

Intro to Electronic Music
Spring 2000, Instructor: Bob Gluck (gluckr@rpi.edu)
Meeting Time: Mon/Wed 9:00-10:25

OVERVIEW:

This course is first and foremost an introduction to the creative process of musical composition and appreciation. We will explore both theory and practice. A continuing thread through the course will be skills and practice in sensitive listening and building a level of self-awareness necessary to become a creative and expressive composer. It is this instructor's hope to captivate and nurture an appreciation of sound in and of itself, and as a vehicle for musical composition. The particular lens through which these issues will be explored is the history, development and techniques of the experimental tradition in electronic and computer Music. It is hoped that students will not only discover enjoyable experiences making music, but gain a sense of what it means to create music that conveys ideas of substance and consequence.

EXPECTATIONS:

1. It will be the responsibility of students to gain facility with the conceptual ideas addressed, as well as the historical, philosophical and technological backdrop in which they are grounded. To do this, it will be necessary to take notes in class and read all written assignments carefully. Most reading assignments will be either from the required texts or from a packet of articles that will be available on reserve (2 copies) in the music library. Some articles will be distributed, as well.
2. Work steadily and regularly in the studio, at a minimum of 2 hours each week. All studio and written assignments must be completed on time. No last minute excuses will be accepted for work that should have been engaged in over time. Student works will be judged and graded on the basis of three criteria: artistic vision, technical skill and seriousness of involvement.
3. All musical projects will be played during class time; these will be handed to the instructor at the end of class, recorded on DAT tape. There will be two in-class essay quizzes, as well as a final exam. Every student will also keep a weekly "listening journal," in which s/he will write one page of reflections about one piece played by the instructor during class time.
4. There will be listening assignments, which can be completed in the music department library. CDs will be on reserve and must be played only in the library. You will be expected to listen at least once to each piece assigned and write descriptive notes (different from the listening journal). Usually, it will be necessary to listen to a piece two or three times.
5. The instructor will be very specific as to which studio assignments can include sounds that have been sampled from CDs, web sites, or other recorded sources. If this has not been specifically part of an assignment, your work cannot include such sources. Also, unless specified, there be any re-mixes turned in as assignments. Except when otherwise noted, all audio sounds will be collected, generated and/or shaped by the student.

6. Sound and other data files will be stored on zip cartridges and not on studio computer hard drives. It is best to keep two copies of your files, one on each of two separate zip cartridges.

7. Students will not allow entry into the studio by people who lack authorization to be in the studio. No food or drinks will be allowed into the studio.

REQUIRED TEXTS: Chadabe: Electric Sound, Schwartz and Godfrey: Music Since 1945, and J. Krishnamurti, Total Freedom: The Essential Krishnamurti. Additional readings on library reserve.

SOFTWARE APPLICATIONS TO BE LEARNED:

Peak 2.0 (digital audio sampler, processor and editor)

Cubase VST (Timeline-based MIDI and digital audio processor/sequencer)

SoundHack (digital audio sound processor)

Max (object oriented programming environment)

GRADING:

Class participation	40%
Preparation of reading and materials, engagement in discussion, Attendance, promptness	
Attitude towards work, self, instructor and others	
Care for studio and courtesy in working with peers	
Preparation of weekly studio assignments	40%
Listening journal and quizzes	20%

WEEKLY SYLLABUS:

Week 1a. "Course introduction"

Course introduction and expectations; introductory presentation and discussion.

Week 1b. "An introduction to 'the music of all sounds'"

Course introduction and expectations; introductory presentation and discussion.

Listening:

Frank Zappa, "Jazz From Hell": "Beltway Bandits"

Darren Copeland, 'Rendu Visible'

Jacques Trembley, 'Alibi'

Paul Koonce, "Pins"

Assignment for next session:

Schryer, pp. 22-29, Schaefer, pp. 29-33, 78-81, 133-145, 182-183; (also recommended: pp. 3-21), Michael Soto, "The Noise of Rupture"

Listening assignment: 20 minutes of Cecile Le Prado, "Le triangle d'incertitude"

Week 2a. "Sound environments, Soundscapes"

Claude Schryer, "Searching for the Sharawadji Effect", Musicworks 70, pp. 22-29

R. Murray Schaffer, The Soundscape, Rochester, VT:Destiny Books, 1977, 1994,
pp. 3-21, 29-33, 53-59, 78-81, 133-145, 182-183, 226-235.

Luigi Russolo, "The Art of Noises" (chapter 4: pp. 41-48)

Listening: Cecile Le Prado, 'Le triangle d'incertitude'

Hildegard Westerkamp, "Transformations"

Soundscape examples from Musicworks CDs

John Cage, "Williams Mix" from '25th Anniversary Concert'

Assignment for next session:

Krishnamurti excerpts, see below (read very carefully; underline 10-15 significant passages (or photocopy them or write them down)

Week 2b and 3a. "Sensitive listening and self-reflection as compositional skills"

2a: *A "listening walk" (weather conditions permitting)

2b: *Introduction to sound recording and digitizing in Peak.

J. Krishnamurti, Total Freedom: The Essential Krishnamurti, New York: Harper Collins, 1998

Notes and questions for study:

Introduction: pp. 10-14, 21-29 (what is meant by "I consciousness?"), 44-51, 52-58, 71-75, 80-83, 257-258.

For 2a: What is meant by:

"Self knowledge": pp. 181-183

"Awareness": pp. 112-114, 176-177, 46-47, 57-58, 22-29, 318-319

"Attention": pp. 102-103, 293

"Meditation": pp. 207-209, 282-288, 341, 319-321, 333-334

For 2b: What is meant by:

"Freedom": pp. 109-114, 123-126, 174-177

"Listening": pp. 134-137

"Consciousness": pp. 348-349, 283-284, 300, 259-265, 297, 173-174, 296, 269-270

What is his critique of thought?: 278-280, 267, 295-302, 283, 330-332, 259-265, 257, 352-358

How do his ideas relate to/inform musical listening, composition and performance?

What is his concept of time and its relationship to thought and consciousness?

What is the relevance of his thought to listening and music making?

What is sound? What is music? Where do these coincide or differ?

Exploring sounds within your daily life and experience.

Why listen? What are different modes of listening?

What is distinctive about electronic music? What makes it expressive of our age?

Assignment for Week 2b:

Begin to write your listening journal entries.

Begin to record sounds in 'the field'.

Assignment for Week 3a:

Acoustics Primer, Yavelow, pp. 44-53, Gross and Ward, pp. 152-161.

Week 3b. "Introduction to Audio and Macintosh Computing"

Acoustics of sound wave propagation and transmission, analog vs. digital audio...

More about microphones, recording to DAT and cassette tapes

Intro to digital editing and processing in Peak.

Acoustics Primer

Yavelow, Christopher, Macworld Music and Sound Bible, San Mateo:IDG Books, 1992, pp. 44-53

Gross and Ward, "Microphones and Recorders", from Electronic Moviemaking, pp. 152-161.

Extra: *Backus, John, The Acoustical Foundations of Music, New York:WW Norton, 1969, pp. 32-114

Assignment for next session:

Cage readings; Chadabe, pp. 21-33, 58-62, Schwartz and Godfrey, pp. 104-110 (for assignment: over)

Listening for next session: Listen to the opening 5 minutes of each of these:

Edgar Varese, "Ionisation"

John Cage excerpts from "Sonatas and Interludes"

Clara Rockmore, Rachmaninoff piece from "Art of the Theremin"

Remember to write your listening journal entries.

Bring some of your recorded sounds to next class

Week 4a. "Sounds and ideologies of the industrial age enter music"

Listening to sound recording assignment

Listening:

Excerpts from the Futurists

George Antheil, "Ballet mecanique"

Edgar Varese, "Ionisation"

Charles Ives, "Putnam's Camp' from "Three Places in New England"

John Cage excerpts from "Sonatas and Interludes", "First Construction in Metal"

Clara Rockmore, Rachmaninoff piece from "Art of the Theremin"

Readings:

John Cage, "Credo," from Silence, London: Calder and Boyars, 1939, 1973

(Cambridge, MA: MIT Press, 1961), pp. xii (1952), 3-17 (1937).

Joel Chadabe, Electric Sound: The Past and Promise of Electronic Music, Upper Saddle River, NJ: Prentice Hall, 1997, pp. 2-3, 21-33, 58-62.

Elliott Schwartz and Daniel Godfrey, Music Since 1945: Issues, Materials, and Literature, New York: Schirmer Books/Simon & Schuster Macmillan, 1993, 104-110.

Assignment for next session:

John Cage, "Credo", Schwartz and Godfrey, pp. 23-25, 26-30, 34-41, 110-128

For a week from today: Compositional study #1--recording sounds, digitizing and editing
(1 minute piece)

Remember to write your listening journal entries.

Listening for next session: Pierre Schaefer, "Etude de Chemin de Fer" from "Cinq Etudes de Bruits"; Edgar Varese, "Poem Electronique" on "Electroacoustic Classics".

Week 4b. "Origins of Electronic Music"

Musique Concrete, Elektronische musik, John Cage

Listening:

Pierre Schaefer, "Etude de Chemin de Fer" from "Cinq Etudes de Bruits"

Edgar Varese, "Poem Electronique" on "Electroacoustic Classics",

Karlheinz Stockhausen, "Kontakte," on "Elektronische Musik 1952-1960"

John Cage, "First Construction in Metal"

John Cage, "William's Mix" on "Music for Merce Cunningham"

Luciano Berio, "Omaggio a Joyce" on "Electroacoustic Classics"

Invention of the phonograph and tape recorder...

Does technology lead art or does art play a prophetic role regarding technology?

John Cage, "Credo"

Schwartz and Godfrey, pp. 23-25, 26-30, 34-41, 110-128

Assignment for next session:

Compositional study #1 is due--recording sounds, digitizing and basic editing

(1 minute piece)

Joel Chadabe, 'The History of Electronic Music as a Reflection of Structural Paradigms',

Leonardo Music Journal, Vol 6 (1996), pp. 41-44.

Remember to write your listening journal entries.

Assignment for two weeks from today: Compositional study #2: Musique Concrete piece

Listening for next session: Opening ten minutes of:

Terry Riley, "Shri Camel"

Robert Fripp, "A Blessing of Tears"

Steve Reich, "Come Out" from "Early Works"

Week 5a. "Musical Forms I: Drones, Repetition and Minimalism"

Introduction to digital sound processing in Sound Hack

Looping, stretching, slowing/speeding up, spectral processing, multi-tracking, mixing

Joel Chadabe, 'The History of Electronic Music as a Reflection of Structural Paradigms',

Leonardo Music Journal, Vol 6 (1996), pp. 41-44.

Listening: excerpts from"

Terry Riley, "Shri Camel", "In C"

Examples from LaMonte Young, Brian Eno, Indian Raga...
Joan La Barbara, "Shamansong"
Robert Fripp, "A Blessing of Tears"
Steve Reich, "Come Out" from "Early Works"

Assignment for next session:

Show basic recorded material for compositional study #2

Quiz is next class

Remember to write your listening journal entries.

Due one week from today: Compositional study #2: Musique Concrete piece

Week 5b. Further work in digital audio editing and processing

Quiz #1 (early development of Electronic Music, issues re listening)

Introduction to Cubase, Importing Aiff sound files and multi-tracking

Reviewing progress on compositional study #2

Assignment for next session:

Schwartz and Godfrey, pp. 78-79, 90-97

Chadabe pp. 73-75, 37-42

Remember to write your listening journal entries.

Listening for next session: First seven minutes of:

Karlheinz Stockhausen, "Gesang der Junglinge," from "Elektronische Musik 1952-1960"

John Cage, "Roaratorio"

Peter Gabriel, "Passion" (Tracks 1-6)

Week 6a. "Synthesis: Analog and Digital; Sound tapestries/collage"

Karlheinz Stockhausen, "Gesang der Junglinge," from "Elektronische Musik 1952-1960"

John Cage, "Roaratorio"

Peter Gabriel, "Passion" (Tracks 1-6)

Francois Bayle, "Fabulae"

Barry Traux, "Riverrun"

Jeanne-Claude Risset, "Sud" from "Digital Landscapes"

Analog synthesis example from Morton Subotnick, "Silver Apples of the Moon"

Readings:

Schwartz and Godfrey, pp. 78-79, 90-97

Chadabe pp. 73-75, 37-42

Assignment for next session:

Remember to write your listening journal entries.

Compositional Study #2 is due next class

Week 6b. Musique Concrete Compositional Studies to be played

Begin discussion of Compositional Study #3: Soundscape or Musique concrete

Assignment for next session:

Read Adams, pp. 13-21, Chadabe, pp. 85-107, Schwartz and Godfrey: pp. 315-341.
Remember to write your listening journal entries.

Listening assignment:

David Tudor, "Pulsers" from "Three Works For Live Electronics"

Week 7a. "Conceptual work, homemade circuitry, Midi"

Hand-made circuitry, minimal computer means...

Low-tech musical examples by David Tudor, David Behrman

Listening:

David Tudor, "Pulsers" from "Three Works For Live Electronics"

Alvin Lucier, "I am sitting in a room"

Examples from David Behrman

Readings:

John D.S. Adams, "Spirit Beyond a Life," (on David Tudor) Musicworks 69, Dec. 1997,
pp. 13-21

Assignment for next session:

Readings: Rowe, pp. 25-38, Chadabe pp. 207-211, 213-240, 309-312

Schwartz and Godfrey, pp. 129-163, 354-369

Listening for next session: 10 minutes each of:

Richard Teitelbaum, "Concerto Grosso"

Deep Listening Band, "Tosca Salad"

Joel Chadabe, "After Some Songs"

*Remember to write your listening journal entries.

Journals Due Next Class

Week 7b. "Interactivity and Max"

Triggers, machine-partnership, interfaces...

Intro to Max as an object-oriented application

Journals Due Today

Listening:

George Lewis, "Voyager"

Joel Chadabe, "After Some Songs"

Richard Teitelbaum, "Concerto Grosso"

Neil Rolnick, "Macedonian Air Drumming"

Deep Listening Band, "Tosca Salad"

Readings:

Robert Rowe, Interactive Music Systems, Cambridge: MIT Press, 1993, pp. 25-38

Chadabe pp. 207-211, 213-240, 309-312

Schwartz and Godfrey, pp. 129-163, 354-369

Assignment for next session:

*Remember to write your listening journal entries.

Week 8a. "Intro to MIDI; more about Max"

Data and file formats, channels, cabling... how MIDI represents pitch and other musical parameters

Continue playing simple MIDI sequences from Week 9

Begin reading: Puckett and Zicarelli, pp. 11-25 (overview)

Remember to write your listening journal entries.

Listening assignment: Miles Davis: "Pharoah's Dance" from 'Bitches Brew'

Question: Listen to the entirety of "Pharoah's Dance" (24 minutes). Listen a second time with an ear to its musical structure. Listen a third time and draw a schematic of its formal organization.

Remember to write your listening journal entries.

Week 8b. "Construction of studio recordings: Miles Davis"

Intro to MIDI sequencing in Cubase

Analysis of Miles Davis' "Pharoah's Dance" from 'Bitches Brew'

Additional listening (possibly): Frank Zappa, excerpts from "Uncle Meat"

Assignment for next session:

Due next week: very simple MIDI sequence

Readings: Yavelow, pp. 32-41, Roads, pp. 985-997, re-read Rowe from last week

Remember to write your listening journal entries.

Week 9a. "Hands on work with Max"

Max basics. Note how Max can be used to:

- Create a piece that runs itself

- Create a piece that requires your constant input

- Create a piece that changes as you offer input

- Many, many other things

Readings:

Roads, Curtis, The Computer Music Tutorial, Cambridge:MIT Press, 1996, pp. 985-997

Yavelow, pp. 32-41

Puckett, Miller and Zicarelli, David, Max Reference Manual, Getting Started Manual,

Palo Alto:Opcode Systems, 1988, 1993, pp. 11-25

Assignment for next session:

Review Puckett and Zicarelli; Max assignment #1 (**see below!**)

Refer to the Max manuals in the Equipment Room

*Remember to write your listening journal entries.

Intro to Max lab assignments: At all times, whenever confused about any aspect of Max, utilize available references, including Max help files (accessible when Max is up and running by "opening" the files in the folder entitled "Max" and searching for the appropriate object name, Max Reference and 3.5 update (objects are listed alphabetically) and Tutorials files (searching as above, but in the "Tutorials" folder within the Max folder) and Max Getting Started/Tutorial Manual. These volumes are in the Equipment Room. Do NOT save changes in tutorial patches; you may make copies of the tutorial patches and make changes in your personal copy.

Max Assignment 1: Having read the Max Getting Started/Tutorials texts (Pucket and Zicarelli), experiment with several of the basic features of Max patches and objects noted in the tutorial texts. Become comfortable with creating a new patch, utilizing object and message boxes, (virtual) patch cords, toggles and number boxes and basic math operations. Create a patch, utilizing at least of each of the above, that does: 1) a simple mathematic operation and 2) prints simple text in the Max text window.

Week 9b "Max, continued"

Hands-on tutorial session with Max
Review assignment #1; intro to assignment #2

Max assignment 2:

Create a basic patch that sends and receives MIDI data, using notein and noteout objects (refer to Tutorials 12-13). Experiment by sending noteon/off messages (ie. a number pair: note number followed by velocity) via:

*message boxes,

*the MIDI keyboard (with notein; make sure that data from the correct device is be received by Max by double clicking the notein object and selecting the appropriate device; the same is true for noteout objects)

*sliders (Tutorial 9)

*kslider (virtual keyboard, Tutorial 14).

Utilize number boxes placed within the data chain to monitor the data being transmitted and received. Explore the use of "makenote" and other related objects (Tutorial 13) to see that every noteon is followed by a noteoff (makenote is an example of an object that automatically does this by sending a number pair with the same note number followed by 0 velocity; otherwise, notes continue to sound).

Finally, change the note data by utilizing at least two processing objects, some of which you learned about in Max assignment 1: mathematical operations (Tutorial 8), relational operators (Tutorial 15), and by changing the characteristics of a slider (Tutorial 9).

Assignment for next session:

Max project #2, **Remember to write your listening journal entries.

Week 10a. "Max, continued" "Introduction to Soundscapes Assignment"

"Show, play, discuss Max Assignment #2"

Review of Soundscape issues from Week 1b
Show, play and discuss Max assignments

Listening: review Hildegard Westercamp, "Transformations; De Prado (from week 1b)

Reading for next session:

McCartney, p. 57-66; Peebles, pp. 4-13.

Soundscapes Compositions Due week 13a

*Remember to write your listening journal entries.

Week 10b

Gender, High tech/low tech; Review of Max assignment #2, due today

Hands-on tutorial session with Max,

Andra McCartney, "Inventing Images: Constructing and contesting Gender in Thinking about Electroacoustic Music," Leonardo Music Journal, Vol. 5, pp. 57-66

Sarah Peebles, "High-tech versus My-tech: Developing systems for electroacoustic improvisation and composition," Musicworks 66, Fall 1996

Listening: Sarah Peebles, "Nocturnal Premonitions"

Max Assignment 3: Due in a week:

Explore objects that send out regular timed pulses to trigger operations on and the sending of data: Metro (Tutorial 4) and/or clocker and/or tempo (Tutorial 31). Note that these objects can only begin to send data when sent a trigger.

Create a patch that utilizes one or more of the above categories of objects. Also draw upon objects and even pieces of patches you used in assignment 2 (note that you can copy and paste pieces of patches between patch windows by selecting the object or region of objects desired, shift-clicking, copying and then pasting into the chosen second patcher).

Assignment for next session:

Read: Yavelow, pp. 27-29, Cutler, pp. 6-20, Myers, pp. 38-52

Listening:

Frank Zappa, "Porn Wars" from "Meets the Mothers of Prevention"

Opening 10 minutes of John Oswald, "Plexure"

Quiz #2, on Week 11b

Soundscapes Compositions Due week 13a

*Remember to write your listening journal entries.

Week 11a. "Sampling: compositional, aesthetic and practical issues"

Listen to simple MIDI sequence work (continued next week)

Listening:

Frank Zappa, "Porn Wars" from "Meets the Mothers of Prevention"

Fugees, "Refugee Camp" and rap examples

Vernon Reid, "Mistaken Identity" (Tracks 1, 11)

John Oswald, "Plexure"

Readings:

Yavelow, "Introduction to digital sampling," pp. 27-29

Chris Cutler, "plunderphonia," Musicworks 60, Fall 1994, pp. 6-20

Paul Myers, "Art or Theft?" Electronic Musician, November 1998, pp. 38-52

Assignments:

Soundscapes Compositions Due week 13a

Quiz #2, next class

Week 11b "Composing with Max"

Intro to assignment #4, Quiz #2

Assignment for next session: Remember to write your listening journal entries.

Soundscapes Compositions Due week 13a

Max Assignment #4: Explore the use of objects that delay the transmission of data, such as pipe and delay (Tutorial 22). Try out the random object (Tutorial 22), that generates random numbers that can be utilized as note data or for operations upon that data. Create a patch that utilizes these objects. Draw upon your previously explored objects, as well, not to mention pieces of existing patches you have created.

Take a look, if you are ready, at the objects, other than notein/out, that transmit and receive raw MIDI data, such as midiin, midiout, midiparse and midiformat (Tutorial 34). If you are ready, consider exploring the use of gates and switches to direct data through a patch (Tutorial 17).

Week 12a "Composing with Max"; Review assignment 4

Intro to assignment #5, Prepare for performance piece for final class session

Assignment for next session:

Soundscapes Compositions Due week 13a

Max assignment 5 due on Week 13b

Remember to write your listening journal entries.

Max Assignment 5: Explore the Aiff object (note that there is no Tutorial available for this object; open up the Max help patch for Aiff). Create a patch that utilizes Aiff sound files, including some that you created earlier this semester, along with selections from the objects about which you have been learning. Integrate other objects and parts of patches that you have previously used.

Week 12b

Gender, High tech/low tech; Review of Max assignment #3, due today

Hands-on tutorial session with Max,

Andra McCartney, "Inventing Images: Constructing and contesting Gender in Thinking about Electroacoustic Music," Leonardo Music Journal, Vol. 5, pp. 57-66

Sarah Peebles, "High-tech versus My-tech: Developing systems for electroacoustic improvisation and composition," Musicworks 66, Fall 1996

Listening: Sarah Peebles, "Nocturnal Premonitions"

Assignment for next session:

Max assignment #4

Essay due on Week 14a: What have you learned about listening and music making in light of Krishnamurti?

*Remember to write your listening journal entries.

Week 13a Soundscapes Compositions Due

Remember to write your listening journal entries.

Note final journal assignment: see notes at week 14a

Week 13b, 14a "Composing with Max"

Review assignment #5

Remember to write your listening journal entries.

Prep for final class performances

Final journal entry due on final class date (two pages): Comment about what have you learned about listening and music making in light of Krishnamurti, and the music we have listened to ? What have you learned about composing during this class? How can you integrate the aesthetic issues we've discussed with making music with Max.

Assignment for next session:

Preparation for performances

Remember to write your listening journal entries.

Week 14b "Composing with Max"--Performances

Journals Due Today

Final journal entry due on final class date (two pages): Comment about what have you learned about listening and music making in light of Krishnamurti, and the music we have listened to ? What have you learned about composing during this class? How can you integrate the aesthetic issues we've discussed with making music with Max.