



Cooper Union Sustainable
Agriculture Project

Syllabus

Smart Technology and Urban Agriculture Summer STEM 2020 Session 2

**Instructors: Kelly Lu, Daniel Tsarev,
Jessica Martinez, Minh-Thai Nguyen**

Information

- Class is from 10 AM - 12 PM followed by lunch break, then either a 1-2 PM or 2-3 PM session. We will begin promptly at 10 AM.
- You will receive homework after each class, varying from 10 to 45 minutes.
- There will be 5 minute breaks every hour; please try to stay in the meeting and use the break time for bathroom breaks, etc.

Schedule and Topics Covered

Week 1: Introduction to Electronics and Hydroponic Systems

- Day 1: Class introduction, discussion of urban agriculture, and sprouting your seeds
- Day 2: Introduction to circuits and electronics
- Day 3: Coding in C++, using the microcontroller
- Day 4: Advanced electronics, using the sensors

Week 2:

- Day 1: Deeper understanding of hydroponic systems, design your own system
- Day 2: Introduction to 3D modeling using Onshape
- Day 3: Digital fabrication methods, continuing Onshape
- Day 4: Present Onshape creations and build our educational kit!

Week 3:

- Day 1: Learn Python
- Day 2: Data visualization using Python; engineering ethics
- Day 3: Present Projects
- Day 4: FUN :^)



Cooper Union Sustainable
Agriculture Project

Class etiquette

- Community Norms:
 - Recognize each other as thinkers and creators
 - Have an open mind
 - Give everyone space to learn and make mistakes
 - Respect that everyone comes from a place and wants to learn
- Be mindful of other people, mute your microphone when you are not speaking
- TAKE NOTES!!! We are all dedicated to teaching the material, but you will only learn if you take proper notes and ask questions.
- ASK QUESTIONS!!! If you have any questions, ask them in the chat or unmute your mic and shout them out.
- ASK EVEN MORE QUESTIONS!!! AND DON'T BE AFRAID TO MAKE MISTAKES!!!

Breakout Room Practices:

- Turn on your camera
- Bring materials for taking notes
- Talk to your classmates and instructors

Additional reading on classroom culture:

<https://www.recurse.com/social-rules>