Qual Prep Workshop

February 26, 2015
Schedule

- Sarah Driver will discuss staff support for students
- GGAM and GPC Student Reps: handouts, basic Quals info
- Prof. Babson (Pure Math) and Prof. Biello (GGAM) faculty viewpoint
- Questions and answers
Aspects of the Qual

- The Proposal
  - Research proposal
  - Coursework syllabus
- Finding a Committee
- Qualifying exam
  - Research presentation
  - Questions and Answers
- Documentation and Advancement to Candidacy
Timeline

- The Proposal (∼ 3-4 months ahead of time)
- Finding a committee (∼ 2-3 months ahead of time)
- Decide on an exact date, time and location. Reserve a room. (∼ 2-3 months ahead of time)
- Qualifying exam (plan on 3 hours)
The Proposal

- Research Proposal
  - General context, introduction, the big picture
  - Mathematical setup
  - Description of specific problem(s) to be addressed
  - Indication of the methods and techniques to be used
  - Include a list of references

- Coursework Syllabus
  - Three subject areas, including Analysis, and Algebra(pure) or Applied Math(applied)
  - Provide references for each subject area
Proposal Writing

- Pick an interesting and promising topic to work on (talk to advisor, read paper, attend conference and workshop).

- State the application or motivation of the problem. It is important for applied mathematics. Why do we care about it?

- State the problem and mathematical formulation. What are the promising methods to solve it? Present some solid numerical simulations if possible.

- The state of art. How is this problem related to previous works? What's the novelty and difficulty of your problem?

- Any idea about developing theory? What kind of techniques may be useful and why?
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▶ Any idea about developing theory? What kind of techniques may be useful and why?
Template


Proposal for Qualifying Exam

[Insert Your Name]

Draft Date: December 10, 2006

Exam Committee

Committee Chairperson:
Prof. [Insert Chairperson’s Name]

Committee Members:
Prof. [Insert Committee Member’s Name]
Prof. [Insert Committee Member’s Name]
Prof. [Insert Committee Member’s Name]
Prof. [Insert Committee Member’s Name]

Exam Logistics

Date:
[Insert Exam Date with Day of the Week]

Time:
[Insert Exam Start Time]

Location:
[Insert Exam Building and Room Number]

Proposed Research Talk

Title. [Insert the Title of Your Proposed Research Talk]

Abstract. [Insert the Abstract of Your Proposed Research Talk. You should take some time to explain yourself thoroughly here — several paragraphs worth of thorough, in fact. Be sure to give plenty of background so that your committee knows the context for your specific research questions and directions, including what is known so far, what you intend to add to this body of knowledge, and how you propose to go about doing this.]

Proposed Exam Syllabus

Topic #1: [Insert Specialization Within This Topic]

- Short list of specific items within this specialization for which you would cite the reference below.

  Reference: Pages or Chapters from a well-known reference.

- Another short list of specific items but with a different reference as listed below.

  Reference: another well-known reference.

Topic #2: [Insert Specialization Within This Topic (with specific subitems and references as above)]
Finding a Committee

- The qualifying exam committee consists of five faculty members with a designated chair.
- One member must be outside of your program.
- Your advisor cannot be the chair of the committee.
- Tips:
  - Start the process early, finding a time which meets all committee members schedules may be tough.
  - Your advisor may or may not want to be on your committee
  - Choose faculty whose research interest align closer to yours
  - Distribute your proposal to committee members
The Qualifying Exam

Plan on a 3 hours exam, although it is possible to finish your exam within 1-2 hrs. The exam is made of two separate parts:

- Presentation - roughly 90 mins, plan your talk for -50 mins and prepare to answer questions in between slides
- Question and answers related to coursework syllabus - roughly 60 mins

The committee chair will typically help keep track of time spent on each portion and determine transitions from each phase of the exam.
Personal experience for qual preparation

- Make nice slides. (short, concise but to the point!)
  - Make an outline before starting making slides.
  - The more slides, the more questions.
  - Know everything on the slides clearly.

- Do at least two practice presentations before the exam.
  - Why?
    - Get feedback from the audience.
    - Modify the parts where the audience get confused.
    - Take it slow and easy.
    - Be honest. It is OK that you do not know the answer. But be sure to know the basic things.
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Faculty viewpoints

- Professor Eric Babson (Pure Math)
- Professor Joseph Biello (GGAM)
Questions and Answers