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

Nanoscale Microscopy

Description:
Welcome to Nanoscience Lab! This course is designed for high school students who are interested in learning the basics of nanoscience and some key applications. During this intensive five-day program, you will develop skills in hands-on nanoscience experimentation and scientific communication, while also learning how nanoscience is applied to everyday life.

Instructor of Record:
Hong Zhou, PhD

Education Director:
Rita Blaik, PhD

Education Manager:
Cheylene Tanimoto, PhD

Program Coordinator:
Elaine Morita, PhD

Instructors:
Laurent Bentolila, PhD
Matthew Mecklenburg, PhD
Adam Stieg, PhD

Course Hours:
MTWRF 9:00 AM – 5:00 PM PDT in the California NanoSystems Institute (CNSI) with 1-2 hours of homework each night. You are expected to follow codes of conduct for Summer Sessions and this course for the duration of the two week program unless prior written permission is obtained at least three days before the beginning of the course.

Technology requirements:
All students are required to have a laptop or tablet with USB port connectivity. Course materials will be posted on our course website. Students will be asked to submit assignments by uploading files to a Google Drive.

Overall Course Structure:
The course aims to give an overview of microscopy - principles of microscopy, light and confocal microscopy, electron microscopy, cryo-electron microscopy and tomography, and scanning probe microscopy. The course includes laboratory time for sample preparation techniques and measurements on instruments. On the first day (Monday), students will be introduced to four research topic areas by guest lecturers. Throughout the week, students will be exposed to microscopy techniques. For homework each day, students will be asked to create a series of 300-500 word blog posts via Google Docs summarizing the technique introduced that day and brainstorming potential research questions that the technique be used to answer. On the final day of the program (Friday), students will work in teams of 3 to present a final project that uses

one or more of the microscopy techniques to answer a research question of their choice related to the topic areas introduced on the first day.

Safety Dress Code:
Lab safety is extremely important. Since we will be entering lab spaces with real hazards, students MUST wear long pants and shoes that cover the entire foot. This means NO open-toed shoes, exposed feet, exposed ankles (including while sitting), shorts, skirts, or ripped jeans/pants. Safety glasses, lab coats, and gloves will be provided. If you arrive in inappropriate clothing, you will be sent to purchase some at the UCLA store. **If you are not dressed appropriately, you will not be allowed to participate in the day's activities.**

Safety checks will be conducted at the start of every lab session. We will be checking your work station, dress code, and understanding of safety considerations/risks/dangers and protocols. All labs must be conducted following the directions of your instructors.

Pre-Homework:
You are responsible for a set of readings that will be sent out before the course begins. We will reference these articles throughout the course.

Homework:
There will be four homework assignments given during the week; each one requires you to write a blog post. These assignments are due at 9:00 AM the day after they are assigned. These will be explained in more detail during class.

Final Presentation:
On Friday, you will present in groups on one of the experiments you learned during the week. More details will be given later in the week. We invite your families to attend, with questions! This presentation session will be held from 10:00 AM – 1:00 PM, followed by a reception.

Grading:
Pass/no pass.
The grading structure is as follows:

- Completion of homework assignments with an average grade of satisfactory (30% of total grade)
- Participation in all workshop activities and lab activities (30%)
- Final presentation (40%)

A passing grade requires a total score of at least 70%. In addition, any student who fails to abide by the proper codes of conduct as defined in the welcome packet and our safety rules may receive a "no pass" grade. If you ever feel like you're struggling, please feel free to come talk to any of the instructors!

Code of Conduct:
All students are expected to follow the UCLA Summer Sessions code of conduct as well as the safety guidelines outlined in our safety and liability waivers, which you should all have signed prior to the first day of class. Students are expected to follow instructions set out by instructors,

especially when in laboratory spaces and performing experiments.

We look forward to meeting every student and making this the best program it can be. We will be flexible and patient with various issues that might come up (health issues, not being able to get supplies, deadlines, emergency situations that may arise, etc.) and we ask that you will be patient with us as well.