

# Welcome to FI4 20.109!

1. Introductions & 20.109 Mission
2. Semester Overview & Intro to Wiki
3. Day-to-Day Operations
4. Lab Safety
5. Lab Tour (...your first protocol!)

❖ Aim 1: Authentic Investigation

*\* Real experiments*

❖ Aim 2: Authentic Communication

*\* One size  $\neq$  fit all*

❖ Aim 3: Extensive Collaboration (...with limits)

Equal contribution to team assignments.

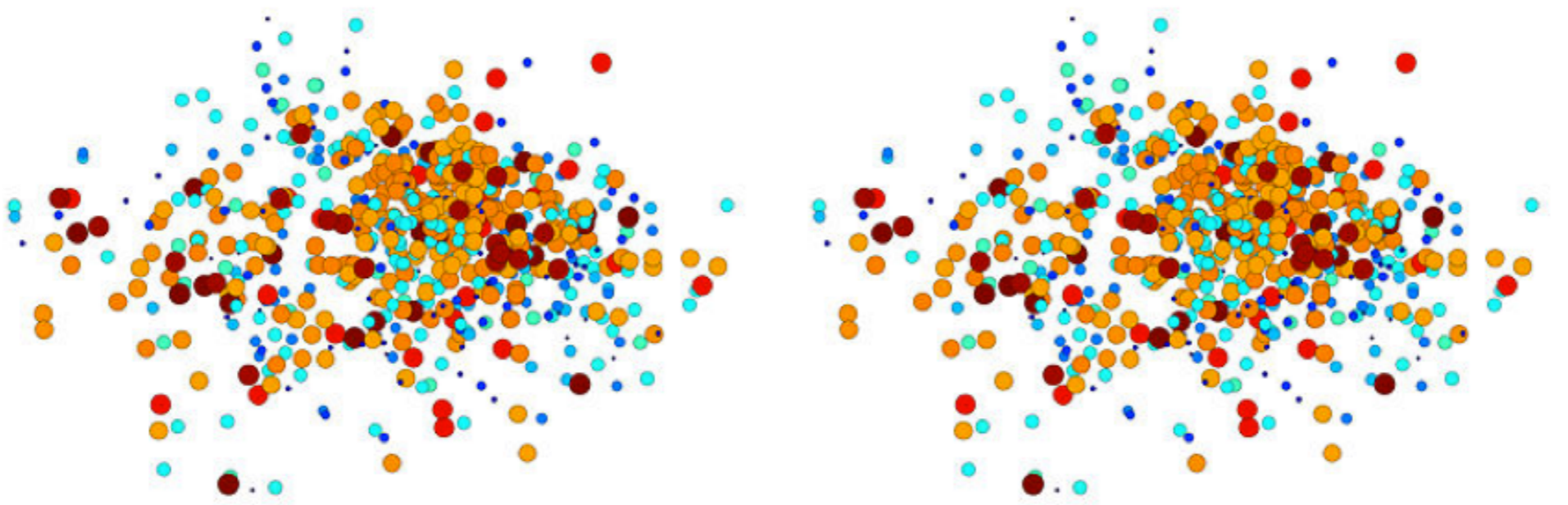
Fair discussion, but independent completion, of individual assignments.

# Your new best friend: *the 20.109 wiki*

page talk edit history move unwatch link

## 20.109(F14)

### 20.109(F14): Laboratory Fundamentals of Biological Engineering



Home People Schedule Fall 2014 Assignments Lab Basics OWW Basics  
DNA Engineering System Engineering Biomaterials Engineering

#### Welcome and Details for Fall 2014 [edit]

**Lecture:** T/R 11-12 (16-220)  
**Lab:** T/R 1-5 or W/F 1-5 (56-322)  
**People:** Instructor and student web pages may be found at the linked [People](#) page.

Welcome to 20.109! For some of you this will be the first time in a research lab and for others it will not; either way, it is our goal to make this class a useful and fun introduction to experiments and techniques in biological engineering. There is not time enough to show you everything

JW\_Datart\_sub68.jpg know if you go on to do research, but after taking this class you should feel confident and familiar with some fundamental

[openwetware.org/wiki/20.109](http://openwetware.org/wiki/20.109)

# Semester overview: *the 20.109 wiki*

1. Navigating around the wiki.
2. Important links:
  - Schedule Fall 2014
  - Assignments
  - Module 1, 2, 3
3. Some hints for making the most of the wiki. *\*This is your first stop\**
4. The 20.109 wiki:

The secret to 20.109: *Time Management*

# Assignments in 20.109

## Major Assignments

---

Most major assignments will be submitted to the [Stellar drop box](#) for our class.

Module	Topic	Assignment	% of Final Grade	Details	Due Date
1	<a href="#">DNA Engineering</a>	Plasmid construction methods section	5	<a href="#">Assignment description</a>	Mon, Oct 6th, 5pm
		Abstract and data summary	15	<a href="#">Assignment description</a>	Fri/Sat, Oct 10/11, 5pm
2	<a href="#">System Engineering</a>	Research article	25	<a href="#">Assignment description</a>	Mon, Nov 10th, 5pm
		Journal club presentation	10	<a href="#">Assignment description</a>	M2D4 or M2D8
3	<a href="#">Biomaterial Engineering</a>	Mini report	5	<a href="#">Assignment description</a>	Thur/Fri, Dec 4/5
		Research idea presentation	20	<a href="#">Assignment description</a>	Tue/Wed, Dec 9/10

Daily Work:

## What's going to happen in lab:

- Turn in 'for next week' (FNW) - receive graded assignments

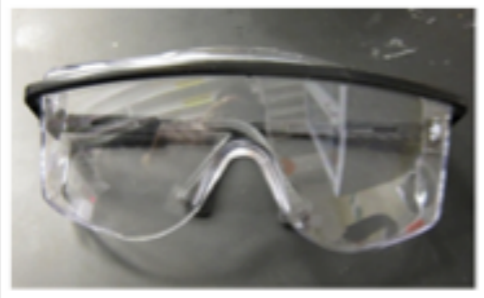


- Lab Treat:



<http://my.clevelandclinic.org/heart/prevention/nutrition/chocolate.aspx>

- Pre-lab lecture & discussion
- The fun stuff
- The key to daily 20.109: *The wiki is your friend*

# Personal Protective Equipment (PPE)

Item	Required	Recommended
Safety glasses 	<ul style="list-style-type: none"><li>• At hood.</li><li>• When using ethanol burners.</li><li>• Add face shield at UV transilluminator.</li></ul>	<ul style="list-style-type: none"><li>• Large quantities of liquid or powder (even if not strictly hazardous) due to chance of irritation by splash, dust, etc.</li></ul>
Lab coat 	<ul style="list-style-type: none"><li>• At hood.</li><li>• In TC room.</li></ul>	<ul style="list-style-type: none"><li>• See above.</li></ul>
Gloves 	<ul style="list-style-type: none"><li>• Working with hazardous materials (w/r/t chem or bio).</li><li>• Nitrile for greater hazards (e.g., EtBr).</li></ul>	<ul style="list-style-type: none"><li>• Working with any material.</li><li>• Touching gloves-on equipment.</li></ul>

# Managing Biological Waste

## Benchtop biowaste:

- All gloves
- Plastic tubes
- tips



## Sharps jar:

- glass
- needles/razors
- bacteria cultures + tubes

## Step-can:

- bacteria plates





# Lab Notebooks: Evernote (EN)

The screenshot displays the Evernote web interface for a user named 'shannon\_hughes\_20109'. The interface is divided into several sections:

- Header:** Features the Evernote logo, a search bar, and a '+ New Note' button.
- Left Sidebar:** Contains 'Shortcuts' (with a drag-and-drop instruction), 'Notebooks' (listing 'All Notes (1)', 'shannon\_hughes\_20109's no... (1)', and 'Trash (1)'), and 'Tags'.
- Central Panel:** Shows a list of notes under 'All Notes'. The selected note is dated 'Wednesday, 9/4/13' and is 1 hour old. The note content is: 'Orientation lecture -- last four slides Pre-lab lecture -- add EN and 'new stuff' slide Demo of Evernote Better explanation of new safety workflow'.
- Right Panel:** Displays the full content of the selected note, including the date 'Wednesday, 9/4/13' and a bulleted list:
  - Orientation lecture -- last four slides
  - Pre-lab lecture -- add EN and 'new stuff' slide
  - Demo of Evernote
  - Better explanation of new safety workflow
- Bottom:** Includes a 'View Options' button and a '1-1 of 1 notes' indicator. A 'Download Now' button for the 'EVERNOTE WEB CLIPPER' is also visible in the bottom left.

## Lab Notebooks: Evernote (EN)

Please see the wiki page about lab notebooks (Assignments tab) and set up an Evernote account and 20.109 lab notebook.

Please use your name in the title of your notebook.  
For example: 20.109(F14)\_Shannon

*Novreen Nillyell@mit.edu*

Share your lab notebooks with:  
me ([skhughes50@gmail.com](mailto:skhughes50@gmail.com))  
and  
Isaak ([imueller@mit.edu](mailto:imueller@mit.edu))

## Today in the lab:

- ✓ ● Find your lab partner, pick your bench, and sign up on the lab map up front!
- Complete lab tour
- Check out the 'For Next Week' for next time — due on Tuesday.
- Respond to the Office Hours doodle poll I sent out.