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Preface

The policies and procedures were adopted by the Faculty of the Department of Biomedical Engineering on DATE. The School of Engineering and Applied Sciences (SEAS) policies and procedures included in this manual were approved by the SEAS faculty in summer 1988 and revised in March 1991 and 2006. The policies and procedures related to graduate study included in this manual are effective for all graduate students entering the Department of Biomedical Engineering after December 1, 2010. The Department reserves the right to modify the procedures and requirements outlined in this manual. Such modifications generally will not be considered as retroactive.

In accordance with federal and state laws, no person in whatever relationship with the State University of New York at Buffalo shall be subject to discrimination on the basis of age, religion or creed, color, disability, national origin, race, ethnicity, sex or sexual orientation, marital or veteran status.
1. General Information

Introduction

The objective of graduate study programs in the Department of Biomedical Engineering (BME) at the University at Buffalo (UB) is to provide students with the intellectual depth and breadth, and appropriate training necessary to pursue productive professional, teaching and research careers in the field of biomedical engineering and to make a larger contribution to society than would be otherwise possible.

This manual is designed as a general reference for students pursuing graduate degrees in the Department and for their faculty advisors. Policies and procedures of the Department, the School of Engineering and Applied Sciences (SEAS) and the Graduate School of the University at Buffalo (UB) are listed. The following sections of the Manual present:

- Graduate programs and degree requirements.
- Summary of general policies of the School of Engineering and Applied Sciences (SEAS).
- Admissions Information
- Distance Learning Information

For additional information, consider the following:

- Policy Library – The Graduate School
- Policies for SEAS Graduate Students

The aforementioned booklets contain information and requirements for the various degrees offered by the Department that augments the material presented in this manual. More detailed information can be accessed at the UB Graduate School website www.grad.buffalo.edu.

Students should be aware that departmental programs may specify more rigorous requirements for a degree than those listed in other University or School of Engineering booklets. Therefore, when there appears to be a conflict in requirements as listed in the various booklets, the more rigorous requirements must be satisfied. Students may want to obtain a copy of Student Rules and Regulations—UB Rules & Regulations from the Division of Student Affairs. This booklet deals with university standards, administrative regulations, and student conduct rules.

A student who wishes to petition for waiver from any of the policies and procedures presented in this manual should consult with his or her advisor first and gain approval for the waiver from the Director of Graduate Studies.

Additional information on the University at Buffalo, the School of Engineering and Applied Sciences (SEAS), and the Department of Biomedical Engineering is available in various electronic formats. URL addresses for some of these sites are:

Biomedical Engineering Department http://engineering.buffalo.edu/biomedical.html
School of Engineering and Applied Sciences http://engineering.buffalo.edu/
Student Affairs http://www.student-affairs.buffalo.edu
University at Buffalo http://www.buffalo.edu
Initial Advisement and Registration

Graduate study is individual in nature and requires frequent interaction of a student with advisors and other faculty. To initiate this important process, each student begins the program with preliminary advisement done by the department. The purpose of preliminary advisement is to: (1) work with the student to decide coursework that should be taken during the first year of graduate study; (2) help with any general questions a student may have about the program, opportunities for research, or funding; and (3) guide the student on the selection process for a permanent advisor. The Biomedical Engineering department and core faculty might be of assistance to provide counsel in non-curricular matters, such as health, housing, and deficiencies in English comprehension, speaking or writing.

Students enrolling for graduate study for the first time are required to attend the department’s orientation where they will be introduced to their preliminary advisor. This orientation typically is held the week before Fall Semester classes start. After consultation with their preliminary advisors, new students will register for their first semester’s classes. International students registering for the first time should report to the Office of International Education in Talbert Hall for assistance on housing, visa status, and orientation before coming to the department office. All incoming students must attend the Graduate Student Orientation.

It is important for all international students to maintain full-time status during their entire graduate study at the University at Buffalo. As per immigration regulations, international students must maintain full time status.
2. Graduate Programs and Degree Requirements

Areas of Study and Degree Options

The Department of Biomedical Engineering currently offers Master of Science (M.S) and Doctor of Philosophy (Ph.D.) degrees in biomedical engineering. Program areas for students within these degree options include: Imaging, Tissue Engineering, Sensor Materials and Devices and Computation.

While graduate students typically pursue degree options within one of the above technical areas, graduate study and research programs, by nature, are designed to allow for flexibility to meet student interest. Graduate students, working with their advisor, are responsible for developing the program of study that fits the student’s needs and career goals. Specific programs of study are developed and approved through the Application to Candidacy as described later. All proposed M.S. and Ph.D. programs for other interdisciplinary areas must be approved by the Director of Graduate Studies and must include applicable basic core courses prescribed by the department.

For students wishing to enter the graduate program in Biomedical Engineering without sufficient background courses as an undergraduate may be required to take bridge courses to build their core competencies before taking the graduate courses. These may be 300-level and 400-level engineering, biology, chemistry, physics or life sciences courses. Any 300-level or 400-level courses taken as a graduate student will not be counted toward the Graduate degree. This will be determined by discussion with the student’s advisor and the department’s Director of Graduate Studies.

Core Curriculum

It is the policy of the Department that all (M.S. and Ph.D.) Biomedical Engineering graduate students shall participate in the Departmental core program to the extent specified. The courses comprising the core program are selected to ensure that advanced degree recipients from the Department have knowledge in the basic life sciences and mathematics that are the "fundamental language" of biomedical engineering. The only exception to this rule is when a student can demonstrate that he/she has already taken an equivalent course before entering UB. In this case the student should take an alternative course, as specified by the Director of Graduate Studies. The core graduate courses are listed in Table 1.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>MS Cr. Hrs</th>
<th>PhD Cr Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 501- Human Biology for Biomedical Engineers</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>BE 502- Quantitative Analysis in BE</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

In addition, PhD students enrolled in the Biomedical Engineering Graduate program must document successful completion of "Responsible Conduct of Research" (RCR) training. This training requirement may be fulfilled by either taking a formal course OR completing an online course. If a student chooses to take a formal course, the student must enroll in and pass one of two courses which are: PHI 640 Graduate Research Ethics or RPN 541 Ethics and Conduct of Research. Alternatively, students may complete the Collaborative Institutional Training Initiative (CITI) online Responsible Conduct of Research course with an average score of 80% or higher. Please see [http://www.grad.buffalo.edu/policies/phd.php#citi](http://www.grad.buffalo.edu/policies/phd.php#citi) for information on this online course. Once the student has successfully completed the appropriate version of the CITI RCR program with a passing grade of 80% or higher, he/she must print the "Completion Report" from within the CITI program as documentation of successful completion and submit it to the department. Regardless of the option, this must be completed during the first semester of enrollment in the graduate program.
MS students are encouraged to complete the RCR training depending on consultation with his/her advisor and the department.

**Master’s Program**

The Department’s Master of Science (M.S.) program is intended to serve a variety of people and goals. The M.S. program is designed to provide a fundamental/research-oriented program of advanced study for students wishing to enhance their knowledge and understanding within a specialized discipline. Students are prepared either for careers in engineering practice or for further graduate education.

**Suggested Programs of Study**

Programs of study are outlined for areas of technical expertise within the Department in Tables 1 to 5. For each program, the core requirements are specified as well as suggested electives and other specific requirements.

**Table 2. Plan for MS Program**

<table>
<thead>
<tr>
<th></th>
<th>Fall Year 1</th>
<th>Spring Year 1</th>
<th>Summer Year 1</th>
<th>Fall Year 2</th>
<th>Spring Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THESIS- 12 Months</strong></td>
<td>12 cr. courses</td>
<td>6 cr. courses + 3 cr. BE 596/598 + 3 cr. BE 599</td>
<td>3 cr. BE 596/598 + 3 cr. BE 599</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>THESIS- 16 months</strong></td>
<td>12 cr. courses</td>
<td>9 cr. courses + 3 cr. BE 596/598</td>
<td>3 cr. BE 599</td>
<td>3 cr. BE 599</td>
<td>-</td>
</tr>
<tr>
<td><strong>THESIS- 20 months</strong></td>
<td>12 cr. courses</td>
<td>6 cr. courses + 6 cr. BE 596/598</td>
<td>2 cr. BE 599</td>
<td>2 cr. BE 599</td>
<td>2 cr. BE 599</td>
</tr>
<tr>
<td><strong>PROJECT- 12 months</strong></td>
<td>12 cr. courses</td>
<td>6 cr. courses + 6 cr. BE 596/598</td>
<td>3 cr. BE 597</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>PROJECT- 16 months</strong></td>
<td>12 cr. courses</td>
<td>6 cr. courses + 6 cr. BE 596/598</td>
<td>2 cr. BE 597</td>
<td>1 cr. BE 597</td>
<td>-</td>
</tr>
<tr>
<td><strong>PROJECT- 20 months</strong></td>
<td>12 cr. courses</td>
<td>6 cr. courses + 6 cr. BE 596/598</td>
<td>1 cr. BE 597</td>
<td>1 cr. BE 597</td>
<td>1 cr. BE 597</td>
</tr>
<tr>
<td><strong>C. EXAM- 9 months</strong></td>
<td>15 cr. courses</td>
<td>9 cr. courses + 6 cr. BE 596/598 + Exam</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>C. EXAM- 16 months</strong></td>
<td>12 cr. courses</td>
<td>12 cr. courses</td>
<td>3 cr. BE 596/598</td>
<td>3 cr. BE 596/598 + Exam</td>
<td>-</td>
</tr>
<tr>
<td><strong>C. EXAM- 20 months</strong></td>
<td>12 cr. courses</td>
<td>12 cr. courses</td>
<td>-</td>
<td>3 cr. BE 596/598</td>
<td>3 cr. BE 596/598 + Exam</td>
</tr>
</tbody>
</table>

As shown in Table 1, all Master’s students must complete the Department’s core curriculum as part of their 30 semester credits of approved graduate coursework. Additional course work requirements may be specified by individual program areas and faculty advisors. There are three culminating experiences from which to choose from to earn the Master’s of Science degree: thesis, project, and comprehensive exam. Students only complete one culminating experience. Courses taken S/U will not count towards a degree, other than research/thesis hours or Individual Problems (BE 598), or any other S/U course explicitly required by the Department. No more than 6 credit hours of informal courses (e.g. Individual Problems) can be applied to toward the M.S. degree course requirements. Table 2 provides a plan for students for the common program durations (9 months, 12 months, 16 months, and 20 months) in each culminating experience option.
<table>
<thead>
<tr>
<th>Option</th>
<th>Minimum Credits of Approved Coursework</th>
<th>Culminating Experience</th>
<th>Expected Time to Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>24-27</td>
<td>3 to 6 credits MS Research (BE 599) and Thesis Defense</td>
<td>12 to 20 months</td>
</tr>
<tr>
<td>Project</td>
<td>24-27</td>
<td>3 credits Engineering Project (BE 597)</td>
<td>12 to 20 months</td>
</tr>
<tr>
<td>Comprehensive Exam</td>
<td>30</td>
<td>Comprehensive Exam (0 credit hrs)</td>
<td>9-20 months</td>
</tr>
</tbody>
</table>

Culminating Experience Requirements

All students must complete a minimum of 30 credits to earn a degree. The degree culminates in one of three options: Comprehensive Exam (all-course option), the Master’s Project, or the Master’s Thesis. By default, all entering students are advised by the Graduate Program Director and are in the Comprehensive Exam (all course) option. If a student wishes to pursue an MS with Thesis or Project, they must have agreement with the faculty member who is willing to be their advisor. When this is the case, approval must be obtained from the Graduate Director. Only students who are in the Project or Thesis options can take BE 597 Engineering Project or BE 599 Master’s Research. Students may change their track from Thesis to Project, and any Thesis credits taken can count as Project credits. Students cannot change their track from Project to Thesis. Students who wish to pursue the Project or Thesis option are welcome to talk with the faculty to determine their research interests and availability to supervise students.

The minimum coursework requirements, culminating experience and projected time requirements for each different master’s degree option are shown in Table 3. The expected time to completion are not guarantees but rather are estimates based on prior experience that are unique to each student’s experiences.

The requirements for the culminating experience options are outlined below:

**Thesis**

Students pursuing the Thesis option will complete three (3) to six (6) credits of BE 599 Master’s Research. The course is taken under the direction of their permanent advisor, and allows them to earn credit for the time spent conducting their research and preparing their thesis. MS Thesis students must complete at least four (4) Biomedical Engineering (BE) lecture courses, including required courses: BE 501 Human Biology for Biomedical Engineers (3 credit hours) and BE 502 Quantitative Analysis in Biomedical Engineering (3 credit hours).

The MS thesis must be successfully defended before the student’s MS thesis committee. The Thesis Committee should be selected by the start of the second semester of study, using the Thesis Committee Selection form located on the department website. The MS thesis committee is chaired by the student’s permanent advisor and includes at least one additional graduate faculty member. The student’s advisor will help to form the committee. Faculty from other departments also may participate on a student’s committee but the permanent advisor must be from the Biomedical Engineering Department.

Prior to the MS thesis defense, the student in consultation with his/her advisor will prepare a first draft of the thesis. Upon completion of a "reader's copy," the student’s committee members will have two weeks to review the document and decide whether revisions are required or if the defense can be scheduled. If revisions are necessary, then additional time will be needed for further review. The thesis must include a cover page listing the student’s advisor and committee members, along with spaces for their signatures. Once the thesis is ready for defense, the student is required to send
the department their defense information (Title, Abstract, Committee Members, date, time, and location) – the defense will be announced one week prior to the defense. The defense should consist of an oral presentation open to the public of about 30-45 minutes long, with an additional 10 to 15 minutes for general questions. Immediately after the open session the defense will continue with the student's thesis committee only. After the defense, the committee will determine whether the student has successfully defended the thesis or whether additional work is required. After successfully completing a thesis defense, the candidate must submit to the Graduate School an electronic copy of the thesis. In addition, one bound copy must be submitted to the Department, as well as the M-form. It also is customary for students to provide bound copies to their committee members.

Project

Students pursuing the Project option will complete three (3) credits of BE 597 Engineering Project. The course is taken under the direction of their permanent advisor, and allows them to earn credit for the time spent conducting their research and preparing their project. MS Project students must complete at least four (5) Biomedical Engineering (BE) lecture courses, including required courses: BE 501 Human Biology for Biomedical Engineers (3 credit hours) and BE 502 Quantitative Analysis in Biomedical Engineering (3 credit hours).

The Master’s Project is generally more applied than that for a thesis, with the student often defining a problem and developing a solution for it. The project may be a scholarly undertaking that results in a tangible outcome - Department of Biomedical Engineering a device prototype, a start-up business plan, a technical report, a computer program, - that does not fit neatly within the framework of a traditional scholarly thesis paper. However, the final project should be accompanied by a paper written by the student that introduces, analyzes, and contextualizes the project, and demonstrates the student's familiarity with the relevant literature of the field. The written report must be a minimum of 20 pages using standard formatting. The Project must be approved by the student’s permanent advisor, and one additional core Biomedical Engineering faculty member who will serve as the “Signing Advisor.” The Signing Advisor is selected by the student’s permanent advisor. A copy of the final paper must be submitted to the department after it is approved by both advisors, along with the M-form and Project Approval form.

The scope of the project and the format of the work to be done will be decided, in discussion with the student, by the student’s permanent advisor. Students are not required by the department to have a committee to oversee their Master’s Project, and the department does not require a defense of the project, however it is at the discretion of individual faculty members to require either or both of these components for the student with whom they are working.

Comprehensive Exam (All-Course)

Students pursuing the Comprehensive Exam option may receive a Master’s degree by completing 30 credits of coursework; they are not responsible for conducting any significant research. When a student submits their Application to Candidacy, they will register to take their Comprehensive Exam near the end of the term in which they will graduate. The Comprehensive Exam is only offered once per Fall term and once per Spring term. The exam will be prepared by the core faculties in the Biomedical Engineering department and will draw from all graduate courses offered in the department in the 12 months prior to the exam. Students completing the Comprehensive Exam (All-Course) option must complete at least six (6) Biomedical Engineering (BE) courses, including required courses: BE 501 Human Biology for Biomedical Engineers (3 credit hours) and BE 502 Quantitative Analysis in Biomedical Engineering (3 credit hours). Students are not required to take every graduate course offered by the department, but they should be aware that material in the Comprehensive Exam may cover aspects from any of those courses.

The student will not be responsible for material from informal courses, Special Topics courses, and courses not offered within the 12 months prior to the exam. Students may take related courses in other SEAS or SMBS departments based on their interests and career goals, but the Comprehensive Exam will be based on the coursework within the department. If a student is unsure whether a course outside of the department is related to the degree in Biomedical Engineering, the student should discuss the course with the Graduate Director prior to enrolling. A student may, upon
approval of the Director of Graduate Studies, take additional courses—outside of the required six BE courses—that are not BE courses and apply them toward their degree requirements. Any courses to be taken outside of the Biomedical Engineering department must be requested in writing using the Outside BME Course Approval Form.

The Comprehensive Exam will be a pass/fail exam. If a student does not pass the exam the first time, the student will be allowed to retake the exam once at the immediate subsequent offering. A student who fails both offerings of the exam will not be allowed to continue in the Graduate Program and will not earn their MS degree in Biomedical Engineering. A passing grade will be awarded for a student who achieves total average score of 70% or better and a score of at least 50% on each question answered. All students can request to review their graded exam(s) for up to one year after it is taken; the examination may only be viewed in the Biomedical Engineering offices, and the student may neither make nor keep a copy of their examination. A student who registers for and does not show up for the Comprehensive Exam will receive a failing grade; exceptions may be made for extraordinary circumstances at the discretion of the Graduate Director.

In the semester that a student finishes the 30 credits of coursework, they are eligible to register for the Comprehensive Exam. Students must register with the department during the first week of classes in the semester. If a student does not register during the first week of class, they will not be eligible to take the exam in that semester. The exam will be given within five (5) days of the last day of final exams for the semester. The exact date and time will be set a minimum of 6 weeks in advance. During the Spring offering, the exam may occur after the University commencement ceremony—students who are eligible will still be allowed to participate in the ceremonies.

Students may choose to take the exam in the semester in which they finish their 30 credits of coursework or in the immediate subsequent semester. While delaying the examination will allow the student additional time to prepare for the exam, delaying will result in additional tuition fees for any credit hours registered in each semester as students are required to be registered for at least 1 credit in every semester until graduation.

Faculty Advisor

Students who are interested in completing a Master’s Thesis or Project, or completing the PhD program, should secure a faculty advisor by the start of the second semester of study. During the first semester of study, students are encouraged to meet with Graduate faculty members of the Biomedical Engineering department to discuss possible research interests. Master’s and PhD advisors should be Biomedical Engineering department faculty, or Biomedical Engineering adjunct faculty members. Graduate faculty outside of the Biomedical Engineering department cannot serve as major advisors for Biomedical Engineering graduate students. A student may choose a permanent faculty advisor as soon as the student and prospective advisor agree. To secure the advisor assignment, students must complete the “Faculty Advisor Agreement” form and obtain their advisors’ signature. This form should be submitted to the department by the start of the second semester of study. Once the department has been informed of the advisor/student agreement, the student is required to consult with their permanent advisor to plan their coursework and/or research for each remaining semester, along with the preparation of the Application to Candidacy and for other forms that must be submitted. The permanent advisor provides guidance and helps direct the student’s thesis or project. For students completing a thesis, the thesis committee is chaired by the student’s permanent advisor. For students completing a project, the project requirements and approval are set by the student’s permanent advisor. Students completing their degree requirements by taking the Comprehensive Exam (all-course option) will be advised, as necessary, by the Graduate Director, and do not need to submit a Faculty Advisor Agreement form.

Important Milestones During Master’s Degree

As depicted in Table 4, the student, in consultation with his/her advisor, is required to achieve appropriate milestones as he/she progresses through the program. The targets shown in Table 4 are meant to be general guidance and it is the responsibility of the student to meet the timelines appropriate for their situation. When necessary, an advisor may counsel a student to review academic goals, alter a course of study, or terminate studies at the University.
In addition to the completion of coursework and the culminating experience, there are three important items that must be completed by the student: the Application to Candidacy, the M-Form (Matriculation), and any required Exit Surveys (SEAS, BME, the Graduate School). The procedures for the Application to Candidacy are provided in Section 3 of this manual. When all requirements for graduation have been completed, students must submit a completed M-form to the Department. The M-form provides information on the degree option and dates for completion and must be signed by the student’s advisor, committee members if appropriate, and the Department’s Director of Graduate Studies or the Chair. The M-Form will not be signed by the Department until an official copy of the thesis/project is submitted to the Director of Graduate Studies, or the student has completed the Comprehensive Exam. Upon completion of all requirements, students are required to complete an Exit Survey administered by the department, and possibly the School of Engineering and Applied Sciences. Data collected in these surveys are used to evaluate program strengths and areas needing improvement, employment benchmarking, and student evaluation of their graduate experiences at UB.

Table 4. Milestones During Master’s Program

<table>
<thead>
<tr>
<th>Student Action</th>
<th>Frequency</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Course Registration</td>
<td>First semester of program</td>
<td>Select courses with guidance from Graduate Director</td>
</tr>
<tr>
<td>Selection of Faculty Advisor</td>
<td>By start of second semester of study</td>
<td>Meet individually with at least 3 BME faculty members (core or affiliated) to discuss research interests. Complete Faculty Advisor Selection/Agreement Form and submit to BME office</td>
</tr>
<tr>
<td>Culminating Experience Choice</td>
<td>While meeting with faculty during the faculty selection process (first semester of study)</td>
<td>By completing the Faculty Advisor Selection/Agreement Form, this will allow students the chance to indicate whether they are completing a Thesis, Project, or Exam.</td>
</tr>
<tr>
<td>Continuing Registration</td>
<td>Every semester after the first, until graduation</td>
<td>Meet with assigned advisor to select appropriate coursework for Thesis/Project; Exam students may seek guidance from Graduate Director. (If applicable) Submit Individual Problems form, Graduate Internship Proposal &amp; Request to Enroll (BE 597/599/699) form to SEAS Force Registration website.</td>
</tr>
<tr>
<td>Application to Candidacy (ATC) &amp; Apply for Graduation on HUB</td>
<td>When one or two semesters of study remain</td>
<td>Complete Application to Candidacy Form, obtain signatures, and submit to BME Academic Coordinator. Apply for Graduation via HUB Student Center</td>
</tr>
<tr>
<td>Revisions to Application to Candidacy</td>
<td>Any time you change information listed on your ATC</td>
<td>Complete Petition to Change Expected Conferral Date / Amend ATC Form, submit to BME Academic Coordinator</td>
</tr>
<tr>
<td>Acceptance of Culminating Experience</td>
<td>At end of program</td>
<td>Thesis: After defense submit electronic copy of thesis to graduate school, advisor and committee signs M-form, submit M-form &amp; bound copy of Thesis to BME Academic Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project: Submit finished project to advisor as specified, advisor signs M-form/Project Approval Form; submit M-form, Project Approval form &amp; copy of Project to BME Academic Coordinator</td>
</tr>
<tr>
<td>Submission of M-form</td>
<td>After thesis/project is accepted or exam is passed</td>
<td>M-form is signed by advisor (and committee if appropriate) and turned in to BME Academic Coordinator. Copy of Thesis/Project must be submitted to BME department with M-form.</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

**Exam:** Register for exam at start of final semester, take exam at end of final semester, if successfully passed then Graduate Director submits M-form.
Ph.D. Program

The Ph.D. degree provides an opportunity for students to pursue a program of research in a specialized area and to develop a dissertation that embodies the results of original research and gives evidence of high level independent scholarship. The procedures for satisfying the requirements for the Ph.D. degree in Biomedical Engineering are:

- Successful completion of an approved program of graduate coursework;
- Passing the Preliminary Examination;
- Passing the Ph.D. Qualifying Examination;
- Providing annual updates via the Annual Progress Report; and
- Passing the Dissertation Defense.

Ph.D. Program Coursework

An approved program of coursework must contain a well-defined area of study and must be approved by the student's Ph.D. advisement committee and the Graduate School. The program of coursework should be formulated by the student and his/her advisor in the first or second semester after admission to the Ph.D. program. The Ph.D. program consists of a minimum of 72 credit hours beyond the Bachelor's degree. Ph.D. students must complete at least four (4) Biomedical Engineering (BE) lecture courses, including required courses: BE 501 Human Biology for Biomedical Engineers (3 credit hours) and BE 502 Quantitative Analysis in Biomedical Engineering (3 credit hours).

Please see Transfer of Credits Taken at Other Universities, and Course Sharing & Use of Prior Coursework in Section 3.0 for more information on coursework. Core curriculum requirements, as specified in Table 1, must be satisfied assuming that these courses (or the equivalent) were not taken as part of a Master’s program. Ph.D. students will not receive credit for repeating courses taken earlier for the M.S. degree at UB or other institutions. Formal approval of a student’s program is obtained through filing the Application to Candidacy as described in Section 3 of this document.

Ph.D. Advisory Committee

Students pursuing the Ph.D. are guided by a dissertation advisory committee. This committee is arranged to oversee all degree requirements for the student, and has the responsibility of evaluating and approving the student’s program of coursework as well as advising the Ph.D. dissertation. The advisory committee, which is responsible for administering the student’s preliminary and qualifying exam. The committee must be composed of a major professor from the Department who must be a member of the University Graduate Faculty, and at least two additional members who hold the rank of assistant professor or higher in the University Graduate Faculty. Note that Associate Members of the Graduate Faculty may not serve on doctoral committees as one of the three required core committee members, but may serve as additional committee members. The advisory committee must be selected by the end of the second semester of study.

Ph.D. Examination Stages

Each student desiring to be admitted to formal candidacy for the Ph.D. degree will be required to take the qualifying examination conducted by the Department. The qualifying examination consists of two parts.

Part I. Preliminary Examination: This exam is the first step along the path to the Ph.D. The intent of this exam is to evaluate if the student has the ability to formulate a research problem, to state hypotheses or outline design objectives, to propose a research plan using feasible design, experiment and analysis techniques to either test those hypotheses or achieve the design objectives, and to interpret data (if any). It is to be completed after the student’s second semester of Ph.D. studies.
For this examination, the student must meet with their advisor to select a research topic, prepare a written proposal and give an oral presentation on this topic. Format and content of this written proposal should be decided by the faculty advisor and/or Ph.D. committee members. Typically, the written proposal is in the form of a grant application (e.g. NIH F31 Individual Predoctoral Fellows format). The student may seek general guidance about the format expected from the advisor and/or Ph.D. committee members, but the preparation of the proposal must be completed without input from other humans. Students will be given a minimum of two months to prepare their written document and presentation. An electronic or hard copy of the written proposal must be submitted to the committee members 2 weeks prior to the oral presentation. Ph.D. students are advised to initiate this exam by the end of their second semester of Ph.D. study and complete the exam by the end of their third semester of Ph.D. study. Upon completion of the presentation, the committee will decide whether the student passes or fails. Passing has two options: Pass as is and Pass with re-write of the document (no further presentation). Failure means the student is dismissed from the Ph.D. program and can continue to pursue a MS degree, if they desire. The Examination Committee should report the results of the examination to the student and to the Director of Graduate Studies upon completion of deliberations. The results of the examination must be included on the original BME Preliminary Examination Form (See Department Website). Completed and signed form must be submitted to the BME Academic Coordinator. If edits to the written proposal are requested, the student has two weeks to complete these edits and submit the new version to the graduate office. The advisor must accept the new version before it can be submitted. Upon acceptance of the proposal and signing of the BME Preliminary Examination Form, the student has completed this stage.

Upon passing the Preliminary Exam, the student should fill out and submit the Application to Candidacy for the Ph.D. degree. Visit the UB Graduate School website for the form: (http://www.grad.buffalo.edu/forms).

**Part II. Qualifying Examination:** The Qualifying Exam (QE) is the second step along the path to the Ph.D. It is to be completed when the student and the student’s advisor believe the student is ready. Normally, this should be during the second or third year of Ph.D. studies after passing the Preliminary Exam. The intent of the Qualifying Exam is to evaluate student’s overall progress and potential for graduate research as well as their ability to develop an organized research, to conduct research with proper planning and to demonstrate their potential to achieve the research goals.

For this exam, the student should give a presentation on their research followed by an oral exam. The presentation should be 30-45 minutes in length and cover, at a minimum, Background on the topic, Research completed so far, and Research to be completed. The student’s faculty advisor and/or the PhD committee will determine if a written document is necessary, and the guidelines for the document. Following the presentation, the student will appear for an oral exam by the committee.

Based on the presentation and oral exam, the committee will decide if the student passes, fails, or must redo the exam. Pass means the student has completed the exam. Fail means the student is dismissed from the Ph.D. program. Redo means the student has one more attempt at the exam. Only one redo is allowed during the student’s term of study. The student must turn in a completed and signed QE Form (See Department Website) to the BME Academic Coordinator.

Upon satisfactory completion of the qualifying examination, the Ph.D. Dissertation Committee will assume responsibility for directing the dissertation work that will be carried out under the guidance of the candidate’s major advisor. The dissertation must be original and must represent a significant contribution to the state of knowledge in the candidate's area of concentration.

A graduate student is officially considered to be a student for the Ph.D. degree only upon successful completion of the departmental Ph.D. qualifying examination.
Progress Meeting Requirement: After successful completion of the Qualifying Exam and before the dissertation defense, PhD students must arrange a Progress Meeting with their PhD advisor/committee members. The Progress Meeting must be completed at least 6 months before the dissertation defense. During the meeting, students will provide the Progress Meeting Form to the committee. The completed Progress Meeting Form must be submitted to the Academic Coordinator. Students will be unable to defend their dissertation if the Progress Meeting requirement has not been met.

Annual Progress Report: The student must meet at least annually (during Summer typically) with their advisor and/or committee to create and update a checklist of what must be completed before the student can defend his/her dissertation. The results of the progress report meeting must be submitted to the BME Academic Coordinator before the start of the Fall semester. These progress reports ensure that the student is making progress toward their degree and are intended to help the student and faculty advisor. The Annual Progress Report is located on the Graduate Forms page of the department’s website: [http://engineering.buffalo.edu/biomedical/education/doctoral-program/graduate-forms.html](http://engineering.buffalo.edu/biomedical/education/doctoral-program/graduate-forms.html)

Oral Dissertation Defense: The final academic requirement to be satisfied by a candidate is the oral Ph.D. defense of his/her dissertation. Thus, the defense must consist of three components—presentation by the candidate, open session for questioning by the audience and committee members, and a closed session for more questions by the committee members and any faculty attending the defense. Passing this examination indicates that the Ph.D. committee is satisfied that the student possesses a true understanding of the material related to and contained in his or her dissertation. The results of the defense are Pass, Fail or Redo. Pass can (and normally does) require edits to the written document with no further presentation needed. Fail means the student has failed the defense and is dismissed from the program without a Ph.D. degree. Redo means the student must significantly edit the dissertation document, including possibly redoing experiments, and schedule a second dissertation defense. Only one redo is allowed.

A draft of the completed dissertation must be submitted to the committee at least 28 days prior to the defense date to provide ample time to read the document. Students must work with their advisor to schedule their defense and coordinate this with the Biomedical Engineering Academic Coordinator. One week prior to the defense date, the Academic Coordinator will contact the student for their Title, Abstract, Committee Members, and to confirm the date/time/location for the defense. General announcements for the Ph.D. dissertation defense will be sent to the department faculty and graduate students.

Upon passing the defense, the student must submit a signed Multipurpose Report for Graduate Degree Completion Form, also known as the “M-Form,” to the BME Academic Coordinator. The candidate must also submit a digital copy of the dissertation and two online Doctoral Exit Surveys to the Graduate School, and complete the BME Department Exit Survey online. Moreover, the student must submit to the department one bound copy of the dissertation. A cover page must be included in the bound copy, listing the Ph.D. advisor and committee members, with spaces for their signatures.

Important Milestones During Ph.D. Program

As depicted in Table 5, the Ph.D. student, in consultation with their advisor, is required to achieve appropriate milestones as he/she progresses through their program. The targets shown in Table 5 are meant to be general guidance and it is the responsibility of the student to meet the timelines appropriate for their situation. When necessary, an advisor may counsel a student to review academic goals, alter a course of study, or terminate studies at the University.

In addition to the completion of coursework and the culminating experience, there are three important forms that must be completed by the student: the Application to Candidacy, the M-Form (Matriculation), and the Exit Surveys. The procedures for the Application to Candidacy are provided in Section 3.0 of this manual. When all requirements for the Ph.D. degree have been completed, students must submit a completed M-form to the Department. The M-form provides information on dates for completion of Ph.D. requirements and must be signed by the student’s advisor, committee members, and the Department’s Director of Graduate Studies or the Chair. The original signed M-form must
be submitted along with the other materials noted above in Section 2.34 to the Graduate School prior to published dates for degree conferral. Upon completion of all requirements, students are required to complete an Exit Survey administered by the BME Department, and the School of Engineering. Data collected in these surveys are used to evaluate program strengths and areas needing improvement, employment benchmarking, and student evaluation of their graduate experiences at UB.

Table 5. Milestones During the Ph.D. Program

<table>
<thead>
<tr>
<th>Student Action</th>
<th>Frequency</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Course Registration</td>
<td>First semester of program</td>
<td>Meet with preliminary advisor to map out courses and register for first semester.</td>
</tr>
<tr>
<td>Continuing Registration</td>
<td>Every semester after the first, until graduation</td>
<td>Meet with assigned advisor to select appropriate coursework. (If applicable) Submit Request to Enroll (BE 699) Individual Problems form, and Internship Proposal form to BME Academic Coordinator for force registration.</td>
</tr>
<tr>
<td>Selection of Permanent Advisor</td>
<td>Preferably in the first semester of graduate study, but no later than the second semester</td>
<td>Students should meet with Departmental faculty to identify a permanent advisor who will guide dissertation (if not already determined during admissions process). Once advisor is established, student should complete the Faculty Advisor Agreement form and submit to the BME Academic Coordinator.</td>
</tr>
<tr>
<td>Preliminary Exam</td>
<td>After the 2nd semester of study</td>
<td>Register with the BME Graduate Academic Coordinator. Must have a permanent advisor and a GPA ≥ 3.0 to register. Completion means passing of the exam.</td>
</tr>
<tr>
<td>Application to Candidacy</td>
<td>As soon as possible after passing the Ph.D. Preliminary Exam</td>
<td>Fill out Application to Candidacy (ATC) Form (must be typed) and meet with advisor. Student, advisor and committee members will sign, then give form to BME Graduate Academic Coordinator for further signatures. Most changes to the ATC form can be done with a Graduate Student Petition Form.</td>
</tr>
<tr>
<td>Qualifying Exam</td>
<td>After ATC is filed, within 12 months of completed the Preliminary Exam</td>
<td>Oral Research Presentation; written document if required by advisor. QE Form must be submitted upon completion.</td>
</tr>
<tr>
<td>Annual Review Reports</td>
<td>At least once annually (during Summer typically)</td>
<td>Meet with dissertation committee to draft and/or update progress checklist. Student can defend any time after all items have been completed. Updated reports should be turned in to the BME Graduate Academic Coordinator.</td>
</tr>
<tr>
<td>Progress Meeting Requirement</td>
<td>After successful completion of the Qualifying Exam and at least 6 months before the dissertation defense</td>
<td>Students meet with advisor/committee members to complete the Progress Meeting Form.</td>
</tr>
<tr>
<td>Dissertation and Defense</td>
<td>At end of program</td>
<td>Write and defend dissertation. Written document submitted to committee at least 28 days before defense. Coordinate defense arrangements with BME department. Announcements will be made to the faculty and graduate students. Electronically submit dissertation, 2 PhD Surveys, M-form.</td>
</tr>
<tr>
<td>Submission of M-form</td>
<td>After you have completed and defended dissertation</td>
<td>Have advisor and committee members sign M-form, then give to BME Graduate Academic Coordinator. Submit bound dissertation with M-form, or receipt from binding. All Ph.D. students must fill out the Graduate School exit surveys in order to graduate. In addition, the BME Department Exit Survey is a requirement also.</td>
</tr>
</tbody>
</table>
3. Summary of General Policies for Biomedical Engineering Graduate Students

The following are summaries of SEAS and BME policies, and are applicable to all graduate students in the Department.

Residency

a) M.S. degree programs require a 24 credit-hour residency requirement at UB.

b) Ph.D. degree programs require a minimum residency requirement of the equivalent of two complete academic years of full-time study at UB. This includes two semesters of continuous full-time study not already applied to the master’s degree.

c) Students must maintain continuous registration until all degree requirements have been fulfilled. If such registration should be impossible, they must secure a leave of absence.

Transfer of Credits Taken at Other Universities

- Transfer Credits Petition form, official transcripts, and course descriptions of courses intending to transfer are required to be submitted within the student’s first year of study.
- Only courses applicable to the engineering degree are acceptable as transfer credit, and the Department must approve all transfer credits.
- Only those graduate courses completed with grades of "B" or better are eligible for consideration as transfer credit. However, the grade of the transferred course will not be counted towards the student’s grade point average at UB.

Toward MS:

A maximum of 6 credit hours of graduate coursework may be applied toward the minimum 30 credit hour requirement. The other 24 credits must be unique to the BME MS program.

Toward PhD:

A maximum of 30 transfer credits (this normally comes from a master’s degree) may be applied toward the 72 minimum credit hour requirement for the Ph.D. degree—within this 30, only 6 credit hours of thesis or project can be transferred. Accordingly, at least 42 credits must be unique to the BME PhD program of which 18 credits will be course credits. No more than 12 credit hours of informal courses (e.g., Individual Problems, Seminars) can be applied toward the PhD requirements. Note that this includes any informal courses taken as part of the Master’s program – e.g. if a student took 6 credit hours of informal courses as part of their MS degree and applied these toward their PhD, the student could take at most 6 more credit hours of informal courses during their PhD.

Note: Transfer of credits beyond the 30 credit limit but up to maximum of 36 credits (according to the Graduate School policy i.e. up to 50% (36 credit hours) of the PhD may be comprised of courses used to complete another degree program at UB or at another institution. Accordingly a minimum of 50% (36 credit hours) must be unique to the BME PhD program) can be considered only under special conditions i.e. these additional 1-6 credit hours can only be applied to the PhD degree if the credits are closely related to your PhD studies and only be approved by the Department after critical evaluation of credits.

Informal Courses (Independent Study, Individual Problems, Internships)

a) Informal courses usually include Independent Study and Individual Problems, which are taught on an informal basis and do not have formal catalog descriptions. Graduate Internships are also considered Informal coursework. These courses require a complete narrative description which includes the signatures of the student, instructor/supervisor, and the Director of Graduate Studies/Coordinating Instructor. For Ph.D. students, a copy of the Individual Problems form or
Graduate Internship Proposal form must be included with the student’s Application to Candidacy for each such informal course taken for credit.

b) A maximum of 6 credit hours of informal course work may be applied toward the minimum 30 credit hour requirement for the Master’s degree.

c) Excluding those credits applied towards the Master’s degree, a maximum of 6 additional credit hours of informal course work may be applied towards the minimum 72 credit hour requirements for the Ph.D. degree. No more than 12 credit hours of Informal coursework can be applied toward the 72 credit hour requirement for the Ph.D. degree.

**Graduate Credit for Undergraduate Courses**

a) A student wishing to use an undergraduate course for graduate credit must submit a petition during the first week of classes to the Graduate School for approval. This petition must include a clear statement from the instructor of the course regarding what special additional work will be required of the student to qualify for graduate credit. Copies of these petitions must be included in the Application to Candidacy. Retroactive approval will not be granted. Remedial courses, taken to make up deficiencies in a student’s undergraduate background, will not be considered for graduate credit.

b) Only courses at the 400 level will be considered for graduate credit, and a maximum of two such courses may be applied toward a graduate degree. This maximum limit applies to the entire Master's and Ph.D. program.

c) Undergraduate courses that carry 4 or more semester hours of credit will receive a maximum of 3 semester hours of graduate credit.

**Thesis/Project/Dissertation Credits Applicable Toward Degree**

The following limits are imposed on thesis, project, and dissertation credits that are applicable toward graduate degree requirements:

a) M.S. degree with thesis: 3 to 6 credit hours for thesis.

b) M.S. degree: 3-6 credit hours for project.

c) Ph.D. degree: Between 12 and 30 credit hours for dissertation must be applied toward the 72 credit hour requirement for the Ph.D. degree. The student is required to plan the actual number of credits for the doctoral dissertation with his or her advisor. Please see Course Sharing & Use of Prior Coursework for more details on coursework.

**Course Sharing & Use of Prior Coursework**

**MS:** A minimum of 24 credit hours must be unique to the BME MS program.

**PhD:** A maximum of 30 credit hours (from a master’s degree) can be credited towards the PhD- within this 30, only 6 credit hours of thesis or project can be credited. Accordingly, at least 42 credits must be unique to the BME PhD program of which 18 credits will be course credits. No more than 12 credit hours of informal courses (e.g., Individual Problems) can be applied toward the PhD requirements. Note that this includes any informal courses taken as part of the Master’s program – e.g. if a student took 6 credit hours of informal courses as part of their MS degree and applied these toward their PhD, the student could take at most 6 more credit hours of informal courses during their PhD.

Note: Transfer of credits beyond the 30 credit limit but up to maximum of 36 credits (according to the Graduate School policy i.e. up to 50% (36 credit hours) of the PhD may be comprised of courses used to complete another degree program at UB or at another institution. Accordingly a minimum of 50% (36 credit hours) must be unique to the BME PhD program) can be considered only under special conditions i.e. these additional 1-6 credit hours can only be applied
to the PhD degree if the credits are closely related to your PhD studies and only be approved by the Department after critical evaluation of credits.

Non-applicable Credits

Credits in the following courses are not applicable towards the minimum requirements for Master's and Ph.D. degree programs:

a) English Language Courses.

b) Any course not approved by the academic advisor.

c) Remedial courses taken to fulfill department admission requirements.

Grading Policy

a) The grade of "S/U" should be used for Thesis, Project and Dissertations.

b) All other grades in courses applicable to the degree must be letter grades ("A," "B", "C", "D").

c) The grade of "I" automatically changes to "U" if not removed within two semesters, including the intervening summer, as established by the academic calendar. "J" grades (invalid grade) must be changed to letter grades within one semester or they will revert to "F." The student is responsible for the removal of temporary grades such as "I" or "J" within the allowed time period.

Repeating Courses

Graduate school policies on repeating courses are followed by the department, except where indicated. These policies are included below for reference, but please visit this site for up-to-date information: http://engineering.buffalo.edu/home/graduate-students/school-wide-policies.html

Graduate School policy states “If a graduate student repeats a course that is normally not ‘repeatable’ (‘repeatable’ courses include dissertation, research, thesis, project or portfolio guidance; independent study; directed readings, etc.), only the highest grade earned in the course will be counted toward the degree and used to calculate the grade point average associated with the graduate degree program requirements. However, the student’s official transcript will record all courses attempted (including repeated courses). All resulting grades earned are calculated in the GPA reflected on the student’s final official transcript.”

SEAS uniform policies place the additional stipulation that at most two such repeat attempts can be made for courses other than normally “repeatable” courses. This limit can be met in two different ways — by repeating the same course twice or by repeating two separate courses once each. In addition, there is a limit of four courses on which a student can receive an “R” grade.

Scholastic Standing

a) A Master's student admitted on a provisional basis must demonstrate his or her ability to perform satisfactorily at the graduate level before being admitted to degree program as a matriculated student. The Department will specify the conditions in the letter of admission offering provisional status. A grade point average of 3.0 is required in all remedial courses.

b) A graduate student is officially considered to be a student for the Ph.D. degree only upon successful completion of the departmental Ph.D. qualifying examination.
c) A graduate student must earn an average of at least 3.0 for all courses taken for graduate credit which could be applied toward the degree. Accordingly, graduate course work in excess of that applied toward the credit requirement for the degree will be included in the computation of the student's GPA.

d) Satisfactory progress requires a minimum cumulative GPA of at least 3.0. A student is placed on probation if his or her GPA falls below 3.0 at the end of any grading period.

e) The following will constitute grounds for dismissal if:

- a grade of "F" is earned in any course that could be applied towards the degree;
- more than two grades are obtained from among “C,” “D,” and “U” in courses which could be applied to the degree;
- the conditions of provisional admission have not been satisfied within one semester after admission;
- probationary status has not been removed after one semester;
- the cumulative grade point average for courses which could be applied to the degree falls to below 2.5 at the end of any grading period; or,
- the student is found guilty of academic dishonesty according to existing regulations.

A student who has been officially dismissed and who seeks reinstatement must submit a formal request for reinstatement, along with a supporting statement of explanation, to the Chair of the Department. The request shall be reviewed according to the Policies and Procedures of the UB Graduate School.

Application to Candidacy

The primary purpose of the Application to Candidacy (ATC) is to serve as a useful planning document for the student and the student’s committee, as well as to indicate to the Graduate School the student’s intended degree date. As such, it is important for the student to prepare and submit the Application to Candidacy at an early stage of his or her candidacy, preferably by the end of the first semester of study at UB for an M.S. student, and immediately after completion of the preliminary exam for a Ph.D. student. The Application to Candidacy includes a summary of courses that are yet to be applied toward the degree. The following additional points should be noted with regard to the Application to Candidacy:

a) The Application to Candidacy must be accompanied with a preliminary abstract of the dissertation, project, or thesis, a transcript of all coursework listed on the application, and informal course descriptions (for independent study or special topics courses).

b) Major revisions which are necessary in the Application to Candidacy (e.g., significant change in topic or abstract, adding and/or deleting more than two courses, changing major advisor, etc.) must be accomplished by resubmitting the Application to Candidacy to the Graduate School for approval by the divisional committee.

c) Minor changes (e.g., adding and/or deleting one or two courses, changing thesis titles, changing committee members other than the major advisor, etc.) may be made using the Petition to Change Expected Conferral Date/Amend ATC form.

d) The Application to Candidacy for the Ph.D. degree must be filed within one year of passing the Ph.D. qualifying examination. Later filings may delay the student’s graduation.

e) All Applications to Candidacy must be submitted at least six months prior to the expected degree conferral date.

f) An approved Application to Candidacy must be on file before a student may submit a Certification of Full-Time Status Form.
Degree Conferral Timetable for Receipt of Paperwork

It is the responsibility of the student to submit the proper paperwork on time to both the Department and the Graduate School and in all other respects satisfy the general requirements for a degree as specified on the Graduate School Policy library page: http://grad.buffalo.edu/study/progress/policylibrary.html. Each graduate student must become familiar with these University regulations. The Degree Conferral Timetable for Receipt of Paperwork is summarized online at http://grad.buffalo.edu/study/graduate/deadlines.html. Note that before the M-form will be signed by the department Director of Graduate Studies to authorize the degree, a bound copy of the project report or thesis must be submitted to the Department.

Time Limits for Degree

a) M.S. - Four years from the first registration date in the graduate program, excluding approved leaves of absence. (For part-time students, the time limit is six years from the first registration date in the graduate program, excluding approved leaves of absence.)

b) Ph.D. - Seven years from the first registration date in the program, excluding approved leaves of absence.

A petition for an extension of time limit requires departmental and SEAS approval through the Director of Graduate Studies. The student must be currently making active progress towards the degree. The petition will be presented to the SEAS divisional committee for approval before being submitted to the Graduate School. The petition must clearly delineate reasons for the extension, present a schedule for progress and set a deadline for completion of the program. The extension of time limit is normally granted for a maximum period of one year.

Leaves of Absence

a) A petition for leave of absence should be filed prior to the start of the semester in which the leave is to begin. b) Leaves of absence will normally be granted for only one year at a time.

c) Leaves of more than one semester require valid justification and documentation from the student and the student's advisor. Documented cases of financial hardship, illness, or compulsory military service constitute valid justification.

d) A student who leaves the program after completion of some graduate work but has not been given an approved leave of absence must reapply and be readmitted as a new student, according to University guidelines.

e) Continued leaves of absence beyond two years will not be granted.

Time Limit for Tuition Scholarship

a) The maximum limit for tuition scholarship for students in the Master's program is 30 credit hours (minus transfer credits) or two years, whichever comes first. The maximum limit for tuition scholarships for Master’s students who are otherwise unfunded is one academic year.

b) The maximum limit for tuition scholarship for students in the Ph.D. program is 72 credit hours (minus transfer credits) or four years, whichever comes first.

c) Lecturers are employees of the University and are not eligible for tuition scholarships.

d) A petition for extension of time limit for a tuition scholarship should be filed prior to the start of the semester for which the scholarship is sought.

e) SEAS tuition scholarship policies are established by the Associate Dean of Graduate Studies in consultation within the Graduate Academic Program Committee.
Time Limit for Support on State Lines

a) The maximum limit on state support for students in the Master's program is two years.

b) The maximum limit on state support for students in the Ph.D. program is two years of support beyond the Master's degree or four years beyond the Bachelor's degree.

c) A petition for extension of the time limit for support in state positions should be filed prior to the start of the semester for which the waiver is sought. Such petitions will be approved only in exceptional circumstances.

Academic Dishonesty

Academic integrity is at the heart of all academic pursuits. Academic dishonesty includes, but is not limited to, the following:

a) Previously submitted work. Submitting academically required material that has been previously submitted - in whole or in substantial part -- in another course, without prior and expressed consent of the instructor.

b) Plagiarism. Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.

c) Cheating. Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.

d) Falsification of academic materials. Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.

e) Misrepresentation of documents. Forgery, alteration, or misuse of any University or official document, record, or instrument of identification.

f) Confidential academic materials. Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.

g) Selling academic assignments. No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignment, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the seller knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.

h) Purchasing academic assignments. No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Students and/or faculty who identify infractions of academic integrity should follow the University guidelines for resolving these issues. These guidelines may be found at: http://grad.buffalo.edu/Academics/Policies-Procedures/Academic-Integrity.html
4. Admissions Information

Master’s Program Admission Requirements

- A baccalaureate degree in engineering or a related technical field
- A minimum 3.0 grade point average (on a 4.0 scale) for all undergraduate work during the last two years of the applicant’s studies
- Prerequisite knowledge/skills in several areas of academic competency (see Prerequisites below).
- Application Form and associated fee
- A Personal Statement
- Resume/Curricula Vitae
- Transcripts
- 3 letters of recommendation
- GRE aptitude test scores; international applicants are required to submit TOEFL scores (see Graduate Record Examination [GRE] and Test of English as a Foreign Language [TOEFL])
- A Financial Statement is also required for International students

The Graduate Admissions Committee will also consider:

- Demonstrated practical engineering experience
- Demonstrated leadership skills

Doctoral Program Admission Requirements

Applicants who have already earned a Master of Science degree may seek admission to the Ph.D. program.

Applicants who have a Bachelor’s degree may apply to the Ph.D. program; MS degree is not required for application to Ph.D. The application process and required materials described below are the same for MS and doctoral program admission.

Application Materials

All applications must be done through the Interactive Graduate Admissions site (www.gradmit.buffalo.edu). From this site, students can apply to the program and track the progress of their application.

Your complete application package must include:

1. Application Form

All domestic and international students must apply online for the M.S. or Ph.D. program.

2. Application Fee

A nonrefundable fee of $85 per degree must be submitted for each application to graduate degree study at any SUNY campus. You may pay the application fee online with a credit card.

3. Personal Statement

Your complete application package must include a statement of purpose briefly describing your background and your academic and career goals; this statement must be uploaded in your Gradmit application.

4. Resume/Curricula Vitae

5. Transcripts
Copies of your original transcripts should be uploaded directly to Gradmit. Official copies will be requested if an offer of admission is extended.

6. Letters of Recommendation

Three letters of recommendation are required. While we will accept letters from professional sources, we strongly prefer letters from professors who are acquainted with your academic interests, achievements, and abilities. These letters are to be submitted electronically through GrAdMIT.

7. Graduate Record Examination (GRE) Test Scores

The aptitude test of the Graduate Record Examination (GRE) is required of all applicants to our graduate programs. Arrangements to take the exam can be made through the Educational Testing Service, Box 955R, Princeton, New Jersey 08541.

Please note that there is not a required minimum score on this examination for admission to our department.

Note: The BME Department Code for the GRE is 1603; the University at Buffalo Institutional Code is 2925.

8. Test of English as a Foreign Language (TOEFL) - (International students only) International applicants are required to provide proof of English proficiency via TOEFL or IELTS. The exam results must be dated within 2 years from your proposed date of admission and remain valid upon entering the term you applied for. For example, fall 2007 begins in August 2007; therefore, your exam results must be valid until August 2007.

Information and arrangements to take the exam can be made by contacting the Educational Testing Service at www.ets.org

It is strongly recommended to make test arrangements early in the year so sufficient time can be allowed for the results to be reported before our application deadline.

The State University of New York at Buffalo has a minimum TOEFL score requirement of 550 (paper-based) or 79 (internet-based). On IELTS, UB requires an overall score of 6.5 with no band below 6.0.

Please send your TOEFL results to us by using the following codes: Institution code 2925; Department code 69.

9. Financial Statement (International students only)

Fill out the International Applicant Financial Form. You will need to fill out the form labeled "Graduate Students - Standard" for the appropriate academic year. (Please verify current year's financial requirement with the Student Response Center).

All international applicants must submit a completed financial statement. Answer all questions thoroughly. An I-20 cannot be issued without this statement documenting necessary funds for each year of intended study (two years for a master’s program; five years for a Ph.D. program).

This document is only necessary if you are offered admission, you do not need to provide it prior to an admission offer.

If you have any questions, please contact us via e-mail be-grad@buffalo.edu. We will be glad to assist you in any way possible.

Financial Aid

If you are interested in financial aid in the form of a teaching assistantship or research assistantship, please check the appropriate box on the application form. No applicant will be considered for financial aid until the application is complete and the applicant has been admitted.
Fill out the International Student Financial Form. You will need to fill out the form labeled "Graduate Students - Standard" for the appropriate academic year. (Please verify current year's financial requirement with Student Accounts)

For more information, visit or contact the Office of Financial Aid.

Scholarship opportunities through the School of Engineering and Applied Sciences can be discovered here:

http://engineering.buffalo.edu/home/academics/grad/scholarships.html

Prerequisites

In addition to holding a bachelor's degree in engineering or any of the mathematical, physical, behavioral, or health sciences, each entering student is expected to be skilled in a number of specific areas. Proficiency is required in mathematics through the level of multivariate calculus, probability and statistics considered from a calculus point of view, and a knowledge of biology and organic chemistry. These requirements must be satisfied prior to admission. Students whose backgrounds have not adequately prepared them to enter the graduate curriculum directly may be asked to take appropriate undergraduate courses. Credit for these courses will not be applied toward the minimum number of hours required for the M.S./Ph.D. degrees. In exceptional cases, the department may admit an applicant who does not meet all these requirements; in such cases, the department will set special performance criteria for continuing in the program.

Application Deadlines

The Fall deadline to apply is April 1st for International Students requiring a visa and August 1st for Domestic Students. All materials must be received by this deadline. Our faculty will begin to review applications in early Spring and decisions may be made prior to the application deadline so you are encouraged to apply as soon as possible. All applications received by April 1st will be given full consideration. The review process may take up to twelve weeks, so most candidates can expect to hear from us during the month of April. Some of the later submissions may not hear until early May or later.

The Spring deadline to apply is September 1st for International Students requiring a visa and December 15th for Domestic Students.

*All supporting documentation must arrive in our GrAdMIT system no later than the specified deadline. Please plan accordingly to accommodate transit time and deadlines that fall outside of normal business days.

If you have further questions after reviewing this page, please direct them to the following e-mail address and one of our staff members will reply: be-grad@buffalo.edu.