

ART/PHYS 208 The Physics of Art  
California State University Channel Islands – Fall 2008  
Aliso Hall Science Building, Room 133

**Instructors:**

Michael Steffen: Office hours: Tuesdays and Thursdays 1-2PM in AL132 or by appointment in Lindero Hall #3221, Phone: 805-551-4508 Email: michael.steffen@csuci.edu

Brian Rasnow: Office hours: Tuesdays & Thursdays 1-2 PM in AL132 or by appointment, 805-437-8815, brian.rasnow@csuci.edu.

**Course Description & Objectives:**

This is a course on the science and technology of art. How can science help us create more pleasing art, and understand the elements and ingredients of art that make it pleasing? What technologies create new avenues for artistic expression? Also in fulfilling a science lab requirement, this course will engage you to use art to learn to practice and to appreciate basic elements of science. The course focuses on the physical nature of light and optical phenomena, the psychophysics and perception of color, motion, sound, space, and interaction. The emphasis is on understanding art from a scientific perspective and the application of technology towards improved artistic expression. Theory, demonstrations, experiments, video/computer simulations, and projects are used to illustrate and explore these topics.

The course fulfills the University Gen Ed: B1, C1 requirements described in the University catalog:

- The course presents to non-science students the physical foundations of light and visual perception by demonstration and computer study fusing art and science. Students are encouraged to explore the predictions and explanations offered by scientific analysis of light, cognition, and aesthetics.
- Students will explore new technologies that transform and enable new forms of art.
- Scientific principles and concepts, and their applications to art, are discussed. The course challenges students to explain and understand art from a reductionist, scientific perspective, and use this understanding to improve the impact of their art on the observer.
- Students integrate scientific and technological knowledge to arrive at creative solutions.
- Each student will create art projects, write technical lab reports, present two major projects to the class, write a term paper describing the science and art from a field trip, do weekly readings, and participate in class discussions.
- Concepts are often studied from a historical perspective, showing how theories evolve over time.

## Student Learning Outcomes

Through projects involving technical demonstrations, artistic exercises, class discussions, field trips, project presentations and class critiques, students will:

- Develop projects that combine artistic and scientific context.
- Understand the physics and biology behind the perception of art.
- Demonstrate increased understanding and appreciation for the scientific method and how it explains (or fails to explain) aspects of art.
- Produce group art projects involving collaborative team assignments.
- Participate in the critical evaluation process of peer projects.

## Required Text

Assigned readings on Blackboard – no required text. Instead, you are required to bring a sketch book to class, and a set of color drawing utensils of your choice.

## Grading criteria

Projects with oral presentations (2)	30%
Lab reports and art projects (~20)	30%
Quizzes (~20)	10%
Participation (daily)	10%
Final Exam (1)	20%
Extra Credit	5%

Students are evaluated on their projects, participation, attendance and overall development. Grading will be based *approximately* on A: >90%, B: 90-80%, C: 80-70%, D: 70-60%, F: <60% and will not include +/- grades. Specific grade cutoffs may vary. Grades will be lowered for late or incomplete assignments.

Projects with oral presentations. Students will demonstrate the application of science toward creating an artistic work of their choice. In addition to the art work, a written report describing the project, a 5-minute oral presentation to the class, and critique of other student projects are required.

Lab reports and art projects. Students will be guided through many activities that demonstrate scientific aspects of art. Projects will be started in class but will also require homework. Grading is based on demonstrated understanding of science and art, the clarity of the lab write-ups, and the demonstrated effort applied to the artwork. Students are encouraged to utilize the Writing Resource Center in the Broom Library. Grading is not based on artistic talent or experience.

Quizzes. Students are expected to have completed all assigned reading and homework before class, and should expect daily 10-minute quizzes on this material. Quizzes will typically be at the beginning of class after questions, so please be on time. **There will be no make-ups for missed quizzes.**

Participation (10%). Class attendance is required and has a significant effect on a student's success. In-class work is important to the understanding of the course concepts. A student who is absent is responsible to find out what material was missed.

Final Exam (20%). The final exam will test on material from the entire semester.

Extra Credit (up to 5%). Opportunities can be arranged with the instructors.

### **Course Schedule**

This tentative schedule is subject to changes. Weekly assignments will appear on Blackboard.

<u>Week</u>	<u>Topics</u>
1	Introductions and overview
2	Light
3	Color
4	Lenses
5	Visual perception and the brain
6	Student Presentations
7	Composition
8	Motion perception and motion pictures
9	Sound
10	Light as waves
11	Location based experiences
12	Interactivity
13	Student Presentations
14	TBD and Thanksgiving
15	Review

### **Academic Dishonesty:**

The University's policy on academic dishonesty is stated in the 2008-2009 Catalog and at

[http://www.csuci.edu/academics/catalog/2007-2008/12\\_policiesandregulations/50\\_academicdishonesty.htm](http://www.csuci.edu/academics/catalog/2007-2008/12_policiesandregulations/50_academicdishonesty.htm). All work should be your own unless clearly attributed to other sources. Consequences for cheating are serious and will be taken seriously in this class.

### **Disability Accommodation Services:**

The University provides a broad range of support services to meet the needs of students with all types of physical, psychological and learning disabilities. Please contact the Disability Accommodation Services in Bell Tower Room 1796 if you need accommodations and then discuss the prescribed services with your instructor as soon as possible. For more info,

<http://www.csuci.edu/disability/disability.htm>.

*Information contained in this syllabus, other than that mandated by the University, may be subject to change with advance notice, as deemed appropriate by the instructor.*

