

ENERGY & ENVIRONMENTAL STUDIES
PH.D. PROGRAM
2008-2009 Annual Report

**North Carolina
Agricultural & Technical State
University**

Dr. KEITH A. SCHIMMEL, Director



May 2009

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I. EXECUTIVE SUMMARY

A. Introduction

The Doctor of Philosophy in Energy and Environmental Studies (EES) program is a full-time program designed to prepare men and women for positions in research and consulting in industry, government and service organizations, and teaching and research positions in colleges and universities. Developed in 2005, the EES program is one of three interdisciplinary graduate programs offered at North Carolina A&T State University.

B. Vision

The vision of the EES program is consistent with the vision of the School of Graduate Studies and the University. The EES program seeks to be a learner-centered program that develops intellectual capital through interdisciplinary learning, discovery, engagement, and operational excellence.

C. Mission

Graduates of the EES program will be able to conceive, develop, and conduct original research leading to useful applications in energy and environmental systems; incorporate into their professional work considerations relating to scientific, technical, managerial, and social aspects of energy and environmental systems; and demonstrate effective written and oral communication skills related to research issues in energy and environmental systems.

D. Overview of Significant Accomplishments/Outcomes

1. Program, Initiatives and Activities

- EES actively contributed to NOAA ISETCSC Day and three year review.
- Program name change to Energy & Environmental Systems was approved by The UNC-General Administration, effective July 1, 2009.
- The CIP designation change from Interdisciplinary 30.9999 to Environmental Science 03.0104 was approved by The UNC-General Administration, effective July 1, 2009.
- A curriculum revision was approved effective fall 2009 that adds a B.S. to Ph.D. option to the program.
- A curriculum revision was approved effective fall 2009 that creates concentrations in Atmospheric Sciences, Sustainable Biomaterials, and Energy & Environmental Science & Economics.
- Three students (Mohammed Islam, Parakalan Krishnamacharan, and Jian Zhang) completed their program requirements and received their Ph.D. from the EES program in December 2008.
- Five students (Tara Wade, Awfa Alazzeh, Olcay Boyacioglu, Anthony Cochran, Christa Watson) passed the preliminary exam during 2008-2009.
- Seven students (Matthew Mickens, Raymond Nwachukwu, Lisa Wishon, Bright Abonuhi, Peter Khaemba, Darkus Jenkins, and Olcay Boyacioglu) passed the qualifying exam during 2008-2009.

2. Research

- EES students are publishing in refereed journals at the level of at least two articles per dissertation.
- The EES director and four EES joint appointment faculty published 9 journal articles, 5 conference proceedings, and had 27 other publications/presentations.
- The EES director and four EES joint appointment faculty submitted 21 proposals for funding and were awarded 4 grants (\$1,400,000).

3. Interdisciplinary and Inter-institutional Collaborations

- Successful interdisciplinary and inter-institutional collaborations continued through the activities of the NOAA ISET Cooperative Science Center (physics, chemistry, mathematics, computer science, electrical engineering, civil and environmental engineering, chemical engineering; NCSU, University of Minnesota, CUNY, University of Alaska SE, Fisk University, CSU-Fresno) and the USDA BIOSUCCEED curriculum development project (chemical engineering, bioenvironmental engineering, civil and environmental engineering, university studies; NCSU, University of Tennessee).
- EES collaborated with UNST in the approval for an offering of two new courses in the Energy, Environment & Society Theme Cluster - Weather and Climate Studies (UNST 234) and Contemporary Issues in the Use of Renewable Biobased Products (UNST 233).

4. Enrollment

The EES program currently has twenty-two (24) students enrolled in the program. Thus, in its fourth year the program has nearly reached its enrollment goal of having a steady state of twenty (20) students in the program with about five (5) new students starting each year and five (5) students graduating each year.

5. Students/Scholarships/Fellowships

- 2007-2008 – Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Timothy James Victor
- 2008-2009 - Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Stephen Randall
- Academic Excellence Awards for 4.0 GPA – Matthew Mickens, Raymond Nwachukwu, Andrea Beyers, Olcay Boyacioglu, Anthony Cochran, Michael Collingwood, Madhavi Haturusinghe, Stephen Randall, Galen Smith, Timothy Victor, Tara Wade, Lisa Wishon, William T. Wright
- Matthew Mickens – Recipient of 2009 North Carolina Space Grant Fellowship
- Matthew Mickens – Recipient of 2009 NASA Harriett G. Jenkins Pre-Doctoral Fellowship (full support for up to 3 years).
- Ransford Baidoo submitted a paper for publication entitled, “A Closed-loop High Efficiency Plasma Waste-to-Power Generation Model” to the journal of the Association of Energy Engineers, the Cogenjournal.

- Andrea Beyers coauthored a publication, “Utilizing Fungus Myceliated Grain for Molt Induction and Performance in Commercial Laying Hens, Poultry Science that has been submitted and accepted.

6. Outreach & Engagement

- EES students, faculty, and staff aided the delivery of week-long high school teacher earth science workshop, week-long junior high and high school weather camps, and other weather/climate outreach activities.
- Dr. Schimmel served as a mentor for a math teacher at Archdale-Trinity Middle School as part of the School of Education NSF Content Mentoring Grant.

E. Goals for Upcoming Year (2009-2010)

1. Graduate 6-7 students
2. 7-8 students pass preliminary exam
3. 6-7 students pass qualifying exam
4. 95% retention of students
5. 95% graduation rate of students
6. Enroll 4-5 new high quality students
7. Identify location for energy/environmental lab that can be used to house equipment that has been purchased for use in energy/environmental teaching and research
8. Propose and get approval for offering 1-2 new program concentrations
9. Joint faculty hire – Synoptic Meteorologist
10. Propose and get funded a new research center
11. External program review
12. Diversify scholarship funding sources for students
13. Plan PSM programs in Energy and Climate Change
14. Work with other doctoral programs to develop campus-wide reward structure for faculty supervising and advising graduate students
15. Increase percent of submitted proposals funded

II. OVERVIEW OF THE UNIT

A. Overview of the Unit’s Strategies/Role in the University and Futures

As one of only five Ph.D. programs on campus, EES fills the critical role in the University of helping to maintain the research intensive status of A&T. It is currently filling a unique need on campus by providing opportunities for faculty from eight terminal M.S. programs to involve Ph.D. students in their research. As one of the first three interdisciplinary graduate programs on campus, the EES program is intimately involved in the FUTURES initiative. Specifically, the EES program addresses the following FUTURES goals:

- Goal One: Establish and ensure an interdisciplinary focus for North Carolina A&T that mandates overall high quality, continued competitiveness, and effective involvement of global strategic partners in marketing and delivery of programs and operations.
- Goal Two: Deliver visionary and distinctive interdisciplinary learning, discovery, and engagement that include collaborations and partnerships as part of the learning experience.

- Goal Three: Foster a responsive learning environment that utilizes an efficiently integrated administrative support system for high quality programs, research and collegial interactions, and effectively disseminates consistent information to University stakeholders.
- Goal Four: Provides superior, readily available student services and programs that recognize and respond to diverse student needs.
- Goal Five: Enhance and diversify the University's resource base through effective fundraising, entrepreneurial initiatives, enhanced facilities, and sponsored research programs.

B. Number of Current Faculty and/or Staff

The Energy & Environmental PhD program faculty and staff are as follows:

- **Dr. Keith A. Schimmel**, Director
- **Dr. Sunyoung Bae**, Assistant Professor – Joint Position, Chemistry Department
- **Dr. Luba Kurkalova**, Associate Professor – Joint Position, Economics and Transportation/Logistics and Energy and Environmental PhD Program
- **Dr. Yuh-Lang Lin**, Professor and Senior Scientist – Joint Position, NOAA ISET and Energy & Environmental PhD Program
- **Dr. Yevgenii Rastigejev**, Assistant Professor – Joint Position, Math and Energy and Environmental PhD Program
- **Ms. Toni N. Jarrell**, Executive Assistant

C. Number of New Employees/Faculty/Staff

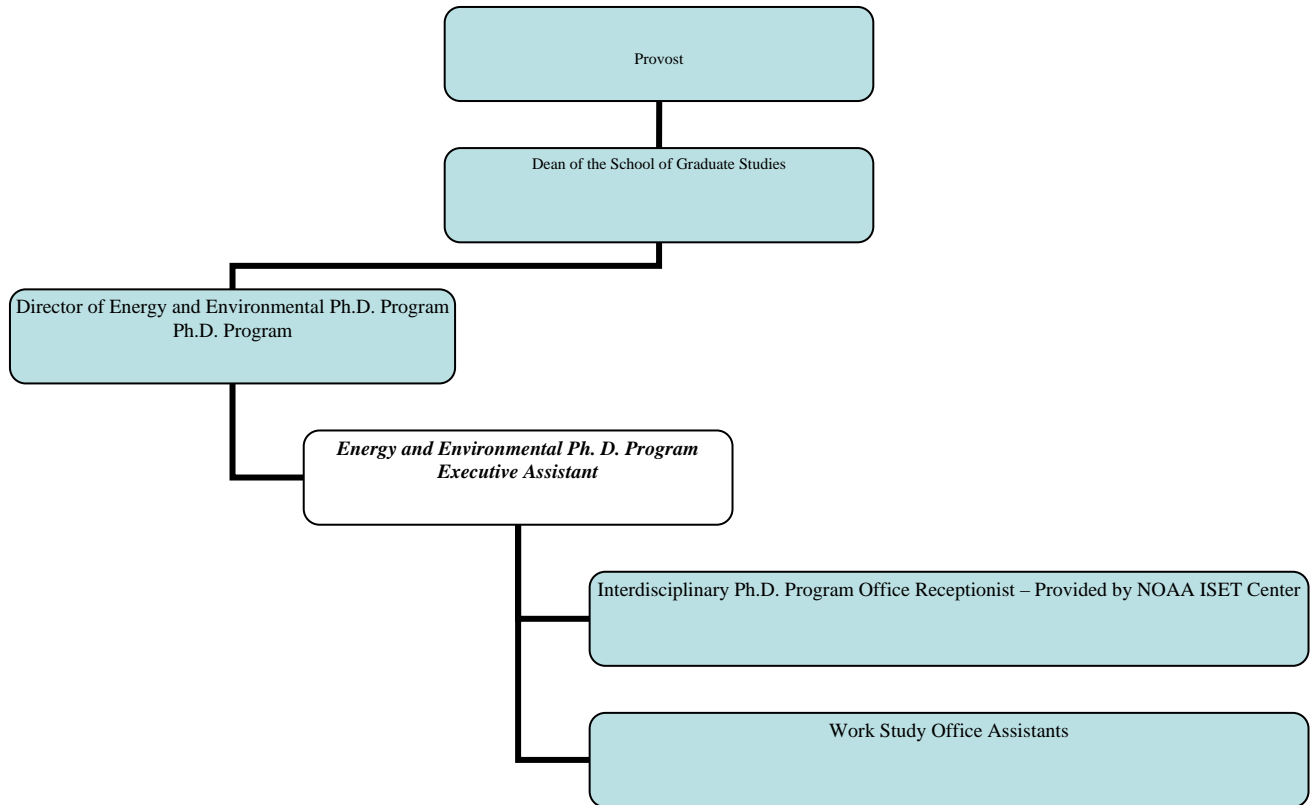
- **Dr. Sunyoung Bae**, Assistant Professor – Joint Position, Chemistry Department

D. Advisory Board Members (if applicable)

The EES advisory board consists of all faculty members serving as research mentors for EES students as well as faculty who were involved in the development of the proposed program. This group is consulted to determine if program direction, curriculum, policies, and procedures are meeting the needs of faculty, students, and employers.

E. Basic structure – Organizational chart

Energy and Environmental Studies Organizational Chart



III. KEY GOALS

A. 2008-2009

1. Statement of Each Goal

- a) Graduate first 2-3 students
- b) 7-8 students pass preliminary exam
- c) 4-5 students pass qualifying exam
- d) Clarify relationship of EES program to the College of Engineering
- e) Enroll 4-5 new high quality students to work on NOAA ISET projects
- f) Identify location for energy/environmental lab that can be used to house equipment that has been purchased for use in energy/environmental teaching and research
- g) Propose and get approval for offering program concentrations (e.g., atmospheric science, chemical engineering, civil and environmental engineering, chemistry, physics, environmental science, energy and environmental economics) and B.S. to Ph.D. option
- h) Propose and get approval for program name change to Energy & Environmental Systems and CIP code change from 30.9999 (Multi-/Interdisciplinary Studies, Other) to 30.0601 (Multi-/Interdisciplinary Studies, Systems Science and Theory).
- i) Offer bioproducts distance education courses developed through the BIOSUCCEED project
- j) Offer atmospheric science distance education courses developed through the NOAA ISET Center
- k) Joint faculty hire – Chemistry
- l) Hire nontenure track 12-month EPA lab manager to support EES courses and NOAA ISET Center labs
- m) Obtain faculty positions to be able to hire energy related research faculty
- n) Propose and get funded Bioproducts research and a UNC Department of Homeland Security Center of Excellence in Coastal Systems

2. Key Indicators of Progress

- a) Number of graduates
- b) Number of students passing preliminary exam
- c) Number of students passing qualifying exam
- d) Engineering administrative support for faculty supervising EES students
- e) Number of new students enrolled
- f) Location identified and use approved
- g) Curriculum revision approval
- h) General Administration approval of change
- i) Courses offered
- j) Courses offered
- k) Faculty member hired
- l) Lab manager hired
- m) Faculty positions provided
- n) New centers funded

3. Outcomes/Results of Goals

- a) Accomplished, 3 students graduated
- b) Almost accomplished, 5 students pass preliminary exam
- c) Accomplished, 7 students passed qualifying exam

- d) Not accomplished
 - e) Accomplished, 9 new students enrolled
 - f) Not accomplished
 - g) Accomplished, curriculum revision approved with B.S. to Ph.D. option and 3 concentrations
 - h) Accomplished, change becomes effective July 1, 2009
 - i) Not accomplished, demand for courses did not warrant their offering yet
 - j) Not accomplished, demand for courses did not warrant their offering yet
 - k) Accomplished, joint faculty hire with Chemistry of Dr. Bae
 - l) Not accomplished, position not provided
 - m) Not accomplished, position not provided
 - n) Partially accomplished, NASA Center proposal was rejected, NSF CREST and NOAA CI proposals still pending
- 4. Data Summary and Productivity Measures for the Schools/Colleges**
 9 new students enrolled in 2008-2009 (6 U.S. citizens, 3 International, 2 African Americans, 2 Female)
 3 students graduated (all took 3.5 years)
 100% retention of students during 2008-2009
- 5. New Faculty and Administrators as Related to Goals of Capacity Building**
 Dr. Sunyoung Bae began full-time in the Fall 2008 semester in a joint position with the Chemistry Department and the Energy and Environmental PhD Program.

IV. MOST SIGNIFICANT ACCOMPLISHMENTS

A. Learning

1. Innovations in Pedagogy Implemented Including Use of Information and Instructional Technology

Use of more cooperative learning in EES 720.

2. Accreditation/Licensure Reviews

N/A

3. Facilities Updates

The EES Program has been located in the newly renovated Gibbs Hall since Fall 2007. This program shares space and resources with the NOAA-ISET Center. The program is still in need of lab space to house department lab equipment purchased.

4. Faculty Awards and Promotion

Dr. Luba Kurkalova

Current Associate Professor appointment has been successfully renewed for 3 years, Fall 2008

Invited to contribute a full-length manuscript to the 2010 Special Issue on “Water in the 21st Century” of the Canadian Journal of Agricultural Economics. The issue will include 12 to 15 state-of-the-art papers relating to economic methods, models, applications and institutions relevant to water issues in different jurisdictions and watersheds.

Dr. Yuh-Lang Lin

Granted tenure.

5. Student Honors/Scholarships/Fellowships

- 2007-2008 – Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Timothy James Victor
- 2008-2009 - Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Stephen Randall
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- Andrea Beyers coauthored a publication, “Utilizing Fungus Myceliated Grain for Molt Induction and Performance in Commercial Laying Hens, Poultry Science that has been submitted and accepted.

6. Alumni and Employer Feedback

N/A

7. Summary of Student Opinion Form Ratings

N/A

8. Building Academic Excellence

Graduation requirement of at least 2 journal articles submitted has been effective in helping to build a community of scholarly excellence. During 2009-2010, initiatives to encourage academic excellence will include working with other programs to identify courses that could be cross-listed/modified to increase course enrollment and quality, working with other doctoral programs to develop a common faculty reward structure for working with doctoral students, targeted recruitment of high quality students in concentration areas, targeting funding opportunities in energy areas, and targeting new scholarship funding opportunities.

B. Discovery

1. New Research Awards

	Number
Proposals submitted	21
Proposals funded	4
Dollar value of funded proposals	\$1,400,000
Total research expenditure	\$400,000

2. Scholarly Productivity

	Number
Refereed journal articles	9
Chapters in books	0
Patents or copyrights	0
Refereed conference proceedings	5
Other publications	27

3. Professional Growth and Development – Faculty and Staff

KEITH SCHIMMEL - Director

Procurement Card Training, NC A&T – Staff Development
Chairperson's Meetings, NC A&T – Fall and Spring, Staff Development
U.S. Department of Education GAANN Review Panel - Spring 2008, Reviewer
SACS Subcommittee, Greensboro, NC, 2007-2009, Committee Member

LUBA KURKALOVA – Associate Professor

Natural Resource Economics topic leader, selected presentations review, AAEA Annual Meeting, Orlando, FL, 2008
Reviewer for *Journal of Soil and Water Conservation*, *Choices*, *Natural Resource Modeling*, *NSF grant proposals*, *economics of bio-energy production*

YUH-LANG LIN – PROFESSOR & SENIOR SCIENTIST

Coordinate research for off-campus of 6 other partner university PIs of NOAA ISET Center headquartered at NC A&T
Invited speaker, WMO Regional Workshops on Cyclones, La Reunion, France, 5/26-5/31/08
Invited speaker, NSBP/NSHP Annual Conference, February 12-14, 2009 NSBP Annual Meeting, Nashville, TN.
Editor, East Asian Journal of Atmospheric Sciences, since 2007
Foreign Advisor, Central Weather Bureau, Taiwan
Invited speaker, ISET High School Summer Camp, 7/24/08
Review papers for J. Atmos. Sci., Monthly Weather Review, J. Appl. Meteor. and Climate, Meteorology and Atmos. Physics, Quarterly J. Royal Meteor. Soc., J. Hydrometeorology, etc.
Review proposals for federal funding agencies, such as NSF, DOE, NASA, etc.

YEVGENNII RASTIGEJEV – ASSISTANT PROFESSOR

Invited Talks/Lectures: "Gradual Spatial Reduction Algorithm for Global Atmospheric Chemical Dynamics Simulation", Fluid Mechanics Seminar, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, Sept. 12, 2008

TONI N. JARRELL – Executive Assistant

Seventh Annual Ronald E. McNair Symposium, Greensboro, NC – 1/09, Student Recruitment
Back to Basics –Purchasing Workshop, NC A&T – 4/22/09, Staff Development
Banner Finance, NC A&T – 5/14/09, Staff Development

C. Engagement

1. Outreach and Access Activities

Dr. Keith A. Schimmel

School of Graduate Studies Dean Search Committee
A&T Strategic Plan Environment Learning Enterprise Work Group
UNC Tomorrow Environment Subcommittee
SACS Subcommittee
Graduate Council Admission and Retention Committee
Graduate Council
Member, Institutional Biosafety Committee

Dr. Luba Kurkalova

Member of NCA&T Global Warming Task Force and co-author of the report “Effects of global warming for North Carolina”, Fall 2008
Member of the UNC Tomorrow University-wide Reappointment, Promotion, and Tenure Review Committee, continuous since Spring 2009
Member of the Energy and Environmental Systems interdisciplinary Ph.D. program Advisory Committee, continuous since Fall 2007
Guest lectured before team taught NCA&T HIST 419 (Ethnic Violence and Genocide in Eastern Europe) and LIBS 301 (Ethnonationalism and the Reconstruction of Nations) classes, Spring 2009
Mentored Mathematics undergraduate student Marvin Q. Jones, Jr. in his research project on applied economics issues, Spring 2009
Graduate School Marshal, Spring 2009 graduation ceremony
Participated in the University-wide Research Appreciation Day, with a research poster, 04/2009

Dr. Yuh-Lang Lin

Serve on PHYS Curriculum Committee Meeting on Geophysics Track program
Serve as a member of the Retention Committee, College of Arts and Sciences, NC A&T
Supervising an ISET Center’s postdoc (Dr. Y. Jung)
Advise undergraduate and graduate students
Recruit undergraduate and graduate students, and postdocs
Help developing Atmospheric Science Concentration on Atmospheric Science within the Energy & Environmental Studies Ph.D. Program
Help developing the B.S. program in Atmospheric Science and Meteorology
Coordinate research among A&T PIs affiliated with the NOAA ISET Center
Form an interdisciplinary Atmospheric Modeling Group composed by faculty PIs of NOAA ISET Center from departments of physics, mathematics, chemistry, and Energy & Environmental Studies
Mentor A&T’s junior faculty affiliated with NOAA ISET Center on research
Take lead in teaming up faculty in different disciplines to write center proposals, such as Environmental and Climate Modeling Center for NSF and Center for Planetary Atmospheric and Flight and Sciences for NASA.
Serve on the UNC Tomorrow Global Warming Task Force (Fall semester 2008)
Participated in the preparation of a University of Colorado’s Wildfire Management Science and Technology Center to be submitted to NSF.
Actively seek external research funding
Invite speakers (e.g., Drs. Tsann Yu and Arlene Laing) to ISET seminar series, Energy & Environmental Studies seminar series, and Physics Colloquium.
Invited speaker, ISET Center seminar series, 11/12/08

Dr. Yevgenii Rastigejev

Served as a member of "Global Warming Task Force Team" at NC&AT, fall 2008

Served as a member of "Research and Development Committee"

Invited a speaker (Dr J.-W. Bao) to ISET seminar series

2. New Collaborations/Partnerships

N/A

3. Student Activities – Organized Student Activities and Groups:

New student chapter of the American Meteorological Society formed

4. Staff Activities in Support of Learning, Discovery, and Engagement

TONI N. JARRELL – Executive Assistant

Seventh Annual Ronald E. McNair Symposium, Greensboro, NC – 1/09, Student Recruitment

Great Ideas for Recruiting Graduate Students, NC A&T – 5/12/08, Staff Development

Back to Basics –Purchasing Workshop, NC A&T – 4/22/09, Staff Development

Banner Finance, NC A&T – 5/14/09, Staff Development

D. Retention

1. Goal: Decrease students not retained due to poor academic performance from 8% to less than 5%.

Strategy: Spend more time in interviews with applicants discussing issues that may lead to poor academic performance. Advising students to take remedial math courses if there are uncertainties as to the strength of their math preparation. Increase number of director meetings with students during their first semester in the EES program.

Outcomes: No students were lost due to poor academic performance during 2008-2009.

2. Goal: Decrease students not retained due to transfer to other universities from 15% to less than 5%.

Strategy: Meet with students more frequently to determine early on if they have concerns about the program that can be addressed.

Outcomes: No students were lost due to transfer during 2008-2009

V. GOALS FOR UPCOMING YEAR 2009-2010

A. Statement of Each Goal

1. Graduate 6-7 students
2. 7-8 students pass preliminary exam
3. 6-7 students pass qualifying exam
4. 95% retention of students
5. 95% graduation rate of students
6. Clarify relationship of EES program to the College of Engineering
7. Enroll 4-5 new high quality students
8. Identify location for energy/environmental lab that can be used to house equipment that has been purchased for use in energy/environmental teaching and research
9. Propose and get approval for offering 1-2 new program concentrations
10. Offer bioproducts distance education courses developed through the BIOSUCCEED project

11. Offer atmospheric science distance education courses developed through the NOAA ISET Center
12. Joint faculty hire – Synoptic Meteorologist
13. Propose and get funded a new research center
14. External program review
15. Establish endowed faculty chair
16. Diversify scholarship funding sources for students
17. Plan PSM programs in Energy and Climate Change
18. Work with other doctoral programs to develop campus-wide reward structure for faculty supervising and advising graduate students
19. Increase percent of submitted proposals funded

B. Key Indicators of Progress

1. Number of graduates
2. Number of students passing preliminary exam
3. Number of students passing qualifying exam
4. Retention rate
5. Graduation rate
6. Engineering administrative support for faculty supervising EES students
7. Number of new students enrolled
8. Location identified and use approved
9. Curriculum revision approval
10. Courses offered
11. Courses offered
12. Faculty member hired
13. New center funded
14. Review carried out and recommendations documented
15. Endowed chair established
16. New sources of student support available
17. Planning documents prepared
18. Reward structure approved by faculty senate and Provost
19. Percent of submitted proposals funded

VI. APPENDICES – Supporting Data

A. Faculty Data by Department

1. Tenure Density by Age/Gender/Ethnicity (do not include faculty names)

RANK	TENURED	GENDER	ETHNICITY	AGE RANGE
Director	X	Male	White	40-49
Assistant Professor		Male	White	30-39
Assistant Professor		Female	Asian	30-39
Professor/Sr. Scientist		Male	Asian	60-65
Associate Professor		Female	White	40-49

2. Awards and Professional Recognition

Dr. Luba Kurkalova

- Current Associate Professor appointment has been successfully renewed for 3 years, Fall 2008
- Invited to contribute a full-length manuscript to the 2010 Special Issue on “Water in the 21st Century” of the Canadian Journal of Agricultural Economics. The issue will include 12 to 15 state-of-the-art papers relating to economic methods, models, applications and institutions relevant to water issues in different jurisdictions and watersheds.

Dr. Yuh-Lang Lin

Granted tenure.

3. New Research/Scholarship Initiatives

Sunyoung Bae

Proposals Submitted

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
		Bae	Not Funded, 2 years.	\$210,761	Center of North Carolina	Utilization of Analytical Tools to Optimize the Production Conditions and Characterize the Biodiesel from Chicken Fat and Lard Using Cosolvent/Nanocatalysts, NC Biofuels
		Bae	Pending, 5 years	\$93,000,000 for whole center	National Oceanic and Atmospheric Administration, Department of Commerce	Cooperative institute for satellite climate studies, National Environmental Satellite Data and Information Service (NESDIS)
Bae	Chemistry/EES		Pending, 2 years	\$50,000	American Chemical Society for Biodiesel Production-PRF	Development of New Efficient Heterogeneous Bifunctional Catalysts (HBC)
		Bae	Not funded, 5 years	\$5,000,000	NASA	NASA Group 4 University Research Centers (URC)
		Bae	Pending, 5 years	\$4,008,345	NSF	NSF CREST for Bioenergy
		Bae	Pending, 5 years	\$1,291,034	NSF	The Anthropocene Science Center

Proposals Funded (highlight your name)

PI Last Name	PI's Dept	Co-PIs Last Names	Start Date	Amount Funded	Agency	Title
Bae	Chemistry/EES			\$3,750	NCA&T University	Preparation of research paper entitled GIS-based environmental sensitivity analysis for total pollution potential index, Junior faculty professional development proposals at NC A&T University

Luba Kurkalova

Proposals Submitted

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
Schnable	Iowa State U, Agronomy	Kling, Hayes, Takle, Kurkalova	8/2008	\$5,000,000	NSF	Center for food, land use and ecosystem services in a changing climate
Randall	EES	Kurkalova , Yeboah	6/2008	\$10,000	North American Case Research Association	German renewable energy policy: A model for North Carolina?

Proposals Funded (highlight your name)

PI Last Name	PI's Dept	Co-PIs Last Names	Start Date	Amount Funded	Agency	Title
Edwards	Economics and Finance	Kurkalova , Pumphrey, Barbato	02/2008	\$747,500	NSF	Changing societal attitudes towards water scarcity: ethanol production and increasing groundwater depletion of the Ogallala aquifer

Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Last Name	Co-PIs Last Names	Fall 2008 Release	Spr 2009 Release	Annual Expenditure	Agency	Title
Edwards	Kurkalova , Pumphrey, Barbato	none	1 course	\$250,000	NSF	Changing societal attitudes towards water scarcity: ethanol production and increasing groundwater depletion of the Ogallala aquifer
Project is on schedule. We have designed a sample of the municipalities to be surveyed. The survey design has been finalized.						
Kurkalova	Kling, Carriquiry, Otto, Secchi, Gassman, Jha	none	none	\$130,000	USDOE/USDA	Expansion of ethanol production: evaluation of costs and benefits to rural communities in the Upper Mississippi River Basin
Project is on schedule. The work continues on integrating the UMRB models of rotational, tillage, and fertilizer level choices, and on documenting the models. The refinements of the models are being explored that utilize fine-scale data that are exclusively available for some of the UMRB sub-regions. Ways to consistently combine the fine- and coarse-scale data and modeling capabilities are currently being studied. Evolving structure of ethanol plants in rural areas and implications for rural economies in UMRB has been investigated. The work continues on the analyses of alternative scenarios of expansion of ethanol production in the UMRB. Several studies that investigate how the economic and environmental outcomes could be affected by alternative policies and/or climate change have been undertaken. The cost-effectiveness of alternative conservation practices on a full watershed scale with a direct recognition of the role of potential future climate change has been evaluated. The calibrated UMRB modeling system has been used to examine suites of hypothetical scenarios of reducing nonpoint source pollution. The economic and environmental impacts of corn-based vs. switchgrass-based ethanol production on UMRB have been compared.						
Boll	Kurkalova , Mahler, Steenhuis, Vellidis, Willhorst	None	None	\$140,000	USDA/CSREES, CEAP	Synthesis and analysis of 13 CSREES CEAP projects
Project is on schedule. Site visits to Idaho, Utah, Arkansas, and Iowa have been completed. The framework for development of an ecoregion classification is being refined. A statistics model of Bayesian information update is being developed to summarize and synthesize location-specific data on the rates of use of conservation practices.						

Yuh-Lang Lin

Proposals Submitted

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
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Argow	Physics /EES	Gasiewski, Lin, Finney, Veblen	10/14/08 (rejected)	\$2.65 M	NSF	Wildland Fire Science, Modeling, and Sensing center
Lin	Physics /EES	Chiao (Florida Inst of Tech.)	04/2008 (rejected)	\$620,090	NSF	Dynamics of heavy orographic rain during the Terrain-influenced Monsoon Rainfall Experiment (TiMREX)
Lin	Physics/ EES	Tao (NASA) Laing (NCAR) Shen (UMCP) Shi (UMB)	05/2007 (rejected)	\$497,621	NASA Hurricane Program	Tropical Cyclogenesis over Eastern Atlantic Ocean Initiated by African Easterly Waves and Mesoscale Convective Systems in eastern Africa
Lin	Physics/ EES	Et.al.	10/08 (rejected)	\$5 M	NSF	CREST Environmental and Climate ModelingCenter
Bililign	Physics /EES	Lin, Bae	Pending	\$1,660,807	NSF	The Anthropocene Science Center
Lin	Physics /EES		Pending	\$600,198	NSF(OEDG)	Postdoctoral Fellow Opportunities for Under-represented Doctoral Students to Enhancing Research Capacity at HBCUs in the Geosciences
Bililign	Physics /EES	Lin, Schimmel, Tang	2009 Pending	\$3,749,174	NOAA	Cooperative Institute for Satellite Climate Studies (CISCS)
Lin	Physics /EES		2009 Pending	\$278,794	NSF	Dynamics of heavy rain over Central Mountain Range of Taiwan
Lin	Physics /EES	Tang, Roop, Liu	Pending	\$690,869	NSF	Formation and Evolution of African Easterly Waves and Mesoscale Convective Systems and their Impacts on Tropical Cyclogenesis in Eastern Atlantic and Eastern Pacific

Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Last Name	Co-PIs Last Names	Fall 2008 Release	Spr 2009 Release	Annual Expenditure	Agency	Title
Bililign	Lin			\$12 million	NOAA	Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center, September 2006 – 31 August 2011

Dr. Lin serves as a senior scientist and NC A&T campus PI. Based on the recent preliminary report of the ISET Center evaluation on April 14-15, 2009, the Evaluation Committee has commented (only relevant part of the report is quoted):

Yevgenni Rastigejev

Proposals Submitted

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
Argow, B, A, et al.		Rastigejev	10/14/08 non-funded	2.65 M/5 yr	NSF STC NOI led by the University of Colorado	“Wildland Fire Science, Modeling, and Sensing Center”, NCF, NCAT
Lin, Y.-L, et al		Rastigejev	10/1/08-9/30/14 non-funded	\$5M	NSF	“CREST Environmental and Climate Modeling Center (ECMC)

Tolson, R., et al.		Rastigejev	non-funded	\$5,000,000	NASA	"Center for Planetary Atmospheric and Flight Sciences (CPAFS)"
Rastigejev			02/17/09 non-funded		DORED	"DORED –Summer Faculty Fellowship", 6 weeks, summer 2009, PI, submitted on, non-funded
Rastigejev			01/01/09-31/12/13 non-funded	\$845,335	NSF	"Multiscale Wavelet-based Numerical Algorithms for Global Atmospheric Chemical Transport Simulation "
Rastigejev			08/20/08 non-funded		DOD	"Chemical and Physical processes over complex terrain"
Schimmel, K.		Rastigejev	06/01/09 - 05/31/11, Pending	\$150,000.00	NASA	"Global Climate Change Education of Underrepresented STEM Populations"
Kuila, D.		Rastigejev	08/01/09-07/31/14 Pending	\$4,997,524	NSF	"CREST Bioenergy Center"
Bililign, S., et al.			7/1/09-6/30/14 Pending	\$3,749,174	NOAA	"NOAA Cooperative Institute for Satellite Climate Studies, Georgia Institute of Technology"

Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Last Name	Co-PIs Last Names	Fall 2007 Release	Spr 2008 Release	Annual Expenditure	Agency	Title
Bililign, S.	Rastigejev			\$12 m	NOAA	Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center,

Dr. Rastigejev serves as a research associate and NC A&T campus PI

Keith A. Schimmel

Proposals Submitted

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
Mereba	Journalism	Schimmel, et al.	2008	\$400,000	NSF	Communication Systems and Technologies: Managing Hurricane and Other Natural Disaster Response and Recovery
Singh	CAAE	Schimmel, et al.	2008	\$477,374	DHS	Training University Leaders for Disaster management Roles
Lin	Physics	Schimmel, et al.	2008	\$5,000,000	NASA URC	Center for Planetary Atmospheric and Flight Sciences
Schimmel	EES	Lin, Kurkalova, Bae, Rastigejev	2008	\$150,000	NASA	Global Climate Change Education of Underrepresented STEM Populations
Kuila	Chemistry	Schimmel, et al.	2009	\$5,000,000	NSF CREST	CREST Center for BioEnergy

Proposals Funded (highlight your name)

PI Last Name	PI's Dept	Co-PIs Last Names	Start Date	Amount Funded	Agency	Title
Bililign	Physics	Schimmel, Tang	2008	\$671,588	NSF	Enhancing Diversity in the Geosciences through the Africa Array Educational Alliance
Schimmel	EES		2009	\$7,500	NCSU/Sloan Foundation	Plan Professional Science Master's Degree in Energy Systems

Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Last Name	Co-PIs Last Names	Fall 2008 Release	Spr 2009 Release	Annual Expenditure	Agency	Title
Schimmel, K.A.	Shahbazi, G., Luster-Teasley, S., Graves, J., Singh, H.,	None	None	\$20,000	USDA/CREES (subcontract from NCSU)	BIOSUCCEED: BIO products Sustainability, a University Cooperative Center for Excellence in Education
Bililign, S.	Schimmel, K.A., et al.	None	None	\$100,000	NOAA	NOAA Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center

4. Scholarly Productivity of Faculty – papers, articles, books, etc.

Lyubov Kurkalova

Refereed Publications (journals, book chapters)

4 under review; none published

Refereed Conference Proceedings (highlight your name)

1. **Kurkalova, L.A.**, S. Secchi, and P.W. Gassman. 2009. Greenhouse gas mitigation potential of corn ethanol: accounting for corn acreage expansion. In: Proceedings of the 2007 National Conference on Environmental Science and Technology, Springer, 2009, forthcoming (<http://www.springer.com/environment/pollution+and+remediation/book/978-0-387-88482-0>)
2. Secchi, S., P.W. Gassman, M. Jha, **L.A. Kurkalova**, and C. L. Kling. 2008. The water quality effects of corn ethanol versus switchgrass based biofuels in the Midwest. In: Proceedings of the Farm Foundation Conference “Transition to a Biofuel Economy: Environmental and Rural Development Impacts”, St. Louis, MO, October 2008, pp.96-108. (http://www.farmfoundation.org/news/articlefiles/401-Final_version_Farm_Foundation%20feb%2020%2009.pdf)
3. **Kurkalova, L.A.**, K. Schimmel, and S. Johnston. 2008. Energy and environmental economics core course sequence for an interdisciplinary engineering science doctoral program. In: Proceedings of the American Society for Engineering Education 2008 Annual Conference; AC 2008-2767; (<http://www.asee.org/conferences/v2search.cfm>)

Other Publications and Presentations

1. Bililign, S., S. Bae, R. Davis, S. Ilias, **L.A. Kurkalova**, Y. Kyei, Y.-L. Lin, Y. Rastigeyev, G. Uzochukwu. “Effects of global warming on North Carolina.” Report prepared by the NCA&T State University Global Warming Taskforce, October 2008.
2. **Kurkalova, L.A.**, S. Secchi and P.W. Gassman. “Corn stover harvesting: potential supply and water quality implications,” selected paper: USDA-CSREES National Water Conference, St. Louis, MO, 02/2009
3. Holland, S.P., M.L. Burkey, and **L.A. Kurkalova**. “Economic and environmental impacts of the production and transportation of crop residues as bioenergy feedstocks in North Carolina,” selected paper (presented by S.P.

Holland): 2008 Southern Economics Association meetings, Washington, DC, 11/2008

4. Secchi, S., P.W. Gassman, M. Jha, **L.A. Kurkalova**, and C. L. Kling. "The water quality effects of corn ethanol versus switchgrass based biofuels in the Midwest," selected paper (presented by S. Secchi): Conference "Transition to a Biofuel Economy: Environmental and Rural Development Impacts", St. Louis, MO, 10/2008
5. **Kurkalova, L.A.**, S. Secchi, C.L. Kling, P.W. Gassman, and M. Jha. "Rotation and water quality effects of harvesting corn stover," selected poster; Burkey, M.L., S.P. Hoplland, **L.A. Kurkalova**, and A. Shahbazi. "Economic and environmental impacts of the production and transportation of crop residues as bioenergy feedstocks in North Carolina," selected poster: 2008 AAEA meetings, Orlando, FL, 07/2008
6. **Kurkalova, L.A.**, K. Schimmel, and S. Johnston. "Energy and environmental economics core course sequence for an interdisciplinary engineering science doctoral program," selected paper (presented by K. Schimmel): American Society for Engineering Education 2008 Annual Conference, Pittsburg, PA, 06/2008
7. **Kurkalova, L.A.**, S. Secchi and P.W. Gassman. "Biofuels as an instrument for carbon dioxide emission reduction: an empirical analysis," selected paper: 31st International Association for Energy Economics International Conference titled "Bridging Energy Supply and Demand: Logistics, Competition and Environment", Istanbul, Turkey, 06/2008

Yuh-Lang Lin

Refereed Publications (journals, book chapters)

1. Huang, C.-Y., and Y.-L. Lin, 2009: The influence of mesoscale mountains on cyclone tracks. Part I: A shallow-water modeling study. *Meteor. Atmos. Phys.*, in press.
2. Huang, C., Y.-L. Lin, M. L. Kaplan, and J. Charney, 2009: Synoptic-scale and mesoscale environments conducive to forest fires during the October 2003 extreme fire event in Southern California. *J. Appl. Meteor. and Climate*, 48, 553–579.
3. Horvath, K., Y.-L. Lin and B. Ivančan-Picek, 2008: Classification of Cyclone Tracks over Apennines and Adriatic Sea. *Mon. Wea. Rev.*, 136, 2210-2227.
4. Chen, S.-H., Y.-L. Lin, and Z. Zhao, 2008: Effects of moist Froude number and orographic aspect ratio on a conditionally unstable flow over a mesoscale mountain. *J. Meteor. Soc. Japan*, 86, 353-367.
5. Lin, Y.-L., 2008: Formation of African Easterly Waves and Mesoscale Convective Systems in Eastern North Africa and its impacts on the Tropical Cyclogenesis over Eastern Atlantic Ocean. *NSBP Proceedings*.
6. Kiefer, M. T., Y.-L. Lin, and J. J. Charney, 2008: A study of two-dimensional dry convective plume modes with variable critical level height. *J. Atmos. Sci.*, 65, 448-469.
7. Kaplan, M. L., C. Huang, Y.-L. Lin, and J. J. Charney, 2008: The development of extremely dry surface air due to vertical exchanges under the exit region of a jet streak. *Meteor. Atmos. Phys.*, 102, 63-85.

Refereed Conference Proceedings

1. Lin, Y.-L., 2008: Formation of African Easterly Waves and Mesoscale Convective Systems in Eastern North Africa and its impacts on the Tropical Cyclogenesis over Eastern Atlantic Ocean. *NSBP Proceedings*.

Other Publications and Presentations

1. Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.
2. Lin, Y.-L., 2009: Formation and propagation of the pre-Tropical Storm Debby (2006) African easterly wave-mesoscale convective system. February 12-14, NSBP Annual Meeting, Nashville, TN.
3. Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the 11th Life and Physical Sciences Research Symposium, Greensboro, NC, February 13.
4. Jones, W., G. Tang, Y.-L. Lin, and J. Spinks, 2009: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.
5. Nguyen, V., and Y.-L. Lin, 2009: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.

6. Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
7. Nguyen, V., and Y.-L. Lin, 2009: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
8. Jones, W., G. Tang, Y.-L. Lin, and J. Spinks, 2009: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
9. Lin, Y.-L., 2008: Recent advances and future challenges in hurricane prediction. Submitted to the Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1. (Invited)
10. Covell, A. J., and Y.-L. Lin, 2008: Effects of Southern Appalachian Mountains on the rainfall associated with the passage of Hurricane Ivan (2004). Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
11. Spinks, J., W. Jones, Y.-L. Lin, and G. Tang, 2008: Orographic effects on the evolution of African Easterly wave-mesoscale convective systems across Northern Africa. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
12. Tang, G., Y.-L. Lin, Spinks, J., and W. Jones, 2008: Formation of African easterly waves and mesoscale convective systems over eastern Africa and its implication to tropical cyclogenesis over eastern Atlantic Ocean. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
13. Nguyen, V., and Y.-L. Lin, 2008: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
14. Rastigejev, Y., and Y.-L. Lin, 2008: A study of ocean spray lubrication effect on tropical cyclone intensity. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
15. Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2008: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Oral presentation at the 2008 NOAA ISET NAC Meeting, Raleigh, NC, October 27.
16. W. Jones, G. Tang, Y.-L. Lin, and J. Spinks, 2008: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the 2008 NOAA ISET NAC Meeting, Raleigh, NC, October 27.
17. Chen, C.-S., Y.-L. Lin, W.-C. Peng, and C.-L. Liu, 2008: Investigation of the mechanism of a heavy rainfall event over southwestern Taiwan during the 2003 Mei-Yu season. Workshop of East Asia Monsoon Experiment, Center for Space and Remote Sensing Research of the National Central University, Chung-Li, Taiwan, 9/22-23.

Yevgenii Rastigejev

Other Publications and Presentations

1. Y. Rastigejev and Y.-L. Lin, A study of ocean spray lubrication effect on tropical cyclone intensity, 75th Annual Meeting of the Southeastern Section of APS, Raleigh, NC, October, 2008
2. Y. Rastigejev, Wavelet-based adaptive mesh refinement algorithm for atmospheric chemical transport modeling, 75th Annual Meeting of the Southeastern Section of APS, Raleigh, NC, October, 2008

Sunyoung Bae

Refereed Publications (journals, book chapters)

Sunyoung Bae, Liu, J., Shi, B., Jiang, H., **Bae, S.**, and Huang, H. 2009. Improvement of water-stability of clay aggregates admixed with aqueous polymer soil stabilizers, *Catena*, 175-179

Sunyoung Bae, Choi, S-W., Kim, H-J., Park, S-W., **Bae, S.**, and Inyang, H. I. 2009. Patterns of VOC and BTEX concentrations in ambient air around industrial sources in Daegu, Korea, *J. Environ. Sci. Health*, A44

Keith Schimmel

REVIEWED CONFERENCE PROCEEDINGS

Schimmel, K.A., Kurkalova, L., Johnston, S., "Energy and Environmental Economics Core Course Sequence for an Interdisciplinary Engineering Science Doctoral Program," 2008 ASEE Annual Conference, Pittsburgh, PA, June 22-25,

2008.

Schimmel, K., Ilias, S., “Future Trends in Chemical Engineering Education,” BUET Second International Conference on Chemical Engineering, Dhaka, Bangladesh, December 31, 2008 to January 1, 2009.

CONFERENCE PRESENTATIONS

Schimmel, K.A., Kurkalova, L., Johnston, S., “Energy and Environmental Economics Core Course Sequence for an Interdisciplinary Engineering Science Doctoral Program,” 2008 ASEE Annual Conference, Pittsburgh, PA, June 22-25, 2008.

Schimmel, K., Ilias, S., “Future Trends in Chemical Engineering Education,” BUET Second International Conference on Chemical Engineering, Dhaka, Bangladesh, December 31, 2008 to January 1, 2009.

Other Publications and Presentations

WFMY News2 Morning Show Live at Middle School Weather & Climate Camp, Greensboro, NC, July 16, 2008.

WNAA Radio Interview on NOAA ISETCSC, Greensboro, NC, November 7, 2008.

B. Student Enrollment Management Data by Department and Major

1. Enrollment, Retention and Graduation Rates

NAME	MAJOR	ENTERED PROGRAM	EXPECTED GRADUATION	OTHER
1. Abonuhi, Bright	EES	Spring 2008		Qualifier Exam Passed
2. Alazzeh, Awfa	EES	Fall 2007	Summer 2009	Qualifier and Preliminary Exams Passed
3. Baidoo, Ransford	EES	Fall 2006	Summer 2009	
4. Boyacioglu Olcay	EES	Spring 2008	Fall 2009	
5. Byers, Andrea	EES	Fall 2007	Spring 2010	Qualifier Exam Passed
6. Cochran, Anthony	EES	Fall 2007	Spring 2010	Left program – Transferred to another
7. Coleman, Travis	EES	Fall 2006	N/A	Left program – Transferred to another
8. Collingwood, Michael	EES	Spring 2009		
9. Dwivedi, Dipankar	EES	Spring 2006	N/A	Left program – Transferred to another
10. Gaskins, Charla	EES	Fall 2005	Summer 2009	Qualifier and Preliminary Exams Passed
11. Hathursinghe, Madhavi	EES	Spring 2009		
12. Hussan, Osman	EES	Fall 2008		
13. Islam, Mohammad	EES	Fall 2005	Graduated December 2008	Qualifier Exam Passed
14. Jenkins, Darkus	EES	Fall 2007	Fall 2010	Qualifier and Preliminary Exams Passed

15. Jin, An	EES	Fall 2005	Summer 2009	
16. Khaemba, Peter	EES	Spring 2008		Qualifier and Preliminary Exams Passed
17. Krishnamachran, Parakalan	EES	Fall 2005	Graduated December 2008	Left program – Transferred to another
18. Mickens, Matthew	EES	Fall 2008		
19. Njikam, Elo	EES	Fall 2006	N/A	Qualifier Exam Passed
20. Nwachukwu, Raymond	EES	Fall 2008		
21. Peay, Katif	EES	Spring 2007	Fall 2009	Left program – Poor academic performance
22. Petty, Calisha	EES	Fall 2005	N/A	Left program – Poor academic performance
23. Pollard, David	EES	Spring 2006	N/A	Qualifier and Preliminary Exams Passed
24. Randall, Stephen	EES	Fall 2006	Fall 2009	
25. Rehrah, Djaafar	EES	Fall 2008		
26. Seydou, Niandou Mohammad	EES	Fall 2005	DECEMBER 2007 FIRST PROGRAM GRADUATE	Qualifier and Preliminary Exams Passed
27. Smith, Galen	EES	Spring 2009		
28. Victor, Tim	EES	Fall 205	Summer 2009	Qualifier Exam Passed
29. Wade, Tara	EES	Fall 2007	Spring 2010	Qualifier Exam Passed
30. Wan, Ciaxia	EES	Fall 2006	N/A	Qualifier Exam Passed
31. Watson, Christa	EES	Fall 2006	Fall 2009	Qualifier and Preliminary Exams Passed
32. Wishon, Lisa	EES	Fall 2008		
33. Wright, William	EES	Spring 2009		
34. Zhan, Jian	EES	Fall 2005	Graduated December 2008	

28/34 students retained = 82% retention rate

(33% for poor academic performance, 67% transferred to other programs)

2. SCHs Generated per Program

n/a

C. Student Activity Data

1. Awards/Scholarships/Fellowships/Honors

- 2007-2008 – Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Timothy James Victor
- 2008-2009 - Governor and Mrs. Dan K. Moore Fellowship (NC Beautiful) recipient (\$5,000) – Mr. Stephen Randall

- Academic Excellence Awards for 4.0 GPA – Matthew Mickens, Raymond Nwachukwu, Andrea Beyers, Olcay Boyacioglu, Anthony Cochran, Michael Collingwood, Madhavi Haturusinghe, Stephen Randall, Galen Smith, Timothy Victor, Tara Wade, Lisa Wishon, William T. Wright
- Matthew Mickens – Recipient of 2009 North Carolina Space Grant Fellowship
- Matthew Mickens – Recipient of 2009 NASA Harriett G. Jenkins Pre-Doctoral Fellowship (full support for up to 3 years).
- Ransford Baidoo submitted a paper for publication entitled, “A Closed-loop High Efficiency Plasma Waste-to-Power Generation Model” to the journal of the Association of Energy Engineers, the Cogenjournal.
- Andrea Beyers coauthored a publication, “Utilizing Fungus Myceliated Grain for Molt Induction and Performance in Commercial Laying Hens, Poultry Science that has been submitted and accepted.

2. Major Employers of Students

Student	Employer	Graduation Date
Seydou, Niando Mohammed	Delta Environmental Consultants, Atlanta, GA	December 2007
Islam, Mohammad	ASPEN Tech, Houston, TX	December 2008
Krishnamachari, Parakalan	NC A&T, Greensboro, NC	December 2008
Zhang, Jian	University of Kansas, Lawrence, KS	December 2008

3. Internships and Co-ops

Bright Abonuhi - EPA RTP, summer 2008

4. Other Relevant/Appropriate Data

D. Listing of Public Service Activities

Dr. Keith A. Schimmel

Upward Basketball and Soccer Coach
 AWANA Leader, 1st Grade Sunday School Teacher
 Ordained Deacon

Dr. Luba Kurkalova

Parent Teacher Association, Chaparoned for school social events, Kernodle Middle School
 Greensboro Community YMCA, Served as timer at swim meets for swim team

Dr. Yuh-Lang Lin

Nominated as a Rhoades Scholar, Speaker Bureau of the North Carolina Humanities Council, 9/2008

FACULTY ACTIVITY REPORTS

Annual Report – BAE

A. General Information

A.1 Name and Address

Last Name	First Name	Dept.	Office	3-Ext	Phone	E-Mail	Fax
Bae	Sun Young	Chemistry	NSB 336		285-2260	sbat@ncat.edu	334-7124

A.2 Positions

Position at NCA&T	Other Continuing Professional Positions
Assistant Professor	

A.3 Degrees and Certifications

BS	MS	Ph.D.	PE	Certifications
1993, Seoul Women's University, Chemistry	1995, Seoul Women's University, Analytical Chemistry	2002, University of Massachusetts-Lowell, Environmental Studies		

A.4 Appointment History

Initial Appt.	Rank	Date	Promotion to	Date	Promotion to
8/2008	Assistant Professor				

A.5 Research Interests

A.6 Membership in Professional Societies

American Association for Aerosol Research
Association of Environmental Engineering and Science Professors
American Chemical Society
International Society of Environmental Geotechnology
Korean Chemical Society
Korean-American Scientists and Engineers Association

B. Performance Data (All performance data reflects the current reporting period - May 1 2008 - April 30 2009 – in chronological order)

B.1 Awards/Recognitions/Appointments

Who's Who in America 2009
The Honor Society of Phi Kappa Phi
Committee member on SWEMP 2009 (Symposium on environmental issues and waste management in energy and mineral production)

B.2 Learning - Teaching and Academic Advising

B.2.1 Courses Taught

B.2.2 Number of undergraduate students advised

B.2.3 Evidence of effectiveness in academic advising and counseling

B.2.4 Course/Laboratory Development/Teaching Improvement

B.2.5 Laboratory Use

B.3 Discovery - Research and Professional Activities

B.3.1 Proposals Submitted

1. Utilization of Analytical Tools to Optimize the Production Conditions and Characterize the Biodiesel from Chicken Fat and Lard Using Cosolvent/Nanocatalysts, NC Biofuels Center of North Carolina, Co-PI, \$210,761, Not Funded, 2 years.
2. Cooperative institute for satellite climate studies, National Environmental Satellite Data and Information Service (NESDIS), National Oceanic and Atmospheric Administration, Department of Commerce, Co-PI, \$93,000,000 for whole center, Pending, 5 years.
3. Development of New Efficient Heterogeneous Bifunctional Catalysts (HBC), American Chemical Society for Biodiesel Production-PRF, PI, \$50,000, Pending, 2 years.
4. NASA Group 4 University Research Centers (URC), NASA, Co-PI, \$5,000,000, Not funded, 5 years.
5. NSF CREST for Bioenergy, NSF, Co-PI, \$4,008,345, Pending, 5 years.
6. The Anthropocene Science Center, NSF, Co-PI, \$1,291,034, Pending, 5 years.

B.3.2 Proposals Funded (highlight your name)

1. Preparation of research paper entitled GIS-based environmental sensitivity analysis for total pollution potential index, Junior faculty professional development proposals at NC A&T University, PI, \$3,750, Funded, 1 month.

B.3.3 Ongoing Sponsored Research (include a short paragraph that describes status of the project)

B.3.4 Students Supported

B.3.5 Graduate Students Thesis/Dissertation Advisement

B.3.6 Refereed Publications (journals, book chapters)

B.3.7 Refereed Conference Proceedings

Sunyoung Bae, Liu, J., Shi, B., Jiang, H., **Bae, S.**, and Huang, H. 2009. Improvement of water-stability of clay aggregates admixed with aqueous polymer soil stabilizers, *Catena*, 175-179

Sunyoung Bae, Choi, S-W., Kim, H-J., Park, S-W., **Bae, S.**, and Inyang, H. I. 2009. Patterns of VOC and BTEX concentrations in ambient air around industrial sources in Daegu, Korea, *J. Environ. Sci. Health*, A44

B.3.8 Other Publications and Presentations

B.3.9 Consulting and Industry Experience

B.3.10 Professional Service

B.4 Engagement – Service

B.4.1 University/College/Department Service

B.4.2 Community Service

Math competition organized by Korean Scientist Engineer Association, Greensboro, NC
A Co-chair of session on global warming and climate change, UKC 2009, Raleigh, NC
Editorial board for Journal of Energy Engineering, ASCE

B.5 Faculty Development

NC A&T faculty workshop lunch series in research and grant success, mentoring workshop, NC biotechnology grant, promotion annual review, proposal budget and blackboard workshop

B.6 Contribution to FUTURES

Annual Report –KURKALOVA

A. General Information

A.1 Name and Address

Last Name	First Name	Dept.	Office	3-Ext	Phone	E-Mail	Fax
Kurkalova	Lyubov	Economics and Finance	105 Merrick	2411	(336) 334-7744	lakurkal@ncat.edu	(336) 256-2055

A.2 Positions

Position at NCA&T	Other Continuing Professional Positions
Associate Professor	none

A.3 Degrees and Certifications

BS	MS	Ph.D.	PE	Certifications
1986, Tajik State University, Dushanbe, USSR		1999, Iowa State University		

A.4 Appointment History

Initial Appt.	Rank	Date	Promotion to	Date	Promotion to
01/2007	Associate Professor	n/a	n/a		

A.5 Research Interests

Environmental and natural resource economics, energy economics, applied econometrics

A.6 Membership in Professional Societies

- American Agricultural Economics Association,
- International Association of Agricultural Economists,
- Association of Environmental and Resource Economists,
- Soil and Water Conservation Society,
- Midwest Econometrics Group

B. Performance Data (All performance data reflects the current reporting period - May 1 2008 - April 30 2009 – in chronological order)

B.1 Awards/Recognitions/Appointments

- Current Associate Professor appointment has been successfully renewed for 3 years, Fall 2008
- Invited to contribute a full-length manuscript to the 2010 Special Issue on “Water in the 21st Century” of the Canadian Journal of Agricultural Economics. The issue will include 12 to 15 state-of-the-art papers relating to economic methods, models, applications and institutions relevant to water issues in different jurisdictions and watersheds.

B.2 Learning - Teaching and Academic Advising

B.2.1 Courses Taught

Semester	Dept. Prefix	Course No.	Section	Credits	Enrollment	Teaching Evaluation	Department Average
Fall 2008	ECON	412	1	3	18	4.4	4.1
Fall 2008	EES	810	1	3	10	4.7	4.3
Spring 2009	EES	811	1	3	5	Not available	Not available

B.2.2 Number of undergraduate students advised

None			
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B.2.3 Evidence of effectiveness in academic advising and counseling

- 1) Major Professor of Mr. Stephen Randall, Ph.D. candidate, interdisciplinary Energy and Environmental Systems. Mr. Randall's research on the economic and environmental analysis of renewable energy progresses as scheduled. Mr. Randall made a presentation on his research at the NCA&T Ronald E. McNair Symposium, January 2009.
- 2) Major Professor of Ms. Tara Wade, Ph.D. candidate, interdisciplinary Energy and Environmental Systems. Ms. Wade successfully defended her dissertation proposal on the economic and econometric analysis of the adoption of conservation tillage farming practices, Fall 2008.
- 3) Advisor of Mr. Bright Abonuhi, Ph. D. candidate, interdisciplinary Energy and Environmental Systems. Br. Abohuni is developing his dissertation proposal to defend in the Fall 2009.

B.2.4 Course/Laboratory Development/Teaching Improvement

I am continuously working on the development of the economics curriculum for the Energy and Environmental Systems interdisciplinary Ph.D. program. The challenge is in designing and delivering two core economics courses to students that have Master's degrees in science and technology fields but have not had much economics exposure and training, and to bring them the level of understanding economics high enough to successfully utilize economics methods in their independent research.

B.2.5 Laboratory Use

Room No.	Laboratory Name	Utilization
n/a		

B.3 Discovery - Research and Professional Activities

B.3.1 Proposals Submitted (highlight your name) (the list does not include proposals funded)

PI Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
Schnable	Iowa State U, Agronomy	Kling, Hayes, Takle, Kurkalova	8/2008	\$5,000,000	NSF	Center for food, land use and ecosystem services in a changing climate
Randall	EES	Kurkalova , Yeboah	6/2008	\$10,000	North American Case Research Association	German renewable energy policy: A model for North Carolina?

B.3.2 Proposals Funded (highlight your name)

PI Last Name	PI's Dept	Co-PIs Last Names	Start Date	Amount Funded	Agency	Title
Edwards	Economics and Finance	Kurkalova , Pumphrey, Barbato	02/2008	\$747,500	NSF	Changing societal attitudes towards water scarcity: ethanol production and increasing groundwater depletion of the Ogallala aquifer

B.3.3 Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Last Name	Co-PIs Last Names	Fall 2008 Release	Spr 2009 Release	Annual Expenditure	Agency	Title
Edwards	Kurkalova , Pumphrey, Barbato	none	1 course	\$250,000	NSF	Changing societal attitudes towards water scarcity: ethanol production and increasing groundwater depletion of the Ogallala aquifer

Project is on schedule. We have designed a sample of the municipalities to be surveyed. The survey design has been finalized.

Kurkalova	Kling, Carriquiry, Otto, Secchi, Gassman, Jha	none	none	\$130,000	USDOE/USDA	Expansion of ethanol production: evaluation of costs and benefits to rural communities in the Upper Mississippi River Basin
Project is on schedule. The work continues on integrating the UMRB models of rotational, tillage, and fertilizer level choices, and on documenting the models. The refinements of the models are being explored that utilize fine-scale data that are exclusively available for some of the UMRB sub-regions. Ways to consistently combine the fine- and coarse-scale data and modeling capabilities are currently being studied. Evolving structure of ethanol plants in rural areas and implications for rural economies in UMRB has been investigated. The work continues on the analyses of alternative scenarios of expansion of ethanol production in the UMRB. Several studies that investigate how the economic and environmental outcomes could be affected by alternative policies and/or climate change have been undertaken. The cost-effectiveness of alternative conservation practices on a full watershed scale with a direct recognition of the role of potential future climate change has been evaluated. The calibrated UMRB modeling system has been used to examine suites of hypothetical scenarios of reducing nonpoint source pollution. The economic and environmental impacts of corn-based vs. switchgrass-based ethanol production on UMRB have been compared.						
Boll	Kurkalova , Mahler, Steenhuis, Vellidis, Willhorst	None	None	\$140,000	USDA/CSREES, CEAP	Synthesis and analysis of 13 CSREES CEAP projects
Project is on schedule. Site visits to Idaho, Utah, Arkansas, and Iowa have been completed. The framework for development of an ecoregion classification is being refined. A statistics model of Bayesian information update is being developed to summarize and synthesize location-specific data on the rates of use of conservation practices.						

B.3.4 Students Supported

Type	Summer 2008 Number	Summer 2008 Amount	Fall 2008 Number	Fall 2008 Amount	Spring 2009 Number	Spring 2009 Amount
Graduate	2	\$5,700	3	\$17,476	1	\$1,500
Undergrad.	None		None		3	\$3,000

B.3.5 Graduate Students Thesis/Dissertation Advisement

Student Last Name	Degree	Completion Date	Thesis title
None			

B.3.6 Refereed Publications (journals, book chapters) (highlight your name)

4 under review; none published

B.3.7 Refereed Conference Proceedings (highlight your name)

Kurkalova, L.A., S. Secchi, and P.W. Gassman. 2009. Greenhouse gas mitigation potential of corn ethanol: accounting for corn acreage expansion. In: Proceedings of the 2007 National Conference on Environmental Science and Technology, Springer, 2009, forthcoming (<http://www.springer.com/environment/pollution+and+remediation/book/978-0-387-88482-0>)

Secchi, S., P.W. Gassman, M. Jha, **L.A. Kurkalova**, and C. L. Kling. 2008. The water quality effects of corn ethanol versus switchgrass based biofuels in the Midwest. In: Proceedings of the Farm Foundation Conference "Transition to a Biofuel Economy: Environmental and Rural Development Impacts", St. Louis, MO, October 2008, pp.96-108. (http://www.farmfoundation.org/news/articlefiles/401-Final_version_Farm_Foundation%20feb%2020%2009.pdf)

Kurkalova, L.A., K. Schimmel, and S. Johnston. 2008. Energy and environmental economics core course sequence for an interdisciplinary engineering science doctoral program. In: Proceedings of the American Society for Engineering Education 2008 Annual Conference; AC 2008-2767; (<http://www.asee.org/conferences/v2search.cfm>)

B.3.8 Other Publications and Presentations (highlight your name)

Bililign, S., S. Bae, R. Davis, S. Ilias, **L.A. Kurkalova**, Y. Kyei, Y.-L. Lin, Y. Rastigeyev, G. Uzochukwu. "Effects of global

warming on North Carolina.” Report prepared by the NCA&T State University Global Warming Taskforce, October 2008.

Kurkalova, L.A., S. Secchi and P.W. Gassman. “Corn stover harvesting: potential supply and water quality implications,” selected paper: USDA-CSREES National Water Conference, St. Louis, MO, 02/2009

Holland, S.P., M.L. Burkey, and **L.A. Kurkalova**. “Economic and environmental impacts of the production and transportation of crop residues as bioenergy feedstocks in North Carolina,” selected paper (presented by S.P. Holland): 2008 Southern Economics Association meetings, Washington, DC, 11/2008

Secchi, S., P.W. Gassman, M. Jha, **L.A. Kurkalova**, and C. L. Kling. “The water quality effects of corn ethanol versus switchgrass based biofuels in the Midwest,” selected paper (presented by S. Secchi): Conference “Transition to a Biofuel Economy: Environmental and Rural Development Impacts”, St. Louis, MO, 10/2008

Kurkalova, L.A., S. Secchi, C.L. Kling, P.W. Gassman, and M. Jha. “Rotation and water quality effects of harvesting corn stover,” selected poster; Burkey, M.L., S.P. Hoplland, **L.A. Kurkalova**, and A. Shahbazi. “Economic and environmental impacts of the production and transportation of crop residues as bioenergy feedstocks in North Carolina,” selected poster: 2008 AAEA meetings, Orlando, FL, 07/2008

Kurkalova, L.A., K. Schimmel, and S. Johnston. “Energy and environmental economics core course sequence for an interdisciplinary engineering science doctoral program,” selected paper (presented by K. Schimmel): American Society for Engineering Education 2008 Annual Conference, Pittsburg, PA, 06/2008

Kurkalova, L.A., S. Secchi and P.W. Gassman. “Biofuels as an instrument for carbon dioxide emission reduction: an empirical analysis,” selected paper: 31st International Association for Energy Economics International Conference titled “Bridging Energy Supply and Demand: Logistics, Competition and Environment”, Istanbul, Turkey, 06/2008

B.3.9 Consulting and Industry Experience
none

B.3.10 Professional Service

- Natural Resource Economics topic leader, selected presentations review, AAEA Annual Meeting, Orlando, FL, 2008
- Reviewer for *Journal of Soil and Water Conservation*, *Choices*, *Natural Resource Modeling*, *NSF grant proposals*, *economics of bio-energy production*

B.4 Engagement – Service

B.4.1 University/College/Department Service

- Member of NCA&T Global Warming Task Force and co-author of the report “Effects of global warming for North Carolina”, Fall 2008
- Member of the UNC Tomorrow University-wide Reappointment, Promotion, and Tenure Review Committee, continuous since Spring 2009
- Member of the Energy and Environmental Systems interdisciplinary Ph.D. program Advisory Committee, continuous since Fall 2007
- Guest lectured before team taught NCA&T HIST 419 (Ethnic Violence and Genocide in Eastern Europe) and LIBS 301 (Ethnonationalism and the Reconstruction of Nations) classes, Spring 2009
- Mentored Mathematics undergraduate student Marvin Q. Jones, Jr. in his research project on applied economics issues, Spring 2009
- Graduate School Marshal, Spring 2009 graduation ceremony
- Participated in the University-wide Research Appreciation Day, with a research poster, 04/2009

B.4.2 Community Service

PTA (Parent Teacher Association), Kernodle Middle School, Chaperoned for school social events
Greensboro Community YMCA Swim Team -Served as timer at swim meets

B.5 Faculty Development

Attended

- 2-hour University training seminar on web-based procurement card reconciliation procedures,
- 1-hour Contracts and Grants training workshop on financial compliance issues.

none

Annual Report – Lin

A. General Information

A.1 Name and Address

Last Name	First Name	Dept.	Office	3-Ext	Phone	E-Mail	Fax
Lin	Yuh-Lang	Physics, EES, and ISET Center	302H Gibbs		(336) 285-2127	ylin@ncat.edu	(336) 256-2542

A.2 Positions

Position at NCA&T	Other Continuing Professional Positions
Professor, EES and Physics Senior Scientist, NOAA ISET Center	none

A.3 Degrees and Certifications

BS	MS	Ph.D.	PE	Certifications
1976, Fu Jen Catholic University, Taipei, TAIWAN	1978, Fordham University 1979, S.D. Sch. Mines & Tech.	1984, Yale University		

A.4 Appointment History

Initial Appt.	Rank	Date	Promotion to	Date	Promotion to
01/2008	Professor	n/a	n/a		

A.5 Research Interests

Atmospheric Dynamics and Modeling: 1) tropical meteorology, 2) mesoscale dynamics and modeling, 3) mountain meteorology, 4) moist convection and storm dynamics, 5) gravity waves and turbulence, 6) forest fire dynamics and 7) Mars atmosphere.

A.6 Membership in Professional Societies

- American Meteorological Society
- American Geophysical Union
- Sigma Xi
- American Physics Society
- North America Taiwanese Professors' Association

B. Performance Data (All performance data reflects the current reporting period - May 1 2008 - April 30 2009 – in chronological order)

B.1 Awards/Recognitions/Appointments

None

B.2 Learning - Teaching and Academic Advising

B.2.1 Courses Taught

Fall 2008

- 1) PHYS226-01 (College Physics): 21 students
- 2) PHYS740 (Graduate Seminar): 5 students

Spring 2009

- 1) PHYS226-01 (College Physics): 25 students
- 2) PHYS740 (Graduate Seminar): 6 students
- 3) EES785-01 (Dynamic Meteorology): 6 students

B.2.2 Number of undergraduate students advised: 2

B.2.3 Evidence of effectiveness in academic advising and counseling

N/A

B.2.4 Course/Laboratory Development/Teaching Improvement

Dynamic Meteorology (newly developed in Spring 2009)

B.2.5 Laboratory Use

N/A

B.3 Discovery - Research and Professional Activities

B.3.1 Proposals Submitted

1. Argrow, B, A. Gasiewski, Y.-L. Lin, M. Finney, and T. Veblen: Wildland Fire Science, Modeling, and Sensing center, NSF, NCAT's portion: \$2.65M/5yr. An NSF STC NOI led by University of Colorado, submitted on 10/14/08, rejected. (NCAT Team: Lin, Tang, Roop, Rastigejev, Bae, Bililign)
2. Lin, Y.-L., and S. Chiao (FIT): Dynamics of heavy orographic rain during the Terrain-influenced Monsoon Rainfall Experiment (TiMREX). NSF, \$620,090, 10/1/08 – 9/30/11, rejected.
3. Lin, Y.-L., A. Laing (NCAR), and B.-W. Shen (UMCP): Tropical Cyclogenesis over Eastern Atlantic Ocean Initiated by African Easterly Waves and Mesoscale Convective Systems Propagating from Eastern Africa. NASA, \$573,338, 10/1/08 – 9/30/12, rejected.
4. Lin, Y.-L. et al., 2008: CREST Environmental and Climate Modeling Center (ECMC), NSF, \$5 M, 10/1/08 – 9/30/14, rejected.
5. Lin, Y.-L., 2008: Postdoctoral Fellow Opportunities for Under-represented Doctoral Students to Enhancing Research Capacity at HBCUs in the Geosciences. NSF (OEDG), \$600,198, 6/1/09 – 5/31/14, pending.
6. Bililign, S., Y.-L., Lin, and S. Bae: The Anthropocene Science Center. NSF, \$1,660,807 (NCAT portion), 6/1/2010 – 5/31/2015, pending. (An NSF STC led by Penn State)
7. Bililign, S., Y.-L. Lin, K. Schimmel, G. Tang, 2009: Cooperative Institute for Satellite Climate Studies (CISCS), NOAA, Lead institute: Georgia Tech. A&T Team leaders: Bililign (Institute Associate Director) and Lin (Thrust Area lead PI), \$3,749,174 (NCAT portion; total center budget: \$93M), 6/1/09 – 5/31/14, pending.
8. Lin, Y.-L., 2009: Dynamics of heavy rain over Central Mountain Range of Taiwan, NSF, 9/1/09 – 8/31/12, \$278,794, pending.
9. Lin, Y.-L. G. Tang, J. P. Roop and L. Liu, Formation and Evolution of African Easterly Waves and Mesoscale Convective Systems and their Impacts on Tropical Cyclogenesis in Eastern Atlantic and Eastern Pacific, NSF, 10/1/09-9/30/13, \$690,869, pending.

B.3.2 Proposals Funded

B.3.3 Ongoing Sponsored Research (include a short paragraph that describes status of the project)

1. Bililign, S.: Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center, NOAA, 1 September 2006 – 31 August 2011, \$12 million, Dr. Lin serves as a senior scientist and NC A&T campus PI. Based on the recent preliminary report of the ISET Center evaluation on April 14-15, 2009, the Evaluation Committee has commented (only relevant part of the report is quoted):

“STRENGTHS IN RESEARCH:

1. *Better defined and integrated framework with clearly defined pathways for cross-collaborations*
2. *Encouraged to continue publications in refereed journals*
3. *Well respected Senior Scientist on board*
4. *Enhanced research capabilities across ISETCSC*
5. *Successfully created an enviable interdisciplinary program”*

B.3.4 Students Supported

1. Ian Colon-Pagan: Physics MS student (ISET)
2. Van Ng: CSE MS student (ISET)
3. Charla Gaskins: EES PhD student (EES/ISET)
4. James Jones: Math MS student (ISET)
5. Wilson Jones: Math MS student (ISET)
6. TeQuilla Bennett: Undergraduate Research Assistant (ISET)

B.3.5 Graduate Students Thesis/Dissertation Advisement

1. Charla Gaskins: Ph.D. Chair, EES
2. Van Ng: MS Thesis Committee Chair (CSE graduate student)
3. Ian Colon-Pagan: MS Committee Chair (Physics graduate student)
4. James Spinks: MS Committee Co-Chair (Math graduate student; Chair: Dr. Tang)
5. Wilson Jones: MS Committee Co-Chair (Math graduate student; Chair: Dr. Tang)
6. J. Covell: First-year Physics graduate student; supervised his summer research on learning WRF model and simulating Hurricane Ivan (2004).
7. Katif A. Peay: Member on Ph.D. dissertation committee (Chair: Dr. Ilias)
8. Tara Wade: Ph.D. Committee (Advisor: Dr. L. Kurkalova - economics)
9. TeQuilla Bennett: Undergraduate
10. Patrick Pete: REU student from Jackson State U.; supervised his summer (2008) research on analyzing satellite imagery.

B.3.6 Refereed Publications (journals, book chapters)

1. Chen, C.-S., Y.-L. Lin, W.-C. Peng, and C.-L. Liu, 2009: Investigation of a heavy rainfall event over southwestern Taiwan associated with a mesocyclone during the 2003 Mei-Yu season. In preparation.
2. Rastigejev, Y., and Y.-L. Lin, 2009: A theoretical study of fine ocean spray on tropical cyclones. In preparation.
3. Lin, Y.-L., G. Tang, J. Spinks, and W. Jones, 2009: Origin of pre-Debby (2006) African easterly wave and mesoscale convective system. In preparation.
4. Tang et al., 2008: Tang, G., Y.-L. Lin, Spinks, J., and W. Jones, 2009: Numerical simulation of the formation of mesoscale convective systems over eastern African mountains. In preparation.
5. Huang, C.-Y., and Y.-L. Lin, 2009: The influence of mesoscale mountains on cyclone tracks. Part I: A shallow-water modeling study. *Meteor. Atmos. Phys.*, in press.
6. Lin, Y.-L., and K. E. Robertson, 2009: Evolution of African easterly waves across northern Africa: Modeling and analysis of the environment. In preparation.
7. Lin, Y.-L., and L. C. Savage, III, 2009: Effects of landfall location and the approach angle of a cyclone encountering a mesoscale mountain range. In preparation.
8. Lin, Y.-L., G. Tang, J. Spinks, and W. Jones, 2009: Large-scale environments conducive to the formation of African easterly wave and mesoscale convective systems in eastern North Africa. In preparation.
9. Huang, C., Y.-L. Lin, M. L. Kaplan, and J. Charney, 2009: Synoptic-scale and mesoscale environments conducive to forest fires during the October 2003 extreme fire event in Southern California. *J. Appl. Meteor. and Climate*, 48, 553–579.
10. Horvath, K., Y.-L. Lin and B. Ivančan-Picek, 2008: Classification of Cyclone Tracks over Apennines and Adriatic Sea. *Mon. Wea. Rev.*, 136, 2210-2227.
11. Chen, S.-H., Y.-L. Lin, and Z. Zhao, 2008: Effects of moist Froude number and orographic aspect ratio on a conditionally unstable flow over a mesoscale mountain. *J. Meteor. Soc. Japan*, 86, 353-367.
12. Lin, Y.-L., 2008: Formation of African Easterly Waves and Mesoscale Convective Systems in Eastern North Africa and its impacts on the Tropical Cyclogenesis over Eastern Atlantic Ocean. NSBP Proceedings.
13. Kiefer, M. T., Y.-L. Lin, and J. J. Charney, 2008: A study of two-dimensional dry convective plume modes with variable critical level height. *J. Atmos. Sci.*, 65, 448-469.
14. Kaplan, M. L., C. Huang, Y.-L. Lin, and J. J. Charney, 2008: The development of extremely dry surface air due to vertical exchanges under the exit region of a jet streak. *Meteor. Atmos. Phys.*, 102, 63-85.

15. B.3.7 Refereed Conference Proceedings

16. Lin, Y.-L., 2008: Formation of African Easterly Waves and Mesoscale Convective Systems in Eastern North Africa and its impacts on the Tropical Cyclogenesis over Eastern Atlantic Ocean. NSBP Proceedings.

B.3.8 Other Publications and Presentations

- Rastigejev, Y. and Y.-L. Lin, 2009: A Study of Ocean Spray on Tropical Cyclones Dynamics, 17th Conference on Atmospheric and Oceanic Fluid Dynamics and 15th Conference on Middle Atmosphere, 8–12 June, Stowe, VT. (to be presented)
- Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.
- Lin, Y.-L., 2009: Formation and propagation of the pre-Tropical Storm Debby (2006) African easterly wave-mesoscale convective system. February 12-14, NSBP Annual Meeting, Nashville, TN.
- Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the 11th Life and Physical Sciences Research Symposium, Greensboro, NC, February 13.
- Jones, W., G. Tang, Y.-L. Lin, and J. Spinks, 2009: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.
- Nguyen, V., and Y.-L. Lin, 2009: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Poster presentation at the NCA&T NOAA ISET Day, Greensboro, NC, February 23.
- Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2009: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
- Nguyen, V., and Y.-L. Lin, 2009: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
- Jones, W., G. Tang, Y.-L. Lin, and J. Spinks, 2009: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the 2009 AMS Annual Meeting, Phoenix, AZ, January 15-18.
- Lin, Y.-L., 2008: Recent advances and future challenges in hurricane prediction. Submitted to the Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1. (Invited)
- Covell, A. J., and Y.-L. Lin, 2008: Effects of Southern Appalachian Mountains on the rainfall associated with the passage of Hurricane Ivan (2004). Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
- Spinks, J., W. Jones, Y.-L. Lin, and G. Tang, 2008: Orographic effects on the evolution of African Easterly wave-mesoscale convective systems across Northern Africa. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
- Tang, G., Y.-L. Lin, Spinks, J., and W. Jones, 2008: Formation of African easterly waves and mesoscale convective systems over eastern Africa and its implication to tropical cyclogenesis over eastern Atlantic Ocean. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
- Nguyen, V., and Y.-L. Lin, 2008: Effects of orography on the genesis of Hurricane Javier (2004) in the eastern Pacific Ocean. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
- Rastigejev, Y., and Y.-L. Lin, 2008: A study of ocean spray lubrication effect on tropical cyclone intensity. Annual Meeting of Southeast Section of Amer. Phys. Society. Oct. 30-Nov. 1.
- Spinks, J., Y.-L. Lin, G. Tang, and W. Jones, 2008: Formation of African Easterly Waves and Mesoscale Convective Systems over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean. Oral presentation at the 2008 NOAA ISET NAC Meeting, Raleigh, NC, October 27.
- W. Jones, G. Tang, Y.-L. Lin, and J. Spinks, 2008: Orographic effects on the evolution of African Easterly Wave-Mesoscale Convective Systems over Northern Africa. Poster presentation at the 2008 NOAA ISET NAC Meeting, Raleigh, NC, October 27.
- Chen, C.-S., Y.-L. Lin, W.-C. Peng, and C.-L. Liu, 2008: Investigation of the mechanism of a heavy rainfall event over southwestern Taiwan during the 2003 Mei-Yu season. Workshop of East Asia Monsoon Experiment, Center for Space and Remote Sensing Research of the National Central University, Chung-Li, Taiwan, 9/22-23.

B.3.9 Consulting and Industry Experience

B.3.10 Professional Service

1. Coordinate research for off-campus of 6 other partner university PIs of NOAA ISET Center headquartered at NC A&T
2. Invited speaker, WMO Regional Workshops on Cyclones, La Reunion, France, 5/26-5/31/08
3. Invited speaker, NSBP/NSHP Annual Conference, February 12-14, 2009 NSBP Annual Meeting, Nashville, TN.
5. Editor, East Asian Journal of Atmospheric Sciences, since 2007
7. Foreign Advisor, Central Weather Bureau, Taiwan
8. Invited speaker, ISET High School Summer Camp, 7/24/08
9. Review papers for J. Atmos. Sci., Monthly Weather Review, J. Appl. Meteor. and Climate, Meteorology and Atmos. Physics, Quarterly J. Royal Meteor. Soc., J. Hydrometeorology, etc.
10. Review proposals for federal funding agencies, such as NSF, DOE, NASA, etc.

B.4 Engagement – Service

B.4.1 University/College/Department Service

1. PHYS Curriculum Committee Meeting on Geophysics Track program
2. Serve as a member of the Retention Committee, College of Arts and Sciences, NC A&T
3. Supervising an ISET Center's postdoc (Dr. Y. Jung)
4. Advise undergraduate and graduate students
5. Recruit undergraduate and graduate students, and postdocs
6. Help developing Atmospheric Science Concentration on Atmospheric Science within the Energy & Environmental Studies Ph.D. Program
7. Help developing the B.S. program in Atmospheric Science and Meteorology
8. Coordinate research among A&T PIs affiliated with the NOAA ISET Center
9. Form an interdisciplinary Atmospheric Modeling Group composed by faculty PIs of NOAA ISET Center from departments of physics, mathematics, chemistry, and Energy & Environmental Studies
10. Mentor A&T's junior faculty affiliated with NOAA ISET Center on research
11. Take lead in teaming up faculty in different disciplines to write center proposals, such as Environmental and Climate Modeling Center for NSF and Center for Planetary Atmospheric and Flight and Sciences for NASA.
12. Serve on the UNC Tomorrow Global Warming Task Force (Fall semester 2008)
13. Participated in the preparation of a University of Colorado's Wildfire Management Science and Technology Center to be submitted to NSF.
14. Actively seek external research funding
15. Invite speakers (e.g., Drs. Tsann Yu and Arlene Laing) to ISET seminar series, Energy & Environmental Studies seminar series, and Physics Colloquium.
16. Invited speaker, ISET Center seminar series, 11/12/08

B.4.2 Community Service

1. Nominated as a Road Scholar, Speaker Bureau of the North Carolina Humanities Council, 9/2008

B.5 Faculty Development

1. Supervising an ISET Center postdoc (Dr. Y. Jung)
2. Mentoring junior faculty on ISET-related research (Drs. Y. Rastigejev, S. Bae, Y. Kyei, and J. P. Roop)

B.6 Contribution to FUTURES

Annual Report – Rastigejev

A. General Information

A.1 Name and Address

Last Name	First Name	Dept.	Office	3-Ext	Phone	E-Mail	Fax
Rastigejev	Yevgenii	Math/EES	GCH A435/Gibbs 302I		336-285- 2223	yarastig@ncat.edu	

A.2 Positions

Position at NCA&T	Other Continuing Professional Positions
Assistant Professor	

A.3 Degrees and Certifications

BS	MS	Ph.D.	PE	Certifications
	1999, Univ. of Notre Dame	2002, Univ. of Notre Dame		

A.4 Appointment History

Initial Appt.	Rank	Date	Promotion to	Date	Promotion to
09/2007	Asst. Prof.				

A.5 Research Interests

Numerical and analytical modeling in the areas: Global Chemical Transport, Atmospheric Dynamics, Combustion, Fluid Dynamics

A.6 Membership in Professional Societies

B. Performance Data (All performance data reflects the current reporting period - May 1 2008 - April 30 2009 – in chronological order)

B.1 Awards/Recognitions/Appointments

B.2 Learning - Teaching and Academic Advising

B.2.1 Courses Taught

Semester	Dept. Prefix	Course No.	Section	Credits	Enrollment	Teaching Evaluation	Department Average
Fall, 2008	Math	431	05	3	30		
Fall, 2008	EES	750	01	3	6		
Spring, 2009	Math	102	12	3	9		
Spring, 2009	EES	785	02	3	4		

B.2.2 Number of undergraduate students advised

1. Maria Hargis (BioEng)

B.2.3 Evidence of effectiveness in academic advising and counseling

B.2.4 Course/Laboratory Development/Teaching Improvement

Climatology (newly developed in Spring 2009)

B.2.5 Laboratory Use

None

B.3 Discovery - Research and Professional Activities

B.3.1 Proposals Submitted

Argow, B, A, et al., “Wildland Fire Science, Modeling, and Sensing Center”, NCF, NCAT portion: 2.65 M/5 yr., NSF STC NOI led by the University of Colorado, submitted on 10/14/08, CO-PI, non-funded

Lin, Y.-L, et al., “CREST Environmental and Climate Modeling Center (ECMC)”, NSF, \$5M, 10/1/08-9/30/14, CO-PI, non-funded

Tolson, R., et al., NASA proposal: "Center for Planetary Atmospheric and Flight Sciences (CPAFS)", NASA, 09/01/2008 – 07/01/2013, \$5,000,000, CO-PI, non-funded

Rastigejev, Y., “DORED –Summer Faculty Fellowship”, 6 weeks, summer 2009, PI, submitted on 02/17/09, non-funded

Rastigejev, Y., NSF proposal "Multiscale Wavelet-based Numerical Algorithms for Global Atmospheric Chemical Transport Simulation ", NSF, 01/01/09-31/12/13, \$845,335, PI, non-funded

Rastigejev, Y., DOD pre-proposal : "Chemical and Physical processes over complex terrain", NCAT, submitter on 08/20/08, PI, non-funded

Schimmel, K., “Global Climate Change Education of Underrepresented STEM Populations”, NASA, 06/01/09 - 05/31/11, \$150,000.00, CO-PI, pending

Kuila, D., “CREST Bioenergy Center”, NSF, \$4,997,524, 08/01/09 – 07/31/14, CO-PI, pending

Bililign, S., et al., “NOAA Cooperative Institute for Satellite Climate Studies, Georgia Institute of Technology”, NOAA, 7/1/09-6/30/14, \$3,749,174, CO-PI, pending

B.3.2 Proposals Funded (highlight your name)

B.3.3 Ongoing Sponsored Research (include a short paragraph that describes status of the project)

Bililign, S., Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center, NOAA, 09/01/06-08/31/11, \$12 mln, Dr. Rastigejev serves as a research associate and NC A&T campus PI.

B.3.4 Students Supported

B.3.5 Graduate Students Thesis/Dissertation Advisement

1. Maria Hargis: undergraduate research “Interhemispheric Chemical transport”
2. Katif A. Peay: Member on Ph.D. dissertation committee (Chair: Dr. Ilias)

B.3.6 Refereed Publications (journals, book chapters)

Y. Rastigejev and Y.-L. Lin, 2009: “A Theoretical Study of Fine Ocean Spray on Tropical Cyclones”, in preparation

Y. Rastigejev, 2009 : "Self-similar solutions of atmospheric chemical transport equations", in preparation

Rastigejev Y., Brenner M. P., Park R. and Jacob D. J., 2009 : "Resolving intercontinental pollution plumes in global models of atmospheric transport", in preparation

B.3.7 Refereed Conference Proceedings

B.3.8 Other Publications and Presentations

Y. Rastigejev and Y.-L. Lin, A study of ocean spray lubrication effect on tropical cyclone intensity, 75th Annual Meeting of the Southeastern Section of APS, Raleigh, NC, October, 2008

Y. Rastigejev, Wavelet-based adaptive mesh refinement algorithm for atmospheric chemical transport modeling, 75th Annual Meeting of the Southeastern Section of APS, Raleigh, NC, October, 2008

Y. Rastigejev, Y.-L. Lin, A Study of Ocean Spray on Tropical Cyclones Dynamics, 17th Conference on Atmospheric and Oceanic Fluid Dynamics and 15th Conference on Middle Atmosphere, 8–12 June 2009, Stowe, VT. (to be presented)

B.3.9 Consulting and Industry Experience

B.3.10 Professional Service

Invited Talks/Lectures:

"Gradual Spatial Reduction Algorithm for Global Atmospheric Chemical Dynamics Simulation", Fluid Mechanics Seminar, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, Sept 12, 2008

B.4 Engagement – Service

B.4.1 University/College/Department Service

1. Served as a member of "Global Warming Task Force Team" at NC&AT , fall 2008
2. Served as a member of "Research and Development Committee"
3. Invited a speaker (Dr J.-W. Bao) to ISET seminar series
4. Actively seek external research funding

B.4.2 Community Service

Served as a reviewer for the "Journal of the Atmospheric Sciences"

Reviewed the paper

Ji-Young Han and Jong-Jin Baik "Theoretical studies of convectively forced mesoscale flows in three dimensions. Part II: Shear flow with a critical level"

B.5 Faculty Development

B.6 Contribution to FUTURES

Annual Report –SCHIMMEL

A. General Information

A.1 Name and Address

Last Name	First Name	Dept.	Office	3-Ext	Phone	E-Mail	Fax
Schimmel	Keith	EES	301 Gibbs Hall	2993	285-2329	schimmel@ncat.edu	256-2341

A.2 Positions

Position at NCA&T	Other Continuing Professional Positions
Director, Energy and Environmental Studies	

A.3 Degrees and Certifications

BS	MS	Ph.D.	PE	Certifications
Chemical Eng	Chemical Eng	Chemical Eng	NC	

A.4 Appointment History

Initial Appt.	Rank	Date	Promotion to	Date	Promotion to
Aug-90	Assistant Prof	Aug-96	Assoc. Prof		

A.5 Research Interests

Bioremediation, Membrane Separations and Membrane Reactors, Nondispersive Extraction, Engineering Education, Bioseparations, Multimedia Courseware Development

A.6 Membership in Professional Societies

American Institute of Chemical Engineers (AIChE)

American Society of Civil Engineers (ASCE)

Emerging Energy Technologies (EET) Committee

Sustainable Energy Infrastructure and Systems (SEIS) Committee

ASCE Journal of Energy Engineering Editorial Board

American Society for Engineering Education (ASEE), Member

International Network for Engineering Education and Research (iNEER), Member

American Meteorological Society (AMS), Member

B. Performance Data (All performance data reflects the current reporting period - May 1 2008 - April 30 2009 – in chronological order)

B.1 Awards/Recognitions/Appointments

B.2. Learning – Teaching and Academic Advising

B.2.1 Courses Taught

Graduate and/or Advanced Undergraduate Courses

EES 700: Introduction to Research Ethics (F08)

EES 720: Theory and Practice of Alternative Energy Technologies (Sp09)

EES 730: Research Proposal Writing (F08)

EES 991: Doctoral Qualifying Exam (Sp09,F08)

EES 992: Doctoral Seminar (Sp09,F08)

EES 993: Doctoral Supervised Teaching (Sp09)

UNST 211: Environmental Case Studies (F08)

B.2.2 Number of undergraduate students advised

Tariq Walker Rodrick Evangelist
David Wardlow Malikah Greene

B.2.3 Evidence of effectiveness in academic advising and counseling

No advising errors in advising 24 EES PhD students

B.2.4 Course/Laboratory Development/Teaching Improvement

Increased use of cooperative learning.

B.2.5 Laboratory Use

Room No.	Laboratory Name	Utilization

B.3 Discovery - Research and Professional Activities

B.3.1 Proposals Submitted (highlight your name)

PI Name	Last Name	PI's Dept	Co-PIs Last Names	Submission Date	Requested Amount	Agency	Title
Mereba		Journalism	Schimmel, et al.	2008	\$400,000	NSF	Communication Systems and Technologies: Managing Hurricane and Other Natural Disaster Response and Recovery
Singh		CAAE	Schimmel, et al.	2008	\$477,374	DHS	Training University Leaders for Disaster management Roles
Lin		Physics	Schimmel, et al.	2008	\$5,000,000	NASA URC	Center for Planetary Atmospheric and Flight Sciences
Schimmel		EES	Lin, Kurkalova, Bae, Rastigeyev	2008	\$150,000	NASA	Global Climate Change Education of Underrepresented STEM Populations
Kuila		Chemistry	Schimmel, et al.	2009	\$5,000,000	NSF CREST	CREST Center for BioEnergy

B.3.2 Proposals Funded (highlight your name)

PI Name	Last Name	PI's Dept	Co-PIs Last Names	Start Date	Amount Funded	Agency	Title
Bililign		Physics	Schimmel, Tang	2008	\$671,588	NSF	Enhancing Diversity in the Geosciences through the AfricaArray Educational Alliance
Schimmel		EES		2009	\$7,500	NCSU/Sloan Foundation	Plan Professional Science Master's Degree in Energy Systems

B.3.3 Ongoing Sponsored Research (include a short paragraph that describes status of the project)

PI Name	Last Name	Co-PIs Last Names	Fall 2008 Release	Spr 2008 Release	Annual Expenditure	Agency	Title
Schimmel, K.A.		Shahbazi, G., Luster-Teasley, S., Graves, J., Singh, H.,	None	None	\$20,000	USDA/CREES (subcontract from NCSU)	BIOSUCCEED: BIO products Sustainability, a University Cooperative Center for Excellence in Education

Bililign, S.	Schimmel, K.A., et al.	None	None	\$100,000	NOAA	NOAA Interdisciplinary Scientific Environmental Technology (ISET) Cooperative Science Center
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B.3.4 Students Supported

Type	Summer 2007 Number	Summer 2007 Amount	Fall 2007 Number	Fall 2007 Amount	Spring 2008 Number	Spring 2008 Amount
Graduate	5	\$8,000	15	\$60,000	15	\$60,000
Undergrad.	1	\$2,000	4	\$4,000	3	\$3,000

B.3.5 Graduate Students Thesis/Dissertation Advisement

PhD Dissertation Committees

Paraklan Krishnamachari (Fall 2008): *Development and Characterization of Polymer Composites: Biodegradable Polylactic Acid/Clay Nanocomposites and Carbon Fiber Reinforced Polyimide Siloxane Composites*

Jian Zhang (Fall 2008): *Synthesis and Rational Design of Biodegradable Polymer Nanocomposites*

Mohammed Islam (Fall 2008): *Pd-Based Membrane Fabrication for Hydrogen Separation and Purification*

B.3.6 Refereed Publications (journals, book chapters) (highlight your name)

B.3.7 Refereed Conference Proceedings (highlight your name)

REVIEWED CONFERENCE PROCEEDINGS

Schimmel, K.A., Kurkalova, L., Johnston, S., "Energy and Environmental Economics Core Course Sequence for an Interdisciplinary Engineering Science Doctoral Program," 2008 ASEE Annual Conference, Pittsburgh, PA, June 22-25, 2008.

Schimmel, K., Ilias, S., "Future Trends in Chemical Engineering Education," BUET Second International Conference on Chemical Engineering, Dhaka, Bangladesh, December 31, 2008 to January 1, 2009.

CONFERENCE PRESENTATIONS

Schimmel, K.A., Kurkalova, L., Johnston, S., "Energy and Environmental Economics Core Course Sequence for an Interdisciplinary Engineering Science Doctoral Program," 2008 ASEE Annual Conference, Pittsburgh, PA, June 22-25, 2008.

Schimmel, K., Ilias, S., "Future Trends in Chemical Engineering Education," BUET Second International Conference on Chemical Engineering, Dhaka, Bangladesh, December 31, 2008 to January 1, 2009.

B.3.8 Other Publications and Presentations (highlight your name)

WFMY News2 Morning Show Live at Middle School Weather & Climate Camp, Greensboro, NC, July 16, 2008.

WNAA Radio Interview on NOAA ISETCSC, Greensboro, NC, November 7, 2008.

B.3.9 Consulting and Industry Experience

B.3.10 Professional Service

Proposal Reviewer: U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN) Program

Content mentor for math teacher at Archdale-Trinity MS as part of School of Education NSF Content Mentoring Project

B.4 Engagement – Service

B.4.1 University/College/Department Service

School of Graduate Studies Dean Search Committee

A&T Strategic Plan Environment Learning Enterprise Work Group

UNC Tomorrow Environment Subcommittee

SACS Subcommittee

Graduate Council Admission and Retention Committee

Graduate Council

Member, Institutional Biosafety Committee

B.4.2. Community Service

Upward Basketball and Soccer Coach

AWANA Leader, 1st Grade Sunday School Teacher

Ordained Deacon

B.5 Faculty Development

“Biomass South 2008,” Raleigh, NC, September 22-23, 2008.

B.6 Contribution to FUTURES

Leadership of interdisciplinary graduate program and research projects.