

JIM F. CHAMBERLAIN, Ph.D., P.E., BCEE

P.O. Box 2086
202 W. Boyd St., Room 334
Norman, OK 73070
405.325.5140 • jfchamb@ou.edu

PROFILE

Co-Director for Education and Outreach at the OU WaTER Center ♦ Ph.D. graduate in the Environmental Engineering and Earth Sciences program at Clemson University ♦ Licensed Environmental Professional Engineer (TN, GA) with 12+ years of environmental engineering and consulting experience ♦ Board Certified Environmental Engineer (BCEE) ♦ Successful grant writer ♦ Areas of scientific expertise include sustainable systems, life cycle assessment (LCA), biogeochemistry, and systems optimization ♦ Enlightened educator with experience in undergraduate research and project-based service learning ♦ Experience in facilitating and leading sustainable engineering student projects in developing countries ♦ Respected undergraduate student advisor ♦ Competent in DAYCENT biogeochemical modeling, MATLAB, and Geographic Information Systems (GIS) ♦ Formally associated with Engineers Without Borders and Habitat for Humanity

EDUCATION

Clemson University, Clemson, South Carolina

Ph.D., Environmental Engineering and Science

2011

Certificate in Engineering and Science Education

Dissertation topic: Environmental and Policy Implications of Switchgrass Grown for Bioenergy in the Southeastern United States

Advisor: Shelie A Miller, Ph.D.

Clemson University, Clemson, South Carolina

Master of Science (M.S.), Environmental Systems Engineering

1994

Thesis topic: Assessment of Environmental Impact from a Large Construction Project on Physical Water Quality, Sediment Composition, Channel Configuration, and Biotic Populations in a Southern Mountain Trout Stream

Advisor: A. Ray Abernathy, Ph.D.

St. Meinrad School of Theology, St. Meinrad, Indiana

Master of Divinity (M.Div.), Catholic Theology, Outstanding Graduate

1986

Texas A&M University, College Station, TX

Bachelor of Science (B.S.), Agricultural Engineering, Cum Laude

1979

PROFESSIONAL REGISTRATIONS AND AFFILIATIONS

Professional Engineer	Tennessee, 1997, No. 102990
BCEE	Board Certified Environmental Engineer (AAEE)

PUBLICATIONS, PRESENTATIONS, AND GRANTS

Journal Publications:

- Yami, T.L., Du, J., Brunson, L.R., **Chamberlain, J.F.**, Sabatini, D.A., and E.C. Butler. 2015. "Life cycle assessment of adsorbents for fluoride removal from drinking water in East Africa." *The International Journal of Life Cycle Assessment* 20: 1277-1286.
- **Chamberlain, J.** and D. Sabatini. 2014. "Water-supply options in arsenic-affected regions in Cambodia: Targeting the bottom income quintiles". *Science of the Total Environment* 488-489: 521-31.
- **Chamberlain, J.** and S. Miller. 2012. "Policy Incentives for Switchgrass Production using Valuation of Non-Market Ecosystem Services". *Energy Policy* 48: 526-536.
- **Chamberlain, J.** and S. Miller. 2011. "Using DAYCENT to quantify on-farm GHG emissions and N dynamics of land use conversion to N-managed switchgrass in the Southern U.S." *Agriculture, Ecosystems & Environment* 141 (3-4): 332-341.
- **Chamberlain, J.** and S. Miller. 2011. "Economic and Climate Change Benefits from Low-Impact Biomass Energy Options in the Southeastern U.S." (submitted to *Environmental Science and Technology*).
- Sarkar, S., **Chamberlain, J.**, and S. Miller. 2011. "A Comparison of Two Methods to Conduct Materials Flow Analysis (MFA) on Waste Tires in a Small Island Developing State". *Journal of Industrial Ecology* 15(2): 300-314.
- Sarkar, S., Miller, S.A., Frederick, J.R., and **Chamberlain, J.F.** "Modeling Nitrogen Loss from Switchgrass Agricultural Systems". *Biomass and Bioenergy*, 35 (10): 4381-4389.

Proceedings Publications:

- **Chamberlain, J.** and L. Benson. "Getting Students on the Right Track: Exit Surveys and Levels of Awareness in First Year Engineering Students". Proceedings, American Society for Engineering Education, Pittsburgh, June, 2008.
- **Chamberlain, J.** "Forming a Culture of Engineering within Creative Inquiry for Projects in a Developing Country". Proceedings, American Society for Engineering Education, Austin, June, 2009.

Conference Presentations:

- **Chamberlain, J.** "Climate Change and Water Quality Impacts of Regional Switchgrass Production". Poster presentation, South Carolina Bioenergy Conference, November, 2007.
- **Chamberlain, J.** "Assessment and Optimization of Economic and Climate Change Impacts in Switchgrass Grown for Bioenergy in the Southeastern United States". Poster presentation, Gordon Research Conference, August, 2008.
- **Chamberlain, J.** "Multidisciplinary Design of Student Projects in Developing Countries". Workshop presentation, Engineers Without Borders regional workshop and conference, November, 2008.

- **Chamberlain, J.** "Creating "Tipping Points" for Biofuels Production using Policy Incentives and Ecosystem Services Valuation: Switchgrass as a Case Study". Poster presentation, Association of Environmental Engineering and Science Professors, July, 2009.
- **Chamberlain, J.** "Renewable Biofuels - the Solution? or Just a New Problem? The Science of Comparing Bioenergy Feedstocks: Energy Balance, Nitrogen, Land Use, and Greenhouse Gas Emissions". Presentation given at Hydrogeology Conference, Clemson University, April, 2010.
- **Chamberlain, J.** "Creating Incentives for Switchgrass Production Using Policy Instruments". Poster presentation, Gordon Research Conference, July, 2010.

Grants:

- Primary Investigator (PI) - US EPA grant (\$125,000) for implementation of source water protection plans in rural Kentucky (with the Lincoln Trail Area Development District), 2004
- PI - USDA / Tennessee Department of Environment and Conservation grant (\$18,000) for a study of non-point source pollution in the Crooked Creek Watershed in Blount County, Tennessee (with the Little River Watershed Association), 2006
- PI - Goldman Family Foundation grant (\$4000) for the EWB project in El Salvador, 2007
- Co-PI - US EPA Pollution Prosperity and the Planet (P3) grant (\$10,000) for waste tire project on the island of Dominica, 2008
- PI - Rotary International grant (\$25,000) for Engineers Without Borders (EWB) project in El Salvador, 2009

TEACHING EXPERIENCE

Adjunct Faculty / Instructor 2011-present
University of Oklahoma, Norman, OK

Public Research Institution; student population: 20,000

- Instructor ENGR 1411 - Humanitarian Engineering – a freshmen undergraduate engineering course; introduces the students to algorithm design and computational methods for solving engineering problems, using Excel spreadsheet and MATLAB programming.
- Instructor CEES 4273G - Technical WaTER Field Methods - a "hands-on" course that introduces students to construction with wood and masonry block, surveying, water quality sampling and analysis, household water treatment methods, various methods of water well drilling, and health assessment methods for rural communities in developing countries.

Adjunct Faculty Instructor 2011
Tri-County Technical College, Pendleton, SC

Community College; student population: 6,800

- Instructor ENG 270 - Computer Programming for Engineering – an undergraduate engineering programming course; introduces the students to algorithm design and computational methods for solving engineering problems, using Excel spreadsheet and MATLAB programming.

Undergraduate Instructor / Academic Student Advisor 2007-2010
Clemson University, Clemson, SC

Public Research Institution; student population: 17,000

- Teaching Assistant EES 686 – Industrial Ecology and Pollution Prevention – a graduate/upper-undergraduate level course in life cycle assessment, input-output analysis, environmental economics, environmental impact assessment

- Teaching Assistant EES 401 – Introduction to Environmental Engineering – a graduate/upper-undergraduate level course in materials balance, water/wastewater treatment, fundamentals of air pollution and solid waste management
- Instructor ENGR 390 – Engineering in Developing Countries - Creative Inquiry course for undergraduate research with Engineers Without Borders; project is in El Salvador. Project modules included:
 - Water distribution system design
 - Passive solar oven design for cashew roasting operations
 - Design of active solar power as supplemental source for office equipment
 - Assessment of sustainability for these and other project modules
- Student Advisor - undergraduate students in the General Engineering Department; offered career guidance and counseling relative to instructors, internships, and future job opportunities

Adjunct Faculty Instructor / Campus Ministry Chaplain

Spring Hill College, Mobile, AL

2005

Jesuit Catholic Liberal Arts College; student population: 1,300

- Taught a 3-credit hour course, “Chemistry In The Modern World”, for non-science majors, primarily covering environmental chemistry; provided practical aspects of chemistry in daily life, e.g., nutrition, plastics and polymers
- As part of a full-time campus ministry staff of five people, helped plan and lead student retreats, coordinated Bible studies and prayer groups, conducted faith formation sessions for faculty and staff
- Led Alternative Spring Break work trips to Belize and Florida (Habitat for Humanity, Hand-in-Hand Ministries)

PROFESSIONAL EXPERIENCE

Research Engineer / Adjunct Faculty

2011 - present

University of Oklahoma, Norman, OK

Research on drinking water options for developing countries

- Designing and supporting research for arsenic and fluoride mitigation in Cambodia and Ethiopia.
- Co-teaching undergraduate courses in Sustainable Development, including a novel Field Methods course.
- Maintaining a resource clearinghouse and data collection center for drinking water projects in developing economies, with emphasis on socially-sensitive solutions, social entrepreneurship, and the interface between climate change and water impacts.

Environmental Engineer Consultant

BAT Associates, Inc., Knoxville, TN

1999 – 2004

Grant writing for non-profit organizations in Kentucky and Tennessee

- Wrote proposals and won 2 environmental grants for non-profit organizations.
- Incorporated an awareness campaign to promote and educate the public on the system supporting the watershed and the value of protecting that system.
- Successfully managed both projects to completion with measurable results presented in a report for EPA Region 4 managers.

Environmental Engineer Consultant

United Science Industries, Oak Ridge, TN

1994 - 1999

Project Manager on various governmental and private industry remediation assessment and cleanup projects

- Managed CERCLA, NEPA, RCRA and CWA projects for major government clients including the U.S. Department of Energy, USDA Forest Service, and the U.S. Army Corps of Engineers, and several private, municipal, and non-profit clients.
- Projects included storm water retention and drainage design, water quality monitoring and assessment, contaminated soils assessment, spill prevention and integrated contingency plans, passive treatment using artificial wetlands, acid mine drainage remediation design, and value engineering.
- Maintained on-time schedule and budget and managed client relationships.

Assistant County Engineer 1979 - 1981

Fort Bend County Drainage District, Richmond, TX

Assistant engineer and project manager for various county drainage, conservation and building projects

NON-PROFIT ASSOCIATIONS AND EXPERIENCE

Sooners Without Borders (SWB) 2013-present
Faculty Advisor
University of Oklahoma

Engineers Without Borders (EWB-USA)
Founder/President: EWB – Central Texas Professionals 2006-present
Graduate student mentor / instructor: EWB – Clemson University (four trips to El Salvador)
State representative, SC: EWB-USA National

EcoViva (formerly Foundation for Self-Sufficiency in Central America)
Board member 2009-present
Environmental consultant, delegations assistance

Habitat for Humanity, International
Full-time staff: HFH Ft. Smith, Arkansas various, 1990-2005
Full-time staff / work group coordinator: HFH Dallas, Texas
Board member: HFH Knoxville, Tennessee

PERSONAL

Musician – voice, guitar and banjo; over ten years of experience leading liturgical music on college campuses

Running and bicycling – have completed three marathons and numerous half-marathons

Outdoor recreation – backpacking, canoeing, flat-water kayaking

Built a 3-bedroom log cabin with a friend in Maggie Valley, NC. The construction was a combination of solid pine logs and conventional stud framing; along with a friend, did all the log work, framing, metal roofing, and trim work; hired sub-contractors for plumbing, electrical and other specialty trades. The cabin can be seen at www.treetopcabinonline.com

