

Graduate Student Policies & Procedures

Department of Sustainable Biomaterials
College of Natural Resources and Environment
Virginia Polytechnic Institute and State University

Sustainable Biomaterials MC 0323
A 2017-2018 University Exemplary Department
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I. An Overview of our Program for *PROSPECTIVE* students

Introduction and History

We are very glad you are interested in graduate study with us at Virginia Tech. We welcome applications from students with diverse academic backgrounds. Prior study or a degree in bioproducts, wood science, packaging, forest products, chemistry, engineering, business, forestry, material science, biological systems engineering, architecture, or other areas of study are welcome.

Students can focus their degree program in specialized areas of study by selecting coursework and thesis or dissertation research problems in specialized subject areas. Matching your area of degree interest with a faculty member working in that area is a sure way to gain skills and knowledge in the particular subject under the umbrella of the general degree requirements

Our department is one of the leading North American programs. We have a diverse faculty with a variety of research and instructional interests. Please see <https://sbio.vt.edu/about-us/people/faculty/faculty-directory.html> for more information about the faculty. We have a long history of graduate education, completing more than 100 Ph.D.s and many more M.S. degree candidates since formal establishment of the department more than 25 years ago. Graduates of our program are in high demand by universities, public and private research organizations, industry, trade agencies, non-profit organizations, and products suppliers. Also have a look here: <https://sbio.vt.edu/students/graduate.html>

Summary of Graduate Program and Degrees

The Department of Sustainable Biomaterials is one of four departments within the College of Natural Resources and Environment at Virginia Polytechnic Institute and State University (Virginia Tech). Faculty and staff have appointments in the College of Natural Resources and Environment (CNRE), the Virginia Agricultural Experiment Station (VAES), and Virginia Cooperative Extension (VCE). We provide instructional and research opportunities in the areas of sustainable biomaterials, packaging, wood science, nanomaterials, polymer science, and forest products, spanning the range from nanotechnology and the basic materials science, through processing, design, manufacturing, marketing, management, and competitiveness aspects of the various industry segments. Some of the research is done in concert with our research centers and is supported by these Centers.

Excellent laboratory and classroom resources are available for education, research, and outreach in Blacksburg, Virginia, and other locations across Virginia. Currently, faculty, staff, and student researchers have access to research laboratories in several locations, principally Cheatham Hall and Kelly Hall on the main campus in Blacksburg and the Brooks Forest Products Center located approximately 1.5 miles from the main campus in the Virginia Tech Corporate Research Center.

Cheatham Hall has space for research, education, and application short courses plus forestry research laboratories and college-wide computing facilities. Our laboratories have capabilities for liquid and gas chromatographic separation of wood components, thermal analysis of cellulose materials, molecular weight determination, nuclear magnetic resonance, dynamic mechanical analysis, FT-IR and UV-VIS spectroscopy, contact angle analysis, light and electron microscopic study of structure and properties, and wide-angle X-ray diffraction for crystallinity and microfibril angle analysis. Please have a look at <https://sbio.vt.edu/about-us/sbio-facilities.html> for information about our facilities.

The Brooks Center has classrooms, offices, and laboratories for the manufacture of pressed panels, several engineering testing machines, wood and metal working shops, pallet and container research facilities, packaging research equipment, and other wood and fiber-based composite testing instrumentation.

Our graduate program is part of a joint degree program offered by the Department of Sustainable Biomaterials and the Department of Forest Resources and Environmental Conservation. Three degrees are offered in this joint program:

- Master of Science in Forestry and Forest Products (M.S.)
- Master of Forestry (M.F.) non-thesis option
- Doctor of Philosophy in Forestry and Forest Products (Ph.D.)

The Master of Science is thesis-based and the Master of Forestry is non-thesis. Students electing to pursue the non-thesis option are required to take more classes than the thesis option requirements and write a report on a problem of their choosing, as well as attend and present seminars. The M.F. program requires no original research or thesis, and is considered a terminal, professional degree. The vast majority of graduate students in our program elect the M.S. thesis option.

Admission Requirements

All applicants must meet the requirements for admission to the Graduate School at Virginia Tech. Details about the Graduate School, the on-line application process, transcripts and letters of recommendation, TOEFL and GRE requirements, deadlines, and other areas are available at <https://graduateschool.vt.edu/admissions.html>

Admission is contingent upon receipt of a bachelor of science degree or bachelor of arts degree from an accredited college or university and the presentation of evidence of potential to pursue graduate work. Major factors considered in the evaluation are scholastic record, professional experience, three letters of recommendation, and scores on standardized tests. Admission categories and graduate status classifications are shown in the Graduate School's Graduate Catalog https://secure.graduateschool.vt.edu/graduate_catalog/

Files of applicants who do not meet Graduate School requirements will not be forwarded to the department for consideration and the Graduate School will notify the student directly of the decision to reject the application. The department has no authority to overrule requirements of the Graduate School.

The applicant is responsible for providing all supporting documents and payment of the required application fee. Degree-seeking applicants must pay an application fee. The applicant should indicate the "curriculum abbreviation", which is **FPR** for the program in the Department of Sustainable Biomaterials.

The Graduate Record Examination (GRE) General Test is required by the Department of Sustainable Biomaterials for all applicants. In addition, all applicants whose undergraduate degrees were obtained from an institution where English is not the primary language of instruction must provide the Graduate School with the score of the Test of English as Foreign Language (TOEFL). TOEFL scores are not required of U.S. permanent residents and U.S. naturalized citizens. Official test scores should be sent to the Virginia Tech Graduate School, institution code 5859. Do not enter a department code.

When an application is complete, the Graduate School forwards it to the department. The department circulates the application among selected faculty to obtain input into the final decision. After all faculty members have had a chance to rate the application, the department head makes a recommendation to the Dean of the Graduate School to admit or reject the application. The Dean of the Graduate School informs the applicant regarding the outcome of the application. Please allow six to eight weeks for a decision to be made.

If an applicant is admitted, the applicant should contact the department head regarding financial support and specifics about availability of research areas, major professors, course requirements and other pertinent information as soon as possible.

Graduate School Deadlines

We encourage applicants to submit their completed applications, including supplemental materials, as early as possible to allow sufficient time for application processing. Applications and all related materials for admission should reach the Graduate School Office at least eight weeks before the beginning of the semester in which enrollment is requested.

Graduate Degree Requirements

[Please see the Graduate Degree and Certificate Requirements in the Graduate Catalog for more specific information) <https://graduateschool.vt.edu/academics.html>

Within the framework of degree requirements established by the Graduate School, the following items are required by the Department of Sustainable Biomaterials:

1. Approval of the Plan of Study by the student's advisory committee.
The Plan of Study is a listing of the coursework the student plans to complete as part of the degree requirements. It is described in more detail in the next section for enrolled students.
2. Successful completion of the minimum hours of coursework for the degree sought.
3. Presentation of at least one departmental seminar if a M.S. or M.F. student and at least twice if a Ph.D. student.
4. Satisfactory completion of any written or oral exams required for the degree sought.
5. Satisfactory completion and oral defense of a written thesis, dissertation, or report required for the degree sought.

Courses Required by the Department of Sustainable Biomaterials

Within the framework of course requirements established by the Graduate School, the following coursework is required by the Department of Sustainable Biomaterials:

1. **All SBIO graduate students must complete SBIO 5004 Sustainable Biomaterials Graduate Seminar at least twice for credit, independent of the student's Plan of Study.** M.S. and M.F. students must present once as part of SBIO 5004 while in residence and Ph.D. students must present twice while in residence. M.S. and M.F. students may include only 3 hours of graduate seminar credits and Ph.D. students may include only a total of 4 credits for graduate seminar in their plan of study. If a conflict arises between the seminar and other courses or teaching assignments, the student should document such conflict with the seminar coordinator.
2. **All SBIO graduate students are required to complete SBIO 5114 Professional Skills for SBIO Graduate Students.**
3. **All students, regardless of their academic background, are required to take SBIO 5124 Wood Materials Science in their first fall semester of residence.**
4. **In addition to SBIO 5004, 5114, and 5124, M.S. and M.F. students must complete a minimum of one and Ph.D. students must complete a minimum of two courses from this list:**
 - SBIO 5224 Quantitative Wood Anatomy
 - SBIO 5314 Physical and Mechanical Behavior of wood
 - SBIO 5324 Timber Engineering
 - SBIO 5424 Polysaccharide Chemistry
 - SBIO 5614 Forest Products Marketing and Management Strategies

5. M.S. students are required to take a minimum of one semester of graduate-level statistics. Ph.D. students are required to take a minimum of two semesters of graduate-level statistics courses. STAT 5615 and 5616, Statistics in Research, normally satisfy this required. However, other courses may be assigned by the student's advising committee.
6. Additional graduate level courses must be taken to fulfill the minimum credit hour requirements of the Graduate School as outlined in the section for the enrolled student.

Credit hour summary for M.S. (30 credit hours)

SBIO requirements (minimum of 12 credit hours toward the overall credit hours required)

SBIO 5004 Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, M.S. students must present **once** while in residence), 3 credit hours maximum allowed

SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours

SBIO 5124 Wood Materials Science, 4 credit hours

Statistics: one graduate-level 3 credit hour STAT course determined by advisory committee

Selection of a minimum of **one** course from this list:

SBIO 5224 Quantitative Wood Anatomy

SBIO 5314 Physical and Mechanical Behavior of Wood

SBIO 5324 Timber Engineering

SBIO 5424 Polysaccharide Chemistry

SBIO 5614 Forest Products Marketing and Management Strategies

Additional graduate level courses must be taken to fulfill the minimum credit hour requirements of the Graduate School.

Credit hour summary for M.F. (36 credit hours)

SBIO requirements (minimum of 12 credit hours toward the overall credit hours required)

SBIO 5004 Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, M.F. students must present **once** while in residence), 3 credit hours maximum allowed

SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours

SBIO 5124 Wood Materials Science, 4 credit hours

Selection of a minimum of **one** course from this list:

SBIO 5224 Quantitative Wood Anatomy

SBIO 5314 Physical and Mechanical Behavior of Wood

SBIO 5324 Timber Engineering

SBIO 5424 Polysaccharide Chemistry

SBIO 5614 Forest Products Marketing and Management Strategies

Additional graduate level courses must be taken to fulfill the minimum credit hour requirements of the Graduate School.

Credit hour summary for Ph.D (90 credit hours minimum)

SBIO requirements (minimum of 20 credit hours toward the overall credit hours required)

SBIO 5004 Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, Ph.D. students must present **twice** while in residence), 4 credit hours maximum allowed

SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours

SBIO 5124 Wood Materials Science, 4 credit hours

Statistics: two graduate-level 3 credit hour STAT courses determined by advisory committee

Selection of a minimum of **two** courses from this list:

SBIO 5224 Quantitative Wood Anatomy

SBIO 5314 Physical and Mechanical Behavior of Wood

SBIO 5324 Timber Engineering

SBIO 5424 Polysaccharide Chemistry

SBIO 5614 Forest Products Marketing and Management Strategies

Additional graduate level courses must be taken to fulfill the minimum credit hour requirements of the Graduate School.

Financial Support

Financial support from the Department of Sustainable Biomaterials is limited to the number of available Graduate Research Assistantships (GRA) and Graduate Teaching Assistantships (GTA). These stipends (a form of payment or salary) are granted for a specified period of time provided that the recipient's progress toward their degree is satisfactory. Each year a decision based on the results of the annual performance review is made regarding continuation of the stipend. At the end of each academic year, the stipend is discontinued if the student's overall grade point average (GPA) falls below a 3.00. Discontinuance may also be considered at the end of an academic semester on the basis of the student's performance in research.

The department has a limited number of assistantships available each year. The majority of our graduate students are supported on research projects being directed by our faculty. Because of this, early contact with individual faculty members in your area of interest is crucial to explore funding opportunities for your graduate study. Please consult the following web address for further information on our faculty <https://sbio.vt.edu/about-us/people/faculty/faculty-directory.html>

Financial assistance is not normally provided for students enrolled in the M.F. program.

Assistantships

One of the most common sources of funding is the graduate assistantship. Assistantships can be in support of general administrative duties, teaching assignments, or research projects.

We routinely evaluate graduate admission applications for the possibility that the student can fill an available assistantship position. Current students in search of funding should check with us to discuss the availability of assistantships and assistantship eligibility requirements. The Graduate School also keeps a list of students in need of tuition or an assistantship.

a) Graduate Research Assistantships (GRA)

Graduate research assistants are graduate students conducting academically significant research under the direction of a faculty member, who is generally a principal investigator on an external grant or contract. Graduate Research Assistantships are awarded by departments and

professors who are engaged in research projects. Research assistantships offer exciting opportunities to participate in our department's research program.

b) Graduate Teaching Assistantships (GTA)

Graduate teaching assistants provide academic program support under the supervision of a faculty member. GTAs may assist faculty in the department in teaching undergraduate courses, including laboratory teaching assignments, or in providing other appropriate professional assistance, including grading examinations, problem sets, and/or lab assignments, setting up displays for lectures and laboratory sections, and preparing or maintaining equipment used in laboratory sections.

c) Assistantship Agreement Contract

Students offered an assistantship must sign a Graduate Assistantship Agreement form (aka, Grad Agreement), which is a contract between the student and department. The agreement will stipulate the beginning and ending dates of the contract, the type of appointment, the amount of the monthly stipend, whether the student is expected to work during school breaks, and any other special conditions. The agreement also indicates whether a tuition scholarship, academic fee, and engineering fee will be paid by the department, and whether or not the out-of-state portion of the tuition will be waived. An example copy of a grad agreement is appended to this document.

d) Academic Eligibility to Hold a Graduate Assistantship

Assistantships may be offered to degree seeking graduate students admitted to Regular (GPA of 3.0 or greater). To continue to be eligible for an assistantship, a student must maintain a GPA of 3.0 or higher and be making satisfactory progress toward achievement of a graduate degree. The Graduate School may allow a student one semester on probationary status to remedy grade deficiencies while holding an assistantship. Students on assistantship must be enrolled for a minimum of 12 credit hours per academic year semester. Audited courses do not qualify in satisfying this minimum.

e) Graduate Assistantship Workshop

All graduate research and teaching assistants in the Department are required to attend and be enrolled in the GTA Workshop (GRAD 5004, 1 cr., P/F) in the first fall semester of their teaching appointment. Other students who hope to qualify for an open assistantship in the future should take the workshop in their first semester. The workshop is three half days Monday to Wednesday of the week prior to the start of classes in August and two sessions during the fall semester.

Fees and Taxes

Comprehensive/Technology/Capital Fees: Students are responsible for comprehensive fees, including the technology fee, each semester. Out-of-state students must also pay a Capital Fee. See the [Bursar's web page](#) for a description of fees. The Capital Fee requirement cannot be waived and is not part of the tuition charges.

Taxes: Federal and state taxes, if applicable, are withheld from the assistantship stipend check, which is issued semi-monthly at approximately the first and sixteenth of each month. Students on summer assistantships who are not enrolled will be taxed at a higher, non-student rate.

Graduate Student Health Insurance

Because of the possibility of serious illness or injury requiring treatment beyond the services of the Schiffert Health Center, students are encouraged to purchase medical insurance for themselves and their families.

Virginia Tech offers an insurance plan for all full-time enrolled students. Purchasing this plan is optional for U.S. citizens and permanent residents.

International students are required to purchase insurance coverage for the duration of their stay.

The university-sponsored insurance plan is managed by the Student Medical Insurance Office. This office can provide you with detailed information about the University's health insurance plan, coverage, costs, effective dates, and other relevant information.

Workload, Office hours, Holidays, and Vacations

It should be realized that graduate research and teaching assistants are funded by research grants and contracts and university funds and are therefore considered half-time employees. The major professor will determine the work to be performed. Usually, the student will be expected to work a minimum of 20 hours a week. The time spent on meeting other academic requirements IS NOT considered part of the 20 hours.

Students on assistantship are expected to observe office hours (8:00 a.m. to 5:00 p.m., Monday through Friday) established by the Graduate School, with exception for class attendance and pursuit of scholarly activities. Students not employed by the University should make their schedule known to the major professor and be available for cooperative work on research and teaching projects. Holidays are established and published annually by the University Registrar. Students observe the same holidays as other University personnel.

As part-time employees, students are not eligible for benefits such as accrual of annual vacation and sick leave. As a result, no right to vacation is associated with a GRA or GTA. Graduate students should schedule anticipated absences with their major professor to ensure that this will not conflict with their research and teaching activities. If a student wishes to take a vacation or leave of absence, the student must make arrangements with the major professor in advance. It is expected that any time lost during such a break will be made up prior to or after return from work.

Students entering a graduate program should understand that there might be occasions when extended working hours will be required for completion of academic and research responsibilities. Research and teaching preparation and data collection may require extended hours during the week, some weekends, and occasional holidays during periods of greatest activity.

Visiting Campus

We would like to welcome you to our beautiful campus. Our department's facilities are located on the main Virginia Tech campus in Blacksburg, Virginia, nestled in the Blue Ridge Mountains.

Graduate School Open House and Tours

Open House programs are offered by the Graduate School on several dates throughout the summer and the academic year. The topics covered will include an overview of graduate education at Virginia Tech, funding graduate education, on and off-campus housing options, and meal plans. You will learn how to contact your prospective departments to schedule a meeting with a faculty or staff member and you will be given a walking or driving tour of campus. <https://graduateschool.vt.edu/admissions/visit-us.html>

Services for Students with Disabilities

If you need course adaptations or accommodations because of a documented disability, please contact the Services for Students with Disabilities office located in the Kent Square building, 250 S. Main Street, Suite 300. <http://www.ssd.vt.edu/>

II. Welcome to Graduate School (for *ENROLLED* students)

CONGRATULATIONS ON YOUR ACCEPTANCE TO GRADUATE SCHOOL AND WELCOME TO VIRGINIA TECH. WE LOOK FORWARD TO WORKING WITH YOU TOWARD SUCCESSFUL COMPLETION OF YOUR GRADUATE DEGREE. IF YOU HAVEN'T ALREADY CONSULTED THE FOLLOWING WEB ADDRESS, A WEALTH OF INFORMATION IS AVAILABLE FOR YOU AS YOU MAKE THE TRANSITION TO BLACKSBURG AND GRADUATE SCHOOL

<https://graduateschool.vt.edu/>

Your most useful resource is the Graduate School Policies and Procedures manual

https://secure.graduateschool.vt.edu/graduate_catalog/

Achieving your M.S., M.F., or Ph.D. degree

Expectations for Graduate Students and General Conduct of Students in Residence

Resources related to the contributions and expectations for graduate students, faculty, and staff can be found at <https://graduateschool.vt.edu/academics/expectations.html>

Further, we expect our graduate students to exemplify the highest standards of personal conduct and academic honesty. By accepting admission to the Graduate School, you subscribe to and are governed by the Graduate Honor Code, and acknowledge the right of the University to establish policies and procedures and to take disciplinary action when such action is warranted. Compliance with the Graduate Honor Code requires that all graduate students exercise honesty and ethical behavior in all their academic pursuits at Virginia Tech. The Graduate Honor Code establishes a standard of academic integrity. As such, this code demands a firm adherence to a set of values.

Assignment of faculty advisor (major professor)

When a student is accepted for graduate study, a faculty advisor is assigned by the department head. This advisor (aka, major professor) will work with the student to determine a tentative Plan of Study and to direct the student toward a specific area of specialization. Normally, no change of advisor is made unless special circumstances make a change necessary.

Graduate Advisory Committee

The student's advisory committee designs and approves the Plan of Study (described in the next section), provides advice, and regularly evaluates the student's progress and achievements. Advisory committee members are appointed by the Graduate School on recommendation of the department head. Establishment of the advisory committee occurs in conjunction with approval of the Plan of Study. The student should confer with the major professor, the department, and the prospective committee members prior to committee appointment.

a) Masters students

M.S. and M.F. students must have an advisory committee of at least three faculty members with a Master's degree or higher.

b) Ph.D. students

Ph.D. students must have an advisory committee of at least four faculty members with a doctoral degree. The Department of Sustainable Biomaterials requires that at least one member of the Ph.D. advisory committee be from a department other than Sustainable Biomaterials.

Faculty participation on advisory committees is an expectation of the university and the department. Therefore, students should expect that all committee members will take active part both in their studies

and in their thesis, report, or dissertation project. It is important that each committee member has expertise in certain aspects of the student's special interest and research project. Faculty participation on graduate student advisory committees is evaluated by the department.

General Degree Requirements for Graduate Students

The university degree requirements are those identified in the Graduate Catalog effective for the academic year in which the student is admitted. The departmental requirements are those effective at the time of filing the Plan of Study. If the requirements change during the time the graduate student is enrolled, the graduate student can choose, but is not required, to abide by the "new" requirements.

Plan of Study

All graduate students must submit a Plan of Study that meets at least the minimum Graduate School requirements for the designated degree. The Plan of Study must be approved by the student's Advisor (major professor) and Advisory Committee, the Department Head, and the Graduate School. The student should schedule a meeting of the proposed advisory committee to review, revise, and approve the Plan of Study.

All courses on the Plan of Study, including supporting courses, must be taken on a letter grade (A/F) basis except for those courses approved to be graded on a pass-fail (P/F) basis only. Audit courses cannot be included on the Plan of Study. Once a course on the Plan of Study is taken for a grade, it must remain on the Plan of Study.

After approval by the student's Advisory Committee and the Department Head, the Plan of Study should be entered and sent electronically to the Graduate School for approval, according to the following schedule:

a) Masters

The Plan of Study is due by the **end of the second academic semester** for all Master's degree students (based on full time enrollment of 12 credits per semester).

b) Ph.D.

The Plan of Study is due by the **end of the third academic semester** for all doctoral students (based on full time enrollment of 12 credits per semester).

Additional information about transferring courses, supporting courses, courses not approved for graduate credit, changes to the plan of study, changing thesis option, grades, and repeating courses is available in the Graduate School handbook.

Enrollment Requirements

a) Full Time Enrollment

Full-time enrollment for graduate students for purposes of tuition and fees requires a minimum of 9 credit hours and has a maximum of 18 credit hours per semester during the academic year. However, Graduate Assistants (GRAs and GTAs) and fellowship and scholarship recipients must enroll for at least 12 credit hours per semester.

b) Graduate Students on Assistantship

Students on full graduate assistantship are assumed to be 50 percent employed for determining credit hour loads and can enroll for 12-18 credit hours of course work in academic year

semesters and/or 6-9 credit hours during each summer session. The maximum credit hours total for both summer sessions is 12 and the maximum is 9 credit hours in any one summer session.

Credit Hour Requirements

Virginia Tech allows for both thesis and non-thesis master's degrees. For each degree type, the student's Plan of Study must meet the requirements shown below. An advisory committee may add specific requirements needed for an individual student's academic development.

Specific requirements for the Department of Sustainable Materials are described below:

Dept. of Sustainable Biomaterials Master of Science *thesis option* requirements (12 credit hours toward the minimum 30 graduate credit hours required)

- SBIO 5004 Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, M.S. students must present once as part of SBIO 5004 while in residence), 3 credits maximum allowed
- SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours
- SBIO 5124 Wood Materials Science, 4 credit hours
- Statistics –1 graduate-level 3 credit hour statistics course determined by advisory committee, 3 credit hours
- Selection of a minimum of one course from this list:
 - SBIO 5614 Forest Products Marketing and Management Strategies
 - SBIO 5424 Polysaccharide Chemistry
 - SBIO 5224 Quantitative Wood Anatomy
 - SBIO 5314 Physical and Mechanical Behavior of Wood
 - SBIO 5324 Timber Engineering

Dept of Sustainable Biomaterials Master of Forestry (*non-thesis option*) requirements (12 credit hours toward the minimum 36 graduate credit hours required)

- SBIO 5004 Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, M.S. students must present once as part of SBIO 5004 while in residence), 3 credits maximum allowed
- SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours
- SBIO 5124 Wood Materials Science, 4 credit hours
- Selection of a minimum of one course from this list:
 - SBIO 5614 Forest Products Marketing and Management Strategies
 - SBIO 5424 Polysaccharide Chemistry
 - SBIO 5224 Quantitative Wood Anatomy
 - SBIO 5314 Physical and Mechanical Behavior of Wood
 - SBIO 5324 Timber Engineering

Dept. of Sustainable Biomaterials *Ph.D. requirements* (20 credit hours toward the minimum 90 graduate credit hours required)

- SBIO 5124 Wood Material Science, 4 credits
- SBIO 5114 Professional Skills for SBIO Graduate Students, 2 credit hours
- SBIO 5004 – Graduate Seminar (1 credit hour, all graduate students must take at least twice for credit, Ph.D. students must present twice while in residence), 4 credits maximum allowed

- Statistics –2 graduate-level, 3 credit hour statistics courses determined by advisory committee, 6 credits
- Selection of a minimum of two courses from this list:
SBIO 5614 Forest Products Marketing and Management Strategies
SBIO 5424 Polysaccharide Chemistry
SBIO 5224 Quantitative Wood Anatomy
SBIO 5314 Physical and Mechanical Behavior of Wood
SBIO 5324 Timber Engineering

Additional graduate level courses must be taken to fulfill the minimum credit hour requirements of the Graduate School.

Research Plan

The Department of Sustainable Biomaterials requires that all M.S. and Ph.D. students submit a written Research Plan to the Advisory Committee **within two semesters of residence**. A student who does not submit the research plan by the end of the first two semesters is considered to be making unsatisfactory progress, and may have their assistantship terminated.

The plan should be discussed with and approved by the student's advisory committee. It should include a literature review in the subject area of the research to be undertaken to become the basis for the student's thesis or dissertation. It should also state clear objectives, variables, procedures, methods of analysis, and an estimate of time and equipment required. Composition of the research plan should be done in close consultation with the major professor.

Once the student and major professor have refined the plan to their joint satisfaction, copies should be distributed to the advisory committee. The student should then schedule a meeting of the committee to receive suggestions and direction on the proposed research plan. Typically, the graduate student will present a departmental seminar describing the proposed research.

The research plan must be signed by the student's committee and submitted to and filed with the Department Head's Office.

Preparation of Manuscript(s)

Students should proceed promptly with publication of their research. Each graduate student is expected to prepare manuscript(s) of their research results or M.F. project for publication. Students should study peer-reviewed professional journals for style and content prior to writing the thesis or dissertation. Then the thesis or dissertation can be written in such a way to allow easy extraction for professional publication.

Authorship of manuscripts should be according to the contribution of each author to the overall project. Typically in our department, the graduate student will be listed as first author on a publication that results from their research, however, the major professor has the final authority to determine order of authors. If the student does not take initiative in writing the manuscript(s), the major professor may become first author.

Evaluation of student progress

Each student's advisory committee is required to meet with the student before he or she has been in residence for two academic semesters or has completed 15 credit hours, and at yearly intervals thereafter at a minimum. While these meetings are designed to focus on the course work and research

progress, an additional function will be to evaluate the student's performance and make recommendations for improvements.

A form is available in the Department Head's Office for the committee to use in this evaluation process. An example of a typical evaluation form is appended to this document as Appendix A. It is the responsibility of the student to arrange the required meetings in consultation with the major professor. Normally, the evaluation will take a few minutes near the end of a committee meeting while the student is not present. The results will then be discussed with the student.

The evaluation form should be signed by the student, all committee members, and the department head, with copies going to the student, the committee members, and the student's personal file kept in the departmental office. Students must maintain a 3.0 grade point average and receive a satisfactory review of progress by the advisory committee on the evaluation. A student's graduate program may be terminated if progress is unsatisfactory. Appeals are normally made through the Department Head.

Once the evaluation form is completed, a copy is submitted by the department to the Graduate School, typically in May of each year.

Qualifying examination for doctoral students

A qualifying exam will be required for all SBIO Ph.D. students. The student's graduate program committee will determine the form and content of the examination.

Preliminary examination for doctoral students

The preliminary examination is a requirement for all doctoral students. This examination must be taken at least six (6) months before the final exam. Examinations required by the Graduate Policies and Procedures (preliminary and final examinations) are schedule through the Graduate School.

To pass the preliminary exam, a graduate student is allowed at most one unsatisfactory vote. If a student fails the exam, one full semester (a minimum of 15 weeks) must elapse before the second examination is schedule. No more than two opportunities to pass any one examination are allowed. A student failing the preliminary exam twice will be dismissed from graduate studies by the Graduate School.

The student's graduate program committee will determine the form and content of the examination.

The preliminary examination is comprehensive in nature and is intended not to be restricted only to the defense of the proposal but also to test the student's ability to integrate, synthesize and apply concepts, facts and methods in solving new and complex problems associated with their field. The candidate may therefore be tested on all aspects of their research field including experimental methods, philosophy of science, and science as it relates to society. The preliminary examination is the most comprehensive examination the candidate must pass to qualify for the Ph.D.

Final Examinations

An oral and/or written final examination is required of all graduate students. All final exams must be scheduled with the Graduate School.

The committee for the final examination normally consists of the student's advisory committee. If one of the Advisory Committee members cannot be present at an exam, the Major Professor can request that another faculty member serve on the examining committee.

To pass the final exam, a graduate student is allowed at most one unsatisfactory vote. If a student fails the final exam, one full semester (a minimum of 15 weeks) must elapse before the second examination is scheduled. No more than two opportunities to pass any one examination are allowed. A student failing the final exam twice will be dismissed from graduate studies by the Graduate School.

a) Master of Forestry

M.F. students must defend their "degree paper" and will be thoroughly tested on their knowledge of the field of Sustainable Biomaterials.

b) Master of Science

each M.S. student must pass a final oral examination that consists of a defense of their thesis and an assessment of their understanding of the field of Sustainable Biomaterials.

c) Doctoral students

all Ph.D. students must pass a final oral examination in the last semester of enrollment. The exam will be primarily a defense of the dissertation, but other areas of science will also be included at the discretion of the committee. The exam must be scheduled no earlier than six months after successful completion of the Ph.D. preliminary exam.

Thesis or Dissertation

a) Approval

Master's degrees may be thesis or non-thesis as specified on the Plan of Study at the time the plan is submitted. The Ph.D. degree requires a dissertation. The thesis/dissertation must be evaluated by all members of the student's advisory committee. Approval or disapproval is signified by signing the ETD (electronic thesis and dissertation) Approval form. This signifies that the thesis or dissertation is in its final form and ready for submission to the Graduate School. A successful degree candidate is allowed, at most, one negative vote.

Graduate degrees are completed after approval of the ETD by the Graduate School and completion of all requirements for the degree. <https://guides.lib.vt.edu/ETDguide>

b) Electronic Thesis and Dissertation (ETD)

Theses and dissertations must be submitted electronically within two weeks of the defense. Instructions are available at: <https://guides.lib.vt.edu/ETDguide>

Sustainable Biomaterials Departmental Facilities and Resources

The Department of Sustainable Biomaterials has offices, laboratories, and classrooms in two locations on the campus in Blacksburg, VA. The departmental main office is in 230 Cheatham Hall. Many of the faculty and laboratories are also located in Cheatham Hall. The department also occupies the Brooks Forest Products Center, located in the Virginia Tech Corporate Research Center, at 1650 Ramble Road.

Faculty, staff, and technical personnel

A complete listing of faculty and staff, with their area of specialization can be found at <https://sbio.vt.edu/about-us.html>

Departmental staff, both administrative and technical, have the explicit role of working with the faculty. All types of research, teaching, and document preparation is the responsibility of the student. If a student needs assistance in conducting their research or teaching, or is assisting a faculty member in

official business, the student should convey to their major professor the nature of the assistance needed. Only the faculty member may then request help from the administrative and technical staff.

Office and Desk Assignment

Every effort is made to provide desks and, in some cases, office space for graduate students on stipend, and, depending on availability, to those not on stipend. Desk assignments are made at the beginning of the academic year depending on location of the major professor's office and the building in which the student's research project is located.

Use of Laboratory and Office Facilities

All departmental facilities and equipment are strictly for official use and are not to be used for personal use under any circumstances. This rule is specifically enforced with regard to woodworking and machine shops, computers, telephones, copy machines, printers, and other office and laboratory equipment. Experimental and teaching materials such as scrap wood and leftover specimens are considered university property, and therefore, may not be removed from the premises for personal use.

Order and cleanliness in the laboratories, shops, and offices is the responsibility of all users. Each equipment and laboratory area must be cleaned up after use and kept clean and safe at all times. Any problem experienced with equipment must be reported immediately to the student's major professor. If evidence of abuse of equipment or space by the student is discovered, all damages stemming from such abuse will be charged to the individual(s) involved.

Restricted phone lines for student use may be available in your laboratory or office space. Staff and faculty telephones are not to be used without permission of your major professor. Long distance telephone calls or faxes are not allowed without permission of your major professor.

A mailbox for your official business may be provided for you either in Cheatham Hall or the Brooks Center. Contact your major professor to determine where your mailbox will be located. Campus mail delivery and pickup is for official university business only.

Any photocopying for official business or thesis/dissertation preparation must be handled through your major professor.

All office equipment such as typewriters, copy and fax machines, computers, and printers are for the explicit use by the faculty and staff. They may not be used by graduate students without specific permission during regular and after work hours. Computers assigned to administrative and technical staff may not be used by students under any circumstances. *Any abuse of this rule will be considered a violation of the Graduate Honor Code.*

University policy does not permit animals in Cheatham Hall or the Brooks Forest Products Center at any time.

Parking and Bicycle and Personal Transportation Device use

Your vehicle must be registered if it is to be operated on campus. Registration is handled by Campus Police.

Vehicle and motorcycle parking permits must be obtained from Parking Services.

Your bicycle, moped, motor scooter, or power-assisted bicycle are to be registered if they are to be operated on campus. Registration is designed to prevent theft and assist with the recovery of stolen bicycles.

In accordance with the Code of Virginia (§46.2-1078), "It shall be unlawful for any person to operate a motor vehicle, bicycle, electric personal assistive mobility device, electric power-assisted bicycle, or moped on the highways in the Commonwealth while using earphones on or in both ears."

Bicycles are permitted on all roadways, as well as concrete and asphalt pathways, grass, and sidewalks, with the exception of times when there is heavy pedestrian traffic on sidewalks and pathways. In times of heavy pedestrian traffic, when sidewalks and pathways are congested (such as class change), bicyclists shall dismount completely and walk. Bicyclists are encouraged to dismount at crosswalks.

Skateboards, in-line skates, roller skates, and EPAMDs are permitted on all concrete and asphalt pathways and sidewalks but not roadways. In times of heavy pedestrian traffic, when sidewalks and pathways are congested (such as class change), skateboarders and EPAMDs users shall dismount completely and walk. Skateboarders will keep all wheels on the ground at all times. Use of skateboards and in-line skates for tricks, including but not limited to: grabs, grinds, manuals, railstands, or any use other than utilitarian transportation, is prohibited. Skateboarders, in-line skate, roller skate, and EPAMDs users shall slow to speeds matching pedestrians, when using crosswalks.

University policy does not permit bicycles inside university buildings except in a residence hall room with the agreement of the roommate. There are bike racks located adjacent to most all classroom and office buildings. Bikes should be registered with Campus Police.

Keys to University facilities

Keys to Cheatham Hall and work areas may be obtained from the College of Natural Resources Dean's Office in 324 Cheatham after obtaining written authorization from your major professor. Keys to Brooks Forest Products Center and work areas therein may be obtained from the Department of Sustainable Biomaterials after authorization from your major professor. A deposit is required for each key. Upon return of the keys, a request for reimbursement will be processed. Graduate students are not authorized to possess master floor keys. For information on after-hours access to the college's computer facility via the card reader entry system, contact your major professor. Students are expected to maintain a very exclusive and intimate relationship with their keys.

Safety

After normal business hours, it is extremely important to maintain building security. When leaving the building at night or on the weekends, care should be taken to see that lights and equipment are shut off and that doors to rooms you have used are locked. This rule is to be observed especially at the Brooks Center because campus police do not patrol the buildings as often as the main campus.

All students are required to observe safety regulations. This is especially important in handling potentially dangerous chemicals and machines such as saws, planers, etc. Before using such materials and equipment, students should contact their major professor and the department safety officer to assure proper instructions prior to work. No one is allowed to use any departmental equipment or facility without prior formal training.

Persons using chemicals must consult the data sheets sent by the suppliers. These data sheets provide information on flammability, explosiveness, toxicity, and general recommendations for use and treatment for accidents. Disposal of hazardous materials must be made according to State and

University regulations. Information regarding chemical disposals and disposal of other hazardous substances may be obtained at Environmental, Health, and Safety Services <http://www.ehss.vt.edu/>

All individuals working in laboratories, chemical and otherwise, are expected to read the document available at the above address and follow established procedures.

No individual is allowed to use woodworking and machine shop equipment after regular hours.

All graduate students working in SBIO shops and/or labs need to keep in mind that safety should be a forethought not an afterthought. Safe work conditions and practices reduce the possibility of accidents happening. In compliance with Virginia Tech requirements, which are detailed on the Virginia Tech EHS web site, the following items have been put together to help students understand, comply and work in safe environment. All information is on the SBIO Safety Canvas site (see your major professor if you do not have access to the site).

- 1) Complete online training as required by research advisor. However, all people working in the lab are required to complete the 'Chemical lab safety' training and pass the quiz >80% prior to begin working in the lab
- 2) Always review MSDS of chemicals in your research prior to using them (MSDS should be on-line in the SBIO Canvas site unless they are new to the department.
- 3) Review department safety policies, see the SBIO Canvas Safety site
- 4) Review the Chemical Hygiene plan (link to electronic version is on SBIO Canvas Safety site), if you are working in shops, you should review the 'Hazard Communication plan' video that is on the SBIO Canvas safety site.
- 5) ALWAYS ask questions if you are not sure about any procedure, reaction, process, etc. that you are being asked to do.

Department and University vehicle use

Use of the department's vehicles is allowed only for official business use and requires authorization and reservation through the student's major professor.

State vehicles are available for official business. To reserve a vehicle, it is necessary to obtain prior approval from the major professor and the department head, be an employee of the university, and have a valid operator's permit. Normally, reservations should be made at least one week in advance of your trip. It is expected that the driver will obey all traffic laws and regulations. Violations are at the offender's expense and may result in disciplinary action by the university.

If there is an injury, call 911. If an accident occurs, always get a police report and call the university Fleet Services office (540) 231-6141. For after-hours accidents, call University Police (540) 231-6411.

Appendix A: A typical graduate student evaluation form

College of Natural Resources and Environment Graduate Student Evaluation Form

Student's Name: _____

Cumulative GPA: _____

Date of Evaluation: _____

<u>Category</u>	<u>Satisfactory</u>	<u>Unsatisfactory</u>
Academic Performance	_____	_____
Research Progress	_____	_____
Performance on Research Assistantship	_____	_____
Performance on Teaching Assistantship	_____	_____
Comments and Recommendations:		

Signatures:

Committee Chair

Date

Committee Member

Student

Committee Member

Committee Member

Department Head