

BIOCHEMISTRY BOOT CAMP
Mitchell Memorial Library Auditorium
June 7-9, 2021

PROGRAM OF EVENTS (Last Update: May 28, 2021)

All events are scheduled to take place in **Mitchell Memorial Library Auditorium (Room 1000)** unless otherwise noted. For updates and more information, please visit the Biochemistry Boot Camp website at <https://fitzkee.chemistry.msstate.edu/bootcamp/>.

Monday, June 7

Morning Session

- 8:00 am "No-Frills" Breakfast
Bagels, doughnuts, coffee, and juice
- 9:00 am Introductory Remarks Nick Fitzkee
- 9:05 am **Session 1:** Protein Structure Matt Thompson
Primary, secondary, tertiary structure; origins of function
- 10:20 am Break
- 10:30 am **Session 2:** Protein Properties and Online-Databases Nick Fitzkee
Computer tools for understanding proteins; ExPASy, Entrez
- 11:50 am Group Photo
- 12:00 pm Break for Lunch (on your own)

Afternoon Session

- 1:30 pm **Session 3:** Introduction to UNIX Nick Fitzkee
Filesystem, running programs, X-windows, working with files
- 2:50 pm Break
- 3:00 pm **Session 4:** Model Fitting and GnuPlot Nick Fitzkee
Model basics, uncertainties and errors, chi-squared
- 4:30 pm Discussion and Day 1 Wrap-Up Participants
Take Home Lab: GNUPlot for Chemists
- 5:00 pm Break for Dinner (on your own)

Tuesday, June 8

*Morning Session***Session 5:** Working in the Lab: Laboratory Safety and Waste Handling at MSU

- 9:00 am Laboratory Safety Sydnee Elmore, EHS
- 10:30 am Break
- 10:40 am Chemical Waste Disposal at MSU Ben Sharpe, EHS
- 11:00 am **Session 6:** Publication-Quality Graphics
Excel Tricks, Learning the GIMP and InkScape Nick Fitzkee
- 11:50 am Break for Lunch (on your own)

Afternoon Session

- 1:00 pm **Session 7:** DNA Structure and Properties
Basic properties, PCR, predicting melting temperatures Chris Johnson
- 1:50 pm Break
- 2:00 pm **Session 8:** DNA Properties and Online Databases
Predicting melting temperature, PCR, and cloning Chris Johnson
- 2:50 pm Break
- 3:00 pm **Session 9:** The PDB and Molecular Visualization
Using PyMOL for analysis and figures Nick Fitzkee
- 4:15 pm Break
- 4:30 pm **Session 10:** Keeping a Lab Notebook Dhanush Amarasekara
- 5:20 pm Discussion and Day 2 Wrap-Up
Take Home Lab: Practice Using PyMOL Participants
- 5:30 pm Break for Dinner (on your own)

Wednesday, June 9

Morning Session

- 9:00 am **Session 11:** Basic Bioinformatics
Homology, sequence alignment, and BLAST Nick Fitzkee
- 10:20 am Break
- 10:30 am **Session 12:** Getting Started with Python
A very basic introduction to programming and workflow Nick Fitzkee
- 11:50 am Break for Lunch (on your own)

Afternoon Session

- 1:30 pm **Session 13:** Literature Databases and EndNote
Constructing a library, Getting a perfect bibliography Joanna Xu
- 2:20 pm Survey and Day 3 Wrap-Up Participants