# Igniting interest in plant sciences & developing a botanical community through high-impact practices

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## Introduction

Plant science programs are increasingly scarce, with many programs being absorbed into general biology departments and leading to a reduced botanical capacity and lower interest in studying plants by college students. The need for botanical expertise, however, remains high in multiple portions of our society as plants are increasingly used to maintain food security, preserve biodiversity, and build nature-based solutions to climate change in terrestrial, coastal, and aquatic ecosystems. The need to provide adequate training is paramount, but the need to showcase potential career trajectories and build a botanical community is equally important.

## Approach

We developed a multi-tiered approach to connect with undergraduate students as they enter ODU via targeted learning communities, in the classroom by testing multiple laboratory styles in our primary botany course, and an intensive 10-week summer research experiences. We utilized the PAD-I survey (Parsley et al. 2022) to assess plant awareness among students & a customized survey designed to evaluate social and valued competence in plant biology, interest in additional training, and preparedness among students.

## Goals

1) **Make students more aware of plant-associated careers early in their undergraduate program**
2) **Provide students with hands-on experiential learning of botanical concepts throughout the curriculum**
3) **Build a botanical community of students, faculty, and other community members on our campus that is diverse, inclusive, and supportive**

## Lessons Learned

**1) Learning communities did not attract interest for early career students**

**2) Comparison of best practices for botany lab remain underway comparing mini-internships, CURE, and traditional labs**

**3) Students found greater sense of identity, appreciated utility, and maintained a more positive attitude and greater attention to plants after the botany class compared to before**

**4) Summer research experiences provide critical opportunities for students and promote an overall sense of community**

**5) Approximately 60% of summer researchers have remained involved in research, been awarded research grants/awards, or secured additional plant-related positions on and off-campus**

## Findings

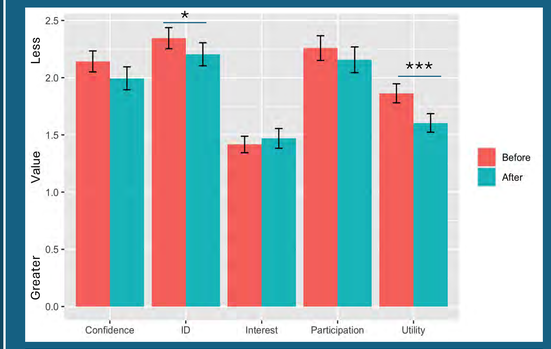



Fig. 1- Overall confidence, identity, interest, participation, and utility before and after botany course from customized survey. Smaller numbers indicate greater value in each category. Repeated measures ANOVA (* $p<0.05$, *** $p<0.001$). N= 44.

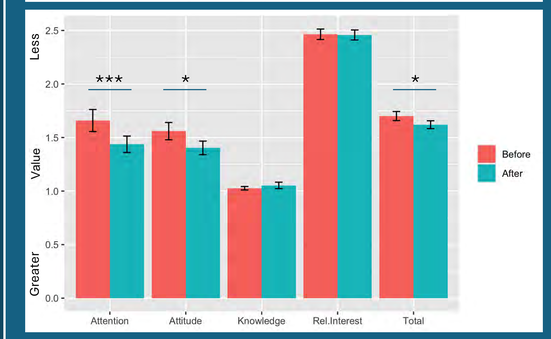
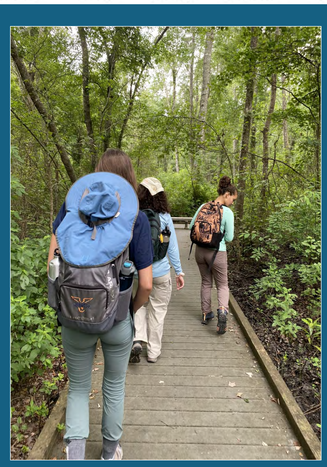
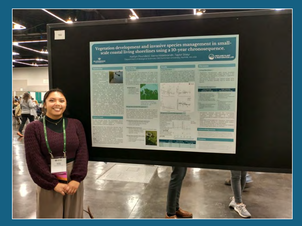
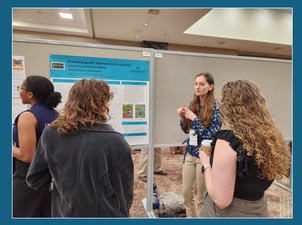



Fig. 2- PAD-I survey results using questions for attention, attitude, knowledge, relative interest, total scores. Smaller numbers indicate greater value in each category. Repeated measures ANOVA (* $p<0.05$, *** $p<0.001$). N= 44.







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