

# BIO390.2 - Directed Research in Biology

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## Welcome

This is the first time I've offered this course, so we're all serving as guinea pigs here. We'll be making some of this up as we go along, but there are a number of common-sense guidelines that apply to this as to any laboratory experience.

This is intended as a chance for you to get your proverbial feet wet with a research project. You want to choose something that interests you, because to be really successful you're going to be spending a fair bit of time on your project, and if it bores you you're not going to put much effort into it.

## Jones Lab Policies

- Be considerate of your colleagues. Don't empty reagent bottles and not refill them. Don't leave a mess for someone else to clean up. Treat others the way you want to be treated. Be professional.
- When consumables arrive in the lab, write the arrival date on the container and enter it in the notebook: (item, date received, purchase order #, who received it)
- When opening a new reagent container, write the date opened on the container.
- When we're getting low on something, make a note of this fact on the board **at a minimum** if it's a reagent which needs to be ordered. If it's something we make in-house, make more.
- Clean up after yourself. Sometimes you have to run off to class or another activity, but you should never leave clutter on the benchtops, and things like dirty glassware should be washed up as soon as possible, but under no circumstance over 24 hours.
- If you don't know how to operate a piece of equipment, ask me or another lab member who has experience with it.
- If you think something's missing or broken, notify me ASAP so that I can investigate finding or replacing it as needed.
- Most important, enjoy this experience. Research may or may not turn out to be everything you expected, but hopefully you'll appreciate the challenges and sense of discovery and accomplishment it offers.

## Grading

I'm going to base your grade on a number of factors:

- Have you spent an appropriate amount of time on your project?
- Have you participated in at least some of our infrequently-scheduled lab meetings?
- Have you taken good notes of your work?
- Amount and quality of your output (note that this doesn't necessarily mean that your experiments worked — we can't control that — it means that you made a reasonable number of sincere and well-executed attempts)
- Final report — this should be approximately 10 pages long, written in the standard AIMRD format. We'll talk more about this as needed during the semester. (As an alternative, you may prepare and present a poster or talk at an appropriate meeting, conference, or symposium.
- Being an active and responsible member of the laboratory — there will be a lot of us sharing a very small space this semester, so it's especially important that you adhere to the [lab policies](#).

## Notebooks

Your lab notes are a long-term (think "permanent") record of your research. You are more than welcome to take a copy of them with you if you want, but the originals stay with the lab where the work was done; this is standard procedure out in the harsh "Real World" people keep trying to warn you about.

I don't care (much) about the medium you choose in which to keep your lab notes. I keep mine electronically now (with *many* backups!!!), but paper is fine as well. Regardless of the medium, your notes should invariably be:

- clearly dated
- well-organized (a pile of random paper scraps doesn't count as a notebook)
- legible
- accurate
- complete

I will provide a notebook if you'd like; let me know how you want to proceed.

For each experiment (or other section of your work), you should list

- the experiment's purpose — why are you doing this particular thing?
- the protocol you followed, either listing every step, or referring to an earlier page in your notes, or referring to a published protocol. As always, be sure to record any deviations from a referenced protocol (whether it was yours or someone else's): "I extracted the material exactly as on p. 14, but used a temperature of 50°C rather than 40°C."

- Present your results; include all the raw data in your notes (photographs, charts, recorder tape, small pebbles, whatever).
- Note any problems encountered; this will help not only in your analysis but will also serve as a valuable reminder if you repeat the experiment later.
- Record your interpretations and conclusions; what should your next step be?

## Time

How much time should you be spending on your project? For a one-credit course, you should be spending a minimum of 10 hours per week on it (and that's for a non-lab course to boot!). This is a half-credit course, so you should plan to spend at least 5 hours per week on your project. That includes reading background papers and preparing your final report/poster, not just time actually elbow-deep in your research.

Note that I don't expect you to punch a time clock here. Part of the experience is to help you better manage your own time. Also, how you apportion your time will vary depending on your project. Some of you might have a lot of set-up to do, with long periods of nothing much to do (waiting for fly cultures to eclose, for example) and put in 10 hours a week at the end of the semester. Others may have most of their working time up front and essentially finish their project in a few weeks. As long as you put in at least 80 hours of quality time over the course of the semester, I have no bones to pick with you.

## Prof. Jones

I'm here a lot — you know that. If you need to get in touch with me and I'm not around, the most reliable method is probably email (I sometimes don't realize I have voicemail for a day or two). If you need to speak with me and you suspect I'm not on campus (a rare event!), call me at home any time between 9 am and 9 pm. Students often tell me they don't feel comfortable calling me at home because they think I mind. Consider the logic here: there's nothing that says I have to give you my home phone number, yet I have done so in class. So *why* would I give you that number if I didn't want you to use it? I'll tell you the number when I see you; I'm not going to post in on the Web.

Here's a copy of [my current class schedule](#).