FORESTRY (FOR)

Courses primarily for undergraduates:

FOR 201: Forest Biology
(2-0) Cr. 2. F.
Prereq: Concurrent enrollment in FOR 202, FOR 203, FOR 204, FOR 205, and FOR 206
Discussion of ecological concepts, individual tree structure and growth, variation and diversity in tree populations. Physical environment of trees and forests, ecological processes in forest communities, and introduction to different regional forest communities.

FOR 202: Sustainable Materials: Wood Utilization
(2-0) Cr. 2. F.
Prereq: Concurrent enrollment in FOR 201, FOR 203, FOR 204, FOR 205, and FOR 206
Basis for use of wood as an industrial raw material for lumber, composites, pulp and paper, energy and chemicals. Implications of use of alternative renewable and non-renewable materials for societal infrastructure and consumer goods.

FOR 203: Resource Measurements/Evaluation
(2-0) Cr. 2. F.
Prereq: Concurrent enrollment in FOR 201, FOR 202, FOR 204, FOR 205, and FOR 206; MATH 140
Survey techniques involved in quantification, valuation, and evaluation of tree and stand growth and other variables in the forest environment (e.g., recreational use, wildlife habitat value, biomass, and solid wood).

FOR 204: Forest Ecosystem Decision-Making
(2-0) Cr. 2. F.
Prereq: Concurrent enrollment in FOR 201, FOR 202, FOR 203, FOR 205, and FOR 206
Methods of decision-making related to forest ecosystems including communications, teams and conflict resolution. Current issues relating to public, private, and urban forests; quantification of processes, services, and goods produced by the forest and expected by the public such as wildlife, water, range, recreation, wilderness, biodiversity, as well as wood and fiber products.

FOR 205: Integrated Forestry Laboratory
(0-8) Cr. 3. F.
Prereq: Concurrent enrollment in FOR 201, FOR 202, FOR 203, FOR 204, and FOR 206
Field and laboratory exercises integrating the evaluation and management of forest goods, services, and the processing of wood products.

FOR 206: Fall Forestry Camp
Cr. 4. F.
Prereq: Concurrent enrollment in FOR 201, FOR 202, FOR 203, FOR 204, and FOR 205
Three-week field camp to address topics and issues covered in 201, 202, 203, 204, and 205.

FOR 280: Wood Properties and Identification
(3-3) Cr. 4. S.
Properties of wood and how they relate to its successful use. Comparative anatomical characteristics, scientific nomenclature, and hand lens identification of commercially important North American woods.

FOR 283: Pesticide Application Certification
(Cross-listed with AGRON, ENT, HORT). (2-0) Cr. 2. S.
Core background and specialty topics in agricultural, and horticultural pesticide applicator certification. Students can select certification categories and have the opportunity to obtain pesticide applicator certification at the completion of the course. Commercial pesticide applicator certification is emphasized.

FOR 290: Special Problems
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 290A: Special Problems: Leadership in Forestry Teams (LIFT) Learning Community
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 290B: Special Problems: Forest Ecosystem Management
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 290C: Special Problems: Natural Resource Conservation
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 290D: Special Problems: Urban and Community Forestry
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 290E: Special Problems: Wood Science and Technology
Cr. 1-4. Repeatable.
Prereq: Freshman or Sophomore classification, permission of instructor

FOR 302: Silviculture
(2-3) Cr. 3. S.
Prereq: FOR 201, FOR 356, NREM 301
Manipulation of forest vegetation based on ecological principles for the production of goods and services.

FOR 356: Dendrology
(Cross-listed with BIOL). (2-2) Cr. 3. F.
Prereq: BIOL 211
Identification and ecology of North American woody plant species. Importance of woody plants in timber production and wildlife habitat. Natural disturbances, human impacts, management and restoration concerns for major North American forest regions will be addressed.

FOR 358: Forest Herbaceous Layer: Ecology and Identification.
(Cross-listed with NREM). (0.5-1) Cr. 1. S.
Prereq: BIOL 212
Survey of the major plant families, general, and representative species of the forest herbaceous layer. Functional ecology and restoration.

FOR 416: Forest Insects and Diseases
(Cross-listed with PL P). (3-0) Cr. 3. F.
Prereq: 8 credits in biological sciences, including BIOL 211 or equivalent.
Nature of insects and pathogens of forest and shade trees; their role in the dynamics of natural and managed forest ecosystems; and the management of indigenous and exotic pests.

FOR 416L: Forest Insects and Diseases Laboratory
(Cross-listed with PL P). (0-3) Cr. 1. F.
Prereq: 8 credits in biological sciences, including BIOL 211 or equivalent. Credit or enrollment in Pl P 416.
Laboratory experience working with insect and fungal pests of trees.

FOR 442: Dynamics of Forest Stands
(Dual-listed with FOR 542). (2-3) Cr. 3. Alt. F., offered even-numbered years.
Prereq: NREM 301, FOR 302, STAT 101 or their equivalents
Change in forest species composition and structure at the stand and landscape scales resulting from site quality, tree growth, competition, succession, and disturbance. Methods for assessing tree growth and reconstructing past stand development. Applications to forest and savanna management.

FOR 451: Forest Resource Economics and Quantitative Methods
(3-3) Cr. 4. S.
Prereq: FOR 203, MATH 150
Application of economic principles to forest resource management considering both market and non-market goods and services. Methods of identifying and specifying problems in the management and use of forest resources. Application of mathematical and statistical models to the solution of managerial problems.

FOR 452: Ecosystem Management
(Dual-listed with FOR 552). (Cross-listed with NREM). (2-3) Cr. 3. S.
Prereq: Senior classification, and NREM 120 or its equivalent
Principles of planning, regulating, and decision-making associated with public and private lands, with consideration of forest, grassland, wetland, and freshwater aquatic ecosystems. Integrated natural resources management within ecological, social, economic and policy constraints.

FOR 454: Forestry Practicum
(1-4) Cr. 3. S.
Prereq: 20 credits in student's major at 300 level or above
Integrated decision-making related to the conservation, management, and preservation of private and public forests, wildlands, urban/community forests, and/or the production and utilization of wood products. Student teams work with a client and develop management plans that incorporate ecological, social, economic, ethical, and institutional/political factors. Effective teamwork, written/oral/visual communication, and problem-solving stressed. Multiple trips to project site and client.

FOR 475: Urban Forestry
(Cross-listed with HORT). (2-3) Cr. 3. F.
Prereq: Junior or senior classification, 3 credits in biology
Discussion of establishment and management of woody perennials in community-owned urban greenspaces, consideration of urban site and soil characteristics, plant physiology, plant culture, urban forest valuation, inventory methods, species selection, and urban forest maintenance (health care and pest management).

FOR 480: Wood Anatomy and Fiber Analysis
(2-3) Cr. 3. Alt. F., offered odd-numbered years.
Prereq: FOR 280 or permission of instructor
Microscopic anatomy and ultrastructure of wood and other industrial lignocellulosic materials. Microscopy techniques for fiber analysis. Comparison of fiber properties.

FOR 481: Conversion of Lignocellulosic Materials
(2-3) Cr. 3. Alt. F., offered even-numbered years.
Prereq: FOR 280 or equivalent
Chemical properties of lignocellulosic materials. Wood chemistry. Various conversion processes. Pulp and paper technology. Biobased products. Other fiber products. Cellulose derivatives. Term paper and/or student project required for graduate level.

FOR 485: Wood and Natural Fiber Composites
(2-3) Cr. 3. Alt. F., offered even-numbered years.
Prereq: FOR 280 or TSM 240
Consolidation behavior of wood and other lignocellulosic materials. Principles of adhesion. Manufacturing processes for wood and lignocellulose composites such as plywood, oriented strand products, laminated lumber, particleboard, medium density fiberboard, and bast fiber products. Extrusion processing of natural fiber/plastic composites.

FOR 486: Drying Processes for Wood and Other Lignocellulosic Materials
(2-3) Cr. 3. Alt. S., offered even-numbered years.
Prereq: FOR 280 or TSM 240
Principles of moisture relations in hygroscopic materials; adsorption, desorption, equilibrium moisture content. Transport processes in natural materials such as wood. Drying processes for wood and other lignocellulosic materials. Influence of moisture on dimensional stability and durability of wood and lignocelluosic composites.

FOR 487: Physical Properties of Wood
(3-3) Cr. 4. Alt. S., offered even-numbered years.
Prereq: FOR 280
Mechanical, thermal, electrical, and acoustical properties of wood. Lumber grading and stress rating, nondestructive evaluation of wood and wood composite products.

Courses primarily for graduate students, open to qualified undergraduates:

FOR 542: Dynamics of Forest Stands
(Dual-listed with FOR 442). (2-3) Cr. 3. Alt. F., offered even-numbered years.
Prereq: NREM 301, FOR 302, STAT 101 or their equivalents
Change in forest species composition and structure at the stand and landscape scales resulting from site quality, tree growth, competition, succession, and disturbance. Methods for assessing tree growth and reconstructing past stand development. Applications to forest and savanna management.

FOR 552: Ecosystem Management
(Dual-listed with FOR 452). (Cross-listed with NREM). (2-3) Cr. 3. S.
Prereq: Senior classification, and NREM 120 or its equivalent
Principles of planning, regulating, and decision-making associated with public and private lands, with consideration of forest, grassland, wetland, and freshwater aquatic ecosystems. Integrated natural resources management within ecological, social, economic and policy constraints.

FOR 599: Creative Component
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 599A: Creative Component: Forest Biology
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 599B: Creative Component: Forest Biometry
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 599C: Creative Component: Forest and Recreation Economics
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 599D: Creative Component: Forest Management and Administration
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 599E: Creative Component: Wood Science
Cr. 1-12. Repeatable, maximum of 12 credits.

Courses for graduate students:

FOR 696: Research Seminar
(Cross-listed with AGRON, BBMB, GDCB, HORT, PLBIO). Cr. 1. Repeatable. Research seminars by faculty and graduate students. Offered on a satisfactory-fail basis only.

FOR 699: Research
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699A: Research: Forest Biology - Wood Science
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699B: Research: Forest Biometry
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699C: Research: Forest Economics
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699D: Research: Forest Management and Administration
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699E: Research: Wood Science
Cr. 1-12. Repeatable, maximum of 12 credits.

FOR 699F: Research: Plant Physiology
Cr. 1-12. Repeatable, maximum of 12 credits.