

Sentient Artifacts

ARCH 5110: Architecture as a Catalyst, Spring 2012

1 cr, S-N

Instructor: Dr. Lucy Dunne (LDunne@umn.edu)

Location: 251 Rapson

Time: Roughly 9am-5pm M-F during Catalyst week. Active meeting times as indicated in schedule.

Course Objectives:

- Acquisition of basic electronic skills and concepts necessary for building small microcontroller-based circuits
- Acquisition of basic programming concepts in Processing
- Implementation of electronic and programming skills in the development of a working prototype
- Exploration of interactive design concepts through prototyping and iterative design

Expected Outcome:

At the conclusion of the catalyst, each student is expected to have a working prototype of their interactive or electronic design. Fidelity and aesthetics of the prototype are secondary to developing the subtleties of the functionality and interaction.

Readings:

No standardized readings will be assigned. Students will be responsible for intensive web research in designing developing their prototypes.

Requirements:

- Students will need a laptop computer for programming and debugging their circuits
- Students will likely need to purchase additional, project-specific supplies and components during the catalyst, and may need to rush shipping in order to receive supplies in time.
- Students are responsible for arriving with several ideas for interactive electronic projects: not all projects will be feasible within the time frame, and the first day and a half will be spent refining ideas and developing a final design.
- Students may work in teams or alone, at their discretion.
- Students are not expected to have any prior knowledge or experience in hardware or software, but it doesn't hurt.

Course Project:

We have one objective for the week: design an artifact with an electronic “brain” and make it work. Completing the objective will earn you an “S”. Because the course is largely self-directed, you will get out of it what you put into it. I will support these efforts – and will try to advise on the feasibility of a given project within a one-week time frame.

Each of you may feasibly put together an interesting working project using components provided. However, if you wish to develop your project in a specific direction, you may need to source and purchase additional supplies. Similarly, most of you will need to do extensive internet research to locate and learn techniques of implementing your circuit and the necessary programming.

I have an ongoing teaching schedule in DHA, and many of the students in this catalyst also have ongoing coursework. Because of that, I will schedule in-class times during which you can expect to sign up for an appointment or find me in 251 for assistance. There are no strict requirements for attendance times, but the more collaborative and cooperative we can make these efforts, the more interesting and fun they will be.

Course Schedule:

Day	Active meeting time (with Instructor)	Active meeting topics/daily activities
Monday	9am-10am (Rapson courtyard), 11-3pm, 4pm onwards	Course intro and introduction to electronics: sensors and actuators Soldering Introduction to Processing Arduino setup and breadboarding exercises Concept development and implementation/coding research <i>Goal for the day: Get introduced to Arduino. Arrive at final design concept and preliminary implementation plan</i>
Tuesday	2-5:30pm	Circuit and software design, component sourcing Meetings and troubleshooting <i>Goal for the day: assemble the required materials and begin implementing the design</i>
Wednesday	9am-2:30pm 6:30pm onwards	Building hardware: assembly techniques, meetings and troubleshooting <i>Goal for the day: develop a first-draft "breadboard" working prototype</i>
Thursday	9-11am, 4:30 onwards	Assembly and debugging Meetings and troubleshooting <i>Goal for the day: refine the prototype and build the final version</i>
Friday	1-5pm (Rapson courtyard)	Final critique and presentation <i>Goal for the day: complete the prototype, critique and present.</i>

Student Release of Work

Students understand that enrollment in this course grants consent for their work to be selected for inclusion in college or departmental publications (online or in print.)

Academic Dishonesty

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty.

Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code:

http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course.

Classroom Conduct

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see: http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: <http://www1.umn.edu/regents/policies/humanresources/SexHarassment.html>

Equity, Diversity, Equal Opportunity, and Affirmative Action:

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents

Policy: http://www1.umn.edu/regents/policies/administrative/Equity_Diversity_EO_AA.html.

Disability Accommodations:

The University is committed to providing quality education to all students regardless of ability. Determining appropriate disability accommodations is a collaborative process. You as a student must register with Disability Services and provide documentation of your disability. The course instructor must provide information regarding a course's content, methods, and essential components. The combination of this information will be used by Disability Services to determine appropriate accommodations for a particular student in a particular course. For more information, please reference Disability Services: <http://ds.umn.edu/Students/index.html>.

Mental Health Services:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

Academic Freedom and Responsibility:

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.