

**Ph. D. Qualifying Exam
For Biomedical Engineering Students**

2005

DIRECTIONS and REGULATIONS

**Virginia Tech – Wake Forest University
School of Biomedical Engineering and Sciences (SBES)**

Examination Procedures

A Request for Proposal (RFP) is attached. Students should respond to the request with a written research proposal to be followed by an oral presentation to the examining committee.

Written and Oral Proposal

The written exam proposal must contain between 2500 to 3000 words, not including references. The student should feel free to include whatever graphics, figures, tables, or diagrams are necessary to fully describe their proposal. The student should complete the written proposal independently with no outside help. This includes, but is not limited to, the student's advisor, other faculty, and fellow students. The student may use all available written reference materials. Electronic copies of the proposal must be submitted (see below.)

The oral presentation of the proposed research should be a synopsis of the written proposal and should last approximately 15 minutes (range 13 to 18 minutes). The presentation should be a well-organized PowerPoint talk. Projectors will be available for the presentation. Questions by the committee will follow the presentation, and all committees reserve the right to ask questions during the presentation. Question time is not considered as part of the allotted 15-minute presentation period

Proposal Evaluation

In both the written and oral parts of the exam, the student must demonstrate proficiency in the general field of biomedical engineering. Students will be evaluated on their ability to formulate a rational approach to the requested research as well as their grasp of fundamental principles. The written research proposal and the oral presentation will be evaluated on, and should contain and address all the following:

- (1) Life science and biology aspects,
- (2) Engineering approach and aspects, and
- (3) Quantitative content and approach (mathematical aspects, calculations, math model, results evaluation, etc.)

Exam Committee

The three member examining committee will evaluate the written research proposal, and will administer the oral exam. The examining committee will consist of two members from the student's Track or area of research interest, and a third examiner from an outside Track or area. The student's advisor cannot be a member of the examining committee.

Exam Dates for 2005

- Exam RFP given out: July 5, 2005 by email.
- Exam Written Research Proposal due: July 15, 2005 by 4:00pm.
The written research proposal must be submitted electronically as described below.
- Oral Presentations: July 19 and 20, 2005.
Date and time will be determined and given to the student shortly before the written research proposal due date.

Exam Outcomes

Three possible exam outcomes are possible: pass, conditional pass, or fail. Students who pass the Qualifying Examination are eligible to take the Preliminary Exam to become Ph.D. Candidates. Students who do well but for whom a deficiency is identified as inadequate may be given a conditional pass and be asked to remedy the deficiency as specified by the Subcommittee. This must be completed in no more than eight weeks. If the remedy is satisfactory, the Subcommittee will recommend to the Chair of the SBES Graduate Committee that the student pass. If the remedy is unsatisfactory, the students fail the exam. Students who fail the qualifying examination on their first try are permitted one additional attempt at a later date on a new problem. A second fail will prevent the student from continuing in the Ph.D. program.

Submitting Your Exam Written Research Proposal

Electronic copies of the written research proposal must be received by Tess Sentelle (tsentell@vt.edu), Graduate Coordinator, no later than 4:00 p.m. on July 15, 2005. PDF format is preferred. Submission by email is preferred. You should confirm with Ms. Sentelle (540-231-8532) that the document has been received by the deadline.