



Urban Forestry

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College of Agricultural, Family and Consumer Sciences

Program Director: Dr. Kamran Abdollahi

Urban Forestry
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FACULTY

Professor:

Abdollahi, Kamran K.

Ph.D., Forestry/Ecophysiology
Stephen F. Austin State University

Collins, Daniel J.

Ph.D., Plant Pathology
University of Missouri-Columbia

Namwamba, Fulbert

Ph.D., Water Resources
Iowa State University

Ning, Zhu H.

Ph.D., Forestry/Ecophysiology
Stephen F. Austin State University

Qi, Yadong

Ph.D., Forestry/Ecology
Stephen F. Austin State University

Associate Professor:

Johnson, Andra

Ph.D., Urban Forestry Management
The Pennsylvania State University

Introduction

The urban forestry graduate program was established in the fall of 1998. The mission of the graduate program is to provide graduate students with a curriculum that offers sound academic training and experiential learning activities for professional career positions in governmental agencies, research organizations, and private firms. The program will utilize an

interdisciplinary, total quality management approach to train students so that they can ultimately address critical issues and concerns in the management of urban forestry and natural resources within urban areas. Each student will follow a prescribed program of course work and conduct a capstone project or research tailored toward emerging issues or problems in urban forestry.

The overall objectives of the program in urban forestry are:

To develop student's ability to synthesize relevant knowledge and skills in urban forestry and related disciplines for sound urban forestry practices

To extend advanced training in urban forestry to high school teachers for the advancement of the art and science of urban forestry

To provide the latest technology and training to tree care professionals to preserve the urban environment

To academically prepare students for study at the doctoral level at various universities in the nation

To initiate and sustain collaborative efforts with various governmental, public and private and organizations to address issues and concerns in urban forestry and to promote urban forest health and natural resource preservation

To conduct research aimed at addressing natural resource issues in urban environment

GRADUATE DEGREE OFFERED

M. S. Master of Science in Urban Forestry
(thesis and nonthesis options)

ADMISSION REQUIREMENTS

To be considered for admission to the M. S. degree program in urban forestry, prospective students must meet the following criteria:

A baccalaureate degree from any accredited institution in natural resources, forestry, natural or environmental sciences.

Must have a minimum over-all grade point average (G.P.A.) of 2.7 on a 4.0 scale for all undergraduate work.

Must take the Graduate Record Examination (GRE)

Must submit a Curriculum vitae/Resume

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Concise essay on research background and career goals.

Three written letters of recommendation, two of which must be from advisors in student major field.

All students must take the urban forestry diagnostic exam for advisement and placement.

Students found to be deficient in urban forestry or related fields must take remedial courses as deemed necessary by the graduate committee.

DEGREE REQUIREMENT Master of Science in Urban Forestry

In addition to the requirements of the Graduate School, the nonthesis candidate must complete a minimum of 32 semester credit hours of graduate course work including a capstone project approved by the graduate committee. Thesis candidates must complete a minimum of 24 semester credit hours of graduate course work, a minimum of 6 semester hours of thesis and supervised research plus a completed thesis approved by the graduate committee.

PLAN OF STUDY

Masters of Science in Urban Forestry

Number of Credit Hours—Thesis Option

Graduation Requirements

Core courses:

UFOR 553	Advanced Urban Forest Management	3 credits
UFOR 523	Tree Growth and Development	3 credits
UFOR 514	Experimental Statistics and Design	3 credits
UFOR 535	Global Change and Environmental Consequences	3 credits
UFOR 562	Applications of Integrated GIS/GPS in Urban Forestry	3 credits
UFOR 537	Plant Biosecurity	3 credits
UFOR 501	Research Problem in Urban Forestry	3 credits
UFOR 540	Urban Forest Ecophysiology	3 credits

Thesis Research 6 credits

Total 30 credits

Number of Credit Hours—Non-Thesis Option

GRADUATION REQUIREMENTS

Core courses:

UFOR 540	Urban Forest Ecophysiology	3 credits
UFOR 553	Advanced Urban Forest Management	3 credits
UFOR 523	Tree Growth and Development	3 credits
UFOR 514	Experimental Statistics and Design	3 credits
UFOR 535	Global Change and Environmental Consequences	3 credits
UFOR 562	Applications of Integrated GIS/GPS in Urban Forestry	3 credits
UFOR 537	Plant Biosecurity	3 credits
UFOR 501	Research Problem in Urban Forestry	2 credits
	Unrestricted Elective	3 credits
	Area of Emphasis Elective	6 credits
	Capstone Project	0 credit

Total 32 credits

COURSE DESCRIPTIONS

UFOR 500. ENVIRONMENTAL HORTICULTURE (3 credit hours: 2 hrs lecture, 2 hrs lab). Scientific and practical approaches of horticulture in urban environments.

UFOR 501. RESEARCH PROBLEMS IN URBAN FORESTRY (1 credit hour: 2 hrs seminar). Individual projects and group discussions concerning current research issues in urban forestry. Students will review relevant literature and develop research prospectus on selected topics of individual interest.

UFOR 502. SPECIAL TOPICS IN URBAN FORESTRY (3 credit hours: 1 hour lecture, 3 hrs seminar). Applications of ecological, social, economic theories to problems of managing urban forest ecosystems. Students will examine topics of individual interest related to the planning and management of urban forests uses and benefits.

UFOR 503. URBAN TREE LAW (3 credit hours: 3 hrs lecture). General features of the constitutional, statutory and administrative laws, institutions and processes which establish or limit the powers of public managers. Development of practical student competencies in legal reasoning and research on trees in urban areas.

UFOR 505. PLANT TISSUE CULTURE (4 credit hours: 2 hrs lecture, 2 hrs lab). Theoretical and practical aspects of isolation culture of higher plant cells, tissues and organs.

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UFOR 514. EXPERIMENTAL STATISTICS AND RESEARCH METHODS (3 credit hours: 2 hrs lecture, 2 hrs lab). An overview of the conceptual and methodological bases of research design, data analysis, and interpretation. Case studies and individual research projects critiqued.

UFOR 518. AGRO-FORESTRY AND SUSTAINABLE SYSTEMS. (3 credit hours: 3 hours lecture). Principles and techniques of agro-forestry and sustainable systems. Special emphasis will be placed on establishment, cultural and management practices.

UFOR 520. ECOSYSTEM ANALYSIS (3 credit hours: 2 hrs lecture, 2 hrs lab). Analysis of ecological dynamics of various ecosystems including urban, terrestrial and aquatic ecosystems. Analysis includes physical, chemical and biological properties, energy balance, biogeochemical cycles and their interrelationships.

UFOR 523. TREE GROWTH AND DEVELOPMENT (3 credit hours: 2 hrs lecture, 2 hrs lab). The study of tree constituents, their occurrence, transformation and metabolism and their changes influenced by the environments. Major emphasis will be placed on effects of urban environmental factors.

UFOR 528. PLANT-AIR POLLUTION (4 credit hours: 2 hrs lecture, 2 hrs lab). Study of the interactions between plants and major air pollutants such as O₃, SO₂, NO₂, and particulate pollutants. This course addresses the role of urban vegetation in removing gaseous pollutants. Physiological, morphological, and anatomical responses of plants are discussed. Laboratory works involve: measurement of gaseous fluxes, quantification of pollutant removal by individual species of plants and more. Specific projects are designed for students to provide experiential learning and research opportunities.

UFOR 532. NUTRITION OF URBAN TREES (3 credit hours: 3 hrs lecture). Nutrient requirements of urban plants and the functions of these nutrient elements in their adaptation under urban stressful environment.

UFOR 535. GLOBAL CHANGE AND ENVIRONMENTAL CONSEQUENCES (3 credit hours: 2 hours lecture, 2 hrs lab). The concepts and concerns regarding global effects of a continued increase in atmospheric greenhouse gases and the consequences on earth systems as well as urban forestry ecosystems.

UFOR 537. PLANT BIOSECURITY. (3 credit hours: 2 hrs lecture, 2 hrs lab). The study of various groups of agricultural chemicals and plant growth regulators, their modes of action, and their effects on plant growth and development.

UFOR 540. URBAN FOREST ECOPHYSIOLOGY (3 credit hours: 2 hrs lecture, 2 hrs Lab). Evaluation of the effects of various environmental factors on the whole plant physiological processes in urban environments. Subjects including the physiological background, causes and consequences of ecological process, especially those related to the atmosphere and climactic changes in the past, present, and future.

UFOR 545. ENVIRONMENTAL SOIL CHEMISTRY AND PROPERTIES (3 credit hours: 2 hrs lecture, 2 hrs lab). Soil chemical reactions on plant growth, environmental aspects of soil chemical reactions, fate of pollutants in the soil and remediation of contaminated soils.

UFOR 553. ADVANCED URBAN AND COMMUNITY FOREST MANAGEMENT (3 credit hours: 3 hrs lecture). Application of systems and principles of management of urban ecosystems; issues and methodology for integrating biological, social, legal, and economic aspects of ecosystem studies.

UFOR 555. RESTORATION ECOLOGY (3 credit hours: 2 hrs lecture, 2 hrs lab). Application of ecological knowledge in repairing and restoring damaged ecosystems. Major emphasis will be placed on urban ecosystems.

UFOR 559. METHODS IN ENVIRONMENTAL IMPACT ASSESSMENT (3 credit hours: 2 hrs lecture, 2 hrs lab). Principles of environmental analysis, preparation of environmental impact statement, sampling of aquatic and terrestrial plants and animals and ecological issues in urban ecosystems in the South.

UFOR 560. URBAN FOREST ECONOMICS (3 credit hours: 3 hour lecture). Principles and methods of urban economics. Analysis of the role of urban forests on investment, commercial, industrial, and business opportunities in urban areas. (To be jointly offered by Agricultural Economics and Urban Forestry faculty.)

UFOR 561. TREE BIOMECHANICS (3 credit hours: 2 hrs lecture, 2 hrs lab). Principles of tree stress physiology. Major emphasis will be placed on factors attributing to the structural failure of the tree resulting from environmental manifestations.

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Tree failure analysis and other diagnostic measures with reference to tree forms will be covered.

UFOR 562. APPLICATION OF INTEGRATED GIS/GPS IN URBAN FORESTRY (3 credit hours: 1 hour lecture, 4 hrs lab). A survey of current research and issues in GIS, GPS and related fields. Analysis of the practical applications of integrated GIS/GPS. Practice in the use of GIS/GPS systems in the urban forest environment.

UFOR 570. URBAN WATER RESOURCE MANAGEMENT (4 credit hours: 2 hrs lecture, 2 hrs lab). Qualitative understanding of hydrological processes in the urban areas and methods for quantifying hydrologic parameters and processes associated with these environmental systems. (Prerequisite: UFOR 271 or consent of the instructor.)

UFOR 598. CAPSTONE PROJECT (0 credit hours: Individual time). A special project of the student's interest in urban forestry and related areas to be pursued as a partial requirement toward the M.S. degree by non-thesis majors.

UFOR 599. SUPERVISED RESEARCH (3-12 credit hours: Satisfactory/Unsatisfactory grade). Research, under the guidance of the graduate faculty member, for Master's students before registration of thesis proposal and/or registration for Master's thesis. Designed for students who have been accepted into the master's degree program and have satisfied the basic skill and knowledge requirements in urban forestry. Not open to students who have not been admitted into and/or enrolled in the graduate degree program.

UFOR 600. THESIS RESEARCH (1-9 credit hours). Research for Master's thesis.