

Impacts of the NSF-Funded ACES S-STEM Project on Atmospheric Sciences Students at a Public Liberal Arts University

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The Atmospheric and Computer Science Exploratory Scholars (ACES) scholarship program [NSF Grant No. DUE-1356218] has awarded 15 scholarships to 19 students (four students were dismissed from the program for a variety of reasons and replacement scholars were awarded their scholarships) since the fall 2015 semester. A total of \$134,311 in scholarship money has been awarded to ACES scholars from its start through the 2017-2018 academic year. Our oldest cohort is currently in their junior year, so we have no graduates yet to report (one CSCI ACES scholar transfer student will graduate in May 2018). Of the 19 students, one changed their major to a non-STEM discipline in the first semester of their scholarship. Three students removed from the ACES program were unable to meet the minimum GPA requirement to retain their scholarship, but are still pursuing their CSCI or ATMS degree (STEM-related).

The ACES program has encouraged the development of new opportunities and the extension of existing opportunities. Although peer tutoring has existed at UNCA for some time, student tutors for CSCI and ATMS courses has been expanded for CSCI students and newly developed for ATMS students. New student positions have been

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opened in the CSCI and ATMS Departments related to coordinators of competitions, assistance with admissions and recruiting, course mentoring, and with outreach and teaching projects. The CSCI Department recently established a student chapter of the professional Association for Computing Machinery (ACM) organization. Coordination and collaboration between the two departments and the Career Center at UNCA has improved substantially since the fall 2015 with numerous offerings to teach students about the practical aspects of finding a job. A living learning community in Overlook Hall ('The Cloud') was developed to establish an instant residence hall community for CSCI and ATMS students and special cohort class sections of Calculus I, Physics I, and CSCI or ATMS 178 are set aside for incoming ACES scholars (and other ATMS and CSCI students) to establish an instant classroom community. An academic advisory council has also been established to identify CSCI and ATMS students having academic challenges to direct them to resources for obtaining assistance (e.g., Advising and Learning Support Center). Student enrollment in the CSCI Department has steadily increased since the fall 2015 semester, while enrollment in the ATMS Department has oscillated, without an obvious trend.

The greatest challenges of the ACES program continue to be [1] how to "get the word out" about the scholarship

opportunities to high school and community college students as the total number of applications since fall 2015 has been surprisingly low (62 total in three years; we're streamlining the application process this year to make it easier to be considered for an ACES award), [2] how to increase the diversity of our applicant and scholars pool, and [3] how to give improved and tailored assistance to students struggling in the Calculus sequence of courses. On the positive side of the ACES program learning, the communities (e.g., The Cloud, special course sections) have received excellent reviews from students as helping them become established socially and academically at UNCA, resulting in a higher probability of retention in a STEM field.