



2017 BOOT CAMP SCHEDULE

WEEK 1: JULY 10-JULY 14, 2017

Location – All morning sessions this week take place in the Vagelos Building, Room 2000, at 3340 Smith Walk. <https://www.facilities.upenn.edu/maps/locations/vagelos-laboratories-ia-st-roy-and-diana>

Monday, July 10

9:00 am: Welcome and introductions. Goals and expectations. Discuss team and group projects. Introduce TAs

9:30-10:15 am **Lecture 1:** Basic Mechanics, Paul Janmey

10:15-11:00 am **Lecture 2:** Plant Cell Biology, Ram Dixit (remote lecture)

11:00-11:15 am Coffee Break

11:15-12:00 pm **Lecture 3:** Mechanobiology of Molecules, Michael Ostap

12:00-12:30 pm Lunch

12:30-1:30 pm Career Options and Preparation, William Hunter

1:30-6:00 pm Lab Sessions

- Lab for Biologists (Xuan Cao and Farid Alisafaei, Shenoy Lab)
Basic calculus; Paper and pencil problems; Measuring E/G for materials
LOCATION – LRSM 233
- Lab for Non-Biologists (Graham Burkart, Dixit Lab and Gauri Khandekar, Wells Lab)
PCR, DNA and protein electrophoresis, Western blotting, Imaging animal and plant cell cultures
LOCATION – BRB 925

Tuesday, July 11

9:00-10:00 am **Lecture 4:** Measuring Forces, Anders Carlsson (remote lecture)

10:00-10:30 am Coffee break

10:30-11:30 am **Lecture 5:** Animal Cell Biology, Erika Holzbaur

12:00-12:30 pm Lunch

12:30-1:30 pm Bioethics, Beth Winkelstein, Vice Provost for Education (UPenn)

1:30-6:00 pm Lab Sessions

- Protein Purification Lab (Graham Burkart, Dixit Lab and Melissa Birol, Rhoades Lab)
Affinity purification using epitope-tagged protein lysate.
LOCATION – Chem 73 – Rhoades Lab (2nd Floor)

- Biological Modeling Lab 1. (Michael Woody, Ostap and Goldman Lab)
Introduction to MatLab. Basics of modeling in Matlab.
LOCATION – Moore Bldg. Room 100-C (Computer Lab)

Wednesday, July 12

9:00-10:00 am	Lecture 6: Cellular Mechanobiology, Ben Prosser (recorded lecture)
10:00-10:30 am	Coffee break
10:30-11:30 am	Lecture 7: Introduction to Modeling, Dave Thirumalai (remote lecture)
12:00-12:30 pm	Lunch
12:30-1:30 pm	Effective Team Communication, Derrick Dean (remote presenter)
1:30-6:00 pm	Lab Sessions

- Hydrogels and Electrospinning Lab 1 (Matt Davidson, Burdick Lab and Elisabeth Charrier, Janmey Lab)...Create hydrogels and electrospun matrices. Seed animal and plant cells on hydrogels to compare their behavior.
- TFM Analysis (Shefali Talwar, Assoian Lab)
Demonstrating main steps from sample prep through analysis
LOCATION – Skirkanich Hall, 4th Floor (Burdick Lab)
- Biological Modeling Lab 2. (Michael Woody, Ostap and Goldman Lab)
Modeling in MatLab. Biostatistics
LOCATION – Moore Bldg. Room 100-C (Computer Lab)

Thursday, July 13

9:00-10:00 am	Lecture 8: Plant Development, Lucia Strader (remote lecture)
10:00-10:30 am	Coffee break
10:30-11:30 am	Lecture 9: Artificial Matrices, Treena Arinzeh
12:00-12:30 pm	Lunch
12:30-1:30 pm	Reproducibility in Science, Jess Tytell
1:30-6:00 pm	Lab Sessions

- JPK's AFM Demo (Matt Thompson, JPK)
LOCATION – Vagelos 1st Floor (Janmey Lab)
- Immunostaining and image analysis (Elisabeth Charrier, Janmey Lab and Jeff Nirschl, Holzbaaur Lab)
Immunostaining animal and plant cells for tubulin and compare MT patterns in both types of cells. Image Analysis Basics (using Fiji)
LOCATION – Vagelos 1st Floor (Janmey Lab)

Friday, July 14

9:00-10:00 am	Lecture 10: ECM and Animal Tissues, Becky Wells and Rick Assoian
10:00-10:30 am	Coffee break
10:30-11:30 am	Lecture 11: Fluidics, Dan Huh
12:00-12:30 pm	Lunch
12:30-1:30 pm	Introduction to Technology Transfer, Laurie Ackman
1:30-6:00 pm	Lab Sessions

- Micro and Nano Fabrication (Noah Clay and Eric Johnson, Singh Center)
fabricating masters using standard photolithography techniques/casting PDMS on masters
LOCATION – Singh Center for Nanotechnology

WEEK 2: JULY 17-JULY 21, 2017

Monday, July 17

8:30-11:30 am	Innovation Slam: Rob Mauck and Jason Burdick Vagelos Room 2000, 3340 Smith Walk
11:30 am	Depart for Singh Center and CEMB Retreat

Friday, July 21

3:00-5:00 pm	Group Presentations (Closing) LRSM – Reading Room
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