# Andrew Hale

**Education**

* Ph.D., Clemson University, Agricultural Engineering, August, 1993. Dissertation Title: Engineering of an Environmentally Controlled Plant Micropropagation Bioreactor. Course work GPR: 4.0.

        M.S., Texas A&M; University, Agricultural Engineering, 1985. Thesis Title: An Automatic Cutting Height Control System for a Sugarcane Harvester. Course work GPR: 3.63.

        B.S.A.E., University of Georgia, Agricultural Engineering, 1982. Graduated Magna Cum Laude, Overall GPA 3.77.

**Professional Registration**

Engineer-in-Training, Georgia, No. 11139.

**Professional Experience**

* Undergraduate Coordinator, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, North Carolina, January 2004 – Present.

* Associate Faculty, Department of Biomedical Engineering, North Carolina State University, Raleigh, North Carolina, June 2003 – Present.

* Associate Professor, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, North Carolina, July 1998 – Present.

* Associate Faculty, Department of Food Science, North Carolina State University, Raleigh, North Carolina, August 1993 – Present.

        Assistant Professor, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, North Carolina, August 1993-June 1998.

* Visiting Instructor, Department of Agricultural and Biological Engineering, Clemson University, Clemson, South Carolina, April 1985 - August 1993.

* Graduate Assistant, Department of Agricultural Engineering, Texas A & M University, College Station, Texas, January 1983 - March 1985.

**Professional Activities at North Carolina State University**

**Academic Programs**

        Courses Taught

o       BAE 100 – Introduction to Biological and Biomedical Engineering, Spring semesters, 2003 – Present.

o       BAE 121 - Computer Applications in Agriculture and Life Sciences, Fall and Spring semesters, 1995 - 1998.

o       BAE 221 - Agricultural Systems I: Microcomputer Applications, Fall and Spring semesters, 1993 - 1994.

o       BAE(BIO) 235 - Engineering Biology, jointly taught in Spring, 1995.

o       BAE 315 - Properties of Biological Engineering Materials, Spring Semesters, 1998 – 2003.

o       BAE 401 - Instrumentation and Controls for Biological Systems, Fall semesters, 1998 – Present.

o       BAE 495F/590G - Special Topics in Biological & Agricultural Engineering: Properties of Biophysical Materials, Spring semesters, 1996 - 1997.

o       BAE 695 - Seminar, jointly taught in Fall and Spring semesters, 1994 - 1997.

o       BAE 752 - Instrumentation For Agricultural Research and Processing, Spring, 2001.

* Undergraduate Student Advising – Advised numerous undergraduate students in the Agriculture Undesignated, Agricultural and Environmental Technology, Biological Engineering, Biological Engineering Undesignated, Biomedical Engineering, and Engineering Undesignated programs.
* Graduate Student Advising – Served as research adviser and committee chair or co-chair for 10 graduate students (4 M.S. and 6 Ph.D.)  Served as adviser to numerous students in other departments in the College of Agriculture and Life Sciences.
* Alpha Zeta Adviser (1995 – 1998).
* Faculty mentor to visiting scholars and senior design teams.
* Conducted an internal study on national curricula and enrollment trends in biological engineering and technology programs (2002).
* Planned and participated in numerous open house activities and speaking engagements for CALS and Engineering student recruitment.
* Teaching Effectiveness Training
	+ SUCCEED Coalition Effective Teaching Workshop, North Carolina State University, June 10-11, 1994.
	+ Teaching Effectiveness For Engineering Educators, North Carolina State University, College of Engineering, August 16-18, 1994.
	+ Effective Teaching in Agriculture and the Life Sciences, North Carolina State University, College of Agriculture and Life Sciences, May 19-21, 1999.

**Research**

Research activities center in the areas of bioprocess engineering, and development of automated sensing and control systems.  Specific efforts have been targeted at the development of automated methods for determining fishery product quality and the development of alternative fishery product processing systems.

**Administration**

        Undergraduate Coordinator, Department of Biological and Agricultural Engineering - Duties include student recruitment, curriculum development, student admissions, program assessment and accreditation, and budget administration.

        Graduate of the ESCOP/ACOP Leadership Development and Internship Program – class 13.

**Professional Activities at Clemson University**

Member of a three-person team charged with providing leadership in all instrumentation, automation and computerization efforts of the Department. Specific duties included:

* design, management and maintenance of computer networking equipment and microprocessor based computer systems,
* training users in the operation of local area networks as well as PC, UNIX and mainframe computers.
* teaching computer related topics in undergraduate and graduate courses,
* advising faculty, staff and graduate students in the selection and utilization of computer systems, data acquisition equipment and instrumentation,
* designing and constructing electronic circuitry
* writing custom software applications.

Member of a multi-disciplinary research team that developed automated methods for the in vitro production of plant materials.

**Professional Memberships**

* ASAE, The society for engineering in agriculture, food and biological systems.
* Institute of Biological Engineers
* ASEE, American Society for Engineering Education
* Council for Near Infrared Spectroscopy (CNIR)

**Honors and Awards**

* Panhellenic Outstanding Teacher Award (2002-2003)
* E.G. Dawson Scholarship recipient, University of Georgia
* Goodloe Yancey Scholarship recipient, University of Georgia
* Moorman Company Scholarship recipient, University of Georgia
* Member of: Tau Beta Pi, Phi Eta Sigma, Alpha Epsilon, Phi Kappa Phi, Gamma Sigma Delta, Alpha Zeta, and Golden Key Honor Societies.

**Major Committee Assignments**

**National Committees**

* American Society of Agricultural Engineers –
	+ Associate Editor, Biological Engineering Division (2001 – Present)
	+ 2001 and 2002 Nominating Committees (2000-2002)
	+ K.K. Barnes Student Paper Award Committee (2000-2002)
	+ Undergraduate & Graduate Instruction Committee (1998-2002), Chair (2001-2002), Vice-Chair (2000-2001), Secretary (1999-2000).
	+ Emerging Areas Division (1994-2000), Chair (1998-1999), Vice-Chair (1997-1998), Secretary (1996-1997)
	+ Biological Engineering Steering Committee (1990 – 2000)
	+ Meetings Council (1996-1997)
	+ Plant Biological Engineering Committee, Chair (1991-1994)
	+ Student Awards Coordination Committee (1994-1996), Chair (1995-1996), Vice-Chair (1994-1995)
	+ Research Priorities Committee (1994 – Present)
* Council for Near Infrared Spectroscopy
	+ Associate Editor, *The NIR Spectrum* (2003 – Present)
* USDA Higher Education Programs Food and Agricultural Sciences National Needs Graduate Fellowships Grants Program External Review Panel (2002)
* USDA SBIR Plant Production and Protection Review Panel (1999)

**State Committees**

* North Carolina State Section of ASAE and Steering Committee (1993 – Present)
	+ Membership Vice-Chair (1994 – Present)

**University Committees**

* Poultry and Red Meat Abattoir Building Committee
* Hewlett Campus Challenge (2001 – 2003)

**College Committees**

* Educational Technology Fee Funding Oversight Committee (2003 – Present)
* COE Coordinators of Advising Committee (2001 – Present)
* CALS Academic Computing Advisory Committee (1995-Present), Chair (2001-2002), Secretary (2000-2001)
* CALS Academic Program Grievance Committee (1997-1998)

**Departmental Committees**

* Executive Committee (2002 – Present)
* Course and Curriculum Committee (1999 – Present), Chair (2001 – Present)
* Facilities and Operations Committee (2003 – Present)
* Ad Hoc Committee for recommending academic program needs following the formation of the Department of Biomedical Engineering, Chair (2002)
* Student Recruiting and Placement Committee, Chair (1998 – 2000)
* Ad Hoc Committee for determining the effects of implementing an undergraduate degree in biomedical engineering, Chair (1999)
* Graduate Studies Committee (1993 – 1998)
* Computer Committee (1993 – 2001)

**Contracts and Grants**

Upgrade of Contact Angle Gyniometer. B.E. Farkas, A.E. Foegeding and S.A. Hale. CALS Overhead Equipment Grant, NCSU.  2000.  $8,362.

Food and Agricultural Sciences National Needs Graduate Fellowship Program: Food Engineering.  S.A. Hale (P.I.), K.M. Keener and K.P. Sandeep.  US Department of Agriculture. 12/1999 - 11/2004.  $138,000.

Food and Agricultural Sciences National Needs Graduate Fellowship Program: Food Engineering. S.A. Hale (P.I.) and C.R. Daubert.  U.S. Department of Agriculture.  2/1998 - 1/2003.  $108,000.

Response of Tuna Muscle Protein to Thermal Processing.  B.E. Farkas, S.A. Hale (Co-P.I.) and T.C. Lanier.  UNC Sea Grant College Program.  7/1997 – 6/2000. $89,046.

Development of Thermal Processing Techniques to Optimize Tuna Quality and Yield.  B.E. Farkas and S.A. Hale (Co-P.I.).  Star-Kist Seafood, Inc. 1/1997 – 12/1999, $321,821.

Implementation and Commercial Testing of a New Method for Thermal Processing of Blue Crabs.  B.E. Farkas and S.A. Hale (Co-P.I.).  National Coastal Resources and Development Institute. 4/1997 – 3/1999, $70,222.

Development of New Techniques for the Thermal Processing of Blue Crabs: Improvements in Yield, Safety and Quality.  B.E. Farkas and S.A. Hale (Co-P.I.).  UNC Sea Grant College Program.  8/1997 – 2/1998, $3000.

Food and Agricultural Sciences National Needs Graduate Fellowship Program: Food Engineering.  S.A. Hale (P.I.) and B.F. Farkas.  U.S. Department of Agriculture.  9/1995 - 8/2000, $108,000.

Re-engineering the handling of fresh (cooked) crab claws for improved meat qualities and new product development.  D.P. Green and S.A. Hale (Co-P.I.).  UNC SEA Grant College Program.  2/1996 - 1/1998,  $59,396.

Optimizing the use of chemical fertilizers for maximum yield by instrumental measurement of small grain tissue during growth.  W.F. McClure, S.A. Hale (Co-P.I.) And S.C. Mohapatra.  NC State University Agricultural Foundation.  9/1995 - 8/1996, $36,000.

Development of new techniques for the thermal processing of blue crabs: Improvements in yield, safety, and quality.  B.F. Farkas and S.A. Hale (Co-P.I.).  UNC SEA Grant College Program.  8/1995 - 11/1995, $3,121.

Automating process and record-keeping requirements under the U.S. FDA HACCP program.  S.A. Hale (P.I.).  Washington Crab Company.  5/1995 - 6/1996. $7,000.

Feasibility of detecting discoloration and off-flavors in thermally processed blue crab meat using spectroscopic techniques.  S.A. Hale (P.I.), D.P. Green, W.F. McClure and D.E. Carroll.  UNC SEA Grant College Program.  8/1994 - 4/1995, $4,990.