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# **POLICIES AND REGULATIONS**

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**Governing Graduate Students in the  
Department of  
Biomedical Engineering**



**Washington University in St. Louis**

**SCHOOL OF ENGINEERING & APPLIED SCIENCE**



Washington University in St. Louis

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SCHOOL OF ENGINEERING & APPLIED SCIENCE

### PhD Checklist

<u>Completed</u>	<u>Item</u>	<u>Due Date</u>	<u>Submit to</u>
_____	Rotation Preference Sheet	Friday first week of classes	Director of Graduate Studies
_____	1 <sup>st</sup> Rotation Report <b>(signed by mentor)</b>	Within 3 weeks of the end of the rotation or by 1 <sup>st</sup> day of class the following semester (Fall- 01/18/11)	Graduate Student Administrator
_____	2 <sup>nd</sup> Rotation Report <b>(signed by mentor)</b>	Within 3 weeks of the end of the rotation (Spring - 06/01/11)	Graduate Student Administrator
_____	3 <sup>rd</sup> Rotation Report <b>(signed by mentor)</b>	Within 3 weeks of the end of the rotation (Summer - 08/01/11)	Graduate Student Administrator
_____	Proposed rotation document, 3 person committee and 4 topic area submission for approval <i>(schedule exam as soon as your committee is approved)</i>	1 rotation – Dec 1 2 rotations – April 1 3 rotations - July 1	Director of Graduate Studies
_____	Rotation report for examination	2 weeks prior to exam date	Qualifying Exam Committee
_____	Qualifying Exam Completed <b>(Form signed by committee)</b>	1 rotation – Feb 30 2 rotations – June 30 3 rotations – August 31	Graduate Student Administrator
See next page for checklist continuation for 2 <sup>nd</sup> year and beyond			

<u>Completed</u>	<u>Item</u>	<u>Due Date</u>	<u>Submit to</u>
_____	Proposed Thesis Committee	End of 2 <sup>nd</sup> year	Director of Graduate Studies & Graduate Student Admin.
_____	Teaching Requirement Fulfilled (14 hours basic and 4 hours advanced minimum) – <b>form signed by instructor</b>	Immediately upon completion of requirement	Graduate Student Administrator
_____	Thesis Proposal Scheduled	June 1 (of 3 <sup>rd</sup> year)	Director of Graduate Studies & Graduate Student Admin.
_____	Thesis Proposal (Written) Completed	2 weeks prior to proposal date of June 30 <sup>th</sup> of 3 <sup>rd</sup> year (whichever is earlier)	Thesis Proposal Committee
_____	Thesis Proposal (Oral) Completed ( <b>form signed by committee</b> )	August 31 (of 3 <sup>rd</sup> year) or 12 months prior to defense (whichever is earlier)	Graduate Student Administrator
_____	Title, Scope and Procedure Form ( <b>form signed by committee</b> )	Submit with Thesis Proposal (and get committee approval)	Graduate Student Administrator
_____	Annual update with Thesis Committee	Meet at least once every 12 months with committee members	
_____	Schedule thesis defense and add final member to dissertation committee (if needed)	2-3 months prior to date	Director of Graduate Studies & Graduate Student Admin.
_____	Submit Thesis	2-4 weeks prior to date	Thesis Committee
_____	Thesis Defense ( <b>form to be signed</b> )		Graduate Student Administrator

Please see Graduate School of Arts and Sciences website for procedures on Intent to Graduate and Dissertation submission. (<http://graduateschool.wustl.edu/>)

# CONTENTS

## 1. Registration

## 2. Advising

## 3. Degree Requirements

3.1 Master of Science

3.2 Doctor of Philosophy (Ph.D.)

a. Research rotations

b. Qualifying examination

c. Thesis proposal

d. Thesis defense

## 4. Course Selection

## 5. Financial Aid

5.1 Types of awards

a. Fellowships

b. Traineeships

c. Teaching Assistantships

d. Research Assistantships

5.2 Tax Liability

5.3 Outside Employment

5.4 Time Off

## 6. Other Policies

6.1 Seminars

6.2 Secretarial service

6.3 Copying service

# **POLICIES AND REGULATIONS FOR GRADUATE STUDENTS IN BIOMEDICAL ENGINEERING**

## **1. REGISTRATION**

Registration takes place each semester on dates announced by the University. Detailed instructions for registration plus necessary materials are mailed directly to all graduate students enrolled during the previous semester.

All graduate students in the department must register each semester until all degree requirements are completed. There are two categories of registration:

**Active:** Normally students register in this category until they have earned the total number of credit hours required for their degree. Ph.D. students register for 9 hours of courses and research each semester until 72 hours are completed. Then, the student registers for BME 884 until graduation.

**Inactive:** Students who have not completed their course requirements but who, because of personal reasons, must suspend their studies temporarily may register as inactive students with the approval of their adviser, the departmental chair and the Graduate School. See the Graduate School of Arts and Sciences Graduate School Bulletin for further information.

Students who fail to register in one of the previously mentioned categories will automatically have their graduate standing revoked. See the Graduate School of Arts and Sciences Graduate School Bulletin for further information. Candidates for the Ph.D. degree who apply for

reinstatement are required to repeat the qualifying examinations.

## **2. ADVISING**

**Academic Advisor:** Each entering graduate student will be assigned an academic advisor by the Director of Graduate Studies. This advisor will be a full-time faculty member in the Department of Biomedical Engineering and will be responsible for acquainting the student with degree requirements, including the required laboratory rotations.

**Rotation and Research Mentors:** Each Ph.D. student is required to participate in two research rotations, with the option to perform a third research rotation. A Master's research thesis may count as one rotation. Rotations serve two primary purposes for students: to inform students in their choice of a doctoral research mentor and research project, and to gain skills in laboratory research. Each rotation will be supervised by a rotation mentor who is a full-time or affiliated faculty member of the BME department. The rotation mentor will be responsible for outlining the student's project, as well as reviewing and approving the student's report at the end of the rotation.

The choice of the research mentor and thesis project will have a profound effect on the career of the Ph.D. student. To aid the student in these decisions, the following procedures are in place:

### **i. Rotation Preference Sheets**

At the start of the academic year, the primary and affiliated faculty will be invited to meet entering graduate students to discuss their research programs. Afterwards, entering students will formulate a research plan in consultation with the academic advisor and potential research mentors. The

student will submit the research plan to the Director of Graduate Studies identifying his/her first, second, and third choices of labs in which to do rotations. Along with this list, the student will submit a written description of their current research interests and the rationale behind the research plan. The goal of this process is to help the student develop a coherent plan for the rotations and make well-informed decisions in the selection of a research mentor.

## **ii. Rotation Selection**

The faculty will review the rotation preference sheets and assign each student to rotation mentors. At the end of the first rotation, students will have the option to update their research plan and preference for their second rotation.

## **iii. Rotation requirements**

Each student will complete 2-3 rotations during their first 12 months in the program. The first 2 rotations will normally coincide with the Fall and Spring semesters; a third optional rotation would be performed during the first two months of the summer. At the end of each rotation, the rotation mentor will complete an evaluation of the student. These evaluations will become part of the student's permanent file and will be considered by the qualifying exam committee during the qualifying examination (see Section 3.2c). Students will complete all rotations by the end of the summer of their first year and pick a research lab for their doctoral research at this time. ***For each rotation, students will register for BME 601, using the rotation mentor's section number.***

The student's research mentor will be one of his/her rotation mentors. The research mentor must be a full-time or affiliated faculty member within the BME department. The faculty member must agree to be the research mentor.

**Qualifying Examination Committee:** Following the final rotation, the student is to submit their suggested 4 topic areas to be examined on as well as a suggested three member committee (see Section 3.2c) to the Director of Graduate Studies. The Director of Graduate Studies will review for approval or make changes as necessary and invite the members to serve on the committee. The qualifying exam must be completed by the end of the first year in the program (or within two months of completion of the final rotation, whichever comes first).

**Thesis Committee:** Students preparing a thesis for the Master of Science will have a three-member thesis committee appointed by the Director of Graduate Studies and headed by the research mentor. This committee will be responsible for monitoring his/her progress and hearing, critiquing and approving the student's thesis. For Ph.D. students, the dissertation subject must be approved by a Research Advisory Committee that must consist of five members, including at least two members from outside the BME department, and be comprised of at least three engineering faculty and one faculty member from the School of Medicine.

### **3. DEGREE REQUIREMENTS**

#### **3.1 Master of Science (M.S.)**

Candidates for the M.S. must accumulate a total of 30 graduate course credits beyond the bachelor's degree. There are two options, *thesis* and *non-thesis*:

**Thesis option:** For this option, a minimum of 24 credits of course work is required, with the balance being thesis research. The courses must fulfill the core curriculum requirement (see Section 4). The remainder of the courses

is generally driven by the student's research interest. Upon completion of the thesis, the candidate must pass an oral defense conducted by his/her thesis committee. This will consist of a public presentation followed by questions from the committee. Candidates must have a cumulative grade point average of 2.75 or better to receive the degree.

**Non-thesis option:** Candidates must accumulate a total of 30 graduate credits, have a cumulative grade point average of 2.75 or better, and satisfy the core curriculum requirements. The balance of the course credits should be selected with a view toward coherence reflecting a specialization in a research area.

## **3.2 Doctor of Philosophy (Ph.D.)**

### **a. Academic Requirements**

Candidates for this degree must complete a total of 72 credits beyond the bachelor's degree. Of these, a minimum of 36 must be graduate coursework and a minimum of 24 thesis research (i.e. BME 600). The coursework must fulfill the core curriculum requirement (see Section 4). To be admitted to candidacy, the student must have completed at least 18 credits at Washington University, have an overall GPA greater than 3.0, and pass the qualifying examination as described below. He/she must also have completed the research rotations.

### **b. Research Rotation Reports:**

Within three weeks of the end of each rotation, the student will submit a document to the rotation mentor satisfying one of the following two options:

(i) A report on the research conducted by the student during the rotation, written in the form of a standard research journal article. This document should be double-

spaced using 12 point type and one- inch margins. There is no page limitation, although the reports should be concise. If the project has not been completed, preliminary or partial results are to be described. It is recommended that this article contain the following sections:

*Abstract.* In one paragraph summarize the objectives, methods, main results and conclusions.

*Introduction:* Describe the motivation and objectives of the research.

*Methods.* Give the details of the procedures and calculations.

*Results.* Describe the results of the study, referring to graphs, tables and illustrations by number.

*Discussion.* List the main findings and put them in the context of previously published work on the topic. Discuss the meaning and implications of your results, any surprising findings, sources of error, limitations, etc. Support any assertions by referring to specific data or previously published work.

*References.* List pertinent articles.

(ii) A critical review of a published research article selected by the mentor. This journal article should not be a review article and none of the authors can be associated with Washington University. The review should be no longer than 20 pages of double-spaced text (12 point type with one-inch margins), excluding figures. This review should contain the following sections:

*Questions addressed.* Identify the key questions addressed and the reasons for examining them.

*Background.* Discuss the most significant related research that had been published prior to this article.

*Critical Appraisal.* Discuss the author's approach and contribution to the solution of the questions listed above.

Compare the author's approach and contribution to those of previous investigators.

*Proposal for additional research.* Propose in concrete terms research that might be done to extend and (if necessary) improve upon the study.

*References.* List pertinent additional articles.

The rotation mentor must approve the report by signing the cover page of the report. One signed copy of the document (including the selected article for option (ii)) should be submitted to the Graduate Student Administrator. All rotation reports must be submitted prior to the qualifying exam.

**c. Qualifying Examination:**

Because the Ph.D. is primarily a research degree, the qualifying examination is designed to assess the candidate's aptitude for independent research. After the rotation reports have been submitted to the Graduate Student Administrator, the student will select one of the rotation documents as the basis for the qualifying examination.

Considering a list of faculty members submitted by the student at least one month before the end of the last rotation the Director of Graduate Studies will select the members of the examining committee and four topic areas that will be covered in the examination. This committee will consist of three faculty members, excluding the rotation mentor, and shall have at least one full-time member of the BME department. The rotation mentor may attend the exam but cannot ask or answer any questions and cannot vote. Copies of the rotation report are to be distributed to the members of the examining committee at least two weeks before the date of the exam. The committee will review the

rotation report along with the student's transcript and rotation mentor's evaluations.

Before Sept. 1 of the second year (or June 30 if only two rotations were performed; or otherwise within six weeks of the end of the last rotation), the student will appear before the qualifying examination committee for an oral examination consisting of a 20-minute presentation by the student and questions by the examining committee. The questions may address any issues directly related to: 1) the document or the oral presentation, and 2) principles of biomedical engineering pertinent to the four topic areas assigned by the Director of Graduate Studies.

Considering the performance on the oral examination, the written report, the evaluations from all the rotation mentors, the student's coursework, and the student's GPA, the qualifying examination committee will recommend that:

- The student passes the qualifying exam.
- The student must retake the examination.
- The student must successfully pass specified remedial courses or other requirements specified by the committee to pass the qualifying exam.
- The student will be asked to leave the program.

**d. Thesis Proposal.**

Following successful completion of the qualifying examination, students will select a research area and a mentor (usually this will be the same area and mentor selected for the qualifying examination). The student and mentor will decide upon a suitable problem whereupon the student will prepare a comprehensive written research proposal that includes a thorough survey of the field, a discussion of those areas needing further research, and a tentative but clear definition of the proposed research. Results of preliminary studies or feasibility studies should

be included. This proposal will be submitted to the thesis committee at least two weeks prior to an oral presentation and questions before that committee. This should be completed within two years of passing the qualifying exam. However, the student must meet with the thesis committee annually to maintain active status within the doctoral program. Thus, the thesis committee must be formed and meet within one year of the student passing the qualifying exam. The composition of the thesis committee may change as the research problem evolves.

The format of the written proposal will follow the guidelines in Section 1 of the NIH Kirschstein National Research Service Award – Individual Predoctoral Fellowship Application.

**e. Teaching Assistant Requirement**

After passing the qualifying exam but before the thesis defense, the student must fulfill a University-wide Teaching Requirement in a BME course. During that semester, the student will perform this duty in addition to the normal coursework and research duties that are expected by the research advisor. Ph.D. candidates should accumulate a minimum of 14 units of teaching experience at the basic level. There are many ways these units could be obtained, such as giving an actual lecture in an undergraduate class, conducting discussion sections, introducing /interpreting laboratory exercises or conducting formal help sessions. Ph.D. candidates should also accumulate at least 4 units of teaching experience at the advanced level. The Graduate School recognizes that opportunities for such experience will vary widely across the disciplines within the University, and so is flexible as to what experiences count toward this accumulation. For example, presenting one's research at a regularly scheduled colloquium or seminar that is attended by other graduate

students and faculty would satisfy one unit of advanced level teaching. Another possibility would be presenting a paper at a conference, including conferences organized by scholarly societies as well as local conferences. Another possibility would be presenting and leading the discussion of a journal article in a journal club or formal discussion group at the graduate level. In certain cases lecturing in an advanced (300-level or 400-level) undergraduate class or running an advanced undergraduate laboratory might be appropriate.

A unit of teaching may be defined broadly as an hour spent communicating with a group of students or scholars. As such, holding one-on-one office hours, grading exams, or note-taking, while often part of Teaching Assistantship duties, should not count toward the formal accumulation of teaching units.

**f. Thesis defense.**

Upon completion of the thesis, the candidate must present the thesis in a public forum and successfully defend the thesis before a committee consisting of the original thesis committee plus additional faculty as required. For Ph.D. candidates the Title, Scope and Procedure form must be registered in the Arts & Sciences Graduate School at least six months before the dissertation examination. The dissertation must be approved by the Research Advisory Committee before the final examination. The dissertation is examined by six tenured or tenure-track faculty, with four faculty members from BME and at least two from other departments or schools. It shall be the responsibility of the student, in consultation with the mentor, thesis committee, and Director of Graduate Studies, to select and invite the extra-departmental members of the thesis defense committee.

The student should not stand for the defense until after the acceptance of one paper in a peer-reviewed journal and submission of a second manuscript to a peer-reviewed journal, with the student as first author on both.

#### **4. COURSE SELECTION**

Students formulate their course program in consultation with their academic advisor. A core curriculum is required to be completed by both Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) students. This core curriculum requires:

- Two graduate courses in life sciences
- One graduate course in the area of mathematics
- One graduate course in the area of computer science
- BME courses as specified below.

For M.S. students, the requirement is the core curriculum plus at least three courses selected from the list below. For Ph.D. students, the requirement is the core curriculum plus at least five courses from the list below, with three of these courses being in different graduate educational programs. Other courses may fulfill this requirement and may be added to this list at the discretion of the Director of Graduate Studies.

#### **Educational Programs and Constituent Courses**

##### Biomaterials & Tissue Engineering

BME 511	Biotechnology Techniques for Engineers
BME 523	Biomaterials Science
BME 524	Tissue Engineering
BME 525	Engineering Aspects of Biotechnology
BME 527	Design of Artificial Organs
BME 564	Orthopedic Biomechanics – Cartilage/Tendon
BME 563	Orthopedic Biomechanics – Bones and Joints

BME 5904 Nanostructured Surfaces and Materials:  
Application to Biomedical Research

Cardiovascular Engineering

BME 556 Experimental Methods in Biomechanics  
BME 557 Cell and Subcellular Biomechanics  
BME 559 Intermediate Biomechanics  
BME 562 Mechanics of Growth and Development  
BME 567 Cardiac Mechanics  
BME 568 Cardiovascular Dynamics  
BME 573 Applied Bioelectricity  
BME 575 Molecular Basis of Bioelectrical Excitation  
BME 594 Integrative Cardiac Electrophysiology

Imaging

BME 494 Medical Imaging  
BME 502 Cardiovascular MRI  
BME 504 Optical Bioelectric Imaging  
BME 505 Advanced MRI and Molecular Imaging  
BME 591 Biomedical Optics I: Principles  
BME 592 Biomedical Optics II: Imaging

Molecular, Cellular, and Systems Engineering

BME 521 Kinetics of Receptor-Mediated Processes  
BIOL 5311 Dynamics in Mesoscopic Molecular Systems  
BIOL 5312 Macromolecular Interactions  
BME 558 Biological Transport  
BME 5903 Physical Methods for Biomedical Scientists

Neural Engineering

BME 471 Bioelectric Phenomena  
BME 533 Biomedical Signal Processing  
BME 572 Biological Neural Computation  
BME 575 Molecular Basis of Bioelectrical Excitation

**Courses that fulfill the life science requirement**

BME 530A Molecular Cell Biology for Engineers  
BME 503A Cell & Organ Systems  
BIOL 5068 Fundamentals of Molecular Cell Biology  
BIOL 5319 Molecular Foundations of Medicine  
BIOL 4501 Biochemistry  
BIOL 5051 Foundations in Immunology (4 units)  
BIOL 5352 Developmental Biology  
BIOL 5062 Central Questions in Cell Biology  
BIOL 5571 Cellular Neurobiology (3 units)  
BIOL 5651 Neural Systems  
BIOL 5581 Neural Basis of Acoustic Communication  
BIOL 404 Laboratory of Neurophysiology  
BIOL 548 Nucleic Acids and Protein Biosynthesis  
BIOL 5663 Neurobiology of Disease

### **Courses that fulfill the mathematics requirement**

ESE 502 Mathematics of Modern Eng. II  
ESE 517 Partial Differential Equations  
ESE 520 Probability and Stochastic Processes  
CHE 515 Mathematical Methods in Chem. Eng.  
PHY501 Methods of Theoretical Physics I  
PHY502 Methods of Theoretical Physics II  
PHY503 Advanced Math Methods for Physicist &  
Engineering I  
PHY504 Advanced Math Methods for Physicist &  
Engineering II

### **Courses that fulfill the computer science requirement**

CSE 501N Programming Concepts and Practice  
CSE 502N Fundamentals of Computer Science  
ESE 511 Numerical Analysis  
CSE 405A Numerical Methods  
CSE5411 Advanced Algorithms

Additional courses may fulfill the life science, mathematics or computer science requirements, dependent upon your background and at the discretion of the Director of Graduate Studies.

The normal load for M.S. students engaged in classroom instruction is 12 credits per semester. The normal load for Ph.D. students is 9-10 credits per semester plus a rotation, research assistantship or a teaching assistantship. A rotation is considered a half-time appointment and 15-20 hours per week should be spent on the rotation. A graduate student registered for research credits is automatically classified as full time whether or not additional courses are taken. Students employed full time, either on or off campus, are limited to a maximum of 6 credits per semester. Up to two 400-level courses may be counted towards the 36 units of graduate coursework required for the Ph.D. (not including Biol 493). Following selection of the research mentor, the student should choose the remaining coursework in consultation with the research mentor. The academic advisor should be notified of these coursework choices.

For additional requirements for the Ph.D. degree, also see the Graduate School of Arts & Sciences Graduate School Bulletin:  
[http://graduateschool.wustl.edu/files/graduate/GSAS%20Bulletin%202009\\_1.pdf](http://graduateschool.wustl.edu/files/graduate/GSAS%20Bulletin%202009_1.pdf).

## **5. FINANCIAL AID**

Graduate students preparing to enroll and work toward a degree in the department may apply for financial assistance. In the case of students entering the department for the first time, applications are evaluated and awards made strictly on a merit basis. Academic achievements and

satisfactory performance in research and other assignments while at Washington University are the primary factors governing continuation of financial aid.

Students who are placed on academic suspension will automatically have their financial assistance canceled, effective with the date of suspension. (For the regulations governing academic probation and suspension, please refer to the School of Engineering and Applied Science Web site, <http://www.engineering.wustl.edu>.)

### **5.1 Types of Awards**

There are four types of financial assistance awards available to graduate students in the department:

#### **a. Fellowships**

Fellowships are grants generally providing full tuition plus a stipend. Except for the required teaching duties no specific duties are required in return for this financial aid. Fellowships may be awarded for one to three years with renewability contingent upon performance.

Fellowship funds may derive from government or private sources. They may be administered by the department or they may be awarded directly to the student by an external agency, e.g., the National Science Foundation. (In the case of NSF Fellowships students must apply directly to the foundation and take a written examination.)

#### **b. Traineeships**

Traineeships may be funded by the Schools of Engineering and Medicine and administered by the departmental chair, or they may be associated with specialized, externally sponsored training grants. In the latter case, the traineeship has a definite term (9 or 12 months) and is generally

renewable depending upon academic performance and continuation of the grant.

Holders of such traineeships are normally obliged to follow a course program specified by the particular training grant and may be assigned duties on relevant research projects.

Traineeships funded by the University are normally awarded only to students during their first two semesters. They provide up to 9 credits of tuition remission per semester plus a monthly stipend.

### **c. Teaching Assistantships**

Teaching assistantships are funded by the department. They are normally awarded to first- and second-year students who have expressed an interest in a teaching career and who have acceptable English language skills.

The duties of teaching assistants normally include the grading of papers, laboratory reports, and/or laboratory supervision in undergraduate courses. Assignments are made by the Director of Graduate Studies and teaching assistants are responsible to the professors in charge of the various courses and laboratories.

Teaching assistantships are awarded on a 12-month basis for half-time effort. As such the average time required is not to exceed 20 hours per week. The assistantships provide up to 9 credits of tuition remission per semester plus a monthly stipend, which is the allowable limit for a half-time assistant. During academic year periods of recess and summers, teaching assistants will be assigned duties relating to future course preparations and/or will be expected to participate in one or more research activities.

#### **d. Research Assistantships**

Research assistantships are funded directly from government or industry grants and contracts. They are normally awarded to students who have advanced to candidacy and made a commitment to a particular research area and who, by virtue of their academic background and record, satisfy a particular project's staffing needs.

Research assistantships are normally supplemented by tuition scholarships that may be funded jointly by the Schools of Engineering and Medicine. Research assistants are responsible to the project director (principal investigator) of the project. (Generally, this same individual eventually assumes the additional role of thesis or dissertation supervisor.)

Research assistants are paid a regular monthly stipend. During the academic year a research assistant is considered to be employed half-time on a research project and, as such, is not permitted to register for more than 9 hours of graduate credit per semester. A minimum of 20 hours of work per week is required on the research project. However, graduate assistants whose thesis research coincides or overlaps with their project assignment are expected to devote more than this minimum effort to research, and, in fact, the student's diligence and devotion will be important factors in renewal of the assistantships. It is important to note that it is the prerogative of the project director to terminate a research assistantship at any time for unsatisfactory performance.

Research assistantships are continued during the summer and renewable for the next year at the discretion of the project director and providing funds are available. Summer appointments are at the same rate as during the academic year, but full-time effort is expected.

## **5.2 Tax Liability**

The taxability of the various types of awards described above is determined by current policy of the U.S. Internal Revenue Service. It is prudent to assume that all stipends are fully taxable and that tax will be withheld. Questions concerning any individual's tax liability must be referred to the IRS.

## **5.3 Outside Employment**

Holders of fellowships, traineeships and assistantships are required to devote full time to graduate studies. They are not permitted to engage in any outside employment without special permission of the director of the Henry Edwin Sever Graduate School of Engineering and Applied Science.

## **5.4 Time Off**

Graduate students on financial support are expected to commit themselves fully to their studies and research. Intersession periods listed in the University Academic Calendar denote times when classes are not in session. Graduate students in residence should, however, utilize these periods to further their studies and research.

Students on full support are permitted to take off a maximum of two weeks during the calendar year for holidays, interview trips, etc. Additional time off can be arranged but must be approved ahead of time by the mentor or Director of Graduate Studies. This will result in a reduction of the student's stipend. Absences of research assistants must be scheduled so as not to impede the progress of an ongoing research project and should be cleared with the project director.

## **6. OTHER POLICIES**

### **6.1 Seminars**

Each year the department sponsors or participates in a series of seminars by visiting lecturers and Washington University faculty and students. All full-time graduate students are required to enroll in BME 501 - Graduate Seminar, which is a pass/fail course carrying no credit. A passing grade is required for each semester for all full-time students and is earned by regular attendance at these events.

### **6.2 Secretarial Service**

Department secretaries do not generally provide clerical services to graduate students except in connection with scheduled courses and sponsored research projects.

### **6.3 Copying Service**

Graduate students may not charge copying work to the department or a research project without prior authorization. Personal copies can be charged to a student's personal account. The cost of copying dissertations beyond the three copies required by the department is considered a personal obligation.

This is a compilation of policies and regulations applicable to graduate students in the Department of Biomedical Engineering. Students should also become familiar with the general regulations of the Graduate School of Arts and Sciences as described in the School's website at <http://artsci.wustl.edu/GSAS> and Henry Edwin Sever Graduate School of Engineering and Applied Science as described in the School's Web site: [www.engineering.wustl.edu](http://www.engineering.wustl.edu)

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