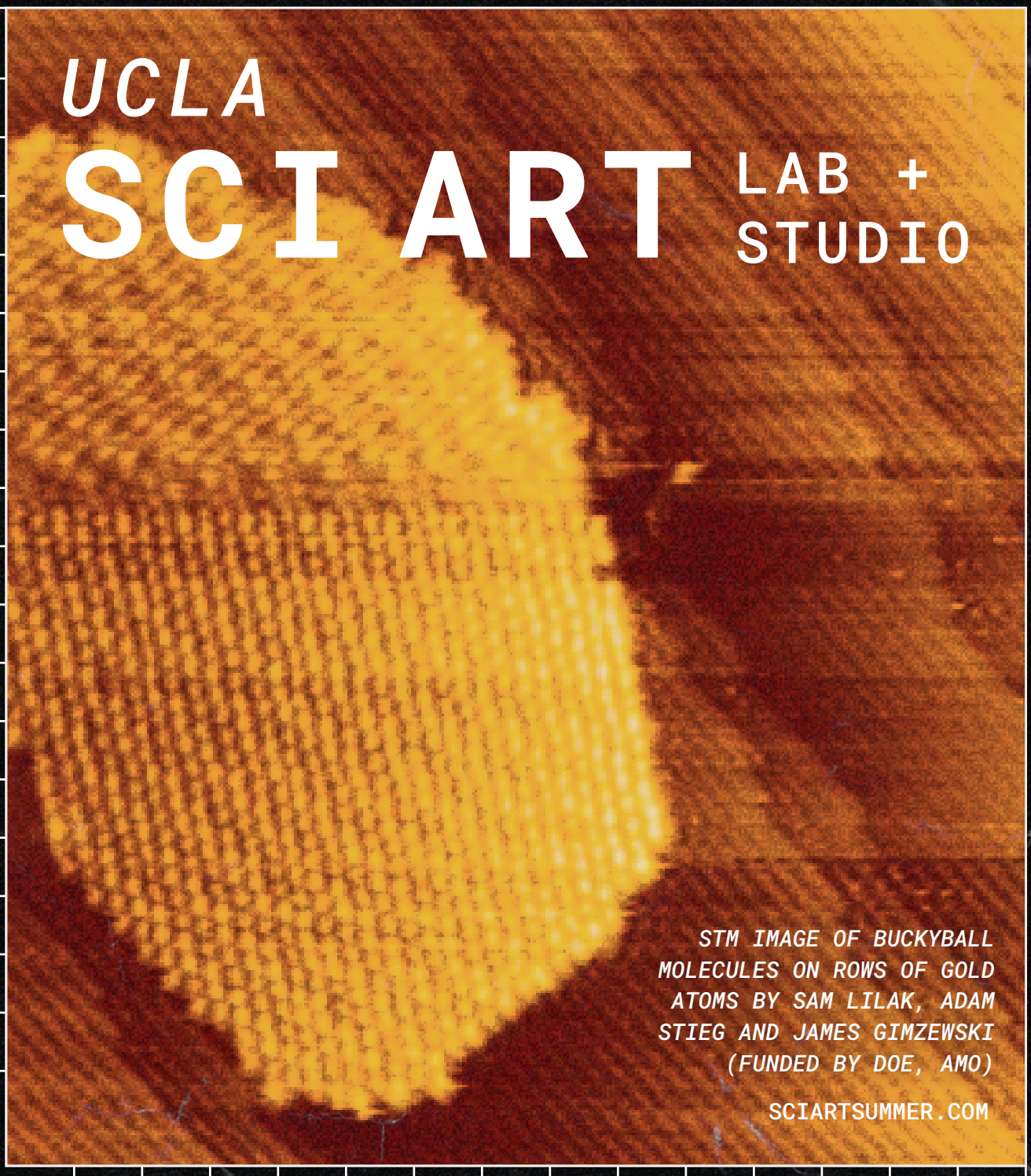
SAMPLE SYLLABUS. Enrolled students will receive the finalized syllabus prior to the start of the institute.

RUBRIC & COURSE INFORMATION

COURSE TITLE
Sci|Art Lab+Studio

COURSE UNITS
4 UC credits - Pass/No Pass

COURSE NUMBER
DESMA 6



STM IMAGE OF BUCKYBALL MOLECULES ON ROWS OF GOLD ATOMS BY SAM LILAK, ADAM STIEG AND JAMES GIMZEWSKI (FUNDED BY DOE, AMO)

SCIARTSUMMER.COM

FACULTY + STAFF

UCLA PROFESSORS (CURRICULUM / LECTURES):

Dr. Victoria Vesna,
Art|Sci Center, Department of Design Media Arts, Founder + Director

Dr. James Gimzewski,
Department of Chemistry, Scientific Director

ADVISORS:

Dr Adam Stieg,
CNSI Associate Director, SciArt Director Emeritus

Dr. Claudia Jacques,
Sci Art Associate Director Emeritus

INSTRUCTORS:

Ivana Dama, Lead Instructor

Emma Aakmakdjian

Ivy Lovett

Alvaro Azcarraga

Ariel Uzal

TEACHING ASSISTANTS:

Henrik Soederstroem

Jennifer Hotes

Maryam Razi

VISITING PROFESSORS:

Dr. Vuk Uskokovic, UC Irvine

Dr. Sam Lilak, UCLA

Dr. Santiago Torres, UCLA

David Roy, Yale University

Mick Lorusso, UCLA

Jeremy Kamal, Harvard University

COURSE OVERVIEW

Sci|Art Lab+Studio Summer Institute offers a cutting-edge, 4-credit lab/studio course to High School students on methodologies for applying the scientific method and creative processes as complementary tools for art, design and innovation.

Course material includes virtual lab visits, remote workshops facilitating hands-on experiments, and recorded lectures with world renowned artists and scientists. Through virtual engagement students will be exposed to the work of scientists and artists that explore new forms of creative expression, communication and collaboration within this multidisciplinary field.

To facilitate the application of our course material, students will develop an original concept for a collaborative final project under the challenge of ‘Imagine the Impossible’. Building off of course material and guided by the assistance and skill of the base SciArt Team, student groups will create and deliver a multimedia presentation to share their work and ideas during the program’s live streamed closing ceremony.

ASSESSMENT + GRADING CRITERIA

CLASS ATTENDANCE & PARTICIPATION (TOTAL POINTS POSSIBLE: 20)

10 points for participation and 10 points for attendance

Students are required to attend and actively engage in class activities - synchronous and asynchronous. You must be present and listen to all of the lectures, workshops and films that work with your time zone. If too early or too late, you are required to watch the recorded sessions and blog about the topics covered so you don't fall behind.

MIDTERM PROJECT (TOTAL POINTS POSSIBLE: 30)

Students are required to complete at least four Workshops' project assignments. Students will create a folder on google drive for each project and submit it to their instructor for review.

After participating in required workshops, students should commit to complete at least four of the corresponding projects' assignments.

BLOGS (TOTAL POINTS POSSIBLE: 20)

8 blogs are required to receive a full credit

Keeping with the goal of shifting traditional concepts of classwork and homework to facilitate more dynamic, peer-to-peer learning and discussion, students are required to complete seven blog assignments in response to the content introduced in lectures and workshops throughout the course.

In the written blog assignment students are asked to expand upon the ideas presented in the chosen lectures/ workshops, and are expected to think critically about the content and take it further with their own research and connections.

Students are asked to specifically search for online resources and provide both links and images as part of this assignment.

Each morning, the Blogs of the Day are selected, highlighted and discussed during the lecture.

FINAL PROJECT (TOTAL POINTS POSSIBLE: 30)

Students will develop an original concept for a collaborative final project under the challenge of 'Imagine the Impossible'. Students will form collaborative groups based on interests and instructor facilitation.

With the guidance and the knowledge base of the Sci|Art Team individuals or groups of students will create and deliver a multimedia presentation of their final project during the closing ceremony.

LEARNING OBJECTIVES + COURSE GOALS

G1. Expose students to the works of scientists and artists that explore new forms of creative expression, communication, and collaboration within this multidisciplinary field.

G2. Highlight historical perspectives and modern trends at the interface of art, science and technology. G3. Introduce students to current scientific and artistic research

G4. Promote the exploration of creative aspects of scientific research and innovation.

G5. Offer broad understanding of the impact of science on contemporary art and popular culture.

G6. Promote the development of proposals and ideas that could serve as prototypes for either art projects or scientific research study.

STUDENT LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to:

SLO1. Recognize the connections between cutting-edge scientific research, popular culture and contemporary art;

SLO2. Distinguish historical perspectives and modern trends at the interface of art, science and technology;

SLO3. Demonstrate a broad knowledge of the wide spectrum of scientific topics that directly influence culture at large;

SLO4. Differentiate the implications of theory and practice on the application of scientific and artistic concepts;

SLO5. Assess the implications of social, political and ethical contexts that influence scientific and technological innovation and paradigm shifts;

SLO6. Propose an original concept for a collaborative project under the challenge of ‘Imagine the Impossible’.

LECTURES

A collection of daily lectures, delivered by a team of SciArt Instructors that serve to highlight historical perspectives and modern trends at the interface of art, science and technology.

In addition, a collection of special seminars given by leaders and visionaries in the fields of art and science supplement the course materials.

These lectures and subsequent discussions serve to stimulate an open discourse between the students and active participants in these fields in a comfortable, low-pressure setting.

In order to expand discussion, encourage student participation and foster learning, recorded lectures will be available on the course website the day after they are delivered.

LECTURES + WORKSHOPS

The Sci|Art Lab+Studio team offers a series of hands-on workshops that introduce you to multidisciplinary topics through a short lecture and then a quick exercise.

Students are required to attend all lectures / workshops.

Students will choose four topics covered that they will expand on with longer projects that will be further developed for midterm and finals.

SCI-FI FILMS

An undeniable connection between science, culture, imagination and creativity has undoubtedly manifested through science fiction writing and film.

To facilitate a conversation regarding the historical impacts of science fiction on both popular culture and ongoing trends in technology, a Sci-Fi Film Series is curated by the Sci|Art Team. Students are also encouraged to suggest movies they would like to share.

COURSE SCHEDULE

DAY 01
ENVIRONMENT

MON

09:00am-10:30am	Introductions Directors, Instructors, TAs
10:30am-11:30am	Ice Breaker Games Get to know students/ Assign groups and instructors
11:30am-12:30pm	How to Keep a Sketchbook and Lab Notebook | Ivy Lovett and Alvaro Azcarraga
12:30pm-01:30pm	Lunch
01:30pm-02:00pm	Instructors go over blog assignment and rubric/ curriculum | John Brumley
02:30pm-05:30pm	Make Your Own Sketchbook/Lab Notebook | Ivy Lovett and Alvaro Azcarraga

DAY 02
NANO

TUES

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-11:00am	Nanotechnologies in the Quest for the Invisibly Small | Dr. Vuk Uskokovic
11:00am-12:00pm	Visualizing carbon | Dr. Victoria Vesna
12:00pm-01:00pm	Lunch
01:00pm-02:30pm	Tools of Visualization | Dr. Adam Stieg
02:30pm-05:30pm	Lab Tour CNSI Imaging Techniques and the Limits of Resolution | Dr. Sam Lilak

COURSE SCHEDULE

DAY 03
MICRO BIO

WED

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-12:30pm	Skeleton Herbarium | Alvaro Azcarrraga and Nidhi Vinod
12:30pm-01:30pm	Lunch
01:30pm-02:30pm	Botanical Garden Tour
03:00pm-05:30pm	Eco-Sensing | Mick Lorusso

DAY 04
DATA

THURS

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-12:30pm	Listening to the Invisible | Ariel Uzal
12:30pm-01:30pm	Lunch
01:30pm-05:30pm	Sculpting With Digital Debris | Ivy Lovett
05:30pm-07:00pm	Screening Night

COURSE SCHEDULE

DAY 05
VIBRATIONS

FRI

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-11:00am	Music and Quantum Mechanics | Dr. Jim Gimzewski
11:00am-12:30pm	Deep Listening | Ivana Dama
12:30pm-01:30pm	Lunch
01:30pm-05:30pm	Waves & Frequencies | Henrik Soederstroem

DAY 06
MARINE BIOLOGY + ART

SAT

10:00am-03:00pm	FIELD TRIP | Emma Akmakdjian

DAY 07
SPACE

TUES

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-12:30pm	A Window to the Universe - Astronomy & Astrophysics | Dr. Santiago Torres
12:30pm-01:30pm	Lunch
01:30pm-05:30pm	Water Rocketry | David Roy

COURSE SCHEDULE

DAY 08
GENETICS + ANIMAL BODIES

WED

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-11:00am	Final Project Proposal Students begin working with their teams, instructors and workshop leaders hop in and out of rooms to help students.
11:00am-12:30pm	Biology Research | Cesar Perez Ramirez
12:30pm-01:30pm	Lunch
01:30pm-05:30pm	“TITLE” | Emma Akmakdjian

DAY 09
ECOLOGY

THURS

09:00am-09:30am	Blog Report Team check-ins & attendance
09:30am-11:00am	Future of Landscapes | Jeremy Kamal
11:00am-05:30pm	Work on Final Projects

DAY 10
FINAL PRESENTATION

FRI

10:00am-03:00pm	Final Presentation