

PREP @ Iowa

Pipeline to PhD and MDPhD

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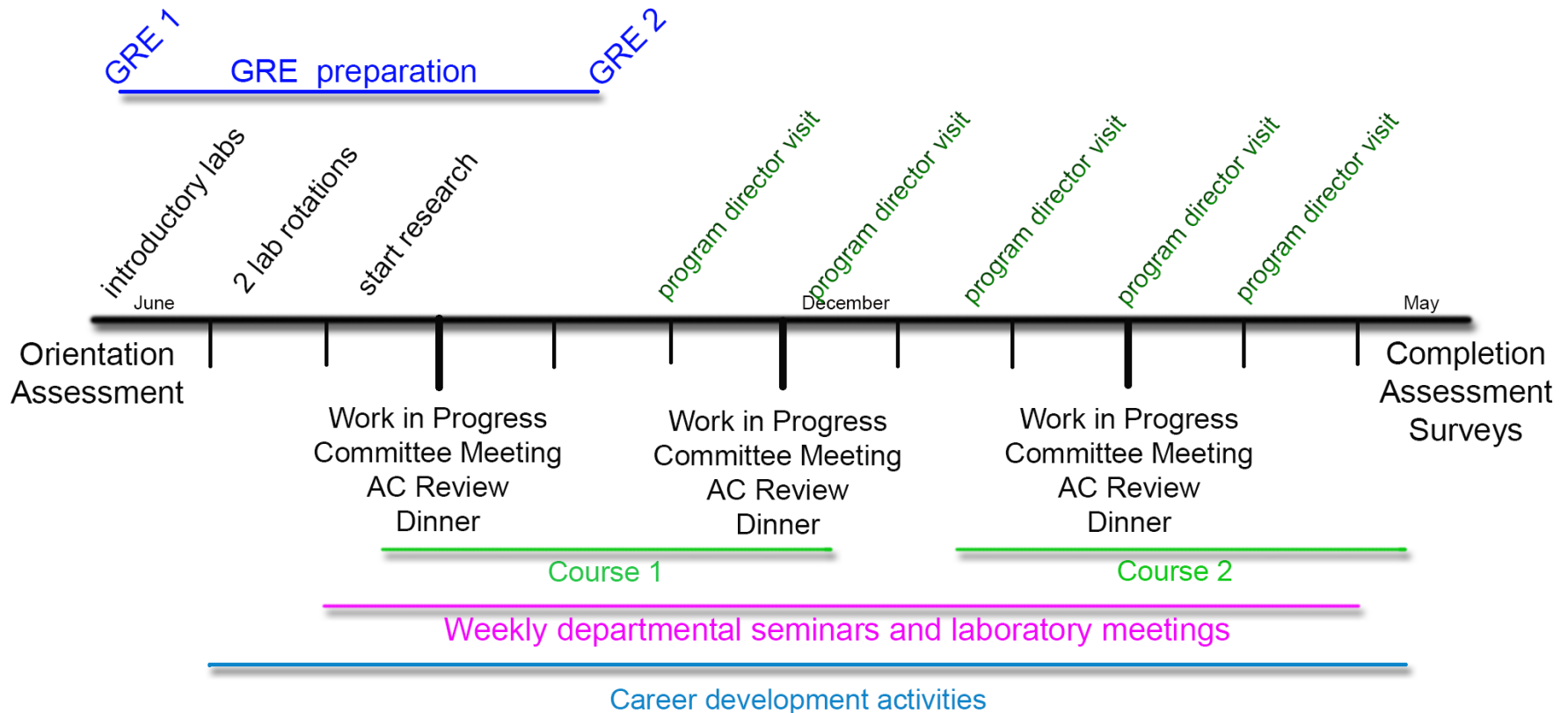
Mission

- Provide recent graduates with a one-year period of customized education in research that will:
 - provide them with the requisite skill sets in the laboratory;
 - introduce them to graduate level coursework;
 - instill self-confidence;
 - develop coping skills; and
 - establish a lasting mentor-mentee relationship that will ensure their success in graduate school.
- Immerse participants in the culture of graduate school by:
 - placing them side by side with matriculated students; and
 - making available to them all opportunities enjoyed by our matriculated students.

Goal

- "Graduate" participants who have:
 - critical thinking skills;
 - experience in common laboratory methodologies;
 - been responsible for an independent research project;
 - ability to speak knowledgeably about their research;
 - well developed verbal presentation skills; and
 - strong written communication skills
- Participants in our program will be highly competitive for top tier PhD (and MD/PhD) programs - here and nationwide

Summary of Program



Applicants

- Graduated from an accredited college within the past three years. The basic sciences GPA at least 3.3.
- Applications made online; no fee.
- Materials
 - Undergraduate transcripts
 - Work history
 - Volunteer activities
 - Names of 3 references
 - Brief autobiography written by the applicant (What would you like us to know about you that is not apparent in your application?).
- Holistic review by Advisory Committee
 - Those with substantial research experience for whom 1 yr program would be sufficient
 - Those without research experience who would need this program + additional 6-12 months research experience
- Interview using Skype or on campus where possible.

Didactics 1

- Enter the program as a cohort in June and spend two days in social orientation activities
- Assess the core competencies and career interests
- Meet with the Program Director and Associate Program Director to review the results and to develop an IDP to be reviewed with the Advisory Committee.
- Take Kaplan On-Demand GRE preparation course (\$600/participant).
 - View the Kaplan course video lectures and work with other materials as a study group to develop strong study skills and appreciate the importance of peer-to-peer learning.

Didactics 2

- One graduate level course each in the fall and spring semesters
- Enrolled as Graduate-Students-at-Large
- Two types of courses - flexible
 - Foundational: provide the applicant with skills and knowledge necessary to succeed in graduate level coursework or redress deficiencies identified in the assessment.
 - Advanced: help the participant gain experience and develop confidence in their ability to complete graduate level coursework, are more interest-specific and provide new knowledge that could guide career choices.

Research Skills

- Ensuring Fundamental Skills - four week boot camp
 - Week 1:
 - Oversee completion of all the requisite regulatory compliance
 - Correct pipetting and weighing of materials, calculation of molar solutions, dilutions, different routes of drug administration to animals, euthanasia, and basic cell culture techniques.
 - Begin Excel Training
 - Weeks 2 and 3 - "Flipped Classroom"
 - Online videos and small group discussion; then move to the lab.
 - Week 2: Basics of RNA and DNA; Conduct RT-qPCR for a common reference gene. Continue Excel training
 - Week 3: Single site mutation of GFP. Continue Excel training
 - Week 4: Western blotting experiments. Graphics training
 - Experiments that do not work will be troubleshooted as a group so all students learn the stepwise process used to identify the problem and its solution, and also appreciate how help can be solicited from peers and other members of the team.

Research Skills

➤ Literature Research Skills

- Learn how to search the literature and the various resources available.
- Free workshops offered by Hardin (Endnote, PubMed, NCBI data sets)

➤ Independent Research Project

- Rotate in two different laboratories (3 weeks each)

Research Skills

➤ Building Confidence

- Not placed into a “special” group; no “helicoptering”;
- Learn the importance of patience and perseverance, how to reach out to get assistance from others, and develop self-confidence in their abilities.
- Develop a sense of “belonging” with graduate students; Activities open to other graduate students
- In laboratories with other graduate students, attend seminars with graduate students, hear graduate students give work-in-progress talks, join the lunches with outside speakers, and engage in programming and attend events sponsored by the Association of Multicultural Scientists, a graduate student-run organization.

Life Skills

- Writing
 - Meet Mr. Casella and Dr. Blaumueller
- Public Speaking
 - Short videotape session
 - Quarterly update on their research project; receive constructive feedback on their presentation skills and the science from their peers and faculty mentors via a structured questionnaire
 - Present a poster at the Jakobsen Conference for graduate students in March and the annual CCOM Research Week in April.
- Time Management
 - “Thriving among Chaos”
- Professionalism
 - Brown-bag luncheon in the first week that will emphasize the importance of timeliness, arriving at work prepared to work, proper attire, advance requests for time off, proper use of email and university resources.

Definition of Success

➤ Short-term

- Matriculation of $\geq 75\%$ of our participants into PhD or MD PhD programs after one year.
- Increase in the number of applicants to the program based on the experience of their predecessors.

➤ Long-term

- Graduation within 5.5 years of $\geq 75\%$ of those participants from their program of choice and transition to a career path.

Other PREP Programs

University of Alabama at Birmingham Arizona State University University of California, Santa Cruz Yale University Emory University University of Georgia University of Chicago Indiana University University of Kansas, Lawrence Johns Hopkins University Tufts University	University of Massachusetts Amherst University of Michigan Mayo Clinic University of Missouri, Columbia University of New Mexico Albert Einstein Mount Sinai University of Rochester Wake Forest University University of North Carolina at Chapel Hill Case Western Reserve	Wright State University Ohio State University University of Pennsylvania University of South Carolina Medical University of South Carolina Baylor College of Medicine University of Texas Medical Branch Virginia Commonwealth University Virginia Polytechnic Institute University of Washington
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