

## **Candidacy Exam Prep Class (BMB 705) Spring, 2020**

### **Instructors: Ronen Marmorstein and Jeremy Wilusz**

#### ***Goals:***

The goal of this class is to prepare each student to write and defend a grant proposal, which is a degree requirement. This is a half-credit class and is graded.

Your candidacy exam is designed to prepare you for thinking about and performing cutting edge research. This is the time when you dig into the literature, define a problem of your own, and articulate what you will do, what you will learn and why it's important. This is a large undertaking and you should expect this process to be:

- *Challenging* - we expect you to do something you have likely not done before.
- *Time-consuming* – this is a lot of stimulating work.
- *Rewarding* - this will provide you with the intellectual underpinning for your graduate experience, regardless of whether your proposal focuses on your actual thesis project or not.

The main goal of this class is to teach you to think critically about a research problem and to translate this into a compelling research proposal. You will learn how to do this by (1) learning about the mechanics of writing a proposal, (2) reviewing past submitted fellowship proposals (in a mock study section format) to learn the do's and don'ts about preparing a compelling proposal and (3) preparing compelling specific aims for your own proposal.

#### ***Grading:***

You will have two written assignments:

1. Provide written critiques of 2 grants (due by noon on day of critiques to RM and JW)
2. Write (and rewrite) your specific aims (see syllabus for specific assignments)

Grades will be based on your written and oral critiques, written and oral presentation of your specific aims and class participation.

#### ***Syllabus***

Classes will be held on Mondays (2:00-4:00 PM) and Fridays (1:00-3:00 PM) in room BRB 701 from Jan. 17<sup>th</sup> – March 16<sup>th</sup>. Classes will not be held on Jan 20<sup>th</sup> (MLK holiday), Jan. 31<sup>st</sup> (BMB recruitment 1) and Feb. 14<sup>th</sup> (BMB recruitment 2).

\*\*\* **Assignment for 1/17: Read assigned grants for Mock study section I**  
**[Kohli\_103118 and Wand\_Lab]**

#### **Friday 1/17**

##### Introduction, Course Organization

Elements of a proposal - For your candidacy exam you need to write a proposal.

- How best to communicate science? Think backwards.
- What does a proposal look like?  
Overview: Abstract, Specific Aims, Significance, Innovation, Approach
- Abstract: Summary of the 4 sections described below.
- Specific Aims: 1 page, spell out the overall goal (hypothesis/question), describe why it is important and how you will achieve the goal.  
How do you formulate and address a meaningful hypothesis?  
What is the difference between a hypothesis-driven proposal (good), a technology-driven proposal (good), and a “fishing expedition” (bad)?

- Significance: ~1 page, convey why your goal is important.
- Innovation: ~1/3-1/2 page, highlight innovative features of the technical or conceptual aspects of your proposal.
- Approach: ~ 4 ½ pages, describe how you will carry out the proposed experiments.

Mock Study Section - I

- Discussion of how proposals are reviewed at the NIH?
- Kristen Lynch (guest instructor) and Ronen Marmorstein will review the **Kohli\_103118 and Wand\_Lab** grants as examples for your own study sections
- Grants will be assigned for future Mock Study Sections

\*\*\* **Assignment: Read, review and score grants that are assigned to you for your mock study sections.**

**Students:** Yuxi Ai (YA), Andrea Detlefsen (AD), Jean Etersque (JE), Pamela Gallo (PG), Michael Gilbert (MG), Stacy Guzman (SG), Michael Owens (MO), Jennifer Ramirez (JRa), Raul Reyes-Hueros (RRH), Janice Reynaga (JRe), Kollin Schultz (KS), Heha Srikumar (HS), Samantha Sustek (SS), Amber Yanas (AY)

**1/20 MLK Holiday – No class**

**Friday 1/24**

**Scientific Writing Class with Hillary Nelson**

**Monday 1/27**

Mock Study Section II (review 4 grants)

You will participate in a study section in which you will present, defend/attack, and score the proposals you were assigned.

\*\*\* **Reviewers: YA, AD - Black\_121013; JE, PG- Lynch\_1\_121113; MG, SG - Marks\_121013**

**Written critiques emailed by noon 1/27 to RM and JW.**

**Friday 1/31**

**NO CLASS (BMB Student Recruitment 1)**

**Monday 2/3**

Mock Study Section III (review 4 grants)

You will participate in a study section in which you will present, defend/attack, and score the proposals you were assigned.

\*\*\* **Reviewers: MO, JRa – MSTP\_1\_121113; FFH, JRe – Lynch\_2\_121113 ; KS, HS - Marmorstein\_1\_122013**

**Written critiques emailed by noon 2/3 to RM and JW.**

**Friday 2/7**

Mock Study Section IV (review 4 grants)

You will participate in a study section in which you will present, defend/attack, and score the proposals you were assigned.

\*\*\* **Reviewers: SS, AY - Wellen\_072518; AD, JE - Ostap, Lab\_1; PG, YA - Degrado\_Lab\_4; SG, MO – Shorter\_073018**

**Written critiques emailed by noon 2/7 to RM and JW.**

- \*\*\* **Assignment Due 2/7 by 6 pm: Group 1 (YA, AD) email specific aims to RM and JW for comments.**

### **Monday 2/10**

#### Mock Study Section V (review 4 grants)

You will participate in a study section in which you will present, defend/attack, and score the proposals you were assigned.

- \*\*\* **Reviewers: JRa, MG - Radhakrishnan\_Lab\_1; JRe, KS - Goldman\_Lab1; HS, RRH - Vinogradov\_072818; AY, SS – Black\_071618**
- \*\*\* **Written critiques emailed by noon 2/10 to RM and JW.**
- \*\*\* **Assignment Due 2/10 by 6 pm: Group 2 (JE, PG) email specific aims to RM and JW for comments.**

### **Friday 2/14**

**NO CLASS (BMB Student Recruitment 2)**

### **Monday 2/17**

#### Oral presentation of Specific Aims (Group 1 – YA, AD)

Those in Group 1 (FBC, PC) will give 15 minute presentation of their Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

- \*\*\* **Assignment Due 2/17 by noon: Group 1 (YA, AD) email their specific aims to faculty & students.**
- \*\*\* **Assignment Due 2/17 by 6 pm: Group 3 (MG, SG) email specific aims to RM and JW for comments.**

### **Friday 2/21**

#### Oral presentation of Specific Aims (Group 2 -JE, PG)

Those in Group 2 (MC, CF) will give 15 minute presentation of their Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

- \*\*\* **Assignment Due 2/21 by noon: Group 2 (JE, PG) email their specific aims to faculty & students.**
- \*\*\* **Assignment Due 2/21 by 6pm: Group 4 (MO, JRa) email specific aims to RM and JW for comments.**

### **Monday 2/24**

#### Oral presentation of Specific Aims (Group 3 - MG, SG)

Those in Group 3 (JG, CJ) will give 15 minute presentation of their Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

- \*\*\* **Assignment Due 2/24 by noon: Group 3 (MG, SG) email their specific aims to faculty & students.**
- \*\*\* **Assignment Due 2/24 by 6 pm: Group 5 (RRH, JRe) email specific aims to RM and JW for comments.**
- \*\*\* **Assignment Due 2/24 by 6 pm: Group 1 (YA, AD) email revised specific aims to RM and JW if necessary.**

### **Friday 2/28**

#### Oral presentation of Specific Aims (Group 4 - MO, JRa)

Those in Group 4 (HK, JYL) will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

- \*\*\* Assignment Due 2/28 by noon: Group 4 (MO, JRa) email specific aims to faculty & students.
- \*\*\* Assignment Due 2/28 by 6 pm: Group 6 (KS, HS) email specific aims to RM and JW for comments.
- \*\*\* Assignment Due 2/28 by 6 pm: Group 2 (JE, PG) email revised specific aims to RM and JW if necessary.

### Monday 3/2

#### Oral presentation of Specific Aims (Group 5 - RRH, JRe)

Those in Group 5 (LNL, RO) will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and SV.

- \*\*\* Assignment Due 3/2 by noon: Group 5 (RRH, JRe) email specific aims to faculty & students.
- \*\*\* Assignment Due 3/2 by 6 pm: Group 7 (SS, AY) email specific aims to RM and JW for comments.
- \*\*\* Assignment Due 3/2 by 6 pm: Group 3 (MG, SG) email revised specific aims to RM and JW for comments if necessary.

### Friday 3/6

#### Oral presentation of Specific Aims (Group 6 - KS, HS)

Those in Group 6 (DS, JCS) will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and SV.

- \*\*\* Assignment Due 3/6 by noon: Group 6 (KS, HS) email specific aims to faculty & students.
- \*\*\* Assignment Due 3/6 by 6 pm: Group 4 (MO, JRa) email revised specific aims to RM and JW for comments if necessary.

### Monday 3/9

#### Oral presentation of Specific Aims (Group 7 - SS, AY)

Those in Group 7 (JS, MS) will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and SV.

- \*\*\* Assignment Due 3/9 by noon: Group 7 (SS, AY) email specific aims to faculty & students.
- \*\*\* Assignment Due 3/9 by 6 pm: Group 5 (RRH, JRe) email revised specific aims to RM and JW for comments if necessary.

### Friday 3/13

#### Oral presentation of Specific Aims (If necessary)

Those presenting will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

- \*\*\* Assignment Due 3/13 by 6 pm: Group 6 (KS, HS) email revised specific aims to RM and JW for comments if necessary.
- \*\*\* Assignment Due 3/13 by 6 pm: Group 7 (SS, AY) email revised specific aims to RM and JW for comments if necessary.

### Monday 3/16

#### Oral presentation of Specific Aims (If necessary)

Those presenting will give 15 minute presentation of Specific Aims, with a maximum of two slides, and receive feedback from students, RM and JW.

\*\*\* **Final day for any others to email revised specific aims to RM and JW for final comments if necessary.**

**Additional Important Deadlines:**

March 20 Obtain approval of final title and specific aims from exam committee.  
April 1 Distribute written proposal to the committee (at least two weeks before exam)  
**April 13 – May 15 Oral Exams Take Place**  
Friday June 12 Last date to complete any 2nd attempts of either written or oral exams.

**Candidacy Exam Advisory Group (preliminary, to be confirmed)**

The chair of your committee will be assigned from this group of BMB faculty members

Yair Argon  
Ben Black  
Roberto Dominguez  
Ben Garcia  
Yale Goldman  
Mark Goulian  
Erica Holzbaaur  
Harry Ischiropoulos  
Rahul Kohli  
Michael Lampson  
Kristen Lynch

Ronen Marmorstein  
Mike Ostap  
James Petersson  
Elizabeth Rhoades  
Brian Salzberg  
Kim Sharp  
James Shorter  
Dave Speicher  
Greg Van Duyne  
Sergei Vinogradov  
Jeremy Wilusz