**Assessing Above and Belowground Carbon in Willow Stands**

2022 MASBio Undergraduate Summer Research Opportunity

**Faculty:** Dr. Timothy A. Volk, Dr. Mark Eisenbies

**Project Site:** Dr. Volk’s website (https://www.esf.edu/faculty/volk/), Department of Sustainable Resources Management, SUNY ESF and Research Page (https://www.esf.edu/willow/)

**Project:** Assessing above and belowground carbon in willow stands

**Brief Description:** Willow biomass crops are grown on marginal agricultural or former industrial land, harvested every 3 – 4 years and the biomass is used a feedstock for biofuels, bioproducts and bioenergy. Recent life cycle analysis results indicate that over its life span willow’s is carbon footprint is negative. This means that more carbon is stored in the system than is emitted during the planting, management, harvesting and transportation of the biomass. Key components that contribute to this negative carbon footprint are the carbon stored belowground in the root system and in the soil. Data on these components is limited to a few studies so there is a fair amount of uncertainty around these values. In order to provide more precise estimates of the sequestration potential of willow across the region more data on below ground biomass and soil carbon is needed. This project will collect additional belowground biomass and soil samples from sites in the region, process them to determine the carbon content and analyze the data.

The outcomes of this work will be helpful to the MASBio project because it will address data gaps in belowground biomass and soil carbon in willow crops and increase the precision of the assessments of the carbon sequestration potential of these systems.

**Background Required:** Educational background in forestry, agriculture, natural resources and an interest and desire to work outdoors as well as in a lab setting. Some understanding of soils and experience with assessments of growth of forests or agricultural crops a plus.

**Additional Details**:

* All students are expected to participate in person at SUNY ESF in Syracuse, NY for the duration of the program (Monday May 23 – Friday July 29, 2022)
* The stipend for this summer research opportunity is $6,000.
* The program will include field trips to biomass/bioenergy partners and facilities in the region. Transportation will be provided for these activities.
* Housing is available for the 10 week period in the dorm at ESF at a cost of $1,000 (<https://www.esf.edu/welcome/campus/centennial.htm>)

**Application:**

Submit your resume, a statement of interest (maximum of one page), college transcripts (unofficial is acceptable) and two reference letters for review to: Dr. Timothy Volk, 306 Bray Hall SUNY ESF, Syracuse, NY 13210 or tavolk@esf.edu.