

- Introductions
- 20.109 philosophy and goals
- Semester-long workflow
- Day-to-day workflow
- Lab safety
- Self-/guided lab tour

The two pillars of 20.109

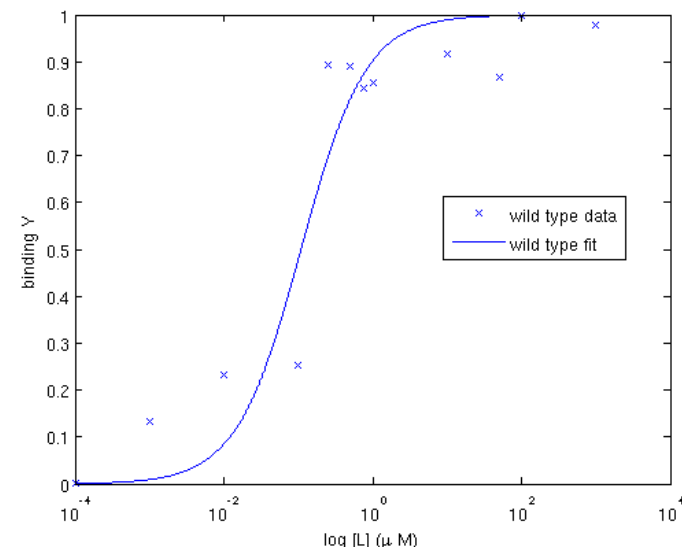
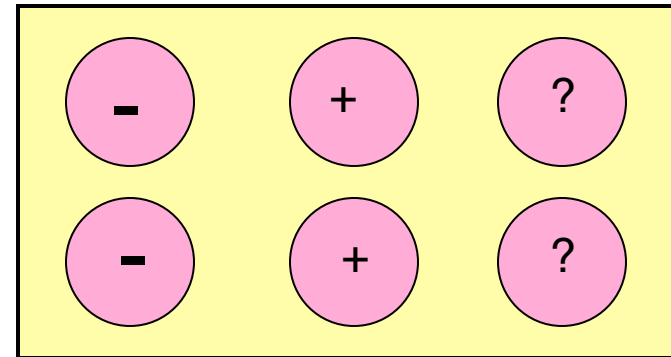
- Authentic investigation
 - elements of design, unknown outcomes
- Authentic communication
 - professional style talks, visuals, writing

★ your energy and investment paramount ★

collaboration b/w us all

After 20.109, you should be able to...

- Implement laboratory protocols
- Design novel experiments with appropriate controls
- Organize a lab notebook
- Interpret qualitative data
- Analyze quantitative data
- Recognize utility of models
- Examine the scientific literature
- Communicate to various audiences, in various styles
- Present salient points of your own and others' ideas



Semester-long workflow

- Work in pairs (Shared drawer, w T/R)
- Broader community collaboration
- Assessments
 - Major: reports, slides, presentations, certifications
 - Minor: quizzes, notebooks, blogs (HW optional)
 - ***Ask if something is unclear***
 - ***Available over email, occasional OH***
 - ***Plan ahead and manage your time***

private
16-319

group
16-336

Day-to-day workflow

- Announcements
- Quiz 1:10 sharp 2-3Q, 5'
- Pre-lab lecture
- Lab work
 - See wiki
- ~~Hand in notebook pages before leaving~~

Annotating protocols

1. Begin by adding the correct amount of water to a 200 ul PCR tube. Add that amount +1 ul to a second PCR tube.
2. Next add the primers to each reaction. Be sure to change tips between additions.
3. Next add template to the first reaction tube.
4. Finally add PCR Master Mix to each tube, pipetting up and down to mix. Leave your tubes on ice until the entire class

#1 55, 60 ul

#2 ✓ #3 ✓ oops! tips not changed

#4 4 pm, sat on ice → 5 pm

Lab Safety

- Protection: gloves, glasses, coat, coverage
- Just in case... eyewashes, shower
- Hazards: *sharps; fire; mtls* / *chem or bio*
toxic, caustic, infectious
irritant
- Waste disposal

sharps

biohaz. barrel

bio and non-bio
broad definition
no liquids, solids,
paper, gloves



non-sharp
biol.
solids ok

biol. liquids --> bleached, sink

chem. waste --> fume hood

Time for demo and tour!