



Re: PhD Student Opportunities in Water Resources –Fall 2018

Project Descriptions

Position 1: Forests, stream water quality, and aquatic biota in high elevations mountains of southern Appalachian region have been impacted by acid deposition for decades from air pollution generated by coal-fired power plants, vehicular traffic, agriculture, and other sources. The Great Smoky Mountains National Park (GRSM) implemented a long-term water quality monitoring program dating back to the early 1990s and it continues to this day. A fully-sensored high-elevation research station is maintained which includes full weather station, rainwater and throughfall deposition collectors, soil moisture and air temperature probes, vacuum-operated lysimeter pit, stream H-flumes with stage recorders and water quality sondes. Bimonthly water samples are collected throughout the GRSM, and analyzed at the UTK Water Quality Laboratory. A high quality Graduate Research Assistant (GRA) is being sought to contribute to a research project funded through the Vital Signs Program with the National Park Service. Ideal qualifications for the GRA include outdoor field skills working in remote forested area, an academic background or strong interest in aquatic chemistry, and ability to learn repair skills of installed field instrumentation.

Position 2: Stream restoration is practiced across the US and the world. Though the professional practice has been growing over the past two decades, the science and engineering to advance the practice has not evolved to a level where risk of project failure has been reduced that is acceptable. This risk is particularly evident in urban streams. A research project will be initiated to develop improved practices for urban stream restoration utilizing an ecohydraulic meso-habitat approach, essentially applying fundamental ecological engineering principles. A high quality Graduate Research Assistant (GRA) is being sought to contribute to this research project. Ideal qualifications for the GRA include field skills working in urban streams, skills in hydrology/hydraulic modeling, GIS, and CAD, and knowledge of aquatic biology.

Expected start date is August 1, 2018. Applications will be reviewed as they are received and until the positions are filled.

Contact: Specific inquiries can be made to **John Schwartz, PhD, PE** - email: jschwartz@utk.edu



Brand new facilities in the John D. Tickle Engineering Building, home of the Department of Civil and Environmental Engineering



View of the Smoky Mountains from atop the Chimney Tops Trail in Great Smoky Mountains National Park

About Knoxville

Our historic and revitalized downtown, just a few blocks from campus, is always abuzz with shows and celebrations, bringing thousands of visitors for events like the [Big Ears](#), [Christmas in the City](#), and [Dogwood Arts](#) festivals. Downtown Knoxville showcases eclectic dining and shopping, a weekly outdoor [downtown farmers' market](#), two historic theatres, art galleries, and museums. The region's rich and progressive music scene features everything from local concerts to large acts at a 1,000-seat 1920s art deco theatre. Lakes and rivers scatter the landscape and 65 miles of greenway trails make Knoxville an outdoor adventurer's paradise. The Knoxville area offers more than 80 parks, including the 1,000-acre [Knoxville Urban Wilderness](#) located just ten minutes from the University. The Urban Wilderness offers an abundance of hiking, mountain biking, canoeing, trail running, and an escape to nature just miles from downtown Knoxville.