A-B-C, if qualified). To complete the major the following courses are required:

1. Music 120A-B-C.
2. Three courses chosen from Music 111–127.
3. Six upper-division courses, selected from the humanities or the fine arts, that form a coherent program of study relevant to the chosen upper-division music courses.
4. Six quarters of Music 95, 130, 131, or 134.
5. Music 143 every quarter.

Students interested in this major should confer with the music/humanities faculty adviser to work out a course of study, which must be submitted at the beginning of the junior year for the adviser's written approval.

## Interdisciplinary Computing and the Arts (ICAM) Major

### Major Requirements

Twenty courses are required in the computing and the arts major for the attainment of the Bachelor of Arts degree. A minimum of twelve of these courses must be upper division.

All courses taken to satisfy major requirements must be taken for a letter grade, and only grades of C– or better will be accepted in the major.

## The Undergraduate Program

The Interdisciplinary Computing and the Arts program in the Music and Visual Arts departments draws upon, and aims to bring together, ideas and paradigms from computer science, art, and cultural theory. It also takes for granted that the computer has become a metamedium and that artists working with computers are expected to combine different media forms in their works. All of this makes the program unique among other currently existing computer art or design programs which, on the one hand, usually focus on the use of computers for a particular media (for instance, specializing in computer animation, or computer music, or computer design for print) and, on the other hand, does not enter into a serious dialog with the current research in computer science, only teaching the students off-the-shelf software.

The program also recognizes that creating sophisticated artistic works with computers requires a new model of the creative process, one that combines traditional artistic procedures with the experimental research characteristic of the sciences. All in all, it aims to train a new type of cultural producer, who is familiar with music technology, who is equally proficient with computer programming and artistic skills, who is always ready to learn new technologies, and who is comfortable interacting with scientists and computer industry resources.

The goals of the program are:

- to prepare the next generation of artists who will be functioning in a computer-mediated culture
- to give students necessary technical, theoretical, and historical backgrounds so they can contribute to the development of new aesthetics for computer media
- to prepare students to mediate between the worlds of computer science and technology, the arts, and the culture at large by being equally proficient with computing and cultural concepts
- to give students sufficient understanding of the trajectories of development in computing so they can anticipate and work with the emerging trends, rather than being locked in particular software currently available on the market.

## Admission to the ICAM Major

Student interest in the Interdisciplinary Computing and the Arts Major (ICAM) has been strong. Because the department has limited resources to accommodate student demand, it is necessary to limit admission to these majors to the most highly qualified students. Any student admitted to UCSD beginning in fall 2002 who wishes to declare an ICAM major will be admitted to the pre-major rather than being directly admitted to the major.

### ICAM Pre-Major

Students designated as pre-majors in ICAM must complete the following eight required lower-division courses within six quarters (by the end of their sophomore years):

MUS 4, Introduction to Western Music  
VIS 1, Introduction to Art-Making  
MUS 14, Contemporary Music

and one from

MUS 1A, Musical Literacy  
MUS 2A, Basic Musicianship  
MUS 5, Introduction to Music Making  
ICAM 40/VIS 40, Introduction to Computing in the Arts  
MATH 20A Calculus  
MATH 20B Calculus  
CSE 11\*, Introduction to Computer Science: JAVA

\* CSE 11 is an accelerated course in the JAVA programming language. CSE 8A and CSE 8B, which cover the same material in a non-accelerated format, may be substituted.

### Applying to the Major

Upon completion of all required lower-division courses, pre-majors who seek entrance to the ICAM major must formally apply at the Music Department Undergraduate Program Office. Admission will be based on the following criteria:

1. Performance in the lower-division courses as measured by a GPA of 3.0 or higher, determined by the department on an annual basis.
2. Submission to the department of a portfolio of work demonstrating superior progress as a pre-major. The portfolio will consist of at least two projects that the student has produced in ICAM 40/VIS 40, in another digital arts class, or independently, that in the faculty's judgment demonstrate that the student possesses the artistic ability and technical skills to perform at

a high level in upper-division courses in the majors. Pre-majors should consult the undergraduate adviser in music as to the form in which projects should be submitted (disk, slides, tapes, etc.).

### Transfer Students

Beginning in fall 2002, transfer students who wish to declare an ICAM major are subject to the major's admissions policies: that is, they will be admitted initially as pre-majors, apply to the major on the same basis as other students, and be subject to the same requirements with respect to lower-division courses, grade-point average, and portfolio evaluation. Transfers entering with 36 or more quarter units must apply for admission to the major no later than their third quarter of study at UCSD. At the time of admission to the pre-major, transfer students' transcripts will be evaluated by the departments to determine what courses completed elsewhere, if any, may be petitioned as equivalent to required courses. Students should be prepared to provide course descriptions and other materials that may be required to determine the content of such courses.

### Continuing Students (Students admitted prior to fall 2002)

Any student admitted to UCSD before fall 2002 may declare an ICAM major by completing a Change of Major form at the undergraduate adviser's office.

## Policies Relating to the ICAM Major

### Satisfactory Progress

Any ICAM major whose GPA in courses required for the major drops below 2.0 will be placed on probationary status the following quarter. If, during that probationary quarter, the GPA does not move back to up 2.0 or better, he or she will be dropped from the major.

### Prerequisites

Students are required to complete all prerequisites prior to enrolling in any course required for the major. Exceptions must be negotiated with the instructor of the course in question, in consultation with the department undergraduate adviser.

### Limitations to Enrollment by Non-Majors

A department stamp is required for all upper-division courses in computing in the arts. Because ICAM is an impacted major, first preference in enrollment in upper-division computing in the arts will be given to ICAM majors and to music majors with a technology concentration. Second preference will be given to other visual arts and music majors. Other students will be admitted to these courses only if space is available.

### Lower-Division

(Eight courses required.)

MUS 4 Introduction to Western Music  
VIS 1 Introduction to Art-Making  
or  
MUS 14 Contemporary Music  
and one from:  
MUS 1A Music Literacy  
MUS 2A Basic Musicianship  
MUS 5 Introduction to Music Making  
ICAM 40/ VIS 40 Introduction to Computing in the Arts  
MATH 20A Calculus for Science and Engineering  
MATH 20B Calculus for Science and Engineering  
CSE 11 Introduction to Computer Science: JAVA

### Upper-Division

(twelve courses required)

### Survey (one course required)

ICAM 110. Computing in the Arts: Current Practice

### Foundation (three courses required)

ICAM 101/VIS 140. Digital Imaging: Image and Interactivity  
ICAM 102/VIS 145A. Digital Media I: Time, Movement, Sound  
ICAM 103/MUS 170. Musical Acoustics

### Advanced (four courses required)

ICAM 120. Virtual Environments  
ICAM 130/VIS 149 Seminar in Contemporary Computer Topics  
MUS 171. Computer Music I  
MUS 172. Computer Music II  
MUS 173. Audio Production: Mixing and Editing  
MUS 175. Musical Psychoacoustics  
MUS 176. Music Technology Seminar  
VIS 109. Advanced Projects in Media  
VIS 131. Special Projects in Media  
VIS 132. Installation Production and Studio

VIS 141A. Computer Programming for the Arts I  
 VIS 141B. Computer Programming for the Arts II  
 VIS 145B. Digital Media II  
 VIS 147A. Electronic Technologies for Art I  
 VIS 147B. Electronic Technologies for Art II  
 VIS 174. Media Sketchbook

### Theory and History (two courses required)

ICAM 150/VIS 159. History of Art and Technology

and one of:

MUS 111. World Music Traditions  
 MUS 114. Music of the Twentieth Century  
 VIS 123CN. Early Print Culture: The First Media Revolution  
 VIS 125E. History of Performance  
 VIS 150 . History and Art of the Silent Cinema  
 VIS 151. History of the Experimental Film  
 VIS 152. Film in Social Context  
 VIS 153. The Genre Series  
 VIS 154. Hard Look at the Movies  
 VIS 155. The Director Series  
 VIS 157 . Video History and Criticism  
 VIS 158. Histories of Photography

### Senior Project (two courses required)

ICAM 160A/B. Senior Project in Computer Arts

All Computing and the Arts (ICAM) course descriptions are listed at the end of the lower- and upper-division sections under "Courses." Not all courses are offered each year.

## Honors

1. To be admitted into the honors program a student must have the following:

- Excellence in a specific subject matter (performance, composition, literature, technology, or music/humanities) and faculty support.
- Performers must have previously performed on Performers Forum and enrolled in Chamber Music, Music 130. (Vocalists can seek an exception.) Other students must have completed all Music 95 requirements prior to entering the honors program.
- A GPA in the Department of Music of 3.6; an overall GPA of 3.0

All of the requirements below must be completed before the last day of instruction in the spring quarter prior to the academic year in

which the student proposes to pursue an honors curriculum.

- Performance students must present a piece before the performance faculty that demonstrates their technical and musical abilities. In addition, students must provide a proposed program for an honors recital.
- Composition students must have a composition performed on the New Music Forum series. Either the student's principal instructor must attend this performance or a tape of this performance must be provided for faculty review. In addition, students must provide a proposed portfolio of original scores for an honors recital.
- Literature students who have (1) presented historically- or musicologically-oriented research papers at campus venues featuring undergraduate research, or (2) been involved in the faculty mentor program, or (3) participated in the presentation of the winter opera with the accompanying symposium, may submit a portfolio of papers to the Critical Studies/Experimental Practices (CSEP) faculty. In addition, students must propose a fifty minute lecture for the Department Seminar (Music 143).
- Music science and technology students must present a portfolio of projects to the music technology faculty and propose a fifty-minute lecture/demonstration for the Department Seminar (Music 143).

2. Once admitted to the honors program:

- Students must be supervised by a faculty adviser throughout the honors program.
- *Composition* students admitted to the honors program will enroll in twelve units of the Composition Honors course (Music 103D-E-F). *Performance* students will enroll in twelve units of Music 132R (after at least three quarters of Music 132). *Technology* students will enroll in twelve units of Music 176 or 199; *Music literature* and *music humanities* students will enroll in twelve units of Music 199, 150, or 107.

3. To receive honors:

- A student must publicly demonstrate an appropriate level of excellence, an acceptable GPA, and suitable participation in department presentations and seminars,

as determined by the student's honors committee.

**Please Note:** Being admitted to the honors curriculum does not guarantee that a student will receive honors. In accordance with university policy, no more than 20 percent of graduating students may be granted honors.

For further information on the Department of Music Honors Program and to obtain an application form, students should make an appointment with the undergraduate staff adviser.

## Transfer Students

Students who plan to transfer into the music major should have strong skills in basic musicianship. For those planning to emphasize performance, solid proficiency on the instrument is required. A general course in the history of music is recommended. All transfer students must pass a proficiency examination in Music 2C (Basic Musicianship) and Music 2CK (Basic Keyboard). To verify the acceptability of transfer music courses, students must make an appointment with the undergraduate staff adviser.

## Minor Programs

Please obtain a Department of Music brochure of approved minors from the undergraduate office. Students must seek advice and obtain approval from a music faculty adviser prior to embarking upon a minor program.

The music minor for students entering UCSD in and after winter quarter 1998 consists of:

- two lower-division music courses except performance ensembles (Music 95A–Music 95W) and lessons (Music 32)
- five upper-division music courses

Students who entered UCSD before winter 1998 may select either the new minor or one of the music minors offered at the time of their entry into the university.

A minor with an emphasis in ICAM consists of seven specific courses, of which at least five must be upper division. Prospective minors should consult with the respective departmental adviser for a complete list of appropriate classes acceptable for the minor.

## Advising Office

Undergraduate Staff Adviser

Eileen Voreades, Room 124  
Mandeville Center, (858) 534-8226  
evoreades@ucsd.edu

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## The Graduate Program

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UCSD offers the master of arts and doctor of philosophy in music as well as a doctor of musical arts. Areas of emphasis for the M.A. include *Composition*, *Computer Music*, *Critical Studies/Experimental Practices (CS/EP)*, and *Performance*. For the Ph.D., areas of emphasis offered are *Composition*, *Computer Music*, and *Critical Studies/Experimental Practices*. The doctoral of musical arts has an emphasis in *Contemporary Music Performance*.

### Composition

The Composition Program is committed to encouraging the individual gifts and capacities of student composers in a diverse and active environment. This is done in a variety of ways, but primarily through intensive personal interaction between faculty and student.

An incoming member of the M.A. or Ph.D. program begins with a year-long seminar (taught by a different faculty composer each quarter) and continues with individual studies thereafter. At the close of the first fall and again after the spring quarter, the entire composition community gathers for what is typically a day-long "jury." Each seminar member is allotted a block of time during which the composition that he or she has just completed is performed and recorded in a carefully rehearsed presentation. There is a detailed discussion of each work by the faculty present, and the student has opportunity to comment, explain, and question. Following the performance and discussions of this day, the composition faculty meets to assess the students' work. These events constitute the uniqueness of the UCSD program, and manifest the range, seriousness, and vitality with which compositional issues are explored here.

After completing three quarters of seminar and two juries, students have come to know something about the ideas and attitudes of each faculty composer; the faculty is, in turn, aware of each student's aims and needs. At this point, then, an individual mentor is agreed upon and this relationship becomes the center of the student's continuing work as he or she completes the degree. There is also a biweekly Focus on Composition Seminar at

which faculty, students and selected visitors present work of interest (compositional, analytical, technological, even, perhaps, whimsical).

The seminars serve to foster mutual awareness on the part of the student composer group. Collegial relationships develop which lead to creative outlets in cooperative projects. (These include the student-run Composers' Forums, performance collectives and recital projects.) UCSD performers—faculty and student—are all committed to the playing of new music, and frequent composer/performer collaborations are a vital aspect of life in the Department of Music.

### Computer Music

The Computer Music Program emphasizes research in new techniques for electronic music composition and performance, catalyzed through an active concert program of new works by students, faculty, and visitors. Areas of research include:

new audio synthesis techniques,  
audio signal processing,  
psychoacoustics,  
live improvisation with and by computers,  
integrating audio and video,  
electronic spatialization of sounds, and  
synchronization and control in live computer music performance.

Computers today are ubiquitous in all aspects of music theory and music-making. The Computer Music Program encourages work which overlaps with the other programs of study: composition, performance, and critical studies/experimental practices. Analyzing and performing electronic music repertoire as well as writing new music involving electronics are encouraged.

Like the music department's other Ph.D. areas (composition and CSEP), the computer music area's first year is centered on a year-long "backbone" course covering the essentials of the computer music field. This material divides naturally into three portions (audio signal processing, compositional algorithms, and musical cognition).

In their second year, students work individually with faculty members to deepen their mastery of their subject areas of concentration. For example, a student wishing to focus on signal processing aspects might study techniques for digital audio analysis and resynthesis, about which research has been published continually over the last three decades.

Also during these first two years Ph.D. students take seminars on music analysis, composition, and performance practice along with composition and CSEP doctoral students. After having taken a critical mass of such subjects students enter a qualifying examination preparation period in the same model as for the two existing music Ph.D. areas, and, once successful, they start their dissertation research.

UCSD's Center for Research in Computing and the Arts (<http://crca.ucsd.edu>) offers an ideal research environment for graduate students in this area.

### Critical Studies/Experimental Practices

The Program in Critical Studies/Experimental Practices (CS/EP) explores what music is about over the widest possible range of traditions and possibilities. An exploration of experimental, Western, and non-Western music-making is combined with the critical examination of music and musical ideas within human societies.

This interactive environment encourages a cross-fertilization between diverse musical forms and the theoretical and critical discourses that surround them, often drawing in those who may not fit conventional categories of "composer" or "performer," or those whose work is not constrained by traditional disciplinary boundaries.

Thinking about music requires both analytic engagement with real music and the creative investigation of ideas relevant to its nature, creation, production, and reception. Core seminars explore multiple ways of thinking about music, including critical, cognitive, and intercultural approaches as well as traditional syntactical analysis. Recent seminars have included crossculturalism in music, psychoacoustics, film and popular music, multimedia aesthetics, methodologies for improvisation, representations of sexuality and gender in music and contemporary theories of narrativity in music. In conjunction with the seminar, each student not yet advanced to candidacy will meet with a faculty adviser to plan and prepare a presentation of his or her own work as part of a one-day CS/EP student symposium during the spring quarter.

Music-making in CS/EP encompasses both compositional and performance activities. Experimental performance workshops incorporate improvisation and such diverse elements as new technologies, video, dance, visual, and theatrical

components to make music in a multiplicity of ways.

Student-generated projects and workshops are also an important component of the UCSD Graduate Program in CS/EP. Individual student interests and initiatives are welcomed by the faculty, who are expert in such diverse fields as cognitive psychology, computer-aided improvisation, ethnomusicology, historical development of Western music, and contemporary critical thought.

## Performance

Fostering the creative, intelligent, and passionate performance of contemporary music is the mission of the Performance Program of the Department of Music. As once stated by founding faculty composer Robert Erickson, we at UCSD are a “community of musicians.”

The performance of contemporary music is viewed as a creative act which balances expertise and exploration. Within this context, performers act and interact in a communal environment, working with faculty and student composers, collaborating in music technology, researching instrument design, improvising, and experimenting in performance practice, among many other pursuits.

Graduate performance students pursue either a master of arts or a doctor of musical arts degree in contemporary performance. The course of study for both programs involves the completion of required graduate seminars and intensive study with a mentoring faculty member. Students are encouraged to adopt a vigorous, exploratory orientation in their private study. Final degree requirements include a recital, or in the case of the DMA, two recitals and the presentation of personal performance research.

The work of graduate performance students forms an integral component of a rich musical environment which produces an astonishing quantity and variety of performances. Students may perform in SONOR (the university's contemporary music ensemble) or in SIRIUS, (the graduate student contemporary music group). The Performance Forum, a student-initiated concert series, provides an opportunity for students to present a wide variety of concerts of improvised music, world music, and music with technology. A strong, collaborative spirit between the Performance and Composition Programs also yields many new works each year performed on New Music Forum concerts series.

## Graduate Admissions

Normally students will be admitted to begin graduate studies in the fall quarter only.

1. Formal UCSD Applications for Graduate Admission should be submitted by January 15th of the admission year; failure to meet that deadline will jeopardize the applicant's opportunity for admission and financial support.
2. Supporting documents for all applicants must include:
  - a. statement of purpose
  - b. three letters of recommendation
  - c. official transcripts
  - d. Graduate Record Examination (GRE) scores from the General Test
  - e. foreign applicants must submit TOEFL scores and a Foreign Applicant Financial Statement
3. In addition, applicants to graduate studies in music must submit a portfolio consisting of the following:
  - a. for **ALL** applicants, a repertory list of works (solo and chamber) performed during the past few years and a sample of printed concert programs in which they have participated, either as performer or composer
  - b. for **ALL** applicants, a minimum of two papers illustrating writing ability in any of the following areas: analysis, criticism, aesthetics, music theory, or music technology  
— in addition —
  - c. for **Composition** applicants, a minimum of three scores of instrumental works with taped examples of the works being performed. (These may include, but should not be exclusively electroacoustic.)
  - d. for **CS/EP** and **Computer Music**, prospective students should submit appropriate documentation (e.g., papers, performances, intermedia works, computer programs, etc.) of their prior work
  - e. for **Performance** applicants, tapes and/or personal audition demonstrating their level of vocal and/or instrumental performance

## Advisory Examinations

After completion of an advisory examination during Welcome Week, each new student will

meet with the departmental M.A. or Ph.D. adviser. Students found to be deficient in any areas covered on the advisory examination (dictation, sight reading, keyboard proficiency, history, and literature) will be advised to remedy deficiencies during their first year.

## Core Graduate Curriculum

All graduate students are required to take Music 201 (Projects in New Music Performance), Music 210 (Musical Analysis), Music 228 (Conducting)—optional for CS/EP students, and Music 291 (Problems and Methods of Music Research and Performance). Students who completed Music 210, 228, and 291 during their master's degree program at UCSD, do not need to retake those courses for their doctoral curriculum.

To assure that all requirements are being adequately met, all graduate students must make an appointment with the graduate staff adviser for a degree check no later than the winter quarter of the second year.

## Master's Degree Program

The master of arts in music degree includes areas of emphasis in *Composition*, *Computer Music*, *Critical Studies/Experimental Practices (CS/EP)*, and *Performance*. The degree requires completion of at least thirty-six quarter units of graduate courses (courses numbered 201–299), including six units of Music 500 (Apprentice Teaching in Music) and six units of Music 299 (Advanced Research Projects and Independent Study) bearing directly on completion of the master's thesis. Master's students are expected to complete all requirements for the degree in six quarters of residence.

## Course Requirements

In addition to the core graduate curriculum, all master's degree students are required to complete requirements in their area of emphasis:

### COMPOSITION

1. Music 201 (A, B or C)—must take at least two times.
2. Music 203ABC (M.A. level)—successful completion of the jury process is necessary to get a passing grade in the corresponding seminar.
3. Music 203D—after successful completion of 203C, students must enroll in Music 203D (with

their committee chair) every quarter until graduation.

4. Music 204—every quarter until graduation.
5. Music 206 or 207—a combination of at least two courses.

### COMPUTER MUSIC

1. Music 201 (A, B or C)—must take at least two times.
2. Music 203A-B-C or Music 232 (3 times)—must take within the first year of the program.
3. Music 206 or 207—required at least one time.
4. Music 267—must take at least four times.

### CRITICAL STUDIES/EXPERIMENTAL PRACTICES

1. Music 201 (A, B or C)—must take at least two times.
2. Music 205—every quarter until graduation.
3. Music 206 or 207—a combination of at least two courses.
4. Music 208A-B-C—must take within the first year of the program.
5. Music 208D—one time during the second year.

### PERFORMANCE

1. Music 201(A, B, or C) or 202—every quarter until graduation.
2. Music 206 or 207—a combination of at least two courses.
3. Music 232—every quarter until graduation.
4. Music 245—every quarter in residence.

### Master's Degree Completion Requirements

A folio of **three research papers** in professional format (normally to be written in connection with the courses the student will be taking) must be accepted by the student's committee prior to approval of the thesis.

M.A. candidates will present a **thesis** consisting of the following under the supervision of the student's committee chair in Music 299:

1. Candidates emphasizing *Composition* will prepare a folio of three chamber compositions together with tape recordings of at least two of them.
2. Candidates emphasizing *Computer Music* will write a research paper (thesis) and present a lecture-performance in which the scientific,

technological, and musical aspects of an original computer music composition are documented, played, and discussed.

3. Candidates emphasizing *Critical Studies/Experimental Practices* will write an extended research paper (thesis) on a topic chosen with their committee chair.
4. Candidates emphasizing *Performance* will present a recital supported by lecture-quality notes. The program must be approved by the student's committee chair.

All of the above master's requirements must have final approval from the student's individual committee upon completion.

### Doctoral Degree Program

Students of superior musical competence may pursue a program with emphasis in *Composition*, *Computer Music*, or *Critical Studies/Experimental Practices (CS/EP)* leading to the Ph.D. or doctor of musical arts (D.M.A.) degree in *Contemporary Music Performance*.

All doctoral students within the Department of Music must complete the Core Graduate Curriculum (outlined in the section above the Master's Degree Program) plus additional core requirements for the Ph.D. or D.M.A. program. These additional core requirements are:

1. Successful completion of an M.A. degree, including requirements equivalent to those described above for the M.A. in music. UCSD M.A. students who apply to the Ph.D./D.M.A. program must complete all departmental requirements, obtain OGSR approval, and file the M.A. degree at Geisel Library **before** enrolling in any Ph.D./D.M.A. level courses.
2. The Department of Music strongly recommends that entering students have acquired a reading ability in at least one of the standard reference foreign languages (French, German, Italian, or Spanish) in addition to their native language.
3. All Ph.D./D.M.A. students are required to complete six units of credit in Music 500 (Apprentice Teaching) unless the student has completed this requirement in UCSD's master's degree program.
4. After completing the qualifying examination, all students must remain in residence for at least three quarters, during which time they must enroll in twelve units of Music 299

(Advanced Research Projects and Independent Study) with their committee chair or members every quarter.

### Course Requirements

In addition to the core graduate and Ph.D./D.M.A. curriculum, doctoral students (according to their area of emphasis) must complete the following courses prior to the qualifying examination:

#### COMPOSITION

1. Music 201 (A, B, or C)—must take at least two times.
2. Music 203A-B-C (Ph.D. level)—successful completion of the jury process is necessary to get a passing grade in the corresponding seminar. Continuing students from the UCSD Composition M.A. program may be excused from Music 203B-C by successfully completing Music 203A at the Ph.D. level.
3. Music 203D—after successful completion of 203C, students must enroll in Music 203D (with their committee chair) every quarter in residence.
4. Music 204—every quarter in residence.
5. Music 206 or 207—a combination of three courses from Music 206/207.
6. Music 209—must be taken at least three times.
7. Music 298—must complete at least six units.

#### COMPUTER MUSIC

1. Music 201 (A-B-C)—must take at least two times.
2. Music 270A-B-C. Ph.D. students who have already completed 270A-B-C as part of their masters may substitute 12 units taken from Music 201, 206, 207, 209, 210, and/or 267.
3. Music 270D—after successful completion of 270C, students must enroll in Music 270D (with their committee chair) every quarter in residence.
4. Music 206, 207, 209, 210, and/or 267, for a total of at least 24 units.

#### CRITICAL STUDIES/EXPERIMENTAL PRACTICES

1. Music 201 (A, B or C)—must take at least two times.
2. Music 205—every quarter in residence.



3. Music 206 or 207—a combination of three courses from Music 206/207. Ph.D. students in the CS/EP program emphasizing computer music may replace two 206/207 requirements with two 267 seminars.
4. Music 208A-B-C—must take within the first year of the program unless previously taken as a UCSD M.A. student.
5. Music 208D—required at least three times during the Ph.D. program.
6. Music 209—must be taken at least three times.
7. Music 298—must complete at least six units.

#### PERFORMANCE

1. Music 201(A, B, or C) or 202—every quarter until completion of qualifying examination.
2. Music 206/207/209—as approved by D.M.A. adviser, students must take at least six seminars related to the primary and secondary area of specialization. Music 296 may be substituted for up to four seminars with permission of D.M.A. adviser.
3. Music 232—every quarter until completion of qualifying examination.
4. Music 245—every quarter in residence.
5. Music 250—must be taken at least three times.
6. Music 298—must complete at least six units.

#### Qualifying Examination/ Advancement to Candidacy

Requirements prior to taking the qualifying examination:

1. Completion of all Ph.D./D.M.A. required course work.
2. For Ph.D. students, one research paper judged to be of publishable quality must be completed prior to qualifying examinations. The subject of the publishable paper will be developed during the student's first two years and must be approved by the student's Ph.D. committee chair.
3. For *Composition* students, in addition to the publishable paper, a folio of not fewer than three compositions (not previously accepted for an M.A. degree) must be completed prior to qualifying examinations.
4. For D.M.A. students, one major recital; plus either (a) an abstract of the thesis or research project which will be given to the Doctoral

Committee at the qualifying examination; or (b) a substantial portion of the works from the student's first two "major recitals" will be presented at the qualifying examination.

The qualifying examination for all doctoral students will consist of the following:

- A written and oral defense of three questions provided by the Doctoral Committee pertaining to appropriate areas of specialization.

#### Ph.D./D.M.A. Degree Completion Requirements

1. For *Composition* students, completion of a major composition project.
2. For *CS/EP* and *Computer Music* students, completion of an acceptable dissertation.
3. For D.M.A. students, completion of a second major recital plus one of the following: (a) the thesis or research project; or (b) a concert that is innovative in design and/or content, and which is supported by a document containing extensive stylistic or analytical discussion of the program; or (c) a lecture/concert pertaining to innovative and/or original material, with appropriate documentation as determined by the committee, or (d) two approved chamber music concerts with appropriate documentation as determined by the committee.
4. A final public defense of the composition/dissertation/recitals.

Materials previously submitted for other degrees are not acceptable for submission for the Ph.D./D.M.A. degree.

#### Time Limit Policy for the Doctoral Degree

##### NORMATIVE TIME LIMITS

- 4 years: Students entering the Ph.D./D.M.A. program with a master's degree from another institution.
- 6 years: Students continuing into the Ph.D./D.M.A. program with a master's degree from UCSD. Time limit is calculated from the beginning of the M.A. program (i.e., 2 years for M.A. program plus 4 years normative time for Ph.D./D.M.A.).

Educational fee grants are provided to students within normative time after advancement

to Ph.D./D.M.A. candidacy and until accrued time in graduate status exceeds the normative time.

##### SUPPORT TIME LIMITS

- 6 years: Students entering the Ph.D./D.M.A. program with a master's degree from another institution.
- 7 years: Students continuing into the Ph.D./D.M.A. program with a master's degree from UCSD. Time limit is calculated from the beginning of the M.A. program

##### TOTAL REGISTERED TIME LIMITS

- 6 years: Students entering the Ph.D./D.M.A. program with a master's degree from another institution.
- 8 years: Students continuing into the Ph.D./D.M.A. program with a master's degree from UCSD. Time limit is calculated from the beginning of the M.A. program

Students who have not completed all Ph.D. requirements within the maximum total registered time will no longer be permitted to register for classes.

#### Advising Office

Graduate Staff Adviser  
Lori Bantz, Room 109  
Mandeville Center, (858) 534-3279  
lbantz@ucsd.edu

## COURSES

NOTE: The following course offerings outline the general scope of our program. Not all courses are offered every year. It is essential that students work closely with departmental advisers when planning their degree programs.

##### LOWER-DIVISION

##### 1A-B-C. Musical Literacy (4-4-4)

Primarily intended for students whose major is other than music, this course develops musical abilities through a conceptual understanding of the structure of music together with listening exercises and techniques. Topics include musical notation, melodic transcription, scales, chords, intervals, keys, rhythm, meter, and rudiments of musical form. *Prerequisite: none.*

##### 2A-B-C. Basic Musicianship (4-4-4)

Primarily intended for music majors. Development of basic skills: perception and notation of pitch and temporal relationships. Introduction to functional harmony.

Studies in melodic writing. Drills in sight singing, rhythmic reading, and dictation. *Prerequisites: passing score on placement exam. Must be taken in sequence. Music majors must be concurrently enrolled in Music 2AK, 2BK, and 2CK (Basic Keyboard).*

#### **2AK-BK-CK. Basic Keyboard (2-2-2)**

Scales, chords, harmonic progressions, transposition, and simple pieces. *Prerequisites: concurrent enrollment in Music 2A, B, C.*

#### **4. Introduction to Western Music (4)**

A brief survey of the history of Western Music from the Middle Ages to the present. Much attention will be paid to the direct experience of listening to music and attendance of concerts. Class consists of lectures, listening labs, and live performances. *Prerequisite: none.*

#### **5. Introduction to Music Making (4)**

A one-quarter course designed to discover musical potential and expand musical experience. No knowledge of music, notation, or instrumental skill is necessary. Small lab sessions present music through composing, improvising, and performing. Results take the form of works for tape, theatre, voices, or instruments. *Prerequisite: none.*

#### **6. Electronic Music (4)**

Lectures and listening sessions devoted to the most significant works of music realized through the use of computers and other electronic devices from the middle of this century through the present. *Prerequisite: none.*

#### **7. Music, Science, and Computers (4)**

An exploration of the interactions among music, science, and technology, including the development and history of science and technology from the perspective of music, and the modern resynthesis of these disciplines occurring around computers. *Prerequisite: none.*

#### **8. American Music (4)**

A course designed to study the development of music in America. The focus will be on both the vernacular traditions including hymn singing, country music, jazz, big band, rock, etc., as well as the cultivated traditions of various composers from William Billings to John Cage. *Prerequisite: none.* (Offered in selected years.)

#### **9. Symphony (4)**

The symphonic masterworks course will consist of lectures and listening sessions devoted to a detailed discussion of a small number of recognized masterworks (e.g., Mozart, Beethoven, Berlioz, Stravinsky, Ligeti, etc.). *Prerequisite: none.* (Offered in selected years.)

#### **10. Chamber Music (4)**

Chamber Music will consist of lectures and listening sessions devoted to a detailed discussion of recognized chamber masterworks (e.g., Haydn, Mozart, Beethoven, Bartok, etc.). *Prerequisite: none.* (Offered in selected years.)

#### **11. Folk Music (4)**

A course on folk musics of the world, covered through lectures, films, and listening sessions devoted to detailed discussion of music indigenous to varying countries/areas of the world. Topics vary from year to year. May be repeated once for credit. *Prerequisite: none.*

#### **12. Opera (4)**

A study of opera masterworks that often coincide with operas presented in the San Diego Opera season. Class consists of lectures, listening labs, live performances, and opera on video. *Prerequisite: none.*

#### **13AF. World Music/Africa (4)**

A course that focuses on the music of Africa and on African ways of music making in the Diaspora to the Caribbean and South America. No prior technical knowledge of music is necessary. *Prerequisite: none.*

#### **13AM. World Music/Multicultural America (4)**

A study of music cultures in the United States, particularly Native American, Hispanic American, European American, Asian American, and Pacific Islanders from the perspective of ethnicity, origin, interaction, and the contribution of various ethnic groups to American musical life. No prior technical knowledge of music is necessary. *Prerequisite: none.*

#### **13AS. World Music/Asia and Oceania (4)**

Introduction to selected performance traditions of Asia and Oceania with links to local and visiting musicians from these cultures. No prior technical knowledge of music is necessary. *Prerequisite: none.*

#### **14. Contemporary Music (4)**

This course offers opportunities to prepare oneself for experiences with new music (through preview lectures), hear performances (by visiting or faculty artists), to discuss each event informally with a faculty panel: an effort to foster informed listening to the new in music. *Prerequisite: none.*

#### **15. Popular Music (4)**

A course on popular music from different time periods, covered through lectures, films, and listening sessions. Topics vary from year to year. May be repeated once for credit. *Prerequisite: none.*

#### **32. Instrumental/Vocal Instruction (2)**

Individual instruction in instrumental or vocal technique and repertory. Intermediate level. For declared music majors: students must be enrolled in courses in the music major curriculum. Students must audition for performance faculty on first Monday of fall quarter. *Prerequisites: department stamp required. Enrollment by consent of instructor after audition.* May be taken for credit six times.

#### **32G. Group Instrumental Instruction (2)**

Group instruction in instrumental or vocal technique and repertory. Intermediate level. Intended for students who make an important contribution to Department of Music ensembles. *Prerequisites: Written recommendation of ensemble director and audition for performance faculty on first day of classes required. Department stamp required.* May be taken for credit six times. (Offered in selected years)

#### **33. Introduction to Composition (4)**

This course is intended to provide the prerequisite knowledge necessary to pursue an emphasis in composition. Topics covered will include notation, calligraphy, instrumentation, orchestration, and twentieth-century music literature. *Prerequisite: Music 2A and 2B or consent of instructor.*

#### **95. Ensemble Performance (2)**

Performance in an ensemble appropriate to student abilities and interests. Normally each section requires student participation for the whole academic year, with credit for participation each quarter. Music majors should enroll in at least one section each quarter. Sections of Music 95W have included: African drumming, Korean percussion, Indian sitar and tabla, koto, and Indonesian flute. Not all sections will be offered every year. May be repeated for credit. Grading on participation level, individual testing, comparative papers

on repertoire covered, etc. *Prerequisites: audition and consent of instructor for each section.*

**Note:** Students in the Music 95 series courses may enroll with a letter grade option a total of twelve units for registered music majors and a total of six units for all other students; after which students may continue to enroll in Music 95 courses, but only with a P/NP grade option. There is one exception to the above grading policy. Music 95G, Gospel Choir, can only be taken for a P/NP grading option.

*Section A. Symphony Orchestra*

*Section B. Instrument Choir*

*Section C. Concert Choir*

*Section D. Symphonic Chorus*

*Section F. Collegium Musicum (Not offered every year.)*

*Section G. Gospel Choir*

*Section H. Chamber Opera (Not offered every year.)*

*Section I. Music Theater (Not offered every year.)*

*Section J. Jazz Ensemble*

*Section K. Chamber Singers*

*Section L. Wind Ensemble*

*Section W. World Music Ensembles*

#### **ICAM 40. Introduction to Computing in the Arts (4)**

(Cross-listed with VIS 40.) An introduction to the conceptual uses and historical precedents for the use of computers in art making. Preparation for further study in the computer arts area by providing overview of the theoretical issues related to the use of computers by artists. Introduces the students to the program's computer facilities and teaches them basic computer skills. *Prerequisite: none.* **NOTE:** Materials Fee required.

### **UPPER-DIVISION**

#### **101A-B-C. Music Theory and Practice I (4-4-4)**

Study of the materials and structures of music through hearing, analysis, writing, and performance. Writing in two voices (101A) and four voices (101B-C). Continues sight singing, dictation, and keyboard. *Prerequisites: Music 2C and 2CK, and passing grade on proficiency exam.*

#### **102A-B-C. Music Theory and Practice II (4-4-4)**

Advanced study of the materials and structures of music. Chromatic harmony and twentieth-century techniques. Aural discrimination, analysis, exercises, and short compositions. Continues sight singing, dictation, and keyboard. *Prerequisites: Music 101A-B-C. Department stamp required.*

#### **103A-B-C. Seminar in Composition (4-4-4)**

Individual projects in composition critically reviewed in seminar with fellow student and faculty composers. *Prerequisites: Music 2A-B-C.*

#### **103D-E-F. Honors Seminar in Composition (4-4-4)**

Advanced individual projects for senior music majors pursuing honors in composition. Projects will be critically reviewed in seminar with fellow students and faculty composers. *Prerequisites: Music 103A-B-C and admission into the Department of Music Honors Program in composition. Department stamp required.*

#### **107. Critical Studies Seminar (4)**

Explore music in relation to various traditions of critical thought and their methodologies, such as in literature, cultural studies, sociology, and philosophy. Readings

and scores to be determined by the professor. *Prerequisite: upper-division standing or consent of instructor.*

#### **110. Doing Ethnomusicology (4)**

A how-to course in the practice and theory of studying the music of contemporary cultures. Students will record, document, analyze, and present music from their local environment. Designed for students in music, ethnic studies, anthropology, and the social sciences. *Prerequisite: none.* (Offered in selected years.)

#### **111. Topics/World Music Traditions (4)**

A study of particular regional musics in their repertory, cultural context, and interaction with other traditions. Topics vary. *Prerequisite: none.*

#### **112. Topics in European Music Before 1750 (4)**

This course will address topics in medieval, Renaissance, and Baroque music; topics will vary from year to year. May be repeated five times for credit. *Prerequisites: knowledge of music notation or consent of instructor; Music 4, 8-10 or 120 recommended.*

#### **113. Topics in Classic, Romantic, and Modern Music (4)**

This course will focus on Western music between 1750 and the early 20th century; topics will vary from year to year. May be repeated five times for credit. *Prerequisites: knowledge of music notation or consent of instructor; Music 4, 8-10 or 120 recommended.*

#### **114. Music of the Twentieth Century (4)**

An exploration of materials and methods used in the music of our time. There will be an extra discussion group for music majors. May be repeated once for credit. *Prerequisites: none.*

#### **115. Women in Music (4)**

A survey of the biographical, historical, sociological, and political issues affecting woman musicians, their creativity, their opportunities, and their perception by others. It compares and contrasts the work of women composers, performers, patrons, teachers, and writers on music from the Middle Ages through the present. *Prerequisite: consent of instructor.*

#### **120A-B-C. Survey of Music History and Literature (4-4-4)**

Extensive historical, analytical, and cultural-esthetic examination of music from Gregorian chant through the twentieth century. *Prerequisites: knowledge of music notation; Music 1C or 2C strongly recommended.*

#### **121. Experimental Writing (4)**

This workshop explores writing for which the traditional generic distinctions of pre/poetry, fiction/documentary, narrative/discourse do not apply. How music, prose, and poetry relate. Students taking this course will be asked to challenge the boundaries of these relations to discover new forms and modes of expression. *Prerequisite: consent of instructor.*

#### **126. Blues: An Oral Tradition (4)**

This course will examine the development of the Blues from its roots in work-songs and the minstrel show to its flowering in the Mississippi Delta to the development of Urban Blues and the close relationship of the Blues with Jazz, Rhythm and Blues, and Rock and Roll. (Cross-listed with Ethnic Studies 178.) *Prerequisite: none.*

#### **127A. Jazz Roots and Early Development (1900-1943) (4)**

This course will trace the early development of Jazz and the diverse traditions which helped create this uniquely

American art form. We will witness the emergence of Louis Armstrong in New Orleans and examine the composer's role in Jazz with Jelly Roll Morton and Duke Ellington. (Cross-listed with Ethnic Studies 179A.) *Prerequisite: none.*

#### **127B. Jazz Since 1946: Freedom and Form (4)**

This course will examine the evolution of Jazz from 1943 to the present. The course will survey the contrasting and competing styles in Jazz from BEBOP to COOL to the avant garde and fusion. (Cross-listed with Ethnic Studies 179B.) *Prerequisite: none.*

#### **128. Principles and Practice of Conducting (4)**

The theory and practice of instrumental and/or choral conducting as they have to do with basic baton techniques, score reading, interpretation, orchestration, program building, and functional analysis. Members of the class will be expected to demonstrate their knowledge in the conducting of a small ensemble performing literature from the eighteenth, nineteenth, and twentieth centuries. *Prerequisites: Music 2A-B-C and 101A-B-C. Department stamp required.*

#### **129. Orchestration (4)**

This course will give practical experience in orchestration. Students will study works from various eras of instrumental music and will demonstrate their knowledge by orchestrating works in the styles of these various eras, learning the capabilities, timbre, and articulation of all the instruments in the orchestra. *Prerequisite: Music 101B.*

#### **130. Chamber Music Performance (2-4/0)**

Instruction in the preparation of small group performances of representative instrumental and vocal chamber music literature. May be taken for credit six times, after which students must enroll for zero units. *Prerequisite: consent of instructor through audition.*

#### **131. Jazz Improvisation (4/0)**

An extensive study of jazz improvisation, including performance techniques, concepts, and styles. Students' theoretical knowledge will be applied to their instruments, and a repertory of melodic and harmonic devices will be mastered. Also covered will be jazz soloing, demands of melodic/harmonic innovations, and modes of chord changes or progressions. May be taken for credit six times, after which students must enroll for zero units. *Prerequisites: basic knowledge of major-minor scales and major, minor, and dominant seventh chords on respective instruments. Basic functional keyboard techniques.*

#### **132. Pro-Seminar in Music Performance (4)**

Individual or master class instruction in advanced instrumental/vocal performance. May be repeated for credit, but only twenty-four units will be counted within the 180-unit requirement for graduation. *Prerequisite: consent of instructor through audition. Preference given to music majors and some approved music minors.*

#### **132C. Vocal Coaching (4)**

Individual and masterclass instruction in advanced vocal coaching. Emphasis placed on diction and musical issues. *Prerequisites: at least one quarter of Music 132 and consent of instructor. Preference given to majors and qualifying music minors. Department stamp required.*

#### **132R. Recital Preparation (4)**

Advanced instrumental/vocal preparation for senior music majors pursuing honors in performance. Repertoire for a solo recital will be developed under the

direction of the appropriate instrumental/vocal faculty member. Special audition required during Welcome Week preceding fall quarter. *Prerequisites: by audition only; Music 132. Department stamp required.*

#### **133. Projects in New Music Performance (2)**

Performance of new music of the twentieth century. Normally offered winter quarter only. Required a minimum of two times for all music majors and music humanities majors. May be taken four times for credit. *Prerequisite: consent of instructor through audition.* (Winter quarter only.)

#### **134. Symphonic Orchestra (4)**

Repertoire is drawn from the classic symphonic literature of the eighteenth, nineteenth, and twentieth centuries with a strong emphasis on recently composed and new music. Distinguished soloists, as well as The La Jolla Symphony Chorus, frequently appear with the orchestra. The La Jolla Symphony Orchestra performs two full-length programs each quarter, each program being performed twice. May be repeated six times for credit. *Prerequisites: audition and department stamp required.*

#### **143. Department Seminar (1)**

The department seminar serves both as a general department meeting and as a forum for the presentation of research and performances by visitors, faculty, and students. Required of all undergraduate music majors every quarter.

#### **150. Senior Seminar (4)**

Independent research with faculty guidance to afford the opportunity to pursue a creative project or substantial paper in a seminar context. *Prerequisites: Music 120B and declared music major or music humanities major.*

#### **170. Musical Acoustics (4)**

(Formerly Music 160A) An introduction to the acoustics of music with particular emphasis on contemporary digital techniques for understanding and manipulating sound. *Prerequisites: Music 1A, 2A, or 4. Cross-listed with ICAM 103.*

#### **171. Computer Music I (4)**

(Formerly Music 160C) A hands-on introduction to computer techniques for desktop audio, including audio editing, MIDI control, and real-time music algorithms. *Prerequisite: Music 170 (formerly Music 160A).*

#### **172. Computer Music II (4)**

(Formerly Music 161) Computer synthesis techniques including wavetable and additive synthesis, waveshaping, and sampling. Transformation of musical sounds using filters, modulation, and delay effects. Fourier analysis of sounds. *Prerequisite: Music 171 (formerly Music 160C).*

#### **173. Audio Production: Mixing and Editing (4)**

(Formerly Music 162) Theoretical and practical aspects of recording, mixing, and editing sound for both musical and multimedia applications. Covers audio montage, equalization, effects processing, spatialization, mastering, and diffusion. *Prerequisite: Music 170 (formerly Music 160A).*

#### **174. Recording/MIDI Studio Lab (2)**

(Formerly Music 164) This course surveys hardware and software resources in an advanced recording and MIDI studio. It is a required course for anyone who wishes to use the B-108 Studio. Topics include: electronic and computer music, digital audio, and composition, per-

formance and studio techniques. These topics will vary from quarter to quarter. *Prerequisites:* Music 172 (formerly Music 161) or consent of instructor. May be repeated three times for credit.

#### **175. Musical Psychoacoustics (4)**

(Formerly Music 160B) Survey of psychoacoustical phenomena, theories of hearing, and their relation to musical perception and cognition. Techniques of psychoacoustical experimentation. *Prerequisite:* Music 170 (formerly Music 160A) recommended.

#### **176. Music Technology Seminar (4)**

(Formerly Music 163) Selected topics in music technology and its application to composition and/or performance. Offerings vary according to faculty availability and interest. May be repeated for credit. *Prerequisites:* Music 172 (formerly Music 161) and consent of instructor.

#### **195. Instructional Assistance (2)**

Assisting in the instruction of an undergraduate music class under the direct and constant supervision of a faculty member. May be taken for credit three times. *Prerequisites:* consent of instructor and departmental approval.

#### **198. Directed Group Study (1-4)**

Concentrated inquiry into various problems not covered in the usual undergraduate courses. *Prerequisites:* consent of instructor and department chair approval. Pass/No Pass grade only.

#### **199. Independent Study (1-4)**

Independent reading, research, or creative work under the direction of a faculty member, provided no course covering the material to be studied already exists, and the study area derives from previous course work. *Prerequisites:* consent of instructor and department chair approval. Department stamp required. Pass/No Pass grade only. May be taken for credit two times.

#### **ICAM 101. Digital Imaging: Image and Interactivity (4)**

(Cross-listed with VIS 140). An introduction to the digital image. Students will produce works involving images, texts, and interactive display. A project will be developed by each student that will exist both within a computer mediated space (i.e., Web site) and in physical space (i.e., artist book). Techniques for constructing an interactive narrative will be explored. The use of computer programming as a tool and conceptual framework for art making is introduced. *Prerequisites:* VIS 40/ICAM 40. **NOTE:** Materials fee required.

#### **ICAM 102. Digital Media I: Time, Movement, Sound (4)**

(Cross-listed with VIS 145A). As an exploration of time dependent media components, this course will deal with the creation and manipulation of digital sound as well as moving images and their integration in multimedia works. Use of computer programming to control time in computer arts is emphasized. Non-linear structures, branching narratives, and procedurally driven temporal structures are examined. *Prerequisites:* VIS 40/ICAM 40 and VIS 140/ICAM 101. **NOTE:** Materials fee required.

#### **ICAM 103. Musical Acoustics (4)**

(Cross-listed with MUS 170). An introduction to the acoustics of music with particular emphasis on contemporary digital techniques for understanding and manipulating sound. *Prerequisites:* MUS 1A, 2A, or 4.

#### **ICAM 110. Computing in the Arts: Current Practice (4)**

Designed around the presentations by visiting artists, critics, and scientists involved with contemporary

issues related to computer arts. Lectures by the instructor and contextual readings provide background material for the visitor presentations. *Prerequisites:* none. **NOTE:** Materials fee required.

#### **ICAM 120. Virtual Environments (4)**

Students will create virtual reality artworks in this course. Projects may be done individually or in groups. An exploration of the theoretical issues involved will underlie the acquisition of techniques utilized in the construction of virtual realities. *Prerequisites:* VIS 145A/ICAM 102; CSE 11 recommended. **NOTE:** Materials fee required.

#### **ICAM 130. Seminar in Contemporary Computer Topics (4)**

(Cross-listed with VIS 149). This seminar treats selected topics drawn from a broad variety of subjects relevant to computer-based art- and music-making, such as computer methods for making art and music, the design of interactive systems, spatialization of visual and musical elements, and critical studies. Topics will vary each time the course is offered. May be repeated five times for credit. *Prerequisites:* VIS 140/ICAM 101 and ICAM 110; VIS 145A/ICAM 102 and MUS 170/ICAM 103 recommended. **NOTE:** Materials fee required.

#### **ICAM 150. History of Art and Technology (4)**

(Cross-listed with VIS 159). This course aims to provide historical context for computer arts by examining the interaction between the arts, media technologies, and sciences in different historical periods. Topics vary. Examples of topics which may be considered are: Renaissance perspective, the introduction of the printing press, the history of visual illusion in Western art, new physics and the avant-garde in the early twentieth century, futurism and technology, early electronic and computer art of the 1950s and 1960s. *Prerequisite:* none. **NOTE:** Materials fee required.

#### **ICAM 160 A-B. Senior Project in Computer Arts (4-4)**

Students will pursue projects of their own design over two quarters with support from faculty in a seminar environment. Project proposals are developed and presented, informed by project development guidelines from real world examples. Projects are then developed with presentation of the project along with complete documentation as the final goal of the course sequence. Collaborations are possible. Portfolio required for admission. *Prerequisites:* VIS 140/ICAM 101, VIS 145A/ICAM 102, MUS 170/ICAM 103, ICAM 110, and senior standing.

## **GRADUATE**

*All courses numbered 200 and above are intended for students admitted to the graduate program in music.*

#### **201A-B-C. Projects in New Music Performance (1-4, 1-4, 1-4)**

Performance of new music of the twentieth century. All performance emphasis graduate students must take every quarter. (Please note that Lab. 1 is intended for students participating in the Twentieth-Century Ensemble.) Non-performance students must take 201B or C twice.

#### **202. Advanced Projects in Performance (1-4)**

Advanced performance of new music with members of the performance faculty (SONOR). Students taking this course do not need to take Music 201 that quarter. Enrollment by consent of instructor/director of SONOR.

#### **203A-B-C. Advanced Projects in Composition (4-4-4)**

Seminar consisting of meetings and laboratory sessions devoted to the study of composition.

#### **203D. Advanced Projects in Composition (1-4)**

Meetings on group basis with faculty composer in sessions devoted to the study of composition. *Prerequisites:* 203A-B-C and consent of instructor.

#### **204. Focus on Composition (2)**

The purpose of this seminar is to bring together the entire population of the graduate composition program (all students and faculty) for in-depth discussion of critical issues in music theory and composition. Each meeting will feature a formal presentation by either a student, faculty member, or visitor, followed by lively and challenging debate on relevant issues. *Prerequisite:* consent of instructor.

#### **205. Focus on Critical Studies/Experimental Issues in Music (2)**

The purpose of this seminar is to bring together CS/EP students and faculty for in-depth discussion(s) of theoretical, critical, and cultural issues in music. In conjunction with the seminar, each student not yet advanced to candidacy will meet with a faculty adviser to plan and prepare a presentation of his or her own work as part of a one-day CS/EP student symposium during the spring quarter.

#### **206. Experimental Studies Seminar (4)**

Seminars growing out of current faculty interests. The approach tends to be speculative and includes individual projects or papers as well as assigned readings. In the past, such areas as new instrumental and vocal resources, mixed media, and compositional linguistics have been offered.

#### **207. Theoretical Studies Seminar (4)**

Seminars on subject areas relating to the established dimensions of music and in which theoreticians have produced a substantial body of work. These include studies in analysis, timbre, rhythm, notation, and psychoacoustics. Offerings vary depending on faculty availability and interest. Analytical paper required.

#### **208A. Critical Methods and Creative Identities (4)**

The goal of this course is to develop critical thinking and self-reflexive inquiry through study of a diverse range of critical and scholarly traditions as they relate to music. Students are encouraged to investigate their own sense of identity and voice, as embodied in their creative work. *Prerequisite:* consent of instructor.

#### **208B. Experimental Musical Practices (4)**

This course examines, from social, cultural, historical and technological perspectives the current state of experimental musical practice. Meetings and laboratory sessions will explore alternative systems of musical organization, such as improvisation, computer-based multimedia, and interdisciplinary performance collaboration. *Prerequisite:* consent of instructor.

#### **208C. World Musical Perception (4)**

This seminar attempts to develop alternative procedures for the analysis of intercultural musicality. Methods and practices to be explored will involve computer technology, musical cognition and perception, and world music practices, as these relate to the elucidation and interrogation of notions of self and other, and tradition and innovation. *Prerequisite:* consent of instructor.

**208D. Advanced Projects in CS/EP (4)**

On a group or individual basis, this course provides an opportunity for students to create projects under the guidance of different faculty members each term. Enrollment in this course culminates in the development by the student of a portfolio of original work, or in a master's thesis. *Prerequisite: consent of instructor.*

**209. Advanced Music Theory and Practice (4)**

Advanced integrated studies in music theory; composition and styles study through analysis and performance. This course is intended primarily for doctoral students and may be taken by M.A. students only with special approval of M.A. adviser and course instructor. A major research or analytical publishable paper required.

**210. Musical Analysis (4)**

The analysis of complex music. The course will assume that the student has a background in traditional music analysis. The goal of the course is to investigate and develop analytical procedures that yield significant information about specific works of music, old and new. Reading, projects, and analytical papers. Normally offered fall quarter only.

**211. Seminar in World Music Traditions (4)**

Study of the theory, repertoire, and cultural features of particular tradition musics. Related to lectures of Music 111. Designed for graduate students in music as a forum for independent projects in research, analysis, performance, composition, and experimental derivatives related to the topic. Open to qualified graduate students in related fields.

**212. Seminar in Vocal and Choral Literature (4)**

A critical and historical study of selected works and repertoire. (Offered in selected years.)

**214. Seminar in Twentieth-Century Music (4)**

Detailed study of selected literature through the study of scores and writings, supplemented when possible by performance participation. (Offered in selected years.)

**215. Seminar on Women in Music (4)**

Seminar dealing with a historical survey of women musicians from the Middle Ages to the present. A view of women's place as creative and representative artists, societal, and political influences that governed their existence and their music, and their impact upon their society and ours will be dealt with in-depth. *Prerequisite: consent of instructor.* (Offered in selected years.)

**216. Medieval Music (4)**

Readings, studies, and performance problems of medieval music from antiquity to the beginning of the Renaissance. Problems of tuning, language, source materials, and media esthetics are incorporated. (Offered in selected years.)

**217. Seminar Studies in Late Renaissance and Early Baroque Music (4)**

The study of early music as it has to do with theoretical systems, critical analyses, music and documentary source materials. (Offered in selected years.)

**218. Seminar in Music of the Classic Era (4)**

A critical, analytical study of selected literature of the eighteenth century through the study of scores and writings, supplemented when possible by performance participation. (Offered in selected years.)

**228. Conducting (4)**

This course will give practical experience in conducting a variety of works from various eras of instrumental and/or vocal music. Students will study problems of instrumental or vocal techniques, formal and expressive analysis of the music, and manners of rehearsal. Required of all graduate students. *Prerequisite: consent of instructor.* (Offered in selected years.)

**229. Seminar in Orchestration (4)**

A seminar to give practical experience in orchestration. Students will study works from various eras of instrumental music and will demonstrate their knowledge by orchestrating works in the styles of these various eras, learning the capabilities, timbre, and articulation of all the instruments in the orchestra. *Prerequisite: graduate standing.* (Offered in selected years.)

**230. Chamber Music Performance (4)**

Performance of representative chamber music literature, instrumental and/or vocal, through coached rehearsal and seminar studies. Course may be repeated for credit since the literature studied varies from quarter to quarter. *Prerequisite: consent of instructor.*

**232. Pro-Seminar in Music Performance (4)**

Individual or master class instruction in advanced instrumental/vocal performance. *Prerequisite: consent of instructor through audition.*

**234. Symphonic Orchestra (4)**

Repertoire is drawn from the classic symphonic literature of the eighteenth, nineteenth, and twentieth centuries with a strong emphasis on recently composed and new music. Distinguished soloists, as well as The La Jolla Symphony Chorus, frequently appear with the orchestra. The La Jolla Symphony Orchestra performs two full-length programs each quarter, each program being performed twice. May be repeated six times for credit. *Prerequisites: audition and department stamp required.*

**245. Focus on Performance (2)**

The purpose of this seminar is to bring together performance students, faculty, and guests for discussion, presentation of student and faculty projects, performances by guest artists, and master classes with different members of the performance faculty. *Prerequisite: consent of instructor.*

**250. Special Projects (1-12)**

An umbrella course offered to music graduate students in lieu of normal seminar offerings. Topics will be generated by faculty and graduate students and submitted in December each year for review by faculty. Students may register for up to four units of a specialized research topic with given faculty. May be taken for up to twelve units a quarter.

**267. Advanced Music Technology Seminar (4-4-4)**

Advanced topics in music technology and its application to composition and/or performance. Offerings vary according to faculty availability and interest. May be repeated for credit. *Prerequisites: Music 173 or equivalent and consent of instructor.*

**270A. Digital Audio Processing (4)**

Digital techniques for analysis, synthesis, and processing of musical sounds. Sampling theory. Software synthesis techniques. Digital filter design. The short-time Fourier transform. Numerical accuracy considerations. *Prerequisite: consent of instructor.*

**270B. Musical Cognitive Science (4)**

Theoretical bases for analyzing musical sound. Approaches to perception and cognition, including psychoacoustics and information processing, both ecological and computational. Models of audition including Helmholtz's consonance/dissonance theory and Bregman's streaming model. Musical cognition theories of Lerdahl and Narmour. Neural network models of music perception and cognition. Models of rhythm. The problem of timbre and timbre perception. *Prerequisite: consent of instructor.*

**270C. Compositional Algorithms (4)**

Transformations in musical composition; series and intervallic structures; serial approaches to rhythm and dynamic. The stochastic music of Xenakis and Cage. Hiller's automatic composition. Improvisational models. Computer analysis of musical style. Neurally inspired and other quasiparallel algorithms. *Prerequisite: consent of instructor.*

**270D. Advanced Projects in Computer Music (4)**

Meetings on group basis with computer music faculty in support of individual student research projects. *Prerequisites: consent of instructor and completion of Music 270A-B-C.*

**271. Survey of Electronic Music Techniques (2)**

A hands-on encounter with several important works from the classic electronic repertoire, showing a representative subset of the electronic techniques available to musicians. Intended primarily for students in areas other than computer music. *Prerequisite: none.*

**291. Problems and Methods of Music Research and Performance (2)**

The course will give practical experience in historical research, including use of important source materials, evaluation of editions, and examination of performance practice problems. (S/U grade option only.)

**292. Academic Writing (1-4)**

Individual and/or group work on particular academic writing projects in music. *Prerequisite: consent of instructor.*

**296. Directed Group Research in Performance (4)**

This group research seminar involves the investigation and exploration of new and experimental performance concerns. Areas could include: improvisation, graphic notation, performance electronics, and working with combined media (such as dance, poetry, and theater). (S/U grade option only.)

**298. Directed Research (1-4)**

Individual research. (S/U grades permitted.) May be repeated for credit. Enrollment by consent of instructor only.

**299. Advanced Research Projects and Independent Study (1-12)**

Individual research projects relevant to the student's selected area of graduate interest conducted in continuing relationship with a faculty adviser in preparation of the master's thesis or doctoral dissertation. (S/U grades permitted.)

**500. Apprentice Teaching (1-4)**

Participation in the undergraduate teaching program is required of all graduate students at the equivalent of 25 percent time for three quarters (six units is required for all graduate students).