

# New Curriculum Guide

## AES Graduate Program (NRES Concentration)

Agricultural and Environmental Systems – Natural Resources and Environmental Systems, MS

School/College: School of Agriculture & Environmental Science Degree(s) Offered: Master of Science

Graduate Coordinator: Dr. Louis E. Jackai, Email: [lejackai@ncat.edu](mailto:lejackai@ncat.edu) Phone: 336- 285- 4837

Department *Interim* Chair: Dr. Abolghasem Shahbazi Email: [ash@ncat.edu](mailto:ash@ncat.edu) Phone: 336- 285- 4851

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### **Additional Admission Requirements:**

- Students must have good background in basic sciences (Biology, Chemistry and Physics).
- A GRE score is recommended.

### **Program Outcomes:**

- The production of advanced agricultural scholars that obtain professional and leadership roles with agricultural and environmental related entities. Additional outcomes include individuals that pursue doctoral studies and the valuable scholarly works produced by graduates of the program, through thesis and capstone project endeavors.

Degree Requirements

Total credit hours: 30

### **Thesis Option**

Core Courses:

- Required hours (9): AGRI 604/ABM 705, AGRI 700, AGRI 780

Thesis Course:

- NARS 797 – 6 hours

Concentration Area Electives:

- Concentration Area Elective Courses - 15 hours

### **Project Option**

Non Thesis Project Course:

- NARS 796 – 3 hours

Concentration Area Electives:

- Concentration Area Elective Courses - 18 hours

### **Natural Resources and Environmental Systems Concentration Course selections:**

AGRI-604: Experimental Methods in Research

EASC-610: Sustainable Earth Credit

EASC-620: Environmental Studies I

EASC-621: Environmental Studies II

HORT 600: Advanced Techniques for Horticultural Crop Improvement

HORT 602: Grapes and Small Fruits

HORT-610: Commercial Greenhouse Production

HORT 620: Vegetable Production Credit

NARS 600: Mycology and Fungal Biotechnology

NARS 601: Plant Pathology & Modern Approaches to Plant Disease Control  
NARS 703: Principles of Entomology and Pest Management  
NARS 604: Crop Ecology  
NARS 605: Breeding of Crop Plants  
NARS 608: Special Problems in Natural Resources  
NARS 610: Applied Spatial Statistics and GIS  
NARS 618: Fundamentals of Agroforestry  
NARS 685: Special Topics  
NARS 700: Plant Pathology  
SLSC 621: Soil Microbiology  
SLSC 632: Soil Physics  
SLSC 633: Soil Genesis, Classification and Land Use  
SLSC 634: Soil Environmental Chemistry  
SLSC 640: Wetland Management  
HORT 700: Plant Biotechniques  
AGEN 701: Soil and Water Engineering II  
SLSC 710: Soils of North Carolina  
AGEN 714: Applied Hydrogeology  
SLSC 715: Soil Mineralogy  
SLSC 717: Methodology in Soil, Plant and Water Analysis  
EASC 718: Applied Environmental Microbiology  
NARS 720: Graduate Seminar in Natural Resources  
NARS 777: Special Problems  
SLSC 727: Soil Fertility and Plant Nutrition  
SLSC 734: Applied Environmental Chemistry

### Directory of Graduate Faculty

- Dingha, Beatrice N., PhD, Auburn University; Research Scientist, Urban and Storage Systems entomology, Integrated Pest Management.
- Gayle, Godfrey A., PhD, North Carolina State University; Professor, Water resources engineering.
- Isikhuemhen, Omoanghe S., Institute of Microbiology, Prague; Research Professor, Mycology, mushroom biology & biotechnology.
- Jackai, Louis E.N., PhD, University of Illinois at Urbana-Champaign; **Professor & Program Coordinator**, Nutritional and applied insect ecology, vegetable crop entomology, Integrated Pest Management.
- Raczkowski, Charles W., PhD, North Carolina State University; Adjunct Associate Professor, Soil management, soil and water conservation and quality, sustainable cropping systems.
- Randle, William M., PhD., University of Minnesota; Professor, Plant breeding, genetics, nutrient management of crop plants, secondary metabolites of plants.
- Ravella, Ramesh, PhD, Pennsylvania State University; Research Scientist, Soil science, soil mineralogy, fertility management and environmental quality, biofuel crops and nanotechnology.
- Reyes, Manuel, PhD., Louisiana State University; Professor, Natural resources engineering, erosion modeling, conservation and hydrology.
- Shahbazi, Abolghasem, PhD, Pennsylvania State University; Professor, Bioprocess engineering and waste Recycling, Agricultural and Biological Engineering.
- Uzochukwu, Godfrey A., PhD, University of Nebraska-Lincoln; Professor, Soil mineralogy, land use and classification, earth science.
- Wang, Lijun, PhD, National University of Ireland; Professor, Bioprocess engineering; bioenergy and modeling.
- Yang, Guochen, PhD, University of Nebraska-Lincoln; Research Professor, Tissue culture, micro-propagation, plant growth regulation.