

**San José State University**  
**Department of Computer Science**  
**CS185C, Computational Creativity, Section 4**  
**Spring Semester, 2017**

**Course and Contact Information**

<b>Instructor:</b>	Margareta Ackerman
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<b>Office Hours:</b>	MW 3:30-4:30
<b>Class Days/Time:</b>	MW 4:30-5:45
<b>Classroom:</b>	Clark Building 243

**Course Catalogue Description**

Computing topics of current interest in industrial practice. Emphasis on effective use and integration of software/hardware. Different topics may be offered at different times in a short-course lecture/lab format and may be repeated for credit. Prerequisite: Varies with topic.

**Additional Information**

The course will introduce students to computational creativity and enable them to critically consider and discuss the creative capabilities of computer systems and their impact on the arts. Working in groups of students from different degree programs, they will combine their expertise to create novel work at the intersection of arts and computing.

Topics include:

- History of human and computer creativity
- Foundations of computational creativity
- Computational musicology
- Computational visual arts
- Dance, theater, and technology

## **Learning Outcomes**

### **Course Learning Outcomes (CLO)**

Upon successful completion of this course, students will be able to:

1. Carry out original work in the field of computational creativity
2. Critically consider and discuss questions concerning the creative capabilities of computer systems and their impact on the arts
3. Collaborate with students from other disciplines on the creation of original creative systems

### **Required Texts/Readings**

Veale, Tony. *The Revolution Will Be Automated: Computers That Create*, 2014.

<http://www.robotcomix.com/comix/IntroductionToCC/mobile/>

Colton, Simon, and Geraint A. Wiggins. *Computational Creativity: The Final Frontier?* ECAI. Vol. 12. 2012.

### **Other Readings [Optional]**

Sawyer, R. Keith. *Explaining Creativity: The Science of Human Innovation*. Oxford University Press, 2011.

Kaufman, James C. *Creativity 101*. Springer Publishing Company, 2016.

Veale, Tony. *Hand-Made by Machines? An Illustrated Guide to Creativity in Humans and Computers*, 2014.

<http://www.robotcomix.com/comix/HandMadeByMachines/mobile/>

Veale, Tony. *Do Androids Dream of Electric Tweets: Anatomy of a Creative Twitterbot*, 2013.

<http://www.robotcomix.com/comix/Twitterbots/mobile/>

### **Course Requirements and Assignments**

Assignments/Projects:

- An essay on a topic related to foundations of human and computer creativity (5% of final grade)
- TwitterBot assignments, where students will write a Python program that tweets creative content. (10% of final grade)
- A media conversion assignment, where students will write a program for automatically making art through a creative interpretation of another art form, such as converting a story into visual art, or visual art into music. (5% of final grade)
- A final project, consisting of original work in the field of computational creativity. Students from different disciplines will be paired up. The project will involve building a meta-creative or co-creative system. The project proposal, literature review, presentation (including a demo), and a final project writeup will make up 45% of the final grade.
- Participation in class is worth a total of 20%, and will include literature surveys on the following topics: computer musicology, computational creativity and visual art, technology in dance and drama, and social implications of computational creativity. Class discussion on each of these topics will be carried out.

## Grading Policy

Assignments: 20%

Final Exam: 15%

Final Project (including a talk on previous work, presentation and demo, and a final report): 45%

Participation (consisting of class discussions and a system presentation): 20%

Late work will not be accepted, except for documented extenuating circumstances.

98-100 => A+, 93-97 => A, 90-92 => A-

87-89 => B+, 83-86 => B, 80-82 => B-

77-79 => C+, 73-76 => C, 70-72 => C-

67-69 => D+, 63-66 => D, 60-62 => D

below 60 => F

## Classroom Protocol

Timely arrival and attendance is expected for all classes. Please refrain from the use of computers and cellular phones during class. Active participation during class discussions is expected.

## University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>

## CS185C Computational Creativity, Spring 2017, Course Schedule

*The schedule is subject to change.*

Week	Date	Topics, Readings, Assignments, Deadlines
1	Jan 30	Introduction to creative systems
1	Feb 1	Introduction to creative systems
2	Feb 6	Foundations of creativity
2	Feb 8	Foundations of creativity
3	Feb 14	Foundations of computer creativity and TwitterBots
3	Feb 16	Casual creators and Markov chains - <i>Essay due</i>
4	Feb 21	Foundations of computational creativity - class discussion
4	Feb 23	Foundations of computational creativity - class discussion
5	Feb 27	<i>Text-based Twitterbot assignment due/presentations</i>

Week	Date	Topics, Readings, Assignments, Deadlines
5	Mar 1	Basics of genetic algorithms
6	Mar 6	<i>Visual Twitterbot assignment due</i> /presentations
6	Mar 8	Introduction to clustering algorithms
7	Mar 13	<i>Conversation assignment due</i> - presentations
7	Mar 15	Conversation assignment presentations
8	Mar 20	How to be creative
8	Mar 22	How to be creative- <i>project proposals due</i>
9	Mar 27	Spring break
9	Mar 29	Spring break
10	Apr 3	Invited speaker from music department
10	Apr 5	Computational musicology (class discussion) - <i>Literature review due</i>
11	Apr 10	Computational creativity and visual arts - Painting Fool
11	Apr 12	Invited speaker from digital media
12	Apr 17	Computational creativity and visual arts (Class discussion)
12	Apr 19	"Beyond the Fence" - a computer generated musical
13	Apr 24	Invited speaker from dance or drama
13	Apr 26	Computational creativity, dance and drama (Class discussion)
14	May 1	Project presentation - <i>project due</i>
14	May 3	Project presentations
15	May 8	Social implications of computational creativity
15	May 10	Social implications of computational creativity
16	May 15	Review - <i>Final project writeup due</i>

<b>Week</b>	<b>Date</b>	<b>Topics, Readings, Assignments, Deadlines</b>
Final Exam	Tuesday, May 23rd 2:45-5:00	