Urban Forestry Doctor of Philosophy

Urban Forestry

DOCTOR OF PHILOSOPHY IN URBAN FORESTRY

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FACULTY

Professors:

Abdollahi, Kamran K.
Ph.D. Forestry/Ecophysiology
S.F. Austin State University
Post-Doctoral Certificate
Urban Forestry Institute, University of Florida

Collins, Daniel J.
Ph.D. Plant Pathology
University of Missouri-Columbia

Namwamba, Fulbert
Ph.D., Water Resources Engineering
Iowa State University
Post-Doctoral Certificate, ESRI, Inc.

Ning, Zhu H.
Ph.D. Forestry/Tree Physiology
S.F. Austin State University
Post-Doctoral Certificate
Urban Forestry Institute, University of Florida

Qi, Yadong
Ph.D. Forestry/Ecology
S.F. Austin State University
Post-Doctoral Certificate
Urban Forestry Institute, University of Florida

Associate Professors:

Johnson, Andra
Ph.D. Urban Forest Management
The Pennsylvania State University

Adjunct Professors:

Nowak, David
Scientist
USDA Forest Service
Ph.D. Urban Forest Ecology
University of California, Berkeley

Klepzig, Kier
Scientist
USDA Forest Service
Ph.D. Plant Pathology/Entomology
University of Wisconsin-Madison

Chaney, William
Professor, Purdue University
Ph.D. Forestry and Botany
University of Wisconsin

Introduction

The available areas of concentration include Urban Forest Science (Ecophysiology, Tree Physiology/Anatomy, Plant Pathology, Entomology, Urban Forest Ecology, Soil Science Biotechnology) and Urban Forest Management (Arboriculture, Urban Forest Management, Water Resource Management/GIS). The nature of the program is essentially defined by an advanced training in the theory and practice of urban forestry and the conduct of research in issues and concerns in urban forestry and urban natural resources. The objectives of the proposed degree program are: a) to offer the targeted students opportunities to acquire a broad-based knowledge of several areas in urban forestry and natural resources that impact the State of Louisiana and the nation, and b) to enable the graduates of the program to be highly marketable and competitive in the field. The overall goal of the program is to produce high caliber scientists in urban forestry and natural resources.

The program will uniquely address the increasing concerns on (a) the decline of the quality and quantity of our urban and community forests and natural resources, (b) the preservation, restoration and enhancement of environmental quality, and (c) the long-term effects on the urban infrastructure. In addition, the program will train future professionals in urban forestry to effect planning, management, and policy of urban societies and to provide a healthier urban environment to live in.

The uniqueness of the program will address urban forestry problems and emerging issues in urban forestry and natural resources. The Ph.D. training program will effectively prepare

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students for a variety of job opportunities in State and Federal agencies, industries, and academia.

Curriculum for the Ph.D. in Urban Forestry Degree Program
The Ph.D. degree requires at least three academic years of graduate study beyond the M.S. degree. A student must complete 60 credit hours of graduate work for credit, of which a minimum of 24 hours must be in technical courses and seminar work in the Urban Forestry Program at Southern University and A&M College, 9 hours of electives, 24 hours of dissertation research and 6 hours of advanced research.

Table 1. Urban Forestry Ph.D. Curriculum/Full-Time Plan of Study

Fall, Year1		**Credits**
UFOR 701	Urban Forestry and Arboricultural Research	3
UFOR 702	Advanced Statistics and Experimental Design	3
UFOR 708	Urban Plant Pathology	3

Spring, Year 1		**Credits**
UFOR 704	Remote Sensing and Environmental Model Simulations in Urban Forestry	3
UFOR 705	Seminar	1
UFOR 706	Applied Urban Forest Ecology	3
UFOR 707	Urban Tree Stress Physiology	3
	Prescription Examination	

Summer, Year 1		**Credits**
Technical elective		3
UFOR 799	Advanced Research	3

Fall, Year 2		Credtis
UFOR 708	Planning and Management of Urban Green Spaces	3
	Technical elective	3
UFOR 799	Advanced Research	3

Spring, Year 2		**Credits**
UFOR 705	Seminar	1
	Technical elective	3
UFOR 718	Urban – Wildland Interface	3
UFOR 800	Dissertation Research	3
	Qualifying Exam	

Summer, Year 2		**Credits**
Technical elective		3
UFOR 800	Dissertation Research	3

Fall, Year 3		**Credits**
UFOR 800	Dissertation Research	9

Spring, Year 3		**Credits**
UFOR 800	Dissertation Research	9
	Dissertation Defense	

Technical electives toward the degree study must be selected from courses listed in the electives:

Technical electives:

UFOR 703	Louisiana Watershed Management Issues	3 Hours
UFOR 711	Ecology and Management of Soilborne Plant Pathogens	3 Hours
UFOR 712	Urban Plant Entomology	3 Hours
UFOR 713	Urban Phyto-remediation	3 hours
UFOR 710	Advanced Urban Ecosystem Studies	3 hours
UFOR 723	Urban Soil and Urban Trees	3 Hours
UFOR 709	Ecology of Urban Tree Roots	3 Hour
UFOR 717	Biogeochemistry	3 Hours
UFOR 717	Urban Forest Fragmentation	3 Hours
UFOR 718	Sustainable Urban-Wildland Interface	3 Hours
UFOR 719	Microscopy as a Research Tool	3 Hours
UFOR 720	Special Problems	3 Hours
UFOR 721	Topical Problems	3 Hours, Lecture
UFOR 722	Proposal Development and Grant Writing	3 Hours, Lecture

Special Requirements:

In addition to the general requirements specified by the Southern University Graduate School, the proposed Ph.D. in Urban Forestry Program has seven special requirements:

1. Admission requirements: A master's degrees in urban forestry, forestry, renewable and natural resources, plant and soil sciences, biology, chemistry, and environmental sciences, and other related areas are required for all applicants.

2. Students without the backgrounds mentioned above are required to take some or all of the following classes:

Dendrology (UFOR 278)
Soil and Environment (UFOR 251)
Urban Forestry Management (UFOR 400)

Urban Forestry

Tree Physiology (UFOR 483)
Urban Forest Pathology (UFOR 415)

3. A prescription examination is required for all Ph.D. candidates. Through this examination the graduate committee determines the student's background, interests, and deficiencies early. The main purpose of this exam is to guide the student in the development of a plan of study. This exam is administered before the end of the second semester of residence.

4. Plan of Study: A plan of study will be developed for every student indicating the set of courses to be taken, credits to be obtained, and dissertation to be completed. An individual student's plan of study may vary with the selected option, with the academic level of the student at the time of admission, and the quality of the previous program completed. A student holding a master's degree in a natural resource discipline, or holding a master's equivalent, will follow the standard curriculum described above. This assumes that the master's degree already held is current and sufficiently comprehensive; if not, some additional courses may be required. Several elective courses are available to the students while they are taking the required core courses. These are discipline specific graduate courses which fit within a given option. In addition to the common core courses, detailed course requirements based on the candidate's academic background, professional experience and career goals, will be specified in the plan of study.

5. Research Proficiency: Students will develop research proficiency in courses such as advanced statistics and experimental design, quantitative research methods, and advances in research methods in urban forestry, and dissertation research. Research topics for individual students will be selected based on the candidate's academic background, professional experience and career goals. It should be noted that the research requirements are essential for this program. It is expected that the dissertation research will lead to publications in refereed journals. Research and subsequent publications are central to the positive impact that this program and its graduates are to have on the University educational mission in particular and the American educational enterprise in general.

6. A general qualifying ("preliminary examination") is required of all candidates for the degree of Doctor of Philosophy. It consists of written and oral testing by the student advisory committee in the student's major and minor fields. The primary purpose of the preliminary exam is to assess the students understanding of the broad body of knowledge of urban forestry and natural resources. The exam also affords the advisory committee an opportunity to review the students proposed research and understanding of research methods and literatures in the chosen field. If this examination reveals deficiencies in any areas, the advisory committee may recommend remedial work, re-examination, or discontinuation of doctoral study. It is recommended that this be taken after completion of all course work.

7. Final dissertation defense in accordance with the rules and regulation of the Graduate School of Southern University and A&M College, Baton Rouge, LA.

COURSE DESCRIPTIONS

UFOR 701. URBAN FORESTRY AND ARBORICULTURAL RESEARCH (Credit 3 hours). An extensive research in urban forestry and arboriculture. Provides an understanding of the advanced arboricultural research within the context of urban forest ecosystem preservation and restoration. Particular emphasis is placed upon the areas of municipal arboriculture, commercial arboriculture and consulting arboriculture. Each area is explored in terms of advanced techniques utilized in research and development. The course follows the International Society of Arboriculture's (ISA) current research agenda.

UFOR 703. LOUISIANA URBAN WATERSHED MANAGEMENT ISSUES (Credit 3 hours). A qualitative understanding of watershed management in urban areas, advanced methods of quantifying hydrologic parameters and processes associated with these environmental systems.

UFOR 704. REMOTE SENSING AND ENVIRONMENTAL SIMULATION IN URBAN FORESTRY (Credit 3 hours). A qualitative understanding of environmental remote sensing application urban areas, methodology and specific applications of model simulation of urban environmental systems.
UFOR 705. SEMINAR (Credit 1 hour).

UFOR 706. APPLIED URBAN FOREST ECOLOGY (Credit 3 hours). Application of ecological principles to urban forest analysis including modeling ecosystems, assessing ecological changes, measuring the urban forest effects on environment, exploiting biotic and abiotic variability, managing populations and pests, conserving communities, and establishing urban forest ecosystems.

UFOR 707. URBAN TREE STRESS PHYSIOLOGY (Credit 3 hours). Assessment of advance studies pertaining to the

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effects of environmental stresses on the whole tree ecological and physiological processes in urban environments. Subjects include the advance ecological and physiological background, causes and consequences of environmental stresses, stress tolerance and mitigation.

UFOR 709. ECOLOGY OF URBAN TREE ROOTS (Credit 3 hours). The study of root growth, form, and functions under environmental conditions. Subjects include root strategies used to meet essential functions of water and nutrient acquisition, and transport, storage and structural support under urban conditions.

UFOR 799. ADVANCED RESEARCH. (Credit 3 hours).

UFOR 800. DISSERTATION RESEARCH. (Credit 3 hours).

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