

**TEACHING AMS UNDERGRADUATE COURSES AT A SMALL,  
RURAL MINORITY-SERVING COMMUNITY COLLEGE**

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**1. INTRODUCTION**

New Mexico State University (NMSU) at Grants is a community college campus under the NMSU system. The campus is located in rural northwestern New Mexico. NMSU at Grants is the only higher education institution in the state that is both a Hispanic and Native American serving institution. The student body is 33% Hispanic, 37% Native American, and 30% other, with the latter being almost entirely White non-Hispanic students. There are many challenges for the non-traditional student body. The average student age is 28. Many of the students are adult learners with work and family commitments. 71% of the student body are employed while attending classes. 67% of the students are female, many being mothers returning to school after their children are old enough to attend school. The geographic service area for the campus is a rural and poor area. 77% of the student body is classified as low income. Many students are working to overcome their adverse conditions, and there is a positive community emphasis placed on education in general. 72% of the NMSU at Grants student body are first-generation college students.

These issues, combined with distance and weather, often hinder traditional face-to-face instructional efforts. Compound these factors with the traditional student fear of science and math courses, and instruction of science-based courses is difficult at best. In order for AMS classes, or any new science course to be successful and meet AMS and NMSU-Grants goals of increasing minority enrollment, new methods of instruction and marketing are being utilized to insure adequate enrollment. Often at small community

colleges, problems of low enrollment will cause a course to be cancelled in favor of offering an established course with guaranteed enrolment numbers.

**2. STRATEGIES FOR STUDENT SUCCESS**

AMS undergraduate courses in meteorology and oceanography are able to overcome many of these real and perceived barriers and are a perfect fit for a higher education institution in this environment. Traditional science courses require face-to-face contact at least for laboratories, but the AMS courses are able to overcome this barrier by utilizing Internet-based labs. Students often still require guidance for laboratory work, so a weekly open laboratory session has proven to be useful to the students. Another option that has proven to be very successful is to offer two sections of the course. Section one is a hybrid course, with a weekly lecture and open laboratory session. Section two is offered entirely online and asynchronously, for true distance students that are unable to attend class due to distance and/or employment commitments. Students are allowed to freely transfer between sections as the semester progresses and their needs or situations change. This is not difficult to manage, as both sections of the course complete labs (investigations), chapter quizzes, and tests through the online course management system, Blackboard. Attendance at class lectures or open labs are ungraded and attendance is not taken. Students needing assistance attend as needed. Assistance is also provided to students that are at too great a distance to attend the lecture or lab by utilizing a lab assistant. This lab assistant is usually a work study student that has previously completed the course with a high grade, and is also a science major. This has worked successfully for the distant student. Help is provided via email or telephone. Often, students are reluctant to contact the instructor, but will

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readily contact a student assistant for needed assistance.

In advertising the AMS classes, there is a big emphasis placed on relevancy, due to their real-time laboratory component. Advertising also is used to make the scientific aspect appear as fun, or needed knowledge, with catch phrases such as "Why do I need to learn about the ocean? I live in a desert." or, "Study and learn about hurricanes as they occur." Local media outlets such as newspapers and radio are additionally utilized to promote the courses. Maximum use of free resources such as news releases and the public-service university radio show are utilized to keep advertising costs low. For the first time, a paid radio announcement is being utilized for the new AMS climate science course, and has generated community interest.

### **3. THE RESULTS**

NMSU-Grants has seen a consistent enrollment growth in the AMS undergraduate courses since their adoption. The goal of increased minority enrollment has been met, as minority enrollment has been high. Minority students have chosen to major in environmental science, physical geography, secondary education with an emphasis in science, and other related science fields. The AMS undergraduate courses offered by NMSU-Grants have been instrumental in the recruitment of these minority science majors.

Currently, it is too early in the registration process to judge the success of the new AMS climate course. There are currently 6 students enrolled total in the two sections, with half being minority students. The AMS Oceanography course has been extremely popular and is a more established course. Oceanography currently has an enrollment of 11. It is expected that both courses will be at capacity as registration deadlines approach.

### **4. FUTURE PLANS**

The New Mexico Higher Education Department (HED) recently implemented a common core of classes that are guaranteed to transfer between

higher education institutions within the state. Currently, the AMS science courses are not listed on the New Mexico Common Core. Although there have been no issues with transfer of these courses to other institutions, it is desirable for these course to be added to the common core to insure no future issues with transferability. NMSU at Grants will petition NMSU - Main and the New Mexico HED to have the AMS science courses added to the common core. Additionally, NMSU at Grants will continue to explore new and innovative methods to increase minority student interest and participation in the AMS science courses.