

Guide to Your Qualifying Exam

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Dominic Tong

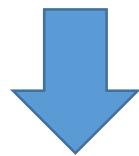
Jon Muncie

Purpose

- “Students [should] demonstrate their ability to recognize and attack research problems of fundamental importance, to propose appropriate theoretical, experimental or computational approaches to address these problems, and to display comprehensive knowledge of their disciplinary area and related subjects” – BioE Handbook
- Are you ready to initiate a research project and work it through to its conclusion?

Timeline

6 months out



2 months out



3 months out



1 month out



QUALS



Timeline

6 months out:

- Discuss the time, scope, and possible committee with your mentor

3 months out:

- Choose your committee chair and other members
- Meet with your chair to discuss the exam
- Schedule the exam date with your committee
- Draft your written research proposal

Timeline

2 months out:

- Meet with committee members
- Draft presentation
- Reserve a room for at least 3 hours
- Schedule practice talks with your lab and collaborating labs
- Submit forms 6 weeks prior to exam!

1 month out:

- Submit final written research proposal to committee
- Schedule 1-2 BESTs (give yourself at least a week before your qual)
- Start studying the details

Parts of a Qualifying Exam

- Committee
- Written Proposal
- Oral Part 1: Research Proposal
- Oral Part 2: Area/Stats/Ethics

Committee Structure

Committee Chair

Core Member
Home Campus

Member 2
Core Member
Other Campus

Member 3
Core Member
Home Campus

Member 4
Non-core Member
Home Campus

- Must be members of their campus Academic Senate
- Must represent both biology and engineering
- Exceptions may be considered by petition to Head Graduate Advisors
- List of core members: bioegrad.berkeley.edu/faculty

Choosing Your Committee

- Ask for suggestions from your PI, your lab, other BioE's, grad advisors, etc.
- Committee members:
 - You don't need to know them already
 - Don't have to be directly in the field of your project (adjacent fields are great)
 - Should have different areas of expertise
 - Nice people are usually better
- Sometimes emailing will not work, so try secretary/office hours/group meeting/asking your friend in that lab when their PI is around

Meeting With Your Committee

- Meeting with your chair
 - Discuss the “philosophy” of the exam
 - Hypothesis driven or aim driven? Do you need preliminary data?
 - Exam format
 - Scope of project
 - Getting your paperwork from SJT or Kristin before quals
- Everyone
 - Articulate your aims for feedback
 - Not knowing all the answers is ok here – it isn’t your exam yet!
 - What questions should you expect from their subject area?
 - Inform them of the exam format (not everyone is in BioE or has sat on a qualifying exam committee before)

Forms

UCSF: <https://graduate.ucsf.edu/forms/>

UCB: <http://grad.berkeley.edu/academic-progress/forms/>

Before:

- Application for Qualifying Exam
- Petition (if one of your committee members is not on the academic senate)

After:

- Report on Qualifying Exam (UCSF only)
- Advancement to Candidacy application

Written Proposal

- Spans 6-12 months of work
- Typically about 4 pages in length
- Formatted like a grant
 - Research Background and Significance
 - Hypothesis and Specific Aims
 - Preliminary Work
 - Research Design and Methods
- Send to your committee members 1 month out
- Bring copies to your exam for committee to reference
- Look at old proposals as a resource

Day of your Qualifying Exam

- Part 0: Get kicked out
 - You get kicked out for 5-10 minutes while the Chair discusses the exam format with the committee
- Part 1: Research proposal talk
 - 15 minute presentation
 - 12-15 slides
 - Expect lots of interruptions and questions; will take 1-2 hours
- Part 2: The other stuff (might be folded into Part 1)
 - Related work – questions about subjects in your major/minor
 - Ethics and statistics
- Part 3: Get kicked out, iteration 2
- Part 4: Decision/Recommendations

Day of your Qualifying Exam

- Arrive early
- Make sure the room is arranged well
- Make sure the A/V works
- Optional: bring coffee/beverages/snacks - don't need to go over the top, but bringing a little something is a nice touch

General Guidelines

- Keep your answers concise and move on!
- Be willing to say “I don’t know”, but propose how you would find the answer
 - Avoid using vague language
- Be prepared to be interrupted
- Keep your slides simple – active titles, good transitions
- You get 4 experts in your field trapped in a room with you for 2-3 hours. Use this opportunity to get feedback and learn about your field!

Oral Examination Part 2: Area/Stats/Ethics

- “Part II consists of questions exploring relevant areas of science and engineering, usually related to subjects of the major and minor identified by the student. Also included are questions pertaining to statistical and ethical aspects of Bioengineering. Part II of the exam typically takes 15-30 minutes.” – BioE Handbook

Giving a good talk

- Use effective redundancy
- Maximize signal to noise ratio
- Adapt to your audience
- Each slide makes a clear point
- Each slide **transitions** neatly to the next slide

Transitions!

- Really practice how you're going to transition from one slide to the next
- Realize that on almost every slide you'll have been stopped to answer a question (or many) and end up off on a tangent, be prepared to restate the main point you wanted to make and move to the next slide
- Be ready/comfortable to be out of the "flow" of a rehearsed talk

Good slides, bad slides

I say this is a bad slide because it isn't very much to the point as it is very wordy and a huge run-on sentence but I don't really care because at this point the audience is completely asleep anyway because they are trying to read this entire slide while listening to me but I'm not really making any point at all here so this is, in fact, a completely useless and terrible slide except for the fact that I'm using this slide to make the point that bad slides are too text-heavy and cluttered and don't get the point across, so is this actually a good slide by that definition? I'm not exactly sure, but I'm sure the audience will totally remember this slide. Will you remember anything from this slide?

Less is more

- For images/data as well as words
- Fight the urge to “flex”

Advancing to candidacy

- Fill out your forms
- Submit forms to SJT/Kristin
- Fee is usually covered by your lab (no fee if UCSF-based)
- Non-resident tuition gets waived!
- Many fellowships and awards require advancement to candidacy, silly to delay!

Resources and helpful links

BEAST Wiki	ucbeast.berkeley.edu
BioE Handbook	bioegrad.berkeley.edu
Head Graduate Advisors	Christoph Schreiner (UCSF) Ian Holmes (Berkeley)
BioE Administrators	SarahJane Taylor (UCSF) Kristin Olson (Berkeley)
Your Mentor	
Other Students*	
Other Faculty	