ARTS 4269: Advanced Wave Field Synthesis

Arts Department, Rensselaer Polytechnic Institute

Monday/Thursday, 12:00-1:50pm, West Hall 307

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**COURSE SYLLABUS - Spring, 2017**

PREREQUISITE

ARTS 4160 (Music and Technology II) or permission from instructor.

COURSE DESCRIPTION

Advanced Wave Field Synthesis assumes a knowledge and experience in using computer systems to create, manipulate and engage in research within the fields of sound design, electronic music, electroacoustic composition and performance. The course is directed to upper-level undergraduate and graduate students as a project-based seminar which will guide their progress through the design, researching of and implementation of an individual project within in the course of the semester. This class is divided between a group seminar, focusing on the presentation of the aesthetic/ theoretical/ technical/ historical issues related to the field, and a workshop/lab.

Topics will be tailored to current issues raised through individual and group interests including but not limited to software design for musical systems, sound design, musical composition, audio engineering topics, micro-processors and physical computing, computer-aided composition and generative music, musical interfaces, musical robotics, web audio, sound spatialization, ambisonics, music in games and gaming environments, and theoretical research in music synthesis and composition. Each student will propose a musical project focus and scope of work for the semester, as well as a basis of the evaluation for individual work. In this way the hope is to combine the approaches of a music-focused research seminar, private study, guided research and group workshop/practicum.

Cultural and historical issues will be addressed through a series of student-led discussions of readings, listenings, videos, guest lectures and concerts. Students will also be asked to make use of the media collection at Folsom Library, as well as on-line access to media collections and journals such as the Computer Music Journal and Leonardo Music Journal.

The two-hour class sessions will generally be divided between classroom seminar presentation and workshop/lab. The final class session will be an informal presentation of individual projects completed in the class in a concert setting in EMPAC.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

1. Design and execute the implementation of a large-scale musical research project or artistic sonic work.
2. Break a significant project into component parts, research and realize the technical elements involved.
3. Research similar artistic and technical works and build upon that experience in the development of a unique artistic work suitable for inclusion in your undergraduate portfolio or presentation in the ARTS Department Graduate and Critique, and in thesis research/artistic production.
4. Articulate historical and technical issues contributing to personal creative production in a prepared lecture and demonstration for the seminar.
5. Structure their time and progress towards a deadline in a consistent and disciplined way.

ASSIGNMENTS AND GRADING

* Introductory presentation (10%)
* Project proposals (10%)
* Presentation of historical and technical work related to your project. (10%)
* Progress reports and sketches (10%)
* Final Presentation Concert and Project Master (40%)
* Lab and Class participation (20%)

Introductory Presentation (10%)

At the beginning of the course, everyone will give a presentation on their background, musical experience and their proposed focus of work for the semester. This should include recordings or videos of works, performances and related subjects. An initial discussion of class projects will follow and we will organize some of our schedule around issues raised in the proposed projects.

Project Proposals (10%)

Early in the Semester, each student will present a detailed proposal for their project. This will include descriptions of your working environment, software and hardware, technical issues to be solved, artistic goals, similar work by other artists that you can draw upon and develop. Based on your presentations, we will discuss the scope of your Historical/technical presentation. Graduate students will be expected to engage in a project of appropriate scope to be presented in the Graduate Show at the end of the semester and to contribute to their overall research and plan of study. We will have additional discussions, readings and listenings relating to their project.

Presentation of Historical and Technical work related to your project (10%)

Each student will deliver a 20 minute lecture on issues relating to their project including an assigned reading and discussion, listenings and multi-media lecture illustrating coding and technical details. Complete scope of each student’s project will be discussed individually based on issues presented in the project proposal.

Progress Reports and Sketches (10%)

As the semester progresses, be prepared to talk about and present sketches, sounds, code demonstrations, prototypes and other aspects of your work. This may be incorporated into the development of class compositions and Lab work. It should demonstrate your active involvement in the development of your work throughout the semester. Graduate students will also have individual meetings relating to the progress of their work.

Final Presentation Concert and Project Master (40%)

Each student will present their final work in a class presentation and critique. Work must be documented in an appropriate format that we will discuss and handed in by the last day of classes. Graduate students will be expected to present their work in the Graduate Show and Critique.

Attendance and Participation in Classes and Labs (20%)

You must attend class to succeed in this course. Attendance will be taken, and *two unexcused absences will reduce your final grade by one full letter grade*. Each additional unexcused absence will reduce your final grade by another full letter grade. Five unexcused absences will result in an F for the course. Don’t do this. Absences can only be excused by a letter from a medical doctor or from the Dean of Students’ office.

**Participation is a fundamental requirement of the class. Each student is expected to share and assist other students in areas of their expertise and to assist by being either a leader or participant in various projects being developed.**

COURSE POLICIES

You will be required to present all of your musical assignments to the class, to show your work within the software environment you used to create it, and to engage the class in discussion of your work. When you are not presenting your own work, you need to be attentive to whoever is presenting, and to engage them in discussion of their work. **Failure to participate in class will lower your grade**.

Participation in Classes and Labs

Each student is expected to share and assist other students in areas of their research as appropriate. Graduate students are expected to take a leadership role in working with undergraduate and graduate class members in and out of class on projects. If you are not participating adequately you will be informed and graded accordingly.

Attendance

You must attend class to succeed in this course. Two unexcused absences will reduce your final grade by one full letter grade. Each additional unexcused absence will reduce your final grade by another full letter grade. Five unexcused absences will result in an F for the course. Don’t do this. Absences can only be excused by a letter from a medical doctor or from the Office of Student Experience.

Lateness

Attendance will be taken 15 minutes after the start of the class.  If you arrive more then 15 minutes late without a valid excuse you will be counted late.  4 late arrivals of this sort are equal to one absence.

Missed assignments

All assignments and presentations are mandatory and must be submitted or scheduled to be presented prior to the last day of class to receive credit.

Extra credit

TBD

Lab safety/health

Please refer to the guidelines for lab etiquette and usage in the Arts Department iEAR studios handbook.

Electronic Devices

If you are using your phone, tablet, phablet, watch, computer or other electronic devise for purposes other then class, such as email, chat, Facebook, games or assignments in other classes you will be counted absent.

ATTENDANCE

You **must** attend class to succeed in this course.

1. Since much of the class is focused on listening to and discussing work in class, attendance is mandatory.
2. \*\* More then two unexcused absences will affect your grade, detracting 1/2 grade each additional 2 unexcused absences. \*\*
3. Absences can only be excused by a letter from a medical doctor or from the Dean of Students' office.
4. Late arrivals are *very* disruptive in Studio 110 - continued late arrival will affect your grade.

STUDIO RESOURCES

Throughout this course, you will make use of the resources in the Undergraduate Computer Music Studio. Students enrolled in the course will have access to the studio 24 hours a day, and should expect to spend several hours working in the studio each week. You will also have access to recording equipment in the equipment room, which you will be checking out from time to time in order to make field recordings.

When appropriate for an assignment, or to explore sound in general, we encourage the use of your own computer, electronic instruments, etc. Often times, smaller components of a large project can be done on your laptop or home studio facilities and then brought into the main studio to be mixed and mastered.

STATEMENT REGARDING ACADEMIC INTEGRITY

The Rensselaer Handbook of Student Rights and Responsibilities define various forms of Academic Dishonesty and procedures for responding to them. All forms are violations of the trust between students and teachers. Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are their own performance. Acts that violate this trust undermine the educational process.

Policy on collaboration and cheating/plagiarism

Collaboration between students in this course is strongly encouraged. Likewise, students are encouraged—indeed, to some extent required—to exchange ideas, opinions and information. You are also encouraged to help each other in the lab and with performance, production, and presentation of projects.

Plagiarism of any kind is in direct violation of University policy on Academic Dishonesty as defined in the Rensselaer Handbook, and penalties for plagiarism can be severe. In this class you will be expected to attribute due credit to the originator of any ideas, words, sounds, or music which you incorporate substantially into your own work. This applies particularly to citation and fair usage of sources for media “samples” included in your compositions.

Please refer to the University policy on Academic Dishonesty as defined in the Rensselaer Handbook for policies and procedures governing Academic Integrity. As you will be presenting your work several times as you develop it over the course of the semester, any marginal activities relating to citation and plagiarism will be discussed as you develop your work.

Work found to be in violation of these policies will not be accepted and you will receive no credit for the work with no ability to make up the assignment. If the violation occurs in a final project you will fail the course and it will be reported to the Dean of Students.

DISABILITY SERVICES FOR STUDENTS

Students requiring assistance are encouraged to contact Disability Services: http://doso.rpi.edu/dss to discuss any special accommodations or needs for this course.