

Department of Biological Science
COLLEGE OF Arts and Sciences

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: March 1, 2011

The Department of Biological Science is pleased to offer the following research project for the summer of 2011. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

PROJECT TITLE: Global climate change and the evolution of weediness

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Project Description

Weedy plant species, or those that grow 'out of place,' cause annual agricultural economic declines on the order of 10% worldwide. Despite their threat to the world's food supply, how weedy plant species adapt to the agricultural regime is relatively unknown, although many of the most noxious weeds are persistent problems due to herbicide resistance. Other traits are indicated in the ability of plants to become weeds. In general, weedy plants will exhibit early germination, seed dormancy and seed banking, rapid growth and high vigor, as well as the ability to produce offspring both sexually and asexually. Although these traits typify 'weediness,' we do not understand how 'weediness' will respond to scenarios of global climate change.

Many species of *Ipomoea*, or the morning glory genus, are well-known agricultural pests that can reduce a farmer's yield by as much as 80%. While the distribution of some of these problematic morning glory species ranges from the southeastern United States to South America, other species of the genus are less widespread, and occur primarily in South America. In this project, we will be assessing weediness traits in several 'weedy,' or widespread species of morning glory and their closest, non-weedy relatives. We will be assessing the above weediness traits in two different environmental regimes: one of normal summer temperatures and increased temperature. The species chosen for this project are: *Ipomoea purpurea*, *Ipomoea hederacea*, *Ipomoea coccinea*, *Ipomoea quamoclit*, *Ipomoea nil*, *Ipomoea pubescens*, *Ipomoea lobata*, *Ipomoea lindheimeri* and *Ipomoea indica*. The first five species are relatively widespread, whereas *Ipomoea pubescens*, *Ipomoea lobata*, *Ipomoea lindheimeri* and *Ipomoea indica* exhibit a more restricted range.