Updated by Alice on 24 July 2018

Welcome to the D-Lab! The fun is just beginning.

Getting access to the building, offices, and labs
Please complete the following items in order before starting work in the labs.
1) Online safety training
- Chemical safety: EHS 1900
- Compressed gas: EHS 2200
- Laser safety: EHS 4820 - renew every three years
- Ergonomics: EHS 3400
- Fire Extinguisher: EHS 3850
- Biosafety: EHS 1500
- Bloodborne Pathogens: EHS 1600 - renew every year

2) Get access to group resources (server, drive, email lists)
- Read safety manual under "Resources" and recent "Safety Retreat" presentation on the server and drive accounts
- Talk to David about getting an account on the dionne.stanford.edu server
- Talk to Shing Shing about getting access to group SOPs, experimental procedures, and emails through our Google Drive account (dionnelab@gmail.com) and dionnestud (dionnestuds@lists.stanford.edu)

3) Lab specific training with safety officers
- Schedule lab safety tour with Michelle (general), Chris (chemistry), Alan (optics), and/or Loza (bio)
- Print out on the job training (OTJ) document from LeAnne to give to safety officer for optics run-through
- Sign relevant training sheets in safety binders

4) Meet with Dayna from EH&S
- Take a picture of signed sheets and email Dayna (drp@stanford.edu) to schedule 10-15 min meeting

5) Contact Carol for keycard access
- Confirm that you have completed all of the above tasks before asking Carol (carolscott@stanford.edu) for keycard access
- An email will be sent to Frank George, the Durand building manager, allowing you to access the labs with your SUID card.

Printers
We have a black and white printer in the downstairs office with IP address: 172.24.160.66

There is a color printer in front of Durand 114, named CanonMFD-Durand-130A
Please visit engineering.stanford.edu/mfd to set the printer up

Remote Desktop Access
We have set up remote desktop access to the simulation computers at the following addresses:
dionnecurry.stanford.edu
dionnecurie.stanford.edu
kheer.stanford.edu
kerr.stanford.edu

There is also remote desktop access to the front table computer in the optics lab (so you can run Labview or Winspec remotely)
171.64.118.97

Access to any of these requires signing into the Stanford VPN:
http://itservices.stanford.edu/service/vpn/

Buying Things
On campus
Contact Carol to get an account at the Fisher Chemistry and Bio Stores and Physics Store. Store hours and common things purchased at each:

- Fisher: 8:30-4 PM
  Glassware, gloves, some chemicals, solvents, lab notebooks, storage containers, chemistry things

- Physics: 8 AM -5 PM (http://www.stanford.edu/dept/physics/facilities/stockroom.html)
  Compressed gases, nuts and bolts and plumbing things, tubing, fittings, lab notebooks with the Stanford logo

- BioStore: 8 AM - 4 PM (http://web.stanford.edu/group/fms/fingate/docs/shows/FisherStoresOpenHouse.pdf)
  Lab supplies (glass slides, petri dishes, etc.), bio reagents, etc.

Online
Smartmart is sort of a catalog that Stanford uses to purchase things from common suppliers. You can also buy things not listed on Smartmart by using a Non-catalog RPO. First, you'll need to complete these online trainings:

- Purchasing Using Stanford's SmartMart (catalog) (FIN-0412-000002)
- Non-Catalog Purchasing Using Oracle iProcurement (FIN-0410-000001)

P-Card
If the item you are trying to purchase is less than $5000 and NOT FOR:

- a chemical/hazardous material
- conference registration
- personal expense
- fabrication
- lab animal

then you can use our group's credit card (P-Card). Talk to Carol and use this sparingly

(i.e., when the company will only take a credit card or you need to get something shipped quickly).
When using the P-Card, fill out the form in the folder and email Carol the OFFICIAL email confirmation that shows tax paid/not paid, as well as a business purpose.

Delivery address:
Name
496 Lomita Mall
Durand 102
Stanford, CA 94305

When your packages have been delivered, you will get an email to pick up your items from Durand 110 (copy room in admin office space next to kitchen)

Purchasing chemicals and using Chemtracker
We keep an inventory of all chemicals in our laboratory; it's important to update this as soon as a new chemical arrives or any chemicals are used up.

Before purchasing a chemical, check that we do not already have it in our inventory on Chemtracker, and also check the Stanford free chemicals website (freechemicals.stanford.edu) to see that it's not available on campus.
Make sure that you read up on proper handling, storage, and disposal of the chemicals you'll be using. If you have any questions or concerns, please ask a lab mate.
Check with an older student or synthesis papers if you're not sure about the purity of the chemicals you're buying; often there are many, many options.

Suppliers of chemicals on campus include the Fisher Store on the first floor of Lokey; they have many solvents and some reagents. The Biostore also carries solvents. Be sure to BRING A SECONDARY CONTAINER when going to purchase chemicals on campus so that you can bring them back to lab!
The secondary container is located below the computer tables in the wet lab (it is clean and you can handle it WITHOUT gloves - make sure to keep it clean for others).

It's often less expensive to purchase reagents online, although you may need to account for a wait time before your order is approved. Email Sashi (sushi.ram@stanford.edu) directly to expedite approval.

Once your chemical arrives, update our chemical inventory in Chemtracker (http://www.stanford.edu/dept/EHS/prod/researchlab/chem/inven/index.html and https://stanford.chemtracker.org/?state=login). Sign up for an account.
1) Load the Dionne group inventory by running a Search for "Dionne" in Chemical Owner and clicking Run Query.
2) Once you are able to view the inventory ("All Matching Inventory" has chemicals listed in it), click Add.
3) Fill in the required information for your chemical. You might want to add the supplier and product number for easy replacement in the future.
4) Click Add Record

5) Your new chemical should now show up in the inventory.
6) A critical safety measure is storing chemicals properly. As you learned in the Axess safety training, Stanford has organized chemicals into storage groups. To find out the proper storage location, you can get an Inventory Report (under the list of chemicals). Select Storage Group Update Report and you'll be able to find your chemicals listed with storage group.
7) Label the bottle with the storage group before you store it.

Purchasing optical elements and updating optics inventory
We keep an inventory of all major optical elements in our laboratory, such as filters, spectrometers, and gratings. It's important to update this as soon as new elements arrive. The inventory is located on our group drive.
If you are purchasing new laser sources, please talk to Alan about writing an SOP and registering the laser.

Getting ready for doing experiments!
Make sure you have gotten instrument-specific training from your mentor before starting an experiment in the labs. Please go over the mentor-mentee checklist (located on our drive) and sign all relevant SOPs.

We have a sign-up system using a google calendar for the following equipment:
1) Simulation computers
2) Hoods in the wet lab
3) UV-Vis spectrometer in the wet lab
4) Angstrom in the wet lab
5) Optics equipment (lasers, spectrometers)
6) AFM in the optic lab
7) Hoods in the downstairs lab
Contact Katherine about getting added to these calendars. Lab policy is that you forfeit your time if you're half an hour late; if there's high demand for whatever equipment you're using, please be considerate of others and reserve only what you need :)

The Wet Lab (Durand 190)
Talk to Chris, Michelle, or Alice about general wet lab safety measures like wearing safety goggles, lab coats, gloves, and waste.

For training and information on specific instruments, please talk to the gurus below. The first name on the list is your primary contact, but if they are not available, please see the others for assistance:
Hoods & Schlenk line: Chris
Angstrom: Michelle, Shing Shing
Gas cylinders: Alan
Glovebox: Daniel
Spin-coater: Fariah
UV-vis & fluorimeter: Alan

The Optics Lab (Durand 174)

Talk to Alan, Michelle, or Alice about general optics safety like wearing laser safety goggles.

For training and information on specific instruments, please talk to the gurus below:
Lasers: Randy, Elissa, Jeff
AFM: Jack, Yang
Microscopes: Alice, Katherine
CL holder (optics + SNSF): Fariah, Stefan, Daniel, Michal

The Bio Lab (Durand 061)
Talk to Loza or Shing Shing for general information and capabilities of the bio lab below the main office. This space is shared with the Appel group and includes fume hoods, tissue culture hoods, and a small optics space for bio-related experiments.

For training and information on specific instruments, please talk to the gurus below:
BSC & incubators: Loza, Shing Shing
Hoods: Alan

Log books
For several instruments, including the Angstrom, microscopes, Ti:Sapphire laser, and UV-Vis, there is an electronic, Google doc log book located on our drive. Remember to fill this out at the end of your session so we can keep track of changes between users.

Shared Facilities
Stanford Nano Shared Facilities (SNSF) is comprised of shared facilities in various locations. Please visit https://snsf.stanford.edu/equipment/index.html for a detailed list.

FIRST, fill out an SU-13 form to set up a Badger ID (this is the log-in you use to enable all of the equipment) and tell SNL what account to use to pay for the equipment use (https://snsf.stanford.edu/about/join.html). Jen will then approve the form, which you'll turn in before your first training on any equipment. Look online to see who to contact in order to schedule training session.

Below are some common facilities our group uses. Please contact the listed individuals for more information about training, shadowing, etc.

1) Stanford Nanocharacterization Lab (SNL); located on first floor of McCullough

- Focused ion beam (FIB): David, Mark, Amr

- Sirion SEM: Katherine
3x 3 hour training sessions, followed by 3x supervised solo sessions during work hours (8:30 AM to 5:00 PM -- These are really hard to schedule, so get trained on the SEM early if you think you'll need it!)

- Magellan SEM (in the Nano building basement): Randy, Michelle
Need to get trained on Sirion and use that first, then contact Rich Chin for details about

Magellan-specific training (~1 training session and a sign-off)

- XPS: Chris, Alice
2x 2 hr training session

- XRD: Upconversion sub-group
X-ray safety training online, followed by an in-person quiz and movie screening at the EHS office, THEN
1x 2 hr training session

- Tecnai TEM: mostly everyone in the group is trained on Tecnai
2x 3 hour training sessions (additionally, 1 supervised final with Ann)

- Titan TEM (in basement of Nano): Fariah, Katherine, Michal, Daniel, Stefan

2) Stanford Nano Center (SNC); located in Nano building Spilker basement

-JEOL e-beam lithography/e-beam technique: David, Michal, Rea, Michelle
Contact Rich Tiberio.

- NanoSEM
Contact Rich Tiberio. This machine is located in the clean room near the JEOL e-beam, and if you just need a good SEM you may find the Magellan to be more useful.

- NanoSIMS
Contact Chuck Hitzmann for training.

3) Stanford Nano Fab (SNF); located in CIS-X
- Film deposition, RIE etching, oxidation furnaces, cleanrooms, wet benches: Michelle
- Photolithography: Michelle, Amr

4) Soft & Hybrid Materials (SMF), located within the Shriram Building
Please talk to Randy and Michelle

5) Flexible clean room, located in Spilker
Run by Tom Carver
- wet benches, microscopes, post and pre-lithography, gold etching

6) Stanford Microscopy Facility CSIF (in Shriram or Beckman Center)
LSM 780 multiphoton laser scanning confocal microscope in Shriram: Alice

7) nano-patterning in Spilker: Randy

8) Horiba Labram Raman in Spilker: Shing Shing

9) ICP: Ucponversion sub-group
Run by Guangchao Li (gcli@stanford.edu)

Simulation Computers & Methods
Software can be found on our simulation computers. Feel free to ask any of the simulation gurus below for help using specific analytic methods.

Simulation computer gurus: David, Mark

1) Lumerical/FDTD: Mark, Michelle, Yang
A free 30-day trial version of Lumerical is available on the website; you need to fill in some information about yourself and the lab for them to activate it. Otherwise, you can use Lumerical on any of the simulation computers.

2) Comsol/FEM: Mark

3) BEM: Fariah, Katherine

4) Matlab: Shing Shing

5) Other (Mie Theory, RCWA): Fariah, Katherine, Yang, Shing Shing

Literature
To keep updated on the latest research, we recommend

1) Papers/Mendeley
Both are very useful programs for sorting, reading, and searching for research papers. "Papers" is designed for Mac, and can be purchased with a student discount for about $20. Mendeley is compatible with Mac and PC and can be downloaded for free.

2) Feedly
A great way to keep up with the literature; just subscribe to the feeds of your favorite journals and Feedly will compile their RSS feeds in one site; you can assign searches for keywords based on your research or get the entire feed for a journal. Journals that many of our group members follow include:

Nature
Science
Nature Materials
Nature Photonics
Nano Letters
ACS Nano
JACS
J. Phys. Chem. C.
Angewandte Chimie
Chemistry of Materials
Physical Review Letters
Optics Express
. . .

3) Paperpile
Organize papers and create a library through your web browser, subscription is ~$3/month

Writing
1) Overleaf
It's like google docs for LaTex. A great resource for writing papers collaboratively. Sign up for free with your Stanford email account