

Welcome to the Fordyce Lab!

A guide for new members (and forgetful old members)

People To Know

<u>Lab Admin</u> (Administrative Associate, BioE)	Angelica Castellanos ancastel@stanford.edu
<u>Accountant</u> (Genetics)	Eileen Yee eileeny@stanford.edu
<u>Building Manager</u> (Shriram)	Vinny Toth v9toth00@stanford.edu

[Org Chart](#), [Directory](#)

Scheduling

<i>Point of contact</i>	<i>Role / Can Help With...</i>
<u>Lab Admin</u>	Scheduling with Polly; booking rooms
Connor	Coordinates Group Meeting

Scheduling Overview

- **Group Meeting** (*weekly - you should attend*)
 - Tuesday 9:15 - 11:00 AM, location varies
 - Generally, there are two 45 min slots for either:
 - 2 lab member presentations
 - 1 presentation + 1 activity (*ex: 1st paragraph of paper; favorite picture*)
- **Subgroup Meetings** (*biweekly - you should attend one*)
 - MITOMI-related research: Friday 9:00am - 10:30am, location varies
 - Bead-related research: Friday 10:30a - noon, location varies
- **One-on-one Meetings w/ Polly** (*biweekly - schedule with Lab Admin*)
 - Permanent Members: 45 minutes, Polly's office
 - Rotation students/undergrads: 20 minutes, Polly's office
- **Instrument / Equipment Reservations**
 - Microscopes (Setup1, Setup2, Setup3, Setup4) [Setup 1 can image beads; all can run MITOMI]
 - Bead Synthesis (Beads 1, Beads 2, Beads 3) [Beads 2 in cleanroom]
 - PCR (SimpliAmp, Veriti, ProFlex)
 - Arrayer
 - Peptide Synthesizer (shared with Bogyo lab)
 - MITOMI Wafers

The lab Google account [fordycedata@gmail.com, [BPTv4?TraF;ED7,](#)] has several calendars. Login to this account and share these calendars with your personal calendar/devices to stay up to date.

Accounts and Logins

<i>Point of contact</i>	<i>Role / Can Help With...</i>
Tyler	NAS account / management
<u>Lab Admin</u>	Access to iProcurement

- **Lab Website:** See *Lab Login* section (password: Eu:YVO4)
 - Has protocols, designs, and other useful info
- **Lab Google Account** (fordycedata@gmail.com) ([BptV4?TraF:ED7.](#))
 - Add useful calendars from here to your personal calendars/devices
 - Drive contains useful forms and spreadsheets for running the lab
- **Slack:** Most communication between lab members takes place here.
 - Sign up at [fordycelab.slack.com](#) using your Stanford email.
- **NAS (Network Attached Storage):** Connect to our lab's common file storage from any computer (personal or lab) to store data, protocols, and presentations (*add your own!*)
 - Access: Ask our point of contact
 - To show up in Finder/Explorer (vpn required off-campus):
 - Mac: *Finder > Cmd + k > "smb://FordyceServer/fordyce_lab" or "cifs://FordyceLab"*
 - Windows: ask a Windows person
 - ssh: talk to point of contact
- **Printers: will be switched over to Cardinal Print**
- **iProcurement:** used for ordering and purchases
 - Access (permanent members only): ask Lab Admin; STARS training required
- **Freezer temperature monitors**
 - [temperaturestick.com](#) is the website where you can log in and view data/request alerts; the username is [fordycedata@gmail.com](#) and the password is k33pinyerc00l.

Optional Accounts / Resources:

- **CMGM:** Lots of good software
- **MSKC:** Instrumentation (qPCR, FPLC, ...), expertise in crystallography; across the hall!
- **SUMS:** Open-access mass spectrometry
- **Physics Store:** Lots of hardware / parts in stock; just a quick walk from lab (can get after hours access)

Orders + Purchasing

<i>Point of contact</i>	<i>Role / Can Help With</i>
<u>Lab Admin</u>	Questions about ordering, iProcurement, receipts
Connor	Common Supply Ordering
Scott	Help with Form for Reimbursement

Group vs Individual Orders

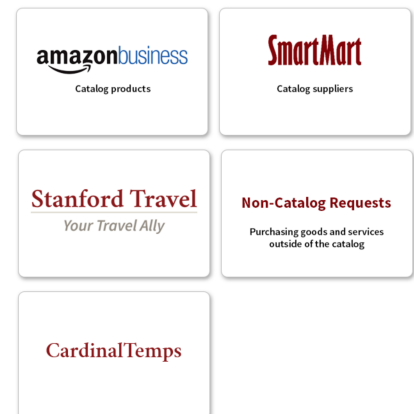
- Common items (gloves, tips, buffers, antibodies, etc) are critical to keeping the lab running smoothly. If you notice that something is getting low (or you take the second-to-last box of anything), notify the point of contact RIGHT AWAY! (see Slack [#group_orders](#))
- Do we still use the whiteboard for group orders? Or just the Slack channel?
- For items specific to your project, you / your mentor will be expected to order them yourselves. It's a good idea to consult with Polly before making large purchases (over \$400).

How to Place an Order

Almost all lab orders should be placed through [iProcurement](#) (*aka* Oracle Financials). You will need to take a STARS training to get setup with an account (ask [Lab Admin](#)). Seek guidance from an experienced lab member the first time you place an order.

Instructions for ordering:

- Always start by logging in to [iProcurement](#)
- Within iProcurement, look for your item within (in this order):
 - Amazon Business
 - SmartMart (*major suppliers like Thermo, VWR, BioRad, ThorLabs...*)
 - Non-catalog Requests: (*P.O. - Purchase Order*)
 - Extreme circumstances: (*P-Card may be used WITH APPROVAL from Polly - see below*)
- After checking out from one of the above options, you should create and submit an iProcurement requisition
 - A prior admin made a helpful guide (see **Purchasing** in the lab website's login area).
- Record your purchase in the [order spreadsheet](#)



Other Purchases (form)

See the form.

Odds-and-ends expenses (food for lab talks, post-doc candidate visits, conference registrations, memberships, flights, ...) require a [Business Purpose](#) describing how the purchase relates to the lab's function. Lab members making such purchases have two options for payment:

- **P-Card, T-Card** (Lab credit cards for **P**urchasing, **T**ravel)
- **Personal Expense w/ Reimbursement** (Pay with your own funds, submit receipts, and get reimbursed)

The P-Card and T-Card are useful for avoiding large charges to your personal accounts, *but their use is a privilege.*

You must post your receipt to Slack #receipts right away, along with a business purpose! Failing to do this could mean loss of P-Card/T-Card privileges.

Section on Travel (TODO)

Flights: Within iProcurement, use *Stanford Travel / Egencia*

Hotels: ?

Meals: Keep all receipts

Lab Organization and Upkeep

<i>Point of contact</i>	<i>Role / Can help with...</i>
Craig	Autoclaving (liquid / solid protocols)
Arjun	Autoclaving (liquid / solid protocols)

TODO: Lab Jobs?

Chemicals

- ChemTracker is (unfortunately) Stanford's database to inventory chemicals
- To maintain an up to date inventory, all chemicals should be logged **In** on arrival and **Out** (before disposal)
- The inventory computer is usually logged in with someone's ChemTracker account
 - To get your own ChemTracker account, see this [webform](#)

Dishware

Members are responsible for their own dishware. In general, dishes can be placed in the right sink (non MilliQ) and a member autoclaves common dishes once a week, but if you are generating many dishes for an experiment that cannot be easily combined with the common weighing and buffer dishes, please autoclave the dishes independently.

A communal floor autoclave is located down the hall. Culture tubes must be sanitized the day of use in the MilliQ sink.

Plasmid Repository ([spreadsheet](#))

- Record Information about plasmids in the spreadsheet
- All plasmids created should be stored as both mini-prepped DNA and as a glycerol bacterial stock (in the -80C freezer). Numbers for your plasmid are assigned based on which project the plasmid is for and the order in which the plasmid is cataloged into the system.
 - In the NAS > General > Plasmid sequences, deposit the annotated plasmid sequence in the form of a FASTA or genbank file; label the filename according to the plasmid number
 - More detailed instructions for plasmid storage can be found [here](#).

Restriction Enzymes ([spreadsheet](#))

- Restriction endonucleases are stored in a few main locations around the lab.
- The spreadsheet contains a list of enzymes and describes where they can be found.

Microfluidic Device Tracking ([form](#) / [spreadsheet](#))

- Keeping track of whether devices are working well and if/how they are failing is really important for troubleshooting device problems/diagnosing reagents as they go off.
- When you run a microfluidic device, please enter information about the device run using [the form](#). Please feel free to edit this form in order to make it more useful!

- To see recent device performance/issues, answers are stored in [the spreadsheet](#).

- Newer tracking sheet:

https://docs.google.com/spreadsheets/d/11JpWIWpTdrgJAZZYmplkift16Jy-EcbHPtMLq_3BNRM/edit#gid=0

Lab Computers and Software

<u>Point of contact</u>	<u>Role / Can Help With...</u>
Tyler	GitHub access Network access for lab computers
Kara	Network access for lab computers
Martin Anthony Paredez	IT Contact

CMGM

We have a subscription to this resource, which is available through Stanford Genetics. It provides licenses for a ton of software (LabVIEW, Matlab, Comsol, Geneious, SnapGene, Adobe products...). To use, create a personal login, then associate your computer with the Fordyce Lab by clicking 'new user, new computer.' Your access should be approved within two hours. Be sure to download the *Key Server*, because it is required to run most CMGM software.

GitHub

Lab code (for hardware automation, data analysis, etc.) is stored under the lab's GitHub organization. You should set up a personal GitHub account and ask our [point of contact](#) for access to the lab organization.

- GitHub should be used only to house code; data should be stored on our NAS or Google Drive.
- Introductions to git can be found [here](#) / [here](#); an introduction to GitHub can be found [here](#).

Personal Computer Backups

One of the saddest (and most preventable) tragedies of a graduate career is the loss/theft/irreversible damage of a laptop containing months or years of precious (and often irreplaceable) data. **YOU ARE RESPONSIBLE FOR MAKING SURE YOUR DATA IS BACKED UP REDUNDANTLY IN MULTIPLE PLACES!** *I (Polly) highly recommend using an online cloud storage system as well as creating a bootable backup clone of your hard drive. I am more than happy to pay for the backup drives you need and an easy program (like Carbon Copy Cloner) to help you do this regularly!*

Lab Computer Network Access

The IT departments from the *School of Medicine* and *School of Engineering* would like all computers that access the Stanford network to be compliant with their security standards. However, virus scanners/updaters/encryption requirements have a notorious tendency to interfere with the control of hardware and instrumentation. Many of our computers are non-compliant, so despite our efforts to work with IT they are frequently dropped from the network.

TODO: update this

If you are working with a computer that requires an exception, please complete this survey

(<https://uit.stanford.edu/security/exception-request>) and write “**Device used only for instrumentation and closed-network data analysis**” in the exception field. Also please email Martin Anthony Paredes

<mparedes@stanford.edu> to follow up - he has worked with us on multiple computers in the lab and knows how to do this!

- **Note:** If you have any questions, please talk to an experienced lab member or one of the points of contact above. It's MUCH easier to get their input than try to deal with someone new in IT, as these requests often drag out for months and it slows down research.

Safety, EH&S, and Chemical Inventory

<i>Point of contact</i>	<i>Role / Can help with...</i>
Scott	Lab Safety Coordinator

- **Hazards:** (update from BioRAFT > Compliance Dashboard)
 - Biological
 - Biological materials
 - Biological materials - Biosafety Level 1
 - Biological materials - Biosafety Level 2
 - Recombinant and/or synthetic nucleic acids
 - Chemical
 - Any hazardous chemicals
 - Engineered nanomaterials
 - Environmental hazards
 - Flammable chemicals
 - Irritants
 - Non-Ionizing Radiation
 - UV light sources
 - Physical
 - Inert compressed gases
- **Trainings (see STARS on Axxess):** Chemical Safety Training, Compressed Gas, Bloodborne Pathogens, Biosafety
- **PPE (Personal Protective Equipment):** Since UV is used in the lab, please use the goggles at the front of the lab when indicated by the lab signs, even during your bench work. Gloves should be used for most wetlab work. Lab coats should be worn when working at the hood.
- **Food and Drink:** Not allowed in lab!
- **Chemical Inventory:** Whenever a chemical is received
 - 1) Record the chemical in ChemTracker (see Lab Organization section for more detail)
 - 2) Write the *date* and *storage group letter* on the container (lookup storage group [here](#))
 - 3) Store the chemical according to its storage group (overview [here](#))
- **Biohazard Waste:** Picked up monthly by Stericycle. Bacterial culture waste goes in the large Biowaste red container in the main lab and tissue culture under the culture hood.
- **Chemical Waste:** EHS requires separate organic waste with labels. You must use the fume hood for all organic reactions.

Fabrication

<i>Point of contact</i>	<i>Role / Can help with...</i>
Scott	3D printer / laser cutter
Adam	Cleanroom Access (Director of Foundry)
Kara	Cleanroom Access (Superuser)

3D printer / Laser Cutter

- 3D printer is in Quake lab
 - Training: talk to point of contact
 - We sometimes order consumables (modeling/support filament, modeling bases, extruder tips) from Amtek
- Laser cutter (acrylic/wood) is in Shriram
 - Talk to Scott if interested

Cleanroom access

- We are fortunate to have access to a huge (and really nice!) Microfluidics Foundry in the basement of the Clark Center.
- To access this facility, you must go and get forms from the Clark building access office (which is located just to the right of Nexus). This will include a list of EHS training courses you must take - once you have completed them, Polly will sign the form.
- You must also get trained to use the equipment within the facility. Coordinate a time with a point of contact when they are doing some fabrication and shadow them.

Photolithography design files and masks

- Talk with one of the points of contact about AutoCad design considerations and preparing your designs for printing into transparency masks by FineLine printing services. There are a number of constraints on designs imposed by the printing conversion software, Gerber plotting, which can make your life a lot easier to know ahead of time (before you even begin your design!) we are also happy to provide example designs. Most of the lab's AutoCad designs are available in the Shared AutoCad folder on the Server (see above) which you are free to use as a diving board for your own creations.

Instrumentation and Resources

To be completed (probably move to spreadsheet and link)...

<i>Name</i>	<i>Location</i>
Setup 1: Nikon Ti-E	Lab: Microscope Room
Setup 2: Nikon Ti-S	Lab: Microscope Room
Setup 3: Nikon Ti-S	Lab: Microscope Room

Setup 4: Nikon Ti-S	Lab: Microscope Room
Beads 1	Lab
Beads 2	Cleanroom
Beads 3	Lab
ITC	Hielshorn Lab (Contact: Brad Krajina)

Lab Culture

Music

The lab has an Amazon Echo (Alexa). You can bluetooth pair your device by pressing the device's pair button. You may also ask Alexa to play Pandora stations (the lab has a general account).

Music can create a great working culture and community-feel so members are encouraged to choose stations they like and share their music with others. If you need quiet for a certain day or experiment, or feel uncomfortable with any music choice, everyone's first priority is to be inclusive and considerate, so don't hesitate to say so if you want to turn off the music for a while or change the station.

Food and Coffee

TODO (coffee, lab snacks, no dirty dishes)

Retreats:

TODO

Conferences:

Attending conferences is an extremely important part of your graduate or postdoctoral career. Conferences are a chance for you to see cutting-edge science months before you will have an opportunity to read about it in journals, and also a chance for you to meet other people in the field and network. When you attend conferences, you are also representing the lab to people around the world and getting the word out about the science we are doing back here. To me, meetings are part awe-inspiring, part humbling, and part nerve-wracking -- which is probably about the right combination :).

To help ensure that you have the most productive conference possible, here are a few lab guidelines regarding abstract, practice talks, and posters:

- You should provide a draft abstract to everyone who will be an author on the poster or talk *a week prior to submission* so that other authors have an opportunity to comment and make changes so that the abstract is something they have signed off on and are comfortable with.
- **You must provide a draft abstract to me (Polly) before you may register for a conference. This is a firm rule! Conferences are a tremendous opportunity, so I want to make sure you make the most of them.**

- For an extramural conference where you will be giving a talk, you **must** schedule **at least two** practice talks *prior to your departure* such that you will have sufficient time to address the comments provided by your audience.
- For an extramural conference where you will be presenting a poster, you **must** print out a copy of your poster and schedule a time for everyone to view it and make suggestions for how to improve it.

An important thing to remember about all of these presentations is that you have many opportunities to get feedback and practice, but only one opportunity to actually present your work at the conference. Make it count!

Abstract and manuscript submission

Before any abstract or manuscript is submitted, it is legally required that all authors sign off on the manuscript. This can have legal repercussions, so it is absolutely essential.

Expectations and Lab Philosophy from Polly:

Lab notebooks and record keeping

Keeping a well-organized and detailed lab notebook is both important for scientific success and legally required for anyone working in a lab supported by NIH funds (which we are).

- A well-planned experiment has a much greater chance of success than a spur-of-the-moment experiment. Keeping a detailed and organized lab notebook can help prompt better experimental planning.
- If you have everything from your experiments written down in detail (including important information like product/part numbers and lot numbers for reagents!), it is much easier to replicate an important result. This is often crucial to not wasting time towards your PhD thesis/postdoc work!
- Taking time to annotate what you did and the results of the experiment can force you to reflect on what the data are telling you and aid in planning the next steps.
- If you decide to run off to join a startup that is the next Uber for something in Silicon Valley, keeping careful notes will make it more likely that the time and effort you invested is not lost and the project continues to fruition :)
- NIH mandates that all lab notebooks be kept for at least 5 years and the raw data be available.
- Careful lab notebooking can be crucial if you are ever involved in patent litigation relevant to a commercial enterprise.
- Your lab notebooks can be subpoenaed! This has actually happened to me and is a huge pain in the ass. If it happens, keeping an organized and detailed lab notebook can protect your career.

People in the lab generally use one of three different electronic lab notebook formats:

1. OneNote - ask Arjun about this if you are interested in using OneNote.
2. Quiver - ask Tyler, Craig, or Adam if you are interested in using Quiver.
3. Benchling - ask Kara if you are interested in using Benchling.
4. If you are very attached to having a paper lab notebook, please let me know and I will purchase a LiveScribe system for you.

Whatever platform you choose, please share your notebook with me and have your notebook updated in advance of our meetings.

Subgroup meetings

We are lucky to be at one of the best universities in the world - you and your peers are tremendously talented and creative people. When I think back on my time as a graduate student and postdoc, the most useful suggestions I got about my data often came not from my PI, but from my peers in the lab. To facilitate a community atmosphere where people think deeply about one another's projects and how they can work together to drive progress, as well as benefit from one another's suggestions and insights, we have bi-weekly subgroup meetings where everyone presents their work in a round table format. For these to be as productive as possible, everyone **must** bring a slide deck, a print out, or their lab notebook so that everyone can see either their detailed, proposed experimental plan, recent raw data, or results from data analysis. Even when you feel like you 'don't have anything to present', you likely do! If you're planning to clone some constructs, you should present information about the constructs you'll be making (*e.g.* what tag you will use, what linker sequences, *etc.*) and exactly how you'll be testing them once you make them. If you have data you don't understand, get it together in a format where other

people can see the raw data and help think through possible ways to analyze it. Learning how to convey specific information in as efficient a way as possible is a useful skill -- and it allows you to harness the brainpower of everyone else in the room.

One-on-one meetings

I meet with everyone in the lab one-on-one for 45 minutes every other week. My goal during these meetings is to be as helpful as I can be. In the past, I have sometimes felt like my advice hasn't been as effective as it could be because I didn't have enough information to really understand an experiment or its results. To address this, I request that you make sure that either your lab notebook is updated the night before the meeting (so we can talk specifically about your work together) or that you have prepared slides describing experimental layouts and/or any data. I also suggest you document notes from the meeting (including the goals that we lay out at the end of the meeting for your next 2 weeks of research) - at the start of the following meeting, we can go over the previous goals and see how the progress looks.

Group meetings

Learning how to give clear and well-motivated talks is one of the most important skills you can gain as a graduate student or a postdoc! Being a good speaker helps you as an academic (securing a job, securing funding, teaching, attracting students), in industry (securing a job, pitching ideas, communicating progress, securing funding), and in pretty much any job I can think of! Group meetings are the perfect venue for you to practice and improve on this. To get the most out of these speaking opportunities, we have instituted some new rules for group meetings:

- Each group meeting presenter must keep their talk to 45 minutes maximum. To help people do this, no more than 22 slides can be prepared. As with a seminar or other talk you might prepare, your goal is to complete your background/introduction within 5 minutes (10 minutes max) - you should definitely be talking about data by 10 minutes in! If you are in the early stages of a project, it's fine (and actually very helpful!) to present background for the entire presentation - but this should be a literature review of relevant information pertinent to the project.
- **When you are not presenting, make an effort to participate.** Ask questions, even if you're afraid they're ignorant/silly - this is the fastest way for you to come up to speed on what's happening in other people's projects, and can help the speaker understand what is not clear to their audience. I really value group participation and encourage **everyone** to participate as much as possible.
- Give feedback to your peers (and to me) about their presentations and how you think they could be improved.
- Please add all presentations to the server to keep this repository up to date.
- Every 2 group meetings or so, we will have a group activity that I choose! The purpose of these activities is to give us all an opportunity to practice things that we might not get a chance to practice very often but are essential for success in graduate school - plus, it's fun and interesting for me to hear what you all come up with!

Rotation Introduction meeting and Summation Presentations

- Rotation students present a short and fun introduction each term on their path in science and their goals for the term. This is an informal session with snacks where you (the rotation student) get to introduce yourself to the group so that all the current members get to know you and learn your goals so that we can best help you have a great experience during your time in the lab (and we also learn what unique skills you bring that we may lack!). Kara will send out previous examples a week before presentations. Presentations are typically in the 2nd week of the term and are 15-20 minutes in expected length.

- A summation presentation is required at the end of the rotation at a Group meeting, normally scheduled for the last week of the quarter, and is expected to be 30-40 minutes in length with a full presentation of data and documentation for subsequent students to continue the project.

Practice talks, fellowship applications, and manuscripts

All talks, applications, and manuscripts get better with constructive feedback, and getting critical feedback from your peers *before* presenting a talk at a national meeting or submitting an application or manuscript is far preferable to trying to figure out why something was poorly received. In addition, learning to *give* constructive feedback is a valuable skill (and helps improve your own talks and writing). I encourage everyone to schedule (and attend) one another's practice talks and to circulate applications and manuscripts around the lab before submission. Take the time to read each other's applications *deeply* (this takes hours) and think hard about how they can be improved.

To reiterate the points mentioned above - you must send your abstract to me for comments *before you can register for a conference*. In addition, you must have scheduled at least 2 practice talks and printed out a copy of your poster for your labmates to review *before you can depart for a conference*. This is really important for you -- external meetings are your chance to network with colleagues from around the world, impress them with your talent and hard work, and make the connections that will benefit you in your future career! This is also really important for me - the other faculty at these meetings are the faculty that will be writing letters for my tenure case, so I really appreciate your making the effort to represent the lab in the strongest way possible.

Lab hours

I am less concerned about the number of hours that you work than your overall productivity. In my experience, there is a minimum number of hours that you have to work in order to be able to get experiments done and there is a maximum number of hours beyond which there are diminishing returns. This number is highly personal and depends on how efficient you are with your time. In general, taking time to plan experiments well is the most high-return investment of time.

Lab citizenship

Be a good lab citizen. If you notice something is low, *order more*. Don't use up the last few mLs of a buffer without making more. Do your lab job. Wash your dishes. Clean up after yourself. If you break something, own up to it and take charge of replacing it - everyone breaks stuff down and then. Keep reagents and tools organized. If you make a useful plasmid, take the time to describe the plasmid and create DNA and bacterial glycerol stocks that can be used by other people later. Taking the time to ensure that the lab runs smoothly makes everyone's science move faster and increases your chance of success.