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1. INTRODUCTION

1.1 WELCOME TO THE DEPARTMENT OF BIOMEDICAL ENGINEERING (BME)

We welcome you to the Department of Biomedical Engineering. Our mission is to develop intellectual leaders in the field of biomedical engineering. We hope that this student handbook will help you accomplish this goal, and make your time here both stimulating and rewarding.

Our program has a long-standing commitment to teaching and research education. Faculty research focuses in cardiovascular bioengineering, biomedical & molecular imaging, cellular & molecular bioengineering, cancer engineering, tissue engineering & biomaterials, musculoskeletal bioengineering, and systems biology & computational bioengineering. This diversity highlights the field of biomedical engineering as an exciting multidisciplinary engineering profession.

The BME Department leads several partnerships between the Schools of Engineering and Medicine and the College of Arts and Sciences. As an example, a number of faculty in the department collaborate closely with researchers in the Cardiovascular Research Center, Cancer Center, and Departments of Radiology, Surgery, Cardiology, Center for Public Health Genomics, and many other centers and departments across Grounds. The integration of a wide spectrum of engineering and medical research in the BME department provides the foundation for a leadership position in BME research and education at the University of Virginia and in the nation.

Graduate school is a place to explore the boundaries of the possible and develop your scholarship potential to the highest level. This is the time to develop your independent thinking, seize the opportunity to interact with a wide range of talented student and faculty colleagues, enjoy the riches of the university environment, and be creative in everything you do. We welcome you as a partner in learning and as a colleague in BME.

Frederick Epstein, Ph.D.  Shayn Peirce-Cottler, Ph.D.
Professor and Chair  Graduate Program Director
Department of Biomedical Engineering  Department of Biomedical Engineering
1.2 FROM THE GRADUATE PROGRAM COORDINATOR

This handbook has been prepared to assist you to make the transition into our graduate program and to serve as a resource for you during your pursuit of a graduate degree. The Graduate Record of the University of Virginia provides a comprehensive guide of your rights and responsibilities as a graduate student and can be found at http://records.ureg.virginia.edu/index.php. In addition to the handbook, there are a number of “people behind the scenes” who help the day-to-day work of the department go forward smoothly, and who are also able to serve as resources for you.

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracy Burcin</td>
<td>Lab Specialist /IT Assistant</td>
<td>Assist with laboratory equipment purchasing/troubleshooting/repair.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assist with IT equipment purchasing/troubleshooting/repair.</td>
</tr>
<tr>
<td>Henry Pritchard</td>
<td>Information Technology</td>
<td>The department’s computer support technician</td>
</tr>
<tr>
<td>Kitter Bishop</td>
<td>Undergrad Program Coordinator and</td>
<td>Manages undergraduate program, Manages special events and handles department public relations/communications.</td>
</tr>
<tr>
<td></td>
<td>Public Relations/Special Projects</td>
<td></td>
</tr>
<tr>
<td>Ian Gercheck</td>
<td>Grants Administrator</td>
<td>Assist faculty and students with grant proposals and submissions.</td>
</tr>
<tr>
<td>Keisha Jones</td>
<td>Executive Assistant to Chair</td>
<td>Chair’s Assistant; Room Reservations; office supplies; Seminar Speaker Schedules.</td>
</tr>
<tr>
<td>Crystal Lamm</td>
<td>Unit Administrator /Human Resources</td>
<td>Manages BME Office Staff Human Resources contact for Faculty, PRS and Staff; Department Budget</td>
</tr>
<tr>
<td>Anita Dodds</td>
<td>Senior Purchaser</td>
<td>Assists with purchases over $10,000 and travel reimbursements for SoM accounts.</td>
</tr>
<tr>
<td>Elida Logan</td>
<td>Senior Fiscal Tech</td>
<td>Assists with purchases less than $10,000 and travel reimbursements for SEAS accounts.</td>
</tr>
<tr>
<td>Hannah Moore</td>
<td>Coulter Translational Partnership Coordinator</td>
<td>Manages Coulter Program.</td>
</tr>
<tr>
<td>Kim Fitzhugh</td>
<td>Graduate Student Coordinator</td>
<td>Manages BME Graduate Program/ BIMS Administrator</td>
</tr>
</tbody>
</table>
Biomedical Engineering represents an interface between engineering, medicine, and science. Consequently, it must draw on the full range of knowledge accumulated in the life sciences, medicine, the physical sciences and mathematics, and engineering. Technological development as well as the implementation of concepts, methods, and products in biomedical engineering requires competency in both the fields of engineering and medicine.

The ME, MS, and PhD degrees form the core of the BME graduate educational program. These degrees have the broad goal of educating students with the knowledge and skills needed to succeed in careers in research and development. Successful completion of these degrees will require that a student meet the following expectations, in addition to the formal degree requirements:

1. **Completion of original research.** Students will complete a research project under direction of their faculty advisor. The end goal of this work should be experimental or simulation results, methods, and analysis which are of a level of quality sufficient for presentation in a refereed publication. To achieve this end, students will need to make a novel contribution to their respective fields. Students should always be aware that research is not a job performed for the benefit of his or her faculty advisor, but rather is an integral part of graduate education. As such, students must take initiative and responsibility for the success of their research.

2. **An ability to think critically.** Successful students will be able to evaluate the validity of new results and ideas. They will be able to make precise statements about limitations of experimental methods and identify the weaknesses of new and existing hypotheses. They will be able to identify the next step in their research and design experiments to test their hypotheses and/or designs.

3. **Critical knowledge of the core literature in their field.** Students should know the central literature in their field. They should be aware of the important implications and possible limitations of existing knowledge.

4. **Excellent oral and written presentation skills.** Success in both academics and industry requires clear communication of ideas to technical and lay audiences. Students should use graduate school as an opportunity to hone presentation skills.

5. **Completion of formal course requirements.** Course work provides students with basic knowledge and problem solving skills central to the field of Biomedical Engineering. In addition, advanced courses in the School of Engineering and Applied Science and in the School of Medicine offer knowledge and skills that can be applied to specialized areas of research.

Students intending to pursue a PhD in Biomedical Engineering are encouraged to apply to do so at the beginning of their studies at Virginia. They may proceed directly to a PhD or earn a Master of Science or Master of Engineering degree along the way.

### 2. EDUCATION PROGRAMS AND REQUIREMENTS

#### 2.1 PROGRAM ADMINISTRATION

Following is a list of committees designated to advise you on all aspects of BME graduate education. The committee members, your advisor, and the Department Chair are all available for consultation. A complete listing of committees and their members is included in Appendix III.

#### 2.1.1 GRADUATE RECRUITMENT AND ADMISSIONS COMMITTEE

a. Recruits students to apply and evaluates admission applications.
b. Recommends new graduate students for admission and financial support.

#### 2.1.2 GRADUATE PROGRAM COMMITTEE

a. Sets the ME, MS, and PhD requirements and approves programs of study.
b. Formulates and assesses the course requirements for the degrees of ME, MS, and PhD.
c. Advises students (along with their doctoral advisory committee) concerning the PhD program, including the announcement of the defense of the proposal and dissertation.
d. Validates and approves results of all relevant examinations (comprehensive exams, dissertation proposals, master’s thesis and dissertation defenses).
e. Processes administrative forms such as Plan of Study and Doctoral Advisory Committee.

2.2 MENTORING POLICY

2.2.1 FACULTY ADVISOR

Faculty advisors (usually the research project advisor) provide guidance to students on structuring their programs of study, career goals, identifying learning opportunities, and carrying out research of mutual interest. It is expected that advisors and students meet regularly to discuss progress.

2.2.2 ADVISORY COMMITTEE

The doctoral advisory committee provides broader scientific and academic advising for the student. The committee should meet with the student at least once a year to advise and evaluate progress towards graduation. The committee chair leads this committee and supports the student and the advisor through the process of meeting graduation requirements.

The Doctoral Advisory Committee should consist of a minimum of five faculty members, including the student’s faculty advisor; at least two members must be primary BME faculty, and one should be a minor representative from outside the BME department. The chairperson of the committee (who may not be the student’s faculty advisor) must have a primary appointment in the BME department. (When the student’s advisor is not on the BME faculty, the committee chairperson will function as a co-advisor and department representative.)

For the Master of Science, the committee must consist of at least three faculty members including at least one primary BME faculty member and at least one member from outside the department. Adjunct faculty are acceptable outside members if they provide an objective and diverse viewpoint.

2.2.3 OMBUDS

Students are encouraged to express their comments and concerns regarding their experiences in the graduate program in Biomedical Engineering. In order to ensure that students have a point of contact for such concerns, the Graduate Program Committee chair (currently Dr. Jason Papin) and one additional faculty member (currently Dr. Shayn Peirce-Cottler) serve as points of contact. In addition, there is a university ombuds (Brad Holland) that can be reached at ombuds@virginia.edu, with additional contact information here: https://eocr.virginia.edu/ombuds/contactlocation. The ombuds should be considered by the students as individuals who are available for open discussion of concerns regarding their education. Any student can request a meeting with the ombuds at any time.

This site explains the purpose and limitations of ombuds: https://eocr.virginia.edu/ombuds-faqs. Additional resources are provided here: https://eocr.virginia.edu/ombuds/university-resources-students.

2.3 ENGLISH LANGUAGE PROFICIENCY

All new graduate students whose first language is not English are tested for English proficiency prior to their first semester at UVA. All non-native speakers of English take the Virginia English Language Proficiency Exam (UVELPE) and the SPEAK Test, which are administered by the Center for American English Language and Culture (CAELC). Students must take the SPEAK Test before commencing their BME Teaching Experience. CAELC provides a program of mandatory courses in preparation for success in our English language graduate programs at UVA.

2.4 GENERAL ACADEMIC REGULATIONS
2.4.1 STUDENT STATUS AND RESIDENCY REQUIREMENTS

Graduate degree Programs require a period of residency to fully engage in the UVA academic community and to actively contribute to intellectual discourse within the School. For students coming into a PhD program with a master's degree, at least two regular semesters beyond the master’s degree one semester in full residence at UVA in Charlottesville. For students coming into a PhD program with a bachelor’s degree, at least three regular semesters are required. For a master’s degree program, at least one semester is required.

A student receiving financial support from the Biomedical Engineering Department, the School of Engineering and Applied Science, or the School of Medicine, must be registered full-time, defined as at least 12 credit hours of lecture/laboratory courses and/or research per semester during the academic year, and 6 credit hours of research only during the summer session. Students receiving School of Engineering and Applied Sciences funding, research grant based funding and/or graduate program funding are not permitted to have other employment without approval of their advisor, the BME Graduate Program Director, and the SEAS Office of Graduate Programs. For further information, refer to the Graduate Record.

2.4.2 TIME LIMIT FOR DEGREES

The time limit for completion of the MS is five years after admission. The time limit for the ME and PhD degrees is seven years after admission.

2.4.3 TRANSFER OF CREDIT

Master of Science candidates may transfer a maximum of 6 credits of approved graduate courses into the program. Master of Engineering candidates may transfer 12 hours of graduate credit. Doctor of Philosophy candidates’ requests for transfer of courses from other schools of recognized standing must be submitted for approval at the same time as the program of study.

These graduate courses must have been completed at another school of recognized standing. They cannot have been used to satisfy requirements for another degree, and only courses with a grade of B or better may be transferred. All requests for the inclusion of transfer credit in the University of Virginia program of study are subject to the approval of the candidate’s academic department and the Director of Graduate Education. Transfer credits should be submitted on the Request Approval of Transfer Credits form.

2.4.4 GRADUATE COURSE DROP DEADLINE

The last date for dropping a graduate course is posted in the UVA academic calendar. It differs by school.

2.4.5 INCOMPLETE GRADES AND REPEATED COURSES

The symbol IN (incomplete) is used when additional course work is required or examinations need to be taken in order to fulfill the requirements of a given course. A student may not request an IN grade in an attempt to raise his or her grade. Prior to the last day of class, students must initiate the request for an IN and secure the instructor's approval in accordance with School deadlines. Graduate students’ incomplete grades convert to an F 200 days after the end of the semester they receive the IN grade.

2.4.6 OUTCOME ASSESSMENT

The School of Engineering and Applied Science has instituted an outcome assessment program. A set of student learning outcomes and associated assessment forms has been defined for each graduate program. The level of achievement of each outcome will be evaluated for every student as the student proceeds through the program. More information about outcome assessment (and the associated forms) can be found at the Form link https://engineering.virginia.edu/current-students/current-graduate-students#accordion153167.
### Coursework Requirements

<table>
<thead>
<tr>
<th>Core Courses¹</th>
<th>BME 6101 and 6102</th>
<th>BME 6310 and 6311</th>
<th>BME 6310 and 6311</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 8995 (ME Project)</td>
<td>3 credits</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Graded credit hours of coursework</td>
<td>24</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Elective Educational Experiences</td>
<td>No</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Research course hours²</td>
<td>BME 8999 6 credits</td>
<td>BME 8999 (before comps), BME 9999 (after comps), 24 credits</td>
<td>BME 8999 (before comps), BME 9999 (after comps), 24 credits</td>
</tr>
<tr>
<td>Total overall credits</td>
<td>30</td>
<td>48</td>
<td>36</td>
</tr>
</tbody>
</table>

### Other Requirements

| Qualifying/Comprehensive Exam (by beginning of 3rd year) | No | Yes | Yes | Yes |
| Proposal of Research | Written³ | Oral & Written | Oral & Written | Oral & Written |
| Oral Defense of Thesis/Dissertation | Yes | Yes | Yes | Yes |
| Written Final Report of Research/Thesis/Dissertation | Yes | Yes | Yes | Yes |
| Outcome Assessments | Yes | Yes | Yes | Yes |
| Teaching Assistant⁴ | No | 2 semesters | 2 semesters | 1 semester |
| Attend BME Seminars | Yes | Yes | Yes | Yes |

¹ Students with equivalent prior coursework may place out of some or all of the core classes listed above by obtaining written permission from the course instructor and approval of the Graduate Program Committee. The “Permission to Opt-out of Department Core Course” form can be obtained from the Graduate Program Coordinator. Opt-out procedures typically include an oral or written examination on the course material. Opt-out course must be replaced with a graduate elective.

² Research credit does not count towards graded course credit hour requirement.

³ MS Students are expected to provide their committee with a written proposal prior to scheduling defense.

⁴ Teaching is an integral part of graduate training in Biomedical Engineering. All PhD students must participate in BME teaching assistantships in BME undergraduate or graduate courses as part of the requirement for the degree, regardless of their source of funding for the stipend or fellowship. The teaching experience will normally be performed in the second and third years of doctoral study. When possible, we encourage students to TA for one “lecture-focused” and one “lab/project-focused” course to give you diverse experiences in your teaching experiences as a TA. Also, note that participating in the SEAS Teaching Fellowship program does not fulfill a TA requirement. All PhD students are except are expected to TA for two
courses, but there are exceptions: 1) MSTP students only TA for one class, and 2) students who transferred from another PhD program where they TAed (once or twice) may be granted special exception from BME Graduate Program Committee to TA for less than 2 classes at UVA, but they need to submit a written petition to the Graduate Program Committee to ask for approval.

5 See special note on MSTP students in section 2.8 below.
2.6 ME PROGRAM

The Master of Engineering degree requires completion of the BME core course requirements, and has its own required sequence to support specialization in biotechnical empathy and design. The same course cannot be used to satisfy more than one of the requirements. An average GPA of at least 3.0 is required for graduation. Students are expected to complete all requirements by May of the second year. Instead of a thesis, a supervised research project will be completed and described in a written report to be accepted by the Program Director.

Course Sequence

Fall of first semester:
- BME 6101 Physiology I for Engineers
- BME 6310 Computation and Modeling in Biomedical Engineering
- BME 6550 Special Topics: Clinical Technology Continuum of Care
- 3 credit elective from SEAS, SoM or A&S upon approval of Program Director

Spring of second semester:
- BME 6102 Engineering Physiology II
- BME 6311 BME Measurement Principles
- BME 6060 Biomedical Innovation
- suggested- 3 credit s/u elective on Leadership and Entrepreneurism

Summer:
- suggested 1 credit s/u Data Science Intensive applications to biomedical engineering
- BME Architecture and Design course

Fall of third and final semester:
- BME 8995 Biomedical Engineering Design Project
- 3 credit technical elective from SEAS, SoM or A&S upon approval of Program Director
- suggested- BME 6056- Going Pro; Professional Development in Biomedical Engineering

Completion of ME Project
- Timing: Students should register for the project (BME 8995) in the final semester.
- Approval: A one or two page proposal will be approved by the Program Director to help the student focus on the intent and scope of the project. The project should exhibit individual thought and represent the culmination of effort from the prior year.
- Report/presentations: A written report describing the project is required. Class presentations will help form the basis of the final grade.

ME Degree Administrative Requirements
- In order to conduct clinical observations within UVA Medical Centers, all ME students must comply with all requirements issued by the Medical Center to include required inoculations and titers, on-line learning modules, and completion of an Attestation of Criminal Background.
- File an ME Degree Plan of Study form by the end of the first term.
- Attend BME seminars.
- Complete SEAS required Outcome Assessment Forms.

2.7 MS PROGRAM

The Master of Science degree requires a minimum of 24 graded credit hours of course work, 6 credits of MS thesis research and satisfactory defense of a thesis. In addition to these academic requirements, certain administrative requirements must also be met. The same course cannot be used to satisfy more than one of the above requirements. An average GPA of at least 3.0 is required for graduation.
MS Degree Administrative Requirements:

1. File a **Master's Degree Plan of Study** form within first year of matriculation. Form is available on the BME Grad Program Collab site and must be approved by your Advisory Committee and the Graduate Program Committee.
2. File **Report on Final Exam** and **Thesis Outcome Assessment** upon successful passage of an oral thesis examination given by the student’s MS committee. This committee must consist of at least three faculty members including at least one primary BME faculty member and at least one member from outside the department. Adjunct faculty are acceptable outside members if they provide an objective and diverse viewpoint.
3. Upload final Thesis to LIBRA prior to graduation.

2.8 PhD PROGRAM

The Doctor of Philosophy degree requires 24 graded credits of course work past the bachelor’s degree (including any completed during a Master’s program), plus two Elective Educational Experiences (see below). Students who enter the program already holding a Master’s degree in an engineering discipline from a school *other than* the University of Virginia must take the core BME courses, completing at least 12 credit hours of graduate level coursework. A minimum 3.0 GPA is required for graduation.

**Elective Educational Experiences**

Elective Educational Experiences (EEEs) are intended to encourage students to begin the process of life-long learning essential to a career in Biomedical Engineering. EEEs are intended to cover new material and areas of study that the student has not already covered in previous coursework or research experience. Taking a “more of the same” approach and going into greater depth on a topic the student is already familiar with is strongly discouraged. We anticipate that students will often pursue EEEs later in the course of their PhD studies and select them based on their PhD research and future career plans. All EEEs must be approved by the student’s thesis committee in advance. Students must submit to their committee a brief proposal stating the rationale for their EEE (how it fits with their individual plan of study and fills a knowledge gap not covered by their previous coursework and research experience), their goals for the EEE, and the metrics they will use to assess how well the EEE fulfilled those goals. At the completion of the EEE, students must submit a brief report to their committee assessing the EEE using the proposed metrics. **EEEs must be approved prior to the thesis proposal.** Students are encouraged to complete them prior to the proposal. Students are also encouraged to include a slide on their EEEs in their PhD proposal and/or defense presentations in order to share information on potentially valuable experiences with other students. An appropriate EEE is expected to involve roughly the time commitment of a typical graduate course. Possible examples include:

1. Taking an additional graduate course beyond the normal course requirements,
2. Taking an intensive 2-week “short course” to learn a series of specialized techniques,
3. Completing a summer internship at a biotechnology company.

**PhD Administrative Requirements:**

1. Select an Advisor and file form **Doctoral Advisory Committee** with the Graduate Student Coordinator. Fill out the appropriate forms **no later** than the end of the second semester of doctoral study.
2. File a **PhD Plan of Study** **no later** than the end of the second semester of doctoral study (but preferably much sooner). The form is available on the Grad Program Collab site and must be approved by your Advisory Committee and the BME Graduate Program Committee.
3. Students are encouraged to meet with their committee annually.
4. Students will complete an IDP annually with their advisors.

**Special Note for MSTP (MD/PhD) Students:**

Medical school physiology courses will be accepted in lieu of BME 6101 and BME 6102. These courses may not have to be replaced with additional credits. MSTP students need to complete at least 18 graded credits. An EEE with a focus on developing computer programming skills should be completed before the end of the first semester after transitioning to the PhD program if the student does not have sufficient programming experience to succeed in the core graduate BME curriculum.
In addition, a three credit independent study may be required to completely satisfy SEAS credit requirements. See the graduate program coordinator for details. MSTP students are only required to complete one TA unit.

2.8.1 FORMATION OF DOCTORAL ADVISORY COMMITTEE

Upon completion of year 1, PhD students should arrange for the appointment of a Doctoral Advisory Committee. The Doctoral Advisory Committee is a resource for you as you pursue graduate studies. It recommends and gives initial approval for a formal program of study, discusses research objectives and research plans with the student, and advises on the areas of study for the Comprehensive Examination. The Committee will meet with the student as needed to review progress and, if necessary, to revise the program of study. Students should consult with their Doctoral Advisory Committee at least once a year as their research progresses to ensure that their continuing research work is adequate as a doctoral dissertation. The Doctoral Advisory Committee also functions as the student's Examining Committee as he or she progresses through the PhD program.

The Doctoral Advisory Committee should consist of a minimum of five PhD level UVA faculty members, including the student's faculty advisor; at least two members must be primary BME faculty and one should be a minor representative from outside the BME department. The outside member must have a 0% appointment with the BME department. The chairperson of the committee (who may not be the student's faculty advisor) must have a primary appointment in the BME department. (When the student's advisor is not on the BME faculty, the committee chairperson will function as a co-advisor and department representative.) Must include a minimum of three SEAS faculty, one additional UVA faculty member with 0% appointment in the student’s home department, and a minimum of four total members. The purpose of the member with 0% appointment in the student’s home department is to ensure consistency across the University, to help ensure fairness to the student, and to prevent conflict inside the department. The Committee Chair must hold a faculty appointment in SEAS. All Committee members must hold qualifications commensurate with that of a research faculty or equivalent rank. To avoid conflicts of interest, no committee member can be employed by or receive compensation from another committee member to avoid conflicts of interest. All faculty with a primary appointment in BME are considered SEAS faculty for this purpose. For PhD students in BME, one faculty member from the School of Medicine may substitute for one SEAS faculty.

One additional research professional from outside UVA or a faculty member from outside SEAS may be a fifth voting committee member, provided his/her qualifications are commensurate with that of a research faculty or equivalent rank. Emeritus faculty are considered outside UVA for the purpose of Advisory Committees. A CV or biography will be required and should be submitted to the SEAS Graduate Registrar, and should include the highest degree attained, the year and institution, and any relevant experience or research which would enable that member to provide expertise to the student and committee.

Students should consult with their advisors about the composition of their Doctoral Advisory Committees. The committee is officially formed by the completion of the Appointment of Doctoral Advisory Committee form which is reviewed and approved by the Graduate Program Director. Because the Doctoral Advisory Committee is a resource for you, it should be formed as soon as possible. For most students, this will be at the end of the first year of graduate study. At the latest, the Doctoral Advisory Committee should be formed by the end of the second semester of graduate study. Students who have not formed a Doctoral Advisory Committee will not be permitted to take the comprehensive exam.

2.8.2 DOCTORAL DEGREE PLAN OF STUDY AND COURSE WORK

In deciding the doctoral course work and finalizing the PhD plan of study, students should seek assistance from their advisor and Doctoral Advisory Committee members and must obtain their approval. Because this is a plan of study, not a contract, students should make every effort to complete and submit it as soon as possible. This will allow the maximum flexibility for any necessary revisions to be made without delaying the student’s progress to the PhD. The Plan of Study may be revised as necessary throughout the student's graduate study. Preparation of the PhD Plan of Study is an appropriate time to schedule the initial meeting with your Doctoral Advisory Committee. Students, their advisors, and Doctoral Advisory Committee members are responsible to design a plan of study suitable for the individual and that meets the academic requirements of the BME PhD program. The plan of study may consist of more than the minimum required credits.

The Plan of Study should be submitted to the Graduate Program Coordinator no later than the end of the summer after second semester of doctoral study but preferably sooner. These forms may also be revised as necessary during the course of the PhD program, in consultation with the student’s Doctoral Advisory Committee. Students who have not submitted a Plan of Study’s will not be permitted to take the comprehensive (qualifying) exam.
The Comprehensive (or Qualifying) Examination is required by the School of Engineering and Applied Science and all doctoral engineering students must take the exam (see UVA Graduate Record for general guidelines). Students intending to take the Comprehensive (Qualifying) Examination must complete the PhD Plan of Study and turn it in to the Graduate Student Coordinator. This should be done by May 1 of the year that the student plans to take the comprehensive exam.

1. **Purpose**: To determine whether the student is able to comprehend and integrate a body of advanced knowledge, and is capable of original research. The student’s ability to think, formulate, and present ideas is also evaluated.

2. **Timing**: All students should take the Comprehensive Examination before the end of the summer after the fourth semester of graduate study. Students may elect to take the Comprehensive Exam as early as after the second semester. Delayed examination is subject to the approval of his or her Doctoral Advisory Committee. Passage is required to continue the PhD program.

3. **Date of the Exam**: Exams are generally scheduled between the third week of May and the end of June. In March, an email will be sent to qualified students. Students should obtain approval from their Doctoral Advisory Committee before signing up for the Comprehensive Exam. Students who have not previously met with their Doctoral Advisory Committees, **must** schedule an initial meeting. Failure to comply with this guideline may result in delay in the completion of your degree. Students **must** have an approved Plan of Study on file before signing up for the Comprehensive Exam.

The student will need to work with their Advisory Committee to select a date for the exam and reserve a room. Once this is set, the student needs to alert the Graduate Program Coordinator. The Graduate Program Coordinator will prepare the required forms and have them ready for the Advisory Committee chair to pick up the day of the exam.

4. **Format of the Comprehensive Examination**:

   a. **Oral Examination**: The oral exam will be administered by the student's Doctoral Advisory Committee. At least four (4) members of the Doctoral Advisory Committee must be present for the Comprehensive Examination in accord with SEAS rules, including at least two (2) primary BME faculty members. The chairperson of the student's Doctoral Advisory Committee will coordinate the preparation of the oral questions, with input from the entire committee. The duration of the exam is three hours or less. The chairperson of the student’s Doctoral Advisory Committee should submit a copy of the oral exam questions to the Graduate Program Coordinator for inclusion in the student’s file 14 days prior to the scheduled date of the exam. The chair of the Doctoral Advisory Committee will deliver the exam questions to the student and the Graduate Program Coordinator (by hard copy or by e-mail) seven (7) days prior to the scheduled exam date.

   The oral examination will consist of a set of integrative questions (typically three) that have been prepared by the student’s Doctoral Advisory Committee and provided to the student **one week** in advance of the oral examination. The questions will be based upon the individual’s program of study, and include some aspects relevant to the anticipated thesis topic. The questions will:
   - assess the ability to integrate a body of advanced knowledge in biomedical engineering
   - include experimental design and hypothesis testing
   - have a design or a quantitative analysis component

   The student may research the questions to develop his or her answers in the week prior to the oral examination. However, the student may not enlist the help of other individuals in preparing answers - to do so will be considered a violation of the honor code. The student will provide an oral answer to each of these questions and, at the discretion of the Doctoral Advisory Committee, further defend the answers.

   In preparing materials to be presented for the oral exam, the traditional method has been to give oral answers, with some graphs, equations, etc. as needed on the board. You may **not** use PowerPoint slides or the overhead projector. You are expected to write on the board using handwritten notes, if necessary. The objective is to convey your approach and solution to the problems concisely and convincingly.

   You may also give hand-outs to the members of your Doctoral Advisory Committee (which functions as your Examining Committee) at the start of the exam at the discretion of the Chair of the Doctoral Advisory Committee. You **may not** hand out extensive background literature, appendices of any type, or additional materials such as derivations, etc., if you do not plan to include them in your own oral answer.
If deemed necessary or appropriate by the Doctoral Advisory Committee, the student may then be questioned on any material germane to his or her plan of study. Successful completion of the oral examination is determined by the Doctoral Advisory Committee.

b. **Passing:** Students must pass the oral examination.

c. **Number of Chances:** At the discretion of the Doctoral Advisory Committee, a student may be allowed at most two attempts to pass the Comprehensive Examination.

### 2.8.4 DEFENSE OF DISSERTATION PROPOSAL

1. **Purpose:** The student’s Doctoral Advisory Committee will assess the quality of the student’s research plan (including hypotheses to be tested, experimental design and methodology).

2. **Timing:** The PhD candidate is expected to complete the dissertation proposal *no later than* 12 months after the Comprehensive Examination. Failure to complete and defend a dissertation proposal by the end of the third year of doctoral study may result in a delay in the completion of the program or even dismissal from the program. The student is responsible for working with the Advisory Committee to schedule a date and room for the event. Upon selecting a date and location, the student is then responsible for notifying the Graduate Program Coordinator at least 2 weeks prior to defense.

The written dissertation proposal is submitted to the Advisory Committee one week before the scheduled oral dissertation proposal examination which consists of a public oral presentation during which the student highlights the existing knowledge and the proposed new study. This will be followed by a private question and answer period with the Doctoral Advisory Committee. The total duration of the dissertation proposal defense is typically two (2) hours, at the discretion of the Doctoral Advisory Committee. At least four (4) members of the Doctoral Advisory Committee must be present for the proposal defense in accord with SEAS guidelines, including two (2) primary BME faculty.

3. **Defense Committee Composition:** The Examining Committee for the dissertation proposal is the student’s Doctoral Advisory Committee. Four of the members of your committee must be present during the proposal. Once of the four members must be the outside committee member.

4. **Proposal Format:** The written proposal should follow the general form of an NIH grant application, including page limits. Format guidelines can be found at: [http://grants.nih.gov/grants/grant_basics.htm](http://grants.nih.gov/grants/grant_basics.htm)

### 2.8.5 DISSERTATION DEFENSE

The doctoral dissertation should be typed according to the format of the School of Engineering and Applied Science.

1. **Purpose:** To demonstrate competence in the field of the dissertation research and the quality of the dissertation for publication in scientific journals.

2. **Timing:** At completion of writing an approved dissertation. The properly formatted draft with all the figures should be submitted to the Doctoral Advisory Committee *at least two weeks* before the examination. Using the Final Examination Committee form, inform the Graduate Program Coordinator of the date selected for your defense, provide the title and a short abstract of the work, so that an announcement of the defense may be sent out. Public announcement of the dissertation defense must be made two weeks prior to the scheduled examination date. Failure to do so will result in the rescheduling of the dissertation defense.

3. **Defense Committee Composition:** The Examining Committee for the dissertation defense is the student’s Doctoral Advisory Committee. All 5 members of your committee must be present during the defense.

4. **Subject:** Defense of dissertation and questions about subject areas related to research field or arising from discussion of thesis work.

5. **Form:** The first part (40 minutes) is an oral presentation of the thesis which is open to the public. It is followed by a 1-2 hour oral defense before the Doctoral Advisory Committee and interested faculty.

6. **Failure:** Possibility for re-examination is determined by the Doctoral Advisory Committee.

### 2.8.6 GOING PRO
Biomedical Engineering PhD graduates are well-positioned to be leaders in industry. Going Pro is a unique opportunity for professional development, a significant deficiency in many graduate programs across the nation. Through the curriculum, mentoring programs, and department-sponsored internship, alums of this program will be well-positioned to lead in the biomedical engineering industry.

**Program Description**

There are three key elements of the Going Pro:

1. **Industry Internship.** Participants in Going Pro will be supported to participate in a two-month industry internship approved by the BME graduate program committee.
2. **Mentoring.** Students will be paired up with an alum of the department and required to meet throughout their training.
3. **Course.** Going Pro participants will take a 1-credit course in the fall semester focused on professional development and BME industry.

**Application Process**

Students that have completed their 2nd year of the PhD program and successfully passed their comprehensive exam are invited to apply.

Please contact Shayn Peirce-Cottler, Graduate Program Director, with any questions.

**2.9 PUBLICATION OF THESIS/DISSERTATION**

Students will upload their thesis or dissertation to LIBRA upon approval of the Exam Committee (after final exam forms have been submitted). Paper bound copies are no longer required. Students should discuss any copyright/embargo issues with their mentors and chairs prior to the upload!

For more information on LIBRA and instruction of how to upload, please visit: [http://pages.shanti.virginia.edu/libra/](http://pages.shanti.virginia.edu/libra/)

**3. STUDENT ACTIVITIES, FINANCIAL AID AND SUPPORT**

**3.1 BMES STUDENT CHAPTER AT THE UNIVERSITY OF VIRGINIA**

The University of Virginia student chapter of the Biomedical Engineering Society (BMES) plays several roles within the department. Primarily, the chapter works to promote the exchange of ideas among students and faculty. We coordinate various educational and professional development, social, sporting, and service events throughout the year while reaching out to students who are interested in the application of science and engineering principles to medicine. Our chapter is comprised of undergraduate and graduate students within the BME department as well as students from other university departments who have an interest in BME. Our chapter has a strong record of service within the UVa and central Virginia communities and has been recognized by the National Biomedical Engineering Society several times.

Our BMES student chapter is dedicated to promoting the personal and professional development of its members and enhancing the community of scholarship within the department and the university. Our core values include:

1. Fostering a welcoming environment for our diverse student body and the development of our members via participation in BMES general body meetings and attendance at national conferences, departmental symposia, and university-wide colloquia.
2. Enhancing the sense of community within the department, the university, and the central Virginia area via service events, orientation events for incoming students, jointly sponsored guest lectures with other student societies, sponsoring student-student and student-faculty interactions both within and outside of the classroom.
3. Increasing the chapter’s visibility on the national scale via attendance and participation at national and international conferences, recruiting guest speakers from national corporations, and enhancing communication with the BMES
national chapter through the president and vice president of graduate and national affairs. BMES typically has funds available to provide travel awards for students to help achieve this goal.

We are dedicated to improving understanding of the field of biomedical engineering, fulfilling the intellectual needs of our students, and assisting in their preparation for careers in biomedical engineering. BMES focuses much of its energy on identifying and reconciling the needs of its students and the larger community.

The Biomedical Engineering Society is devoted to fostering a collegial and collaborative environment between undergraduate students, graduate students, and faculty. To build a strong community we sponsor intramural sports teams, organize wine tasting tours, picnics, happy hours and bar nights, and other organized social activities. In addition to student activities, we help to coordinate and organize a faculty-student fall picnic and holiday party.

Our chapter holds approximately six meetings throughout the year that are open to undergraduate BME students, graduate BME students, and other non-BME students interested in the field. Example meeting agendas include grant writing and alumni panels. We invite you to browse through our website at https://engineering.virginia.edu/departments/biomedical-engineering/academics/bmes.

Our chapter has a strong record of excellence. We hope to continue this tradition and look forward to you joining us! There are several officer positions available for interested graduate students and a number of opportunities to help and contribute to BMES. Any questions, ideas, or suggestions regarding BMES can be directed to either the Graduate BMES President or Vice President (current list in appendix II).

3.2 FINANCIAL SUPPORT AND FELLOWSHIPS

Graduate PhD students in the Department of Biomedical Engineering are typically supported through a combination of Graduate Research Assistantships (GRAs), Graduate Teaching Assistantships (GTAs), appointments on training grants, and Fellowships. Students on GTAs receive partial tuition and stipend support in return for their effort in assisting with education in specific courses at the University. Specific requirements and expectations will be defined by the instructor with whom the student is working. All doctoral students are required to participate as teaching assistants in BME courses as part of the degree program.

Students on GRAs receive tuition and stipend support in return for their contribution to a specific research laboratory in the Department. Since these funds originate from individual faculty research grants, requirements and expectations are determined by the Principal Investigator, usually the student’s research advisor. Students are expected to contribute at least 20 hours per week during the academic year and 40 hours per week in summer.

The 12-month base salary for GRAs and GTAs is $30,500 for PhD students. Students receiving financial support are not allowed to work outside the University without prior approval from the mentor, BME Graduate Program Committee, and the SEAS Office of Graduate Programs. There are periodic adjustments to the base stipend level to reflect cost-of-living-increases. Health and dental insurance are provided as part of a PhD students’ annual support. Enrollment occurs in August of each year and you will receive notices from student health directing you to the online enrollment site.

In order to be eligible for full financial support, students must register for 12 hours in each semester (6 research hours in the summer). The hours may be any combination of course credits and research credits, or may be research only if all course requirements have been completed.

Students are encouraged to seek fellowship opportunities available to them from foundations, national societies, and the government, with the help of the faculty. All BME graduate students are members of the “BME Grad Studies” site on Collab which serves as a repository of information on graduate awards, fellowships, and scholarships.

The University offers free tax help to US and Permanent Resident students each year between February and April. You will receive a flyer via email when the services become available each year. Appointments can be made online at: www.cvilletaxaid.org. International students should begin any inquiries with Logan Hobbs https://issp.virginia.edu/taxes.

See pay chart/schedules in appendix

A partial list of the internal and external fellowships is available below. Students are encouraged to discuss with their faculty advisor for nominations. For external Fellowship applications with School of Medicine mentors, please notify Ian.
BME and UVA-specific Fellowships:
- UVA Award for Excellence in Graduate Diversity
- Robert R. Wagner Fellowship
- Mary and Otis Updike Professional Development Award in BME
- John McGaughy Award
- Jill E. Hungerford Award
- Peach Fellowship Award
- Micron Fellowship
- Sture G Olsson Fellowship
- ARCS Fellowship
- L. William Ballard Jr. Fellowship
- Virginia Engineering Foundation
- James G Simmonds (Applied mechanics/mathematics)
- Volkswagon Group of North America Fellowship

External Fellowships:
- NSF Graduate Research Fellowship
- Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellows
- American Heart Association Predoctoral Fellowship
- Ford Foundation Fellowship
- RWJF Health Policy Research Fellowship
- P.D. Soros Fellowship for New Americans
- SREB Doctoral Scholars Program Fellowship
- Graduate Women in Science National Fellowship
- UNCF/Merck Graduate Science Research Dissertation Fellowships
- American Association of University Women American Fellowship
- Office of Navajo Nation Scholarship & Financial Assistance Scholarship
- American Indian Graduate Center Fellowships
- NASA Harriett G. Jenkins Predoctoral Fellowship Project
- NDSEG Graduate Fellowship
- DoD SMART Fellowship
- Merck Graduate Science Research Fellowships
- Society for Women Engineers (SWE) Scholarships
- Schlumberger Foundation Faculty for the Future Fellowship
- Golden Key Fellowships
- Microsoft PhD Fellowship
- Women Techmakers Scholars Program
- American Society for Microbiology Graduate Research Fellowship
- ARCS Award: Achievement Rewards for College Scientists

The VPR’s office provides access to two searchable grant data bases- Pivot and Grant Forward. You may search by field, and set up alerts as applications open and deadlines approach.
https://researchdevelopment.vpr.virginia.edu/search-funding-pivot-and-grantforward

3.3 ROTATION PROGRAM AND FELLOWSHIPS

Students supported by fellowships receive tuition and stipend as described under the conditions of the specific fellowship. In many situations, fellowships are meant to support a student’s general education and do not entail specific time or task requirements. Departmental and training fellowships awarded to first-year students may require completion of a rotation program in the first semester of study. The rotation program is designed to broaden the perspective of students in biomedical engineering research and to help them to make an informed choice of laboratory for their thesis work. Students typically rotate in two to three laboratories identified during the interview and admissions process. It is expected that students will
spend six weeks working in each lab during the fall semester. Activities in the laboratory will consist of literature reading, participation in designated experiments, learning the specific aims and rationale of the faculty member's research, attending lab or journal club meetings, and preparing a summary of their experiences in each lab.

3.4 DEPARTMENT SEMINARS AND STUDENT RESEARCH SYMPOSIA

During the academic year, BME holds a weekly Seminar Series, a weekly event that brings together faculty, students, and clinicians across disciplines from the University and Medical Center to learn about new research and technologies in the biomedical sciences and engineering. Research presentations are given by prominent speakers from within the university community and nationally recognized biomedical engineers, cell and molecular biologists, and clinicians in academia and industry. There are also special seminars presented throughout the year such as: a BMES student chapter sponsored speaker, BME Graduate Student Research Symposium, and the BME Distinguished Speaker Seminar Series. The Distinguished Speaker series is a great opportunity for all of us to hear from a prominent and internationally recognized leader in the field of biomedical science and engineering. These may include department chairs, national academy members, and industrial leaders in biotechnology.

All students and faculty are expected to attend each weekly Friday seminar. A “Meet the Speaker” session is open for all graduate students following the seminar presentation, and provides a unique opportunity for students to engage with seminar speakers in a more informal manner.

3.5 STUDENT TRAVEL

All students, particularly those in the PhD program, are encouraged to attend national, and where possible, international conferences with their laboratory group. Attendance at such meetings gives students opportunities to meet and interact with researchers with a broad range of interests. These experiences are instrumental in assisting students to develop, formulate, and modify their Master’s and PhD projects and career plans. Also, excellent Career Fairs or networking opportunities exist at major meetings.

Some student fellowships and traineeships have specific allotments for travel and other related purposes. Students working on research projects can sometimes arrange to have special expenses paid by a research grant. Consult your project director or faculty advisor.

In exceptional circumstances, students seeking travel and other funds for paper presentation who have exhausted other possibilities for funding their travel should submit a request accompanied by the research paper to the department Chair. Prior approval is required. Students should also be familiar with state regulations governing, for example, receipts to justify the expenditures, the use of state cars and the limits on lodging and meal costs. Students are responsible for making their own travel arrangements in compliance with University requirements regarding travel.

3.6 OFFICE SPACE ASSIGNMENT

Students may use desks in their advisor’s laboratory or office space. Other spaces in the department are available upon request for student meetings or activities. The BME Department also has a small collection of books and journals in the Library (Rm. 2019). This is a reading/reference library and journals and books should not be removed from the room.

3.7 USE OF COMPUTER EQUIPMENT, LIBRARY, AND EXTERNAL FACILITIES

BME Students are welcome to use the department’s computer lab, network printers, and other technology resources for academic purposes. Laboratory computers and research equipment should only be used with permission from the responsible laboratory director.

University computing accounts are managed by the Information Technology Services (ITS) group and are used by BME to access network resources. ITS also provides limited network file storage at no cost to users. Please contact BME IT Support with questions.

Computers and other tangibles purchased with University funds, research grant funds, or Fellowship money but purchased through the University, become the property of the University and must be surrendered prior to graduation.
3.8  GRADUATE DIVERSITY ACTION COMMITTEE

The committee consists of graduate student volunteers with the goal of recruiting students from diverse backgrounds and ensuring that the department remains a welcoming environment for all. This committee promotes access to UVA resources for underrepresented minorities, women, families, LGBT, and nontraditional students. For more information or to get involved contact the chair of the Diversity Action Committee (see Appendix).

3.9  FORMS

A listing of all SEAS required forms can be found at: https://engineering.virginia.edu/current-students/current-graduate-students#accordion88012

In addition to the forms published on the SEAS website, there are several forms that BME requires that are not available on the SEAS website. These include the Plan of Study forms for all of the degree plans and the Educational Elective Forms for the PhD plan. The forms can be accessed via the BME Graduate Program Collab site: https://collab.itc.virginia.edu/portal. You will be subscribed to this Collab site once you have activated your UVA email account.
CHECKLIST FOR MASTER’S PROGRAMS

___ Request an advisor. Due no later than the end of the 1st semester

___ ME and MS Plans --Meet with your advisor and prepare a Plan of Study form. Due no later than end of 1st year

___ ME Plan--Submit Plan of Study to advisor by the end of your first term. Project completion timeline TBD by advisor and student, but expected to be completed within 15 months.

___ MS Plan --written draft of thesis proposal to advisor and committee. Ideally by the end of your first year.

___ MS Plan--Schedule Final Defense of Thesis. No later than 5th year.

  This examination is public and announcement of it must be distributed at least 7 days in advance.

  Two forms must be prepared in advance of the scheduled defense: Report on Final Examination and Thesis Outcome Assessment. Your Graduate Program Coordinator will prepare these using the information you submit for the public announcement – Date, Time, Location, Committee Members Names, Title and Abstract.

  There are specific deadlines set by the Registrar’s Office and the SEAS Deans Office that must be met in order to complete your degree requirements to have your degree conferred during the applied term. Once you apply for your degree you will receive the notification emails with those specific dates. You MUST adhere to those dates or you will be removed from the degree candidate list.

___ ME Plan – Complete 3 program assessments and submit to The Graduate Student Coordinator.

___Apply for your degree in the Student Information System (SIS). Dependent on defense date.

  Graduation application DUE DATES – October 1 for January graduation, February 1 for May graduation, and June 1 for August graduation.

___ Upload your dissertation to LIBRA.

  Due date – refer to date published by the SEAS Graduate Office for the term you have applied for graduation.
CHECKLIST FOR PHD PROGRAM

_____ Select or Request an advisor. Due no later than end of 1st semester

_____ Appointment of a doctoral advisory committee. Due no later than end of 1st year

_____ Submit a Plan of Study Due end of 3rd Semester

     MUST BE COMPLETED PRIOR TO SCHEDULING COMPREHENSIVE EXAM.

_____ Request and take the Ph.D. comprehensive examinations. Schedule in May/June of 2nd Year
     (Approximately the same time course work is completed.)

_____ Submit written draft of dissertation proposal to advisor. Middle of 3rd year. No later than 4th year

_____ Schedule presentation of dissertation proposal with committee. No later than 4th year.

_____ Schedule defense (final oral examination). No later than 5th year.

     This examination is public and announcement of it must be distributed at least 7 days in advance.

     Two forms must be prepared in advance of the scheduled defense: Report on Final Examination and Dissertation Outcome Assessment. Your Graduate Program Coordinator will prepare these using the information you submit for the public announcement – Date, Time, Location, Committee Members Names, Title and Abstract.

     There are specific deadlines set by the Registrar's Office and the SEAS Deans Office that must be met in order to complete your degree requirements to have your degree conferred during the applied term. Once you apply for your degree you will receive the notification emails with those specific dates. You MUST adhere to those dates or you will be removed from the degree candidate list.

_____ Apply for your degree in the Student Information System (SIS). Dependent on defense date. TERM DUE DATES – by October 1 for January graduation, February 1 for May graduation, and June 1 for August graduation.

_____ Upload your dissertation to LIBRA.

     Due date – refer to date published by seas grad office for term you have applied for graduation.

_____ Submit Survey of Earned Doctorates. Print completion certificate, scan and email to Barbara Graves, bag2y@virginia.edu, SEAS Graduate Engineering Registrar.

     Due date – refer to date published by seas grad office for term you have applied for graduation.
APPENDIX I: COMMITTEES AND DIRECTORS

UNDERGRADUATE PROGRAM DIRECTOR
Shannon Barker
Email sb3xk@virginia.edu

GRADUATE PROGRAM DIRECTOR
Shayn Peirce-Cottler
Email smp6p@virginia.edu

GRADUATE PROGRAM COMMITTEE

GRADUATE RECRUITMENT AND ADMISSIONS COMMITTEE (2019-2020)
Chair: Craig Meyer

Student Co-Chairs: Lauren Pruett and Ridhi Sahani

SEMINAR COMMITTEE
Chair: Silvia Blemker

DIVERSITY COMMITTEE

APPENDIX II: STUDENT ORGANIZATION OFFICERS

BMES STUDENT CHAPTER OFFICERS
President: Katie Gorick
Outreach Chair: Katya Gilbo
Career and Professional Development Chair: Grace Bingham
Social Chair: Delaney Fisher
Recruiting Chairs: Lauren Pruett & Ridhi Sahani
Symposium and Seminar Co-Chairs: Arlyn Baker & Laura Dunphy
Diversity Co-Chairs: Areli Rodriguez & Bonnie Dougherty

APPENDIX III: IMPORTANT AND USEFUL STUDENT LIFE RESOURCES

General UVA information:
BME home page: http://www.bme.virginia.edu
BIMS home page: http://www.bims.virginia.edu
UVA Graduate Guide: http://www.virginia.edu/graduateguide/
UVA Health System home page: http://www.med.virginia.edu/
School of Engineering: http://www.seas.virginia.edu/index.php
School of Medicine: http://www.healthsystem.virginia.edu/education-research/medschl.cfm
Academic information:

Academic Calendar: http://www.virginia.edu/registrar/calendar.html
Course Offering Directory: http://www.virginia.edu/registrar/ -- click on Course Offering Directory link
Registrar's Office: http://www.virginia.edu/registrar/
Summer Session Office: http://www.virginia.edu/summer

Library and Computing Facilities:

Claude Moore Health Sciences Library: https://guides.hsl.virginia.edu/home
ITC Web: http://www.itc.virginia.edu
OVID Medline
UVA Research Computing: https://www.rc.virginia.edu/
UVA Library Research Data Services + Sciences: https://data.library.virginia.edu/

Career Planning and Development:

Office of Career Planning and Placement: http://www.career.virginia.edu/
SEAS Professional Development: https://engineering.virginia.edu/future-grads/professional-and-career-development-graduate-students
Handshake: https://career.virginia.edu/handshake
UVA PhD Plus: https://phdplus.virginia.edu/
Tomorrow's Professor Today: https://cte.virginia.edu/programs-grants
BME's Going Pro: https://engineering.virginia.edu/departments/biomedical-engineering/academics/graduate-program/professional-development/bme-going-pro

Resources for Underrepresented Minority Students and Women in Science:

Graduate and Postdoctoral Diversity Programs: https://graddiversity.virginia.edu/
Center for Diversity in Engineering: http://www.seas.virginia.edu/admin/diversity/
Black Graduate and Professional Student Organization (BGPSON): https://www.facebook.com/bgpso/
Graduate Student LatinX Organization (gradLatinX): https://www.facebook.com/groups/UVAGradLatinX/
Society for Women Engineers (SWE): https://www.facebook.com/groups/UVAGradSWE
Women in Math and Science (WIMS): http://wimsuva.wixsite.com/wims-uva
LGBTQ Center: https://lgbtq.virginia.edu/
Nursing Mother Room Locations: http://www.hr.virginia.edu/news-events/news/nursing-mothers
Report a Barrier: https://reportabARRIER.virginia.edu/
UVA Title IX: https://eocr.virginia.edu/title-ix
Office of African American Affairs: https://oaa.virginia.edu/
Diversity at UVA: https://vpdiversity.virginia.edu/
President's Commission on Slavery and the University: https://slavery.virginia.edu/

Housing Resources:

International Center Temporary Student Lodging: https://internationalcenter.virginia.edu/lodgings
On-grounds graduate housing: https://housing.virginia.edu/graduate-students
Off-grounds housing: https://offgroundshousing.student.virginia.edu/
Confidential Resources:

Counseling and Psychological Services: https://www.studenthealth.virginia.edu/caps
Faculty Employee Assistance Program: https://uvafeap.com/
Maxine Platzer Lynn Center: http://womenscenter.virginia.edu/
UVA Medical Center, including the Emergency Department* (434) 924-2231
Student Health: Gynecology* (434) 924-2773
Student Health: Psychologists in the Student Disability Access Center (SDAC): (434) 243-3915
https://www.studenthealth.virginia.edu/student-disability-access-center/accommodation-services

UVA Teen and Young Adult Health Center**: (434) 982-0090 https://childrens.uvahealth.com/services/teen-health

* The University’s Medical Center Emergency Department and the Elson Student Health Center Gynecology Department are the only local facilities with nurses who are specially trained to collect evidence for victims of sexual assault; that evidence collection must occur within 120 hours of the assault. According to the Virginia Department of Forensic Science, some types of forensic evidence may be collected for up to 120 hours after a sexual assault; however, the sooner the care is received the more options are available for evidence collection and/or medical treatment. The UVA Emergency Department is open 24 hours a day, 365 days a year. The Elson Student Health Center is open Weekdays from 8:00 AM - 5:00 PM and available after hours at (434) 297-4261.

** Provides health care for ages 12 to 26.

Other useful information:

UVA Collab: https://collab.itc.virginia.edu/portal - BME Grad Studies
Athletics: http://virginiasports.com/
International Studies Office: http://www.virginia.edu/iso/
Intramural/Recreational Sports: http://www.virginia.edu/ims/
Parking and Transportation: http://www.virginia.edu/parking/
Real Time UVA Bus locator: https://uva.transloc.com/
Student Health: http://www.virginia.edu/studenthealth/
UVA ADA Coordinator: https://eocr.virginia.edu/ada-coordinator
UVA News: https://news.virginia.edu/
Report a Barrier: https://reportabarrier.virginia.edu/
EOCR Office for Equal Opportunity and Civil Rights: https://eocr.virginia.edu/
Resources for a Resilient UVA: https://eocr.virginia.edu/resilient
Emergency Alert Sign-up page: https://uvaemergency.virginia.edu/uva_alerts
Respect UVA: https://hr.virginia.edu/employee-relations/respect-uva

If you are having trouble making ends meet, the University has the following resources:
https://sfs.virginia.edu/emergencyloans

Lee Emergency Loan
The Lee Emergency Loan is a short-term, interest-free loan available to undergraduate students for up to $500 and graduate students for up to $750 per semester. The loan is due on the last day of the month after it is taken out (e.g. a loan taken out any day in February will be due March 31). As long as it is paid on time, there is no fee or interest. If it is paid late, there is a one-time late fee of $10.

To apply for the loan, come to the Student Financial Services desk in Carruthers Hall with your UVA ID card. The last day for Spring graduates to obtain a Lee Loan is March 31. The last day for Fall graduates to obtain a Lee Loan is October 31. Lee Loans are only available to Summer Session students if they are enrolled in the ensuing Fall term. Past due balances must be paid prior to obtaining a Lee Loan.
Honor Loan Fund
The Honor Loan is a short-term, interest-free loan available to full-time graduate and undergraduate students. This loan is administered by the Office of the Dean of Students. For more information, please visit ODOS in Peabody Hall or call (434) 924-7133 to make an appointment.

APPENDIX IV: RESOURCES FOR INTERACTING WITH BME OFFICE STAFF

Travel Reimbursement Logistics:

- **START BY**...UVA uses two systems for reimbursement so you need to figure out which one you use: “Voucher system” or “Chrome River”. The simplest way to figure this out is if you have access to Chrome River then they do it there. It is self-service. If not, fill out a “Non-Employee Reimbursement form” (which you can get from Anita or Elida in the BME Main Office), and bring their receipts to either Anita or Elida, along with a PTAO (which you get from your advisor or whoever is paying for your travel).

- **PLANE TICKETS**: For plane tickets you are more than welcome to use one of the department p-cards, **but you are not allowed to physically take the p-card, so you should bring a laptop with you to Elida or Anita’s desk in the Main BME Office.** Alternatively, you can ask Elida or Anita for the contact information for one of our approved travel agency contacts, where they have these p-cards on file and can easily make their travel arrangements and then those will automatically be charged to the p-card.

- **CONFERENCE REGISTRATION**: For conference registrations it is highly recommended to use a p-card (follow same instructions as stated above for plane tickets).

- **HOTEL ACCOMMODATIONS**: For accommodation p-card is not available as they cannot pay for accommodation in advance. (Also, Air BnB's not allowed on p-cards.). So you must pay for your hotel/AirBnB yourself. You will get reimbursed when you show your receipt to Anita/Elida **after your trip.**

- **GETTING REIMBURSED**: You have 30 days from the last day of your trip to submit your receipts, otherwise it becomes taxable income. The time it will take for you to get reimbursed depends on how long it will take for each process to go through approvals, but it should normally **not take longer than a week** unless there are circumstances, such as the PI not approving the expense on Chrome River on time.

Instructions for Reserving Meeting Rooms and Classrooms:

1) If you want to reserve these rooms, you need to email Keisha ([kj3e@virginia.edu](mailto:kj3e@virginia.edu)) in the Main BME Office **at least 2 weeks in advance of your meeting**:

- MR5 1041 (BME Classroom)
- MR5 2019 (BME Library)
- MR5 2012 (BME Small Conference Room inside the BME office)

For any equipment issues or support please contact BME IT (Henry Pritchard: [hep6n@virginia.edu](mailto:hep6n@virginia.edu))

2) If you want to reserve these rooms, you need to go to this link and make your reservation: [http://rs.med.virginia.edu/rsrequest/login.asp](http://rs.med.virginia.edu/rsrequest/login.asp)

- MR5 2005 (before 1:00pm Monday- Thursday and all day Friday’s)
- MR6 G501
- MR6 2502
- MR6 3501
- MR6 3502
- Pinn Hall 1005
- Pinn Hall 1014
- Pinn Hall 1017

3) If you want to reserve these rooms, you need to email the people indicated here:
## BME Office Staff Roles and Directory:

<table>
<thead>
<tr>
<th>Crystal Lamm - cds5y</th>
<th>Kitter Bishop</th>
<th>Anita Dodds – adb5y</th>
<th>Henry Pritchard - hcp6n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Administrator</td>
<td>Undergraduate Program &amp; Public Relations</td>
<td>Finance Associate</td>
<td>IT</td>
</tr>
<tr>
<td>• Human Resources for Faculty, Staff, Wage</td>
<td>• All things Undergrad related</td>
<td>• 40405 (SOM) Account Mgmt.</td>
<td>• IT End user support for Faculty, Staff and Students</td>
</tr>
<tr>
<td>• Recruiting/Hiring</td>
<td>• Public Relations</td>
<td>• All purchases over $10k</td>
<td>• Support for BME owned computers</td>
</tr>
<tr>
<td>• Onboarding/Offboarding</td>
<td>• Website/Social Media</td>
<td>• ETF</td>
<td>• IT support for speakers, guests and special meetings</td>
</tr>
<tr>
<td>• Employee Lifecycle</td>
<td>• Front Desk backup</td>
<td>• Fedex</td>
<td>• Maintain BME servers and networks</td>
</tr>
<tr>
<td>• Finance/Annual Budget/FYE</td>
<td></td>
<td>• Moving Agreements</td>
<td>• Manage MicroCT use and maintenance</td>
</tr>
<tr>
<td>• Faculty Startup Accts.</td>
<td></td>
<td>• Travel and General Reimbursements</td>
<td>• Manage BME listservs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Keaisha Jones - kj3e</th>
<th>Kim FitzHugh-Higgins</th>
<th>Elida Logan - esl5u</th>
<th>Tracy Burcin – tbl3v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Coordinator</td>
<td>Graduate Program Coordinator</td>
<td>Senior Fiscal Tech</td>
<td>Facilities &amp; IT</td>
</tr>
<tr>
<td>• Dept Chair Administrator</td>
<td>• All things Graduate Student Related - Funding/Academic Progress/Student Life</td>
<td>• 31315 (SEAS) Account Mgmt.</td>
<td>• Manage dept. equipment/facilities</td>
</tr>
<tr>
<td>• Front Desk Reception</td>
<td>• Bio Data Science T32 Support</td>
<td>• All purchases under $10k</td>
<td>• Equipment Repair</td>
</tr>
<tr>
<td>• Seminar &amp; Special Visitor Arrangements</td>
<td></td>
<td>• Reimbursements – Travel &amp; General</td>
<td>• Department Prototyping</td>
</tr>
<tr>
<td>• Events/Special Meeting Planning</td>
<td></td>
<td>• Pcard transactions</td>
<td>• Simple machining/project manufacturing</td>
</tr>
<tr>
<td>• Anything else that comes up in BME</td>
<td></td>
<td></td>
<td>• Space Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hannah Moore – ham2t</th>
<th>Ian Gercek – hgp6d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coulter Translational Partnership Coordinator &amp; Special Projects</td>
<td>Grants &amp; Contracts Administrator</td>
</tr>
<tr>
<td>• All things Coulter</td>
<td>• Pre- and Post- award Grants Management for SOM faculty</td>
</tr>
<tr>
<td>• Support Coulter Director</td>
<td>• Proposals/IT requests/Subproject setup/MFA/Progress Reports</td>
</tr>
<tr>
<td>• Manage Coulter Annual Awards</td>
<td>• Monthly review of grants expenditure/tracking, back rates</td>
</tr>
<tr>
<td>• Special Projects and Conferences (BMES)</td>
<td>• Monitoring/tracking labor scheduling</td>
</tr>
<tr>
<td></td>
<td>• Prepare informal budgets to actuals reports</td>
</tr>
<tr>
<td></td>
<td>• Assist SEAS Research Administration with Pre- and Post- award Grants Management for SEAS faculty</td>
</tr>
</tbody>
</table>
**2019-2020 PHD GRA GTA & FELLOWSHIP Schedule**

University of Virginia - School of Engineering

<table>
<thead>
<tr>
<th>Pay Period (10) payments</th>
<th>Pay Dates</th>
<th>Fall Fellowships 2019 (before taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5–Aug 1</td>
<td>18–Aug</td>
<td>23–Aug</td>
</tr>
<tr>
<td>19–Aug 2</td>
<td>1–Sep</td>
<td>6–Sep</td>
</tr>
<tr>
<td>2–Sep 3</td>
<td>15–Sep</td>
<td>20–Sep</td>
</tr>
<tr>
<td>16–Sep 4</td>
<td>29–Sep</td>
<td>4–Oct</td>
</tr>
<tr>
<td>30–Sep 5</td>
<td>13–Oct</td>
<td>18–Oct</td>
</tr>
<tr>
<td>14–Oct 6</td>
<td>27–Oct</td>
<td>1–Nov</td>
</tr>
<tr>
<td>28–Oct 7</td>
<td>10–Nov</td>
<td>15–Nov</td>
</tr>
<tr>
<td>11–Nov 8</td>
<td>24–Nov</td>
<td>29–Nov</td>
</tr>
<tr>
<td>25–Nov 9</td>
<td>8–Dec</td>
<td>13–Dec</td>
</tr>
<tr>
<td>9–Dec 10</td>
<td>22–Dec</td>
<td>27–Dec</td>
</tr>
</tbody>
</table>

*The fellowship stipends are created on the 23rd of each month. It is mailed or deposited a few days later.*

<table>
<thead>
<tr>
<th>Pay Period (10) payments</th>
<th>Pay Date</th>
<th>Spring Fellowships 2020 (before taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23–Dec 11</td>
<td>6–Jan</td>
<td>10–Jan</td>
</tr>
<tr>
<td>6–Jan 12</td>
<td>19–Jan</td>
<td>24–Jan</td>
</tr>
<tr>
<td>20–Jan 13</td>
<td>2–Feb</td>
<td>7–Feb</td>
</tr>
<tr>
<td>3–Feb 14</td>
<td>16–Feb</td>
<td>21–Feb</td>
</tr>
<tr>
<td>17–Feb 15</td>
<td>1–Mar</td>
<td>6–Mar</td>
</tr>
<tr>
<td>2–Mar 16</td>
<td>15–Mar</td>
<td>20–Mar</td>
</tr>
<tr>
<td>16–Mar 17</td>
<td>29–Mar</td>
<td>3–Apr</td>
</tr>
<tr>
<td>30–Mar 18</td>
<td>12–Apr</td>
<td>17–Apr</td>
</tr>
<tr>
<td>13–Apr 19</td>
<td>26–Apr</td>
<td>1–May</td>
</tr>
<tr>
<td>27–Apr 20</td>
<td>10–May</td>
<td>15–May</td>
</tr>
</tbody>
</table>

*The fellowship stipends are created on the 23rd of each month. It is mailed or deposited a few days later.*

<table>
<thead>
<tr>
<th>Pay Period (6) payments</th>
<th>Pay Date</th>
<th>Summer Fellowships 2020 (before taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11–May 21</td>
<td>24–May</td>
<td>29–May</td>
</tr>
<tr>
<td>25–May 22</td>
<td>7–Jun</td>
<td>12–Jun</td>
</tr>
<tr>
<td>8–Jun 23</td>
<td>21–Jun</td>
<td>26–Jun</td>
</tr>
<tr>
<td>20–Jul 26</td>
<td>2–Aug</td>
<td>7–Aug</td>
</tr>
</tbody>
</table>

*The fellowship stipends are created on the 23rd of each month. It is mailed or deposited a few days later.*

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**GRA/ GTA Wages**

<table>
<thead>
<tr>
<th>Pay Period (10) payments</th>
<th>Pay Dates</th>
<th>GR/A/ GTA Wages Fall 2019 (before Taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay Period (6) payments</td>
<td>Pay Date</td>
<td>GRA Wages Summer 2020 (before Taxes)</td>
</tr>
</tbody>
</table>

*GRA/ GTA pays on the date listed above are transmitted via direct deposit or pick-up at the UVa Payroll Office. Fellowships stipends are transmitted by Direct Deposit or mailed to the local address located in SIS.*

**Bi-weekly wages are $1173.08. Monthly stipends are $2541.66.**

**BME standard for PhD students is $30500 annually.**