

**Baltimore Ecosystem Study (BES)  
Summer 2018 Research Experiences for Undergraduates (REU) Opportunities**

The Baltimore Ecosystem Study (BES) is now accepting applications for two **Research Experiences for Undergraduates (REU)** positions for the **summer of 2018!**

Students will perform cutting-edge research of immediate relevance to people in urban areas as part of the BES Long Term Ecological Research (LTER) program in Baltimore, MD (see: <https://beslter.org/>). In addition to their individual research projects, students will participate in BES seminars, and in selected activities in the Urban Water Innovation Network (UWIN) Undergraduate Research Program (see: <https://erams.com/UWIN/urp/>) and the Cary Institute REU program (see: <http://www.caryinstitute.org/students/reu-program>). Students with interests in urban social ecological systems, aquatic or terrestrial ecology or related fields are encouraged to apply.

**To apply:** Go to:

<http://www.caryinstitute.org/students/reu-programs/baltimore-ecosystem-study-reu-program>

**Application deadline:** Rolling. Applications will be reviewed starting February 12, 2018.

**Dates:** Up to 10 weeks between June 4 and August 10, 2018. Specific dates to be determined by student and mentor.

**Eligibility:** Undergraduate freshmen, sophomores, juniors or first semester seniors. Must be citizens or permanent residents of the U.S. or its possessions.

**Support:** \$525/week stipend, assistance with room and board on-campus or in nearby housing, travel assistance.

**Projects for 2018:**

**A) Baltimore Old Forests Project.**

Mentors: Dr. John Lagrosa (Center for Urban Environmental Research and Education (CUERE), University of Maryland Baltimore County) and Nancy Sonti (US Forest Service Baltimore Field Station).

**B) The Effect of Urbanization on Riparian Spiders.**

Mentors: Dr. Christine Hawn (University of Maryland Baltimore County), Dr. Emma Rosi (Cary Institute) and Dr. Chris Swan (University of Maryland Baltimore County).

See detailed project descriptions below.

**For more information:** Contact Dr. Alan R. Berkowitz, BES Education Team Leader, Phone: (845)-677-7600 ext. 311, Email: [berkowitza@caryinstitute.org](mailto:berkowitza@caryinstitute.org).

Please forward this email to students interested in doing independent research in our unique setting.

Thanks!

**Detailed Project Descriptions:**

**A) Baltimore Old Forests Project.**

Mentors: Dr. John Lagrosa (Center for Urban Environmental Research and Education (CUERE), University of Maryland Baltimore County) and Nancy Sonti (US Forest Service Baltimore Field Station).

We are working to understand the relationships among people, communities, and forests in Baltimore over the past 100 years. The distribution of landscapes that seem like “nature” or “wilderness” are actually the result of complex social histories. These insights will help contribute to local agency and non-profit goals for a more equitable future urban forest landscape for Baltimore City. The REU student will use several sources of historical aerial imagery to characterize change in Baltimore City’s forest cover over time (1926-27, 1937-38, 1952-53, 1964, and 1972). The student will gain skills in archival research, georectification, and land use classification using ArcGIS software. In addition, the student will have the opportunity to analyze the resulting historical forest patch data alongside other long-term social, economic, and ecological data sets for insights into which forest patches have been relatively stable or dynamic, and why. Finally, the student may work with scientists from the US Forest Service and the University of Maryland Baltimore County to expand the project onto a crowdsourced citizen science platform. Students with an interest in Geographic Information Systems (GIS), forest ecology, history, and/or citizen science are encouraged to apply.

#### **B) The Effect of Urbanization on Riparian Spiders.**

Mentors: Dr. Christine Hawn (University of Maryland Baltimore County), Dr. Emma Rosi (Cary Institute) and Dr. Chris Swan (University of Maryland Baltimore County).

Pharmaceuticals and personal care products (PPCPs) have been detected in a variety of natural environments across the world. Although reported concentrations are generally low, PPCPs can persist in the environment for months to years. PPCPs are biologically active compounds that are designed to influence specific functions and behaviors in target humans and animals. The potential effects of active PPCPs in the environment on human and environmental health are a major concern for groups like the World Health Organization. BES researchers have detected PPCPs in Baltimore streams, however, the extent of exposure throughout the urban environment is unknown. The REU student will design a study to explore the effects of urban stream subsidies on riparian spiders and examine the concentrations of PPCPs in spiders, as indicators of the movement of these contaminants from urban streams to terrestrial consumers. The student will sample tetragnathid spiders from streams along an urban rural gradient to measure the effects of urbanization in general on spider population density, body condition, and food availability. In addition, analysis of PPCPs levels in spider tissues can help determine whether there are relationships between these variables and PPCP concentrations.