Objectives:
The purpose of the Qualifying Exam is to assess whether students have the analytical, critical and synthetic thinking skills necessary for pursuing a doctoral degree and successfully conducting dissertation research. The skills include, but are not limited to:
- Ability to critically analyze and evaluate scientific literature and data
- Ability to present logical and coherent scientific arguments, both orally and written
- Ability to conceptually design research that is forward-looking and problem-solving
- Ability to use varied techniques to address research questions

Organization:
Students who plan to take this examination must identify themselves to the graduate office by the end of the first semester. They will register for BIOL 69500 Development and Disease Study for 1 credit for the second (Spring) semester of their first year. Registered students will attend an Organizational Meeting that will occur at the end of the first semester (Fall 2012) or the beginning of the second semester (Spring 2013). At the organizational meeting, they will receive a Qualifier Exam Package that will include seven topics, each with a reading list consisting of 3 research articles and one review article, provided by the faculty. The topics will be deliberately chosen to reflect a range of methods and research interests across the Development and Disease cluster of faculty. The specific topics vary from year to year. At the Organizational Meeting, we will arrange a schedule for the Spring semester that avoids conflicts with the courses or teaching obligations of all registered students, preferably 50-minutes twice per week. The course instructor will pre-assign each student to two small groups, each responsible for presenting the topic to the class and leading a class discussion. Student presentations will be preceded by a general introductory lecture by a faculty member on the same topic. While students are encouraged to discuss the topics with relevant faculty, it is the responsibility of the students to review the methods and literature thoroughly and present the topics to their classmates in a clear, detailed manner. The student presentations may or may not be attended by the faculty member who provided the topic. A grade (Pass or No Pass) will be earned based on: (1) peer evaluations of each student’s presentation and (2) faculty oversight of the lecture material presented.

Qualifying Examination:
The Exam will be a take-home format that will take place sometime in May 2012. Each student will choose five out of a total of seven exam essays based on the 7 assigned topics. The students will have seven days to complete their answers (typed with 1.5 line spacing) and turn them in to the graduate office. The students may consult any written materials in preparing their answers but may not confer with anyone about the examination. Plagiarism of any kind from any source will not be accepted and will result in a grade of 0% for that portion of the exam. You are required to submit all written answers in your own words. Direct quotation or copying phrases from any source, even if credited, is strongly discouraged. Any exceptions, such as reproducing a figure from the literature in support of an answer, will be explicitly described in the exam package.

Grading:
The examinations will be graded based on acquisition of the skills listed above under Objectives (except that there will be no oral or practical examination components). The scores on each question will be averaged, with an overall average of 75% required to receive a passing grade. Please note that the grade earned on the Qualifying Exam will not be included in the grade for the course.

The convenor of the Development and Disease Cluster will recommend to the Graduate Studies Committee that any student who receives less than 50% on the Qualifying Exam be asked to leave the
Ph.D. program. Any student scoring between 50% and 74% will be required to retake the Qualifying Exam and receive a passing grade prior to beginning the Spring semester of their second year of enrollment.

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**Faculty Members:**
The faculty members (with their departmental research group affiliations) who will be offering Development and Disease Qualifier Topics for 2013 include:

Assoc. Professor Ed Bartlett  
Assoc. Professor Ignacio Camarillo  
Assoc. Professor Henry Chang  
Professor Stan Gelvin  
Assoc. Professor Kevin Otto  
Asst. Professor Seema Matoo  
Professor Chris Staiger  

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**Course Recommendations:**
New graduate students contemplating taking this qualifier should meet with their assigned academic advisor, faculty with whom they are scheduling laboratory rotations and/or the Development and Disease Convenor (currently Dr. Staiger) to choose a set of first-year courses tailored to their specific needs and interests.

Highly recommended as preparation for the qualifier:

**Advanced Topics in Eukaryotic Cell Biology - BIOL 62000** (Spring 2013)

Additional introductory graduate-level courses that may be relevant as preparation for this year’s qualifier, depending upon the student’s background and interest:

**Molecular Biology of Animal Cells - 12495 - BIOL 57300** (Fall, MWF 11:30-12:20pm)  
**Macromolecules - 54742 - BCHM 69500** (Fall, MWF 10:30-11:20am)  
**Cellular Neurobiology - 50463 - BIOL 60200** (Fall, TuTh 1:30-2:45pm)  
**Molecular Bacterial Pathogens BIOL 69500** (Spring 2013)