Forest Biomaterials

Course offerings and research facilities are available in the following areas: wood chemistry, biopolymer chemistry, bio-materials, bio-energy, pulping chemistry, process analysis, polymer chemistry, paper physics, paper recycling, wood physics (especially wood liquid relations), wood anatomy, wood biology, wood mechanics and engineering, wood machining, manufacturing processes, wood-based industry economics and marketing, and forest-based life cycle analysis.

Admission Requirements
Requirements listed here are in addition to graduate school requirements stated elsewhere. To be admitted, a student should have earned a B.S. degree with a major in wood and paper science or another suitable science or engineering degree. Students with a 3.0 GPA and with appropriate course backgrounds will be considered for admission. The GRE test scores are required except for the Master of Forest Biomaterials offered through Distance Education.

Master of Science Degree Requirements
The M.S. degree requires a minimum of 30 credit hours. In addition, there are WPS core course requirements, which vary depending on the field of study. Six hours of research (FB 695) must be taken. Two hours of Seminar (FB 601) must be passed. A qualifying exam must be passed.

Master of Forest Biomaterials Degree Requirements
The Master of Forest Biomaterials is a non-thesis, professional degree for students not interested in a thesis-based research program. The Master of Forest Biomaterials degree is offered both on campus and through Distance Education. For the on-campus program a minimum of 36 course credits is required. The regulations regarding credits are the same as for the M.S. degree except that no credit for FB 695 is required or given and up to six credits of 400-level courses in the major field may be included. A technical report, which demonstrates the student's ability to gather, analyze and report information is required.

In addition to Graduate School requirements, the Distance Education program requires that the student be employed professionally in a wood or paper science or allied field, have one year of professional experience, and take required WPS core courses, which vary depending on the field of study. A minimum of 30 course credits is required of students who have relevant professional experience, including one hour of Seminar (FB 601) and five hours of an independent project (FB 625). For distance students without relevant professional experience, 36 hours is required.

Doctoral Degree Requirements
In addition to Graduate School requirements, Ph.D. candidates must present two departmental seminars (FB 801) before their final oral examination. Candidates must also write and defend a research proposal on their intended research (first proposition) and a research proposal on an area outside of their dissertation/thesis research (termed a second proposition) and pass qualifying exams.

Student Financial Support
A number of research assistantships and fellowships are available.

Other Relevant Information
Graduate students should select a committee chair and other advisory committee members and submit a plan of graduate work by the end of their first semester of residence. They are also required to take the qualifying examination as part of a Research Methods course. These examinations are to ensure that the student has the basic abilities to think independently as a scientist within the context of the forest biomaterials literature. The department believes M.S. and Ph.D. students should select a research topic and begin their dissertation or thesis research as early as possible.

As the field of forest biomaterials is a derived science, students are urged to develop a strong secondary area of excellence in one or more of the supporting disciplines such as organic chemistry, polymer chemistry, chemical engineering, mathematics, statistics, biology, engineering mechanics, mechanical engineering, physics, and economics or business administration.

Degrees
- Forest Biomaterials (MR) (http://catalog.ncsu.edu/graduate/natural-resources/forest-biomaterials/forest-biomaterials-mr/)
- Forest Biomaterials (MS) (http://catalog.ncsu.edu/graduate/natural-resources/forest-biomaterials/forest-biomaterials-ms/)
- Forest Biomaterials (PhD) (http://catalog.ncsu.edu/graduate/natural-resources/forest-biomaterials/forest-biomaterials-phd/)

Faculty
Dimitris S. Argyropoulos
Marko Hakovirta
Martin A. Hubbe
Hasan Jameel
Stephen S. Kelley
Melissa Pasquinelli
David C. Tilotta
Richard A. Venditti
Lucian A. Lucia
Philip H. Mitchell
Lokendra Pal
Sunkyu Park
Joel Justin Pawlak
Perry N. Peralta
Ilona Maria Peszlen
Leah C. Rathbun
Daniel Erique Saloni
Ronalds Wilfredo Gonzalez
Paul Frederik Laleicke
Nathalie Marie Lavoine
Yuan Yao
Medwick V. Byrd
Elizabeth Kierepka
Melissa Anne Pasquinelli
Rico Ruffino
Hou-Min Chang
Ellis B. Cowling
Earl L. Deal
Eric L. Ellwood
Edward T. Funkhouser
Irving S. Goldstein
John A. Heitmann Jr.
Larry G. Jahn
Magret Joyce
Adrianna G. Kirkman
Michael J. Kocurek
Ronald G. Pearson
Richard J. Thomas
Elisabeth A. Wheeler
Sujit Banerjee
Jesse Daystar
Richard Phillips