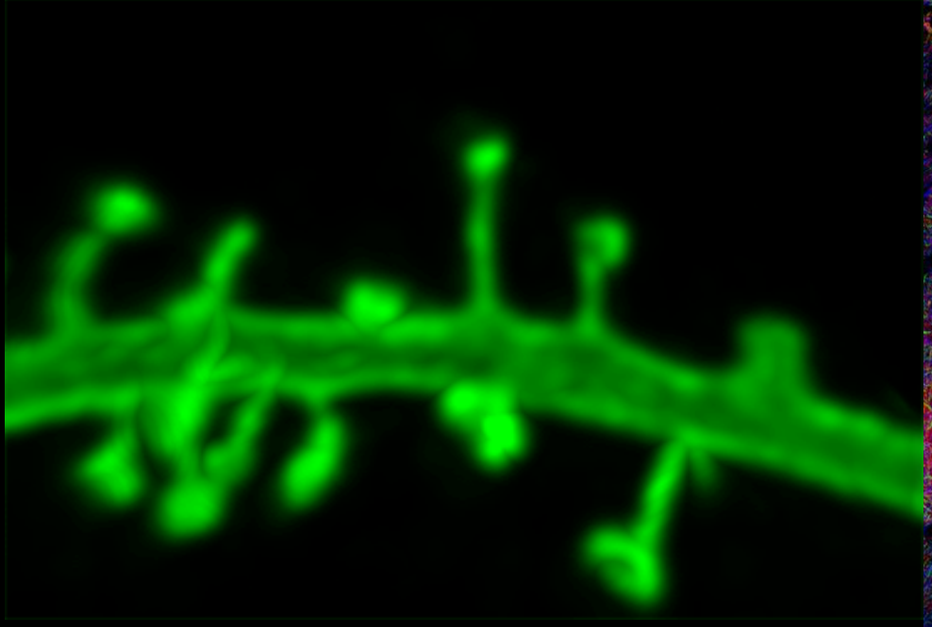
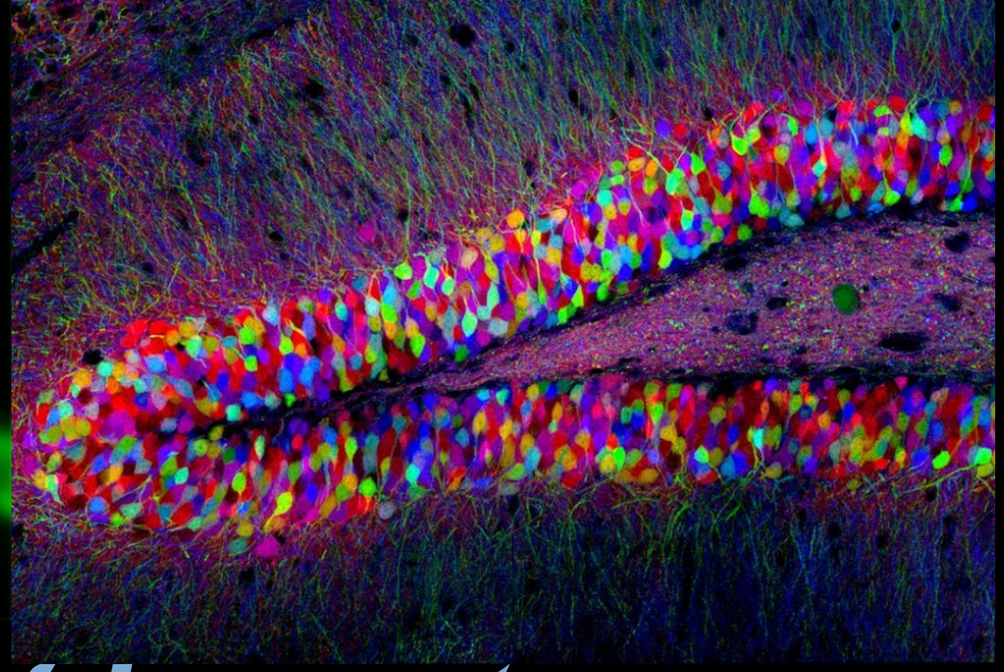
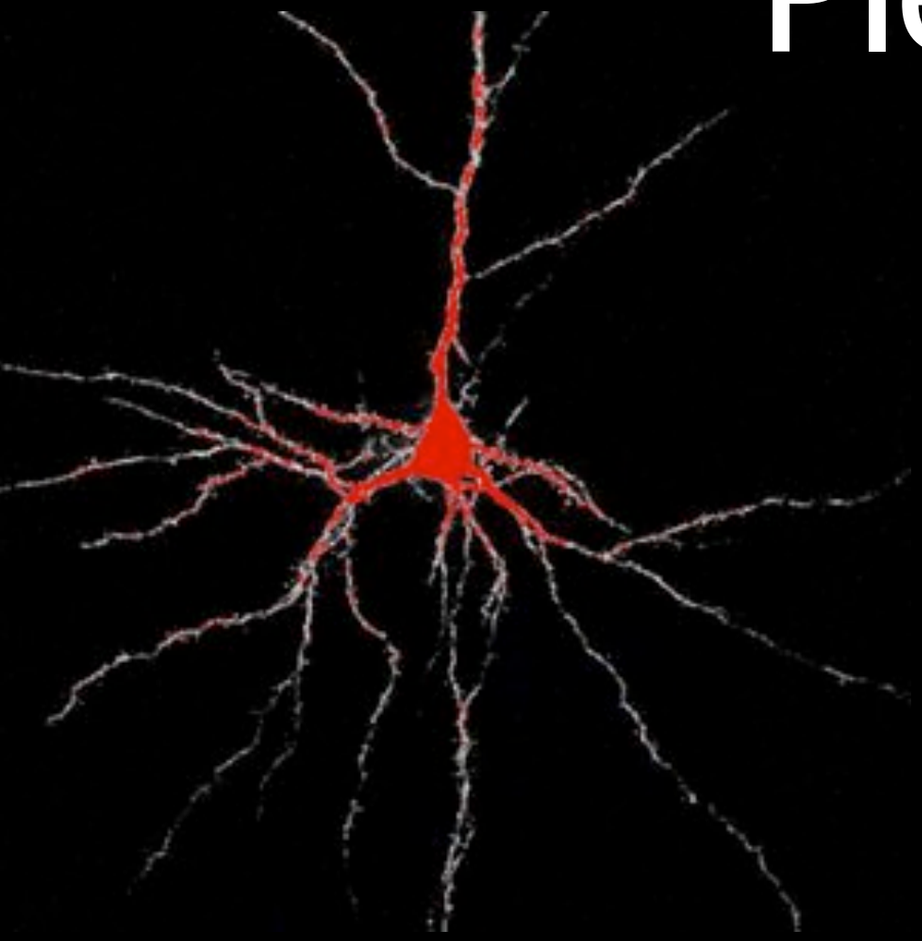


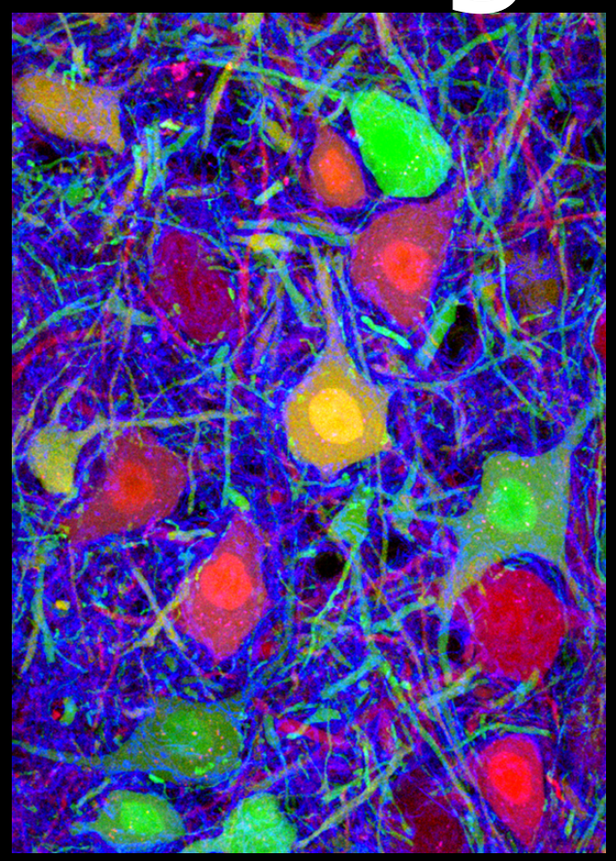


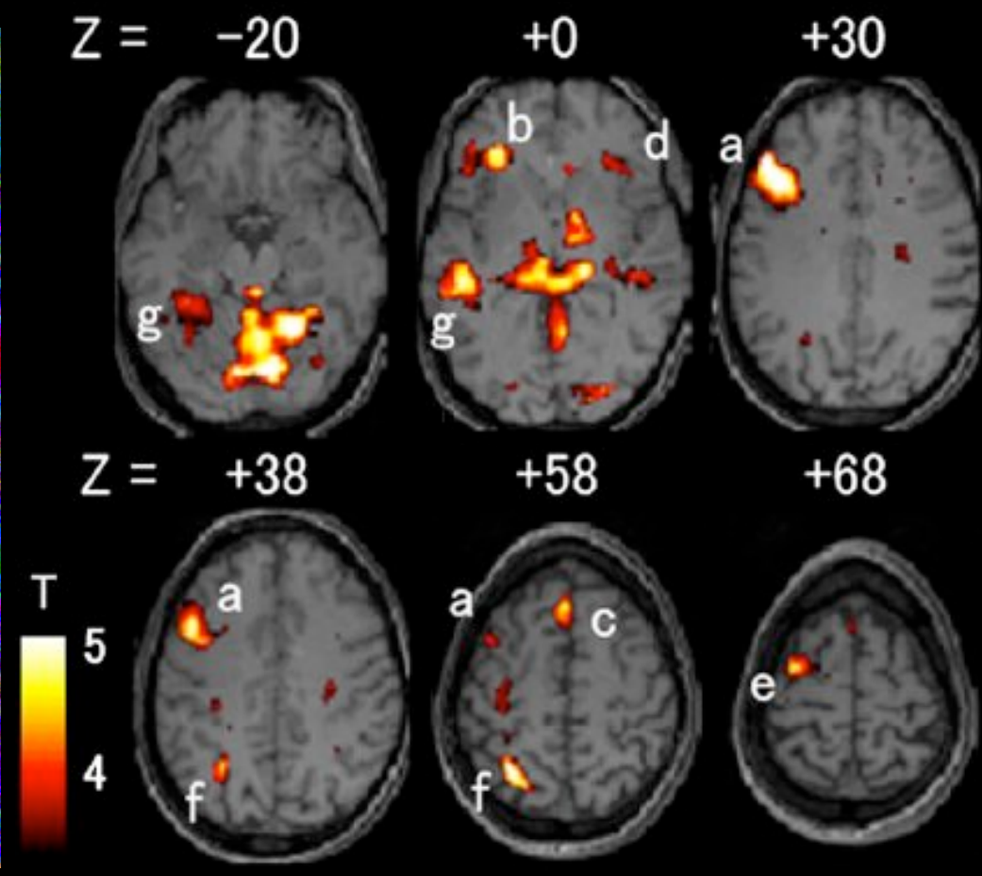


Junior thesis meeting

Please sign in







Why Write a Thesis?

- Harvard is a world-class research university
  - cutting edge science in 150+ Neurobio-related labs

- best way to experience research
  - take a project from A-to-Z (from planning to peer review)

- calling card for PhD or MD/PhD
  - talking point for interviews
  - see if research is the right career path for you

- forge a faculty mentor relationship
  - top minds in their fields, professional advice, letter of recommendation, etc.

- develop your skills as a scientist
  - emphasis on scholarship – you will become an expert
  - forces you to understand your work – professional-level presentation
  - learn how scientists interpret information and make conclusions

- opportunity for a long-term academic project
  - un-'cram'-able - valuable organizational/planning skills
  - sense of accomplishment

Thesis Timeline

- start in the lab by spring semester (enroll in Neuro 91!)
- junior thesis proposal due during spring reading period: Tuesday, May 2, 2017
- most thesis writers stay in the lab during the summer
- partial rough draft due during fall reading period: Tuesday, December 5, 2017
- thesis abstract due on study card day of senior spring semester: Friday, January 26, 2018
- thesis due on the Friday before spring break: Friday, March 9, 2018

Thesis Timeline

you are here

2016 → 2017

November

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Find a lab

Neuro 91 registration

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2018

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Thesis due

What should I be doing now?

- find a lab!

HARVARD UNIVERSITY HARVARD.EDU

Search

lifesciences
undergraduate education

Explore ▾ Concentrations ▾ Courses ▾ Research Resources ▾ People ▾ Teachi

HOME / CONCENTRATIONS / NEUROBIOLOGY /

Neurobio Guides

Neurobiology Resources

Neurobiology FAQs

Join the Synapses mailing Listserv
Updates on relevant events and news

Neurobiology Research and Thesis

Guide to Finding a Harvard Neuro Lab

Research Funding & Summer Opportunities
LS Research Opportunities Page

Thesis Writing

Neurobiology Careers

Check out our career guide:
What can I do with a degree in Neurobiology?

How to ask for a recommendation letter

Neuro Study Abroad

International Neuro Summer Internships
- Apply by Feb 2



NEUROBIOLOGY

- Neurobio Contact Us
- Neurobio Requiremer
- Neurobio Course Che
- Neurobio Courses
- Neurobio Tutorials
- Neurobio Guides
  - Careers
  - Finding a Lab
  - Neuro FAQs
  - Recc Letter
  - Thesis FAQs
- Neurobio Forms

How do I find a Harvard neurobiology research lab?

Step 1: Search for a lab.

The best method is to start your search on the web. Here are some helpful links:

a. **Neurobiology/MCB/CBS labs on the Harvard Campus**:
http://www.mcb.harvard.edu/mcb/faculty/research-area/neurobiology

b. The **Neurobiology website at Harvard Medical School** (HMS) has a general site that lists many faculty who have neurobiology research labs, both in Cambridge and at the various hospitals around Boston. Use their links at left to search by technique or research question:
http://www.hms.harvard.edu/dms/neuroscience/fac/ResearchArea.php

c. Harvard's MBB site lists some neuro labs that are looking for students: http://mbb.harvard.edu/pages/research-and-other-opportunities

d. The Harvard psychology department. Make sure the lab is doing 'cognitive science' ie, using an imaging method (fMRI, MRI, DTI, PET, EEG, etc).
http://www.isites.harvard.edu/icb/icb.do?keyword=k3007&pageid=icb.page18831

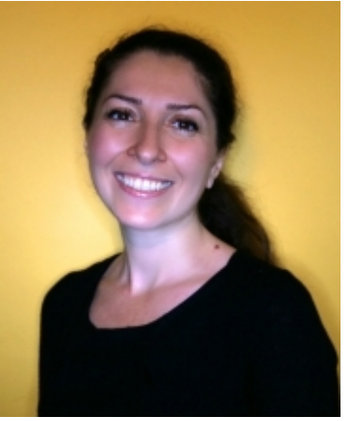
e. Search the Harvard Hospital research centers (check with us if you are unsure whether the lab is "neuro enough"):

   a. **Brigham and Women's:**
   http://www.brighamandwomens.org/research/depts/default.aspx

   b. **Beth Israel:** http://www.bidmc.org/Research/Departments.aspx

   c. **Dana Farber Cancer Center**:
   http://researchers.dana-farber.org/search.asp

   d. **MGH:**



More resources…

Search

lifesciences
undergraduate education

Explore ▾ | Concentrations ▾ | Courses ▾ | Research | Resources ▾ | People ▾ | Teaching ▾

HOME /

Research

Students in the lab



▾ How do I get started?

Many Harvard undergraduates participate in life sciences research at one of Harvard's campuses. If you are interested in research, the Life Sciences Undergraduate Research Advisor, Dr. Anna Babakhanyan, can help you navigate the process of finding a research group. She can help you:

- define your research interests
- navigate research group websites
- create and edit a science resume and cover letter
- identify and contact research groups
- apply for fellowships and funding
- integrate effectively into your research group & make the most of your research experiences

Before your meeting, think about what kinds of research interest you. What science courses did you enjoy the most? Did you read an article or hear a speaker discuss a topic that made you want to learn more?

▸ How do I know what interests me if I have never done research before?

▸ How do I contact the labs that I am interested in?

▸ What happens next?

▸ Funding Support

RESEARCH

- Harvard-affiliated Labs
- Research Opportunities and Funding
- LSURF poster event
- Lab Safety
- Transportation for Researchers
- Research Contact Us
- Conference Presentation Grants

Post-bac Jobs & Resources

Are you a graduating senior who wants to work in a lab for a few years before starting a graduate school or medical school? See Post-Bac Positions Listings and Post-Bac Resources.

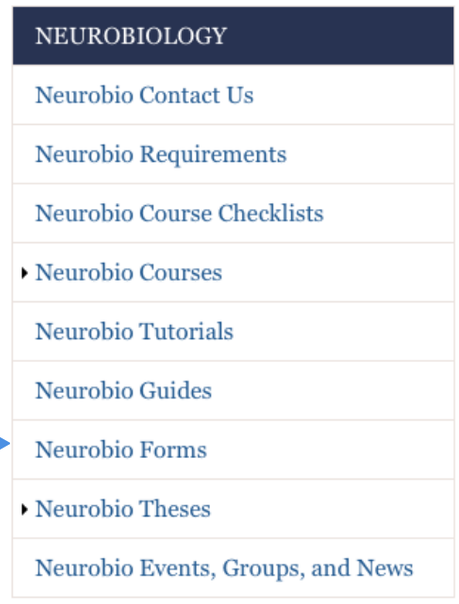
Research Blog Posts

Undergraduate Research Week is April 11-15, 2016

What should I be doing now?

- find a lab!

- spring semester – enroll in Neurobio 91
  - recommended but not required
  - commit to ~15 hours/week in the lab
  - replace 4th class
  - get academic credit for your research
  - PI assigns grade



- end of spring semester: junior thesis proposal

Thesis Timeline

you are here

2016 → 2017

November

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Find a lab

Neuro 91 registration

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Jr thesis proposal (same as 91 paper)

2018

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Thesis due

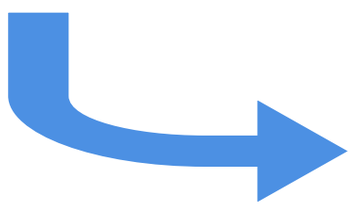
Junior thesis proposal

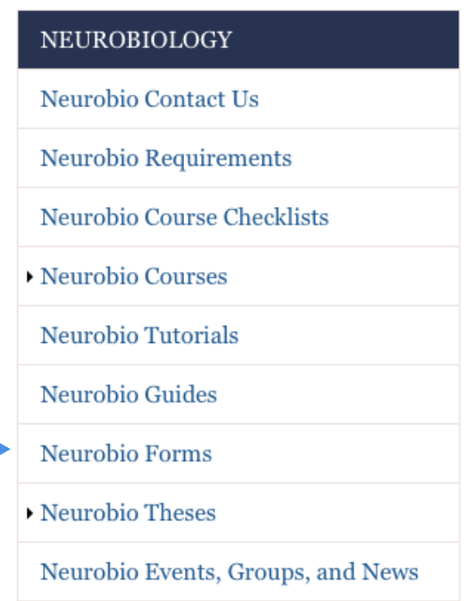
- due at the end of reading period: Tuesday, May 2nd
- 2 options:
  1. not enrolled in 91: Junior Thesis Proposal
     - 2-4 pages (double spaced)
  2. enrolled in 91: combined 91 report/proposal
     - 4-7 pages (double spaced)

- background & rationale, experimental approach, references
- subject to change

- allows us to approve the scope of your project and give you feedback over the summer

- your PI approves & signs this form
- download form from our website





Junior thesis proposal, continued

- If your research extends beyond a typical "neurobiology" project, you should discuss it with me before submitting the proposal.
- examples: human behavior labs, clinical work, immunology, etc.

Proposal specifics

- Objective: In one short paragraph, describe the overall goals and main objectives of your research.

- Background (1-2; 3-5 pages): provide the rationale and background for the project
  - read the relevant literature to provide a context for the question(s) you plan to address
  - end with a statement of your specific research question(s)

- Experimental Approach (~1-2 pages): describe the experiments you plan to complete and the specific methods you will use
  - include enough detail so that the reader will have a clear idea about what you plan to do in the lab.
  - will be used to ensure that your project is appropriate for a thesis in Neurobiology
  - do not just describe the overall research plan of the lab; be specific about the experiments you personally plan to do

Thesis Timeline

you are here

2016 → 2017

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Find a lab

Neuro 91 registration

Collect Data

Jr thesis proposal
(same as 91 paper)

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Thesis due

Summer in the lab - funding

- Herchel Smith
- PRISE
- Harvard Colle[illegible] Program
  - http://uraf.harvard.edu/research-funding
- Mind, Brain, and Behavior Award (Mary Gordon Roberts Fellowship)
  - http://mbb.harvard.edu/pages/summer-thesis-awards

February 9/14th!!!

Summer in the lab - housing

- DeWolfe Housing applications accepted starting around March (fill up fast, see HCURA for roommate match)
- summer school proctor
- Vanderbilt Hall at HMS (mid-June to early August)
- “HMS Trading Post”
- Harvard Real Estate Office on Holyoke St.
- Lesley University
- Harvard Business School sublets
- MIT fraternities (?)
- Craigslist
- talk to your building manager

Thesis Timeline

you are here

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Find a lab

Neuro 91 registration

Collect Data

Jr thesis proposal (same as 91 paper)

May

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June

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August

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October

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Neuro 91 registr.

2018

November

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Thesis due

Neurobio 91 again senior fall

- highly recommended, but not required
- independent work in the lab (~15 hours/week) arranged with your PI
- again, taken as a 4th class if possible
- cannot apply for fall HCRP funding if simultaneously getting 91 course credit
- 6-10 page paper due at the end of the semester (~December 5, 2017) – "Thesis Partial Rough Draft"

Thesis Timeline

you are here

2016 → 2017

November

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Find a lab

Neuro 91 registration

Collect Data

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Jr thesis proposal
(same as 91 paper)

Neuro 91 registr.

2018

collect data and write

November

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partial draft due
(same as 91 paper)

Thesis due

Thesis partial rough draft

- required for <u>all</u> thesis writers
- due December 5th, 2017

a rough draft of the thesis introduction

-- OR --

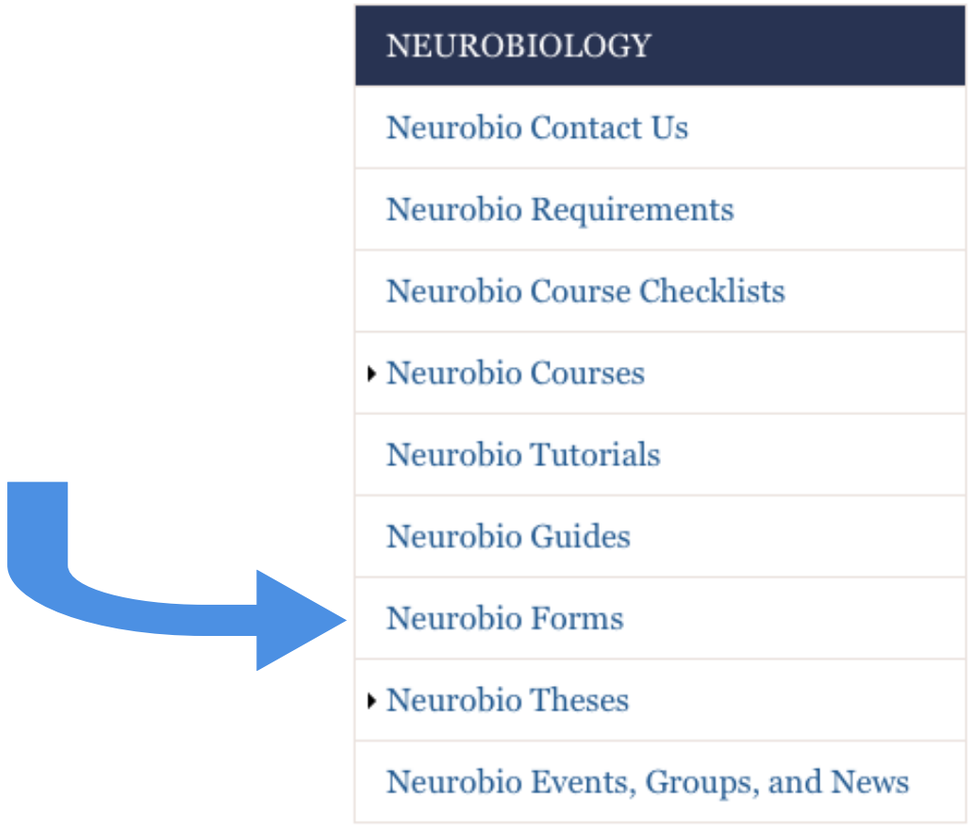
a rough draft of the results section

-- AND --

a list of completed & pending experiments

Neuro 91 and thesis rough draft

- to register for 91 and/or view instructions for the thesis rough draft, visit our website…



Thesis Timeline

you are here

2016 → 2017

November

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Find a lab

Neuro 91 registration

Collect Data

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Jr thesis proposal
(same as 91 paper)

Neuro 91 registr.

2018

collect data and write

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Neuro 99 registr.

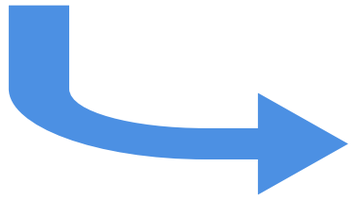
partial draft due
(same as 91 paper)

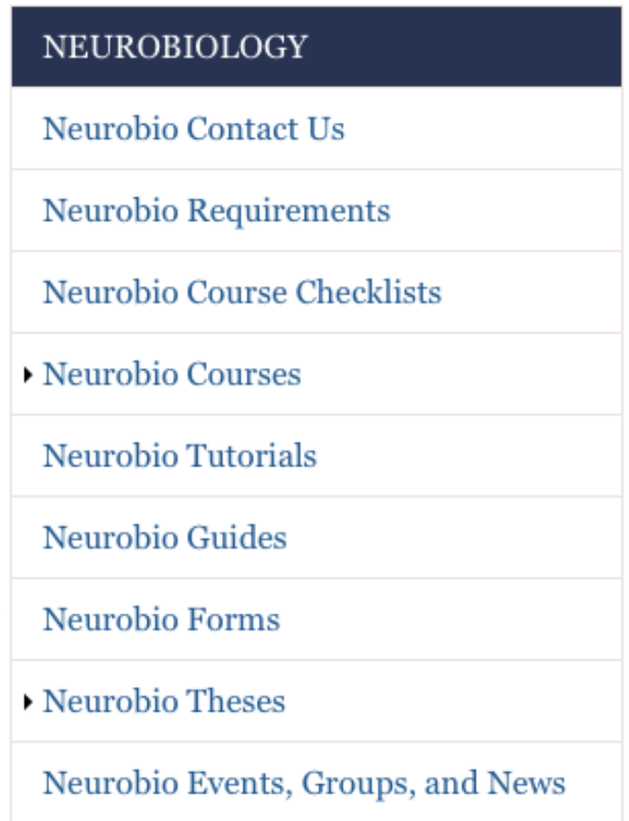
abstract due

Thesis due

Senior abstract (~250 words)

- due on study card day of spring semester
  January 26, 2018
- does not need to be in its final form; mainly used to help us determine the readers for your thesis
- abstract form also doubles as your registration for Neuro 99 (optional registration – highly recommended)





Thesis Timeline

you are here

2016 → 2017

November

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Find a lab

Neuro 91 registration

Collect Data

Jr thesis proposal
(same as 91 paper)

Neuro 91 registr.

collect data and write

May

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2018

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Write Up &
Finish Up

4 weeks

2 weeks

January

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partial draft due
(same as 91 paper)

full rough draft due

Thesis due

Thesis due dates

- rough draft of entire document due to your PI on
  Friday February 25, 2018

- completed thesis due the Friday before spring break
  March 9, 2018

- 30-50 pages double-spaced

- extended journal article format
  - introduction, methods, results, figures, discussion, references

- time commitment might range from all-encompassing to equivalent of three classes

- previous theses located on shelves in BioLabs 1082
  - recent years, email James Poolner (jp@mcb.harvard.edu)
  - abstracts available online

Thesis grading

You will receive two separate grades on your thesis:

1. Neurobiology 99 grade on transcript

   - letter grade assigned by PI
   - similar to Neuro 91 grading

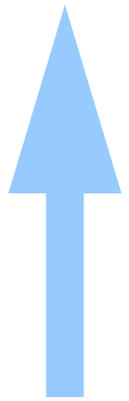
2. Latin grade determined by Neurobiology Standing Committee

   - based on anonymous faculty review
   - influences honors recommendation in field
   - grade not printed on transcript

Thesis grading

Latin grade determined by Neurobiology Standing Committee:

Summa
High Magna
Magna
High Cum Laude
Cum Laude



Commendable
No credit

- NOT the same as Latin honors from the college
- do affect English honors in your concentration, which in turn affects your Latin college honors

Thesis grading

- Do I need publishable results in order to do well on my thesis?

  NO!

- results from undergraduate theses are not expected to be perfect

- grade is weighted heavily on how well the thesis is written & presented

- negative results can be discussed heavily in the discussion

- make it clear that you understand how the experiments might be redone, future directions to improve, etc.

Thesis grading

Q. How independent should I be in the lab?

A. Varies widely, depends upon lab & student

Logistical resources available

Transportation

T-passes are available to go to MGH, Broad, McLean - contact James Poolner

* NOT available for labs on the M2 route

But wait – how the [bleep] do I write a thesis?

- learn by doing!

- 3 workshops for thesis writers in the fall/spring:
  - writing the introduction
  - making figures
  - storyboarding your results

- samples to view & people to turn to:
  - your PI & lab members
  - Ryan and Laura
  - fellow thesis writers (exchange your work)
  - the writing center (thesis writing tutors)

Then we celebrate!

The Eighth Annual Thesis Awards in Neurobiology (EATAN)

A night of good food, great science, scientific jokes, & fun

Each thesis writer will briefly present their thesis
in *one minute or less*, using any medium.

Late April - stay tuned!



Ryan Draft
Advisor



Laura Magnotti
Advisor



Venki Murthy
Head Tutor



James Poolner
Program Coordinator

Want to talk more about writing a thesis?

Come visit!