

# Horizons

**Expanding Horizons in Science, Mathematics, Engineering and Technology Sponsored by the National Science Foundation** 

# "Sharing the Wealth"

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ver 250 faculty, staff and students from across the state attended the New Mexico Alliance for Minority Participation (New Mexico AMP) and WERC annual statewide undergraduate student research conference on September 29-30, 2000 at NMSU. The conference, "Sharing the Wealth — A Research and Activity Showcase," brought together students and faculty from the state's 27 public colleges and universities as well as high school junior, seniors, and advisors from the New Mexico Math, Engineering, Science Achievement, Inc., (NM MESA) program.

NMSU President Jay Gogue and College of Engineering Dean Jay Jordan welcomed the conference participants. The keynote speaker was Sylvia Baca, Assistant Secretary, Land and Minerals Management, Department of the Interior; guest speaker was retired New Mexico Court of Appeals Judge Rudy S. Apodaca. Dr. Glenn Kuehn, NMSU Biochemistry professor, received a plaque in recognition of his mentoring and guidance to AMP and WERC students over the years.

This year's conference featured a creative thinking and creative problem-solving workshop for students and faculty facilitated by Gerard Puccio, Director of the Center for Studies in Creativity at Buffalo State College. Other workshops ranging from ACT testing and resume writing through a graduate school panel discussion; leadership training, and internship opportunities were also offered.

The highlight of the conference was the oral and poster presentations given by New Mexico AMP and WERC students to showcase the research conducted during the past year. All presenters received a conference sweatshirt in recognition of their efforts; best overall oral and poster presenters also received a certificate and \$100 cash prize. This year's winners were: Oral presentation (tie): DeNita Wilson (ENMU) and Stephanie Fevig (NMSU); Poster presentation: Jonathan Pena (NMSU). Congratulations to them and to all who presented.

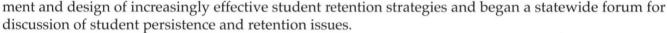
For more conference activities, please see "The Conference in Pictures" on page 6.

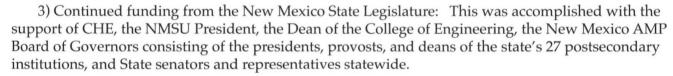
## From the Director.

ith completion of the NSF GPRA report and web-AMP data collection reporting, New Mexico AMP can proudly point to another successful year. The percentage of minorities receiving a BS degree in SMET now stands at 44.2%, up from the 1992/93 baseline of 23.7%. We can also note with pride the accomplishments of the past year built on the strong foundation of the previous six years of commitment and effort. For the NSF-GPRA 2000 we pointed to the following as highlights of our program:

1) Teambuilding workshops for the Institutional Coordinators (ICs) of the alliance partners: The workshops were developed based on New Mexico AMP's internal evaluation process. These discussions indicated a need to expand and strengthen campuswide participation, collaboration between institutions, and leveraging of existing resources (programs, staff, and funding) to accomplish our goals.

2) Hosting the first "New Mexico Student Persistence/ Retention Summit Conference" in February 2000 in tandem with the New Mexico Higher Education Assessment Association's 2000 Conference: This retention effort was directed toward the development and design of increasingly effective student retention strategies





- 4) Continued formative and summative evaluation: A Phase I evaluation report was completed, and a Phase II evaluation plan including a schedule of deliverables has been developed. This evaluation will include a final report detailing the individual partners' status and performance as proposed in their Institutional Program Plan, as well as documentation of what each partner is currently doing in the AMP program on their campus.
- 5) Continued development of industry relationships: A proposal to RAYTHEON Missile Systems resulted in money for several minority programs in the NMSU College of Engineering including New Mexico AMP. The W. K. Kellogg Foundation awarded a \$98,700 planning grant to NMSU to continue its work to address the Hispanic drop out problem and to improve higher education opportunities for Hispanic youth. AMP administrators Ricardo Jacquez and Michele Buntain participated in the proposal writing effort that secured the planning grant. The Bureau of Land Management worked with AMP to disseminate information about summer internships available to New Mexico AMP students.

As you can see, we've done a lot; and as always, what we've accomplished is due to the hard work of the staff and students of New Mexico AMP — thank you!

Ricardo B. Jacquez

Ricardo B. Jacquez, Director New Mexico AMP

# People, Places, and Things . . . . . . . .

ith a grant of \$2.5 million from the National Science Foundation, New Mexico State University's Graduate School is coordinating a program aimed at tripling the number of science, mathematics and engineering Ph.D.s awarded to minority students in New Mexico. The original proposal was a collaboration of New Mexico AMP, the NMSU Graduate School, Departments in the Colleges of Engineering, and Arts and Sciences, the Ethnic Program Offices, Student Support Services, and the McNair Program.

In partnership with the University of New Mexico and New Mexico Tech, the grant will be used to create the New Mexico Alliance for Graduate Education and the Professoriate (NM-AGEP). NMSU will serve as the lead institution on the grant, said Christine Marlow, associate dean of NMSU's graduate school and the project's director.

Marlow said the program, one of 20 nationwide, hopes to reverse a trend that has raised concern in the National Science Foundation. "Although we've seen some increases in minority graduate students, many do not go on to complete Ph.D.s," she said. "Many are actively recruited at the master's level by private companies and feel no

incentive to complete a doctorate. When you look at those who enter the professoriate, that number is even smaller."

To address the situation, NM-AGEP will take steps to:

- Enchance teaching stipends for students in the program
- Sponsor teaching workshops to ensure students are prepared to teach
- Provide mentoring workshops for faculty
- Sponsor an annual NM-AGEP conference
- Help faculty members set up a communications network
- Develop cross-disciplinary cross-university programs to give students greater flexibility in what they study
- Engage the colleges in systematic recruiting efforts
- Provide graduate students with opportunities to team teach courses with experienced professors
- Produce a newsletter and web page
- Conduct workshops with the students on how to maintain personal integrity and cultural pride in an academic setting.

For more information, contact Christine Marlow at (505) 646-5746.

(from NMSU University Communications Press Release, October 5, 2000)



AGEP Project Director Christine Marlow, Assoc. Dean, NMSU Graduate School, and Ricardo B. Jacquez, Director, New Mexico AMP

ongratulations to the University of New Mexico's Minority Engineering, Math and Science (MEMS) program which received the 2000 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. Associate Director Tom Cummings and Acting Director Maurice Thompson attended the presidential awards ceremony sponsored by the NSF on September 7-9 in Washington D.C. where a total of 10 programs were honored. At the ceremony Cummings and Thompson were able to report on and publicize MEMS and its student support programs. Award winners were also granted an exclusive tour of the White House.

# People, Places, and Things . . . . . . . .

he Southwestern Indian Polytechnic Institute (SIPI) AMP Program continued its collaboration with the University of New Mexico this trimester. The program gives SIPI students the chance to learn more about UNM in a collaborative effort where they can experience college life first hand. The UNM AMP Program encourages SIPI students to complete their Associates degree and transfer to UNM.

On October 5-6, students of SIPI met with their UNM mentors. The students attended a career fair sponsored by organizations such as NASA, IBM, Intel and other national corporations. Students toured the campus and met with many key individuals from UNM support organizations, departments, the Super Computing Center, UNM Bookstore, Zimmerman Library and the Southwest Center for Research. IBM hosted a lunch for the students. Fifteen UNM students and eighteen SIPI students participate in the UNM/SIPI AMP Collaborative.



Students leaving the UNM Bookstore on their way back to the College of Engineering. While at the bookstore each was given a schedule and told to locate their books and record the price.

n Oct. 28, UNM and SIPI AMP Collaborative students met at SIPI for a community service project (see pictures, right). The students painted campus trash cans, helped at a cross-country meet, spoke to Upward Bound high school students and their parents about college life, preparing for college and had lunch together.

Story and Photos courtesy of Cathy Abieta/ AMP Coordinator, SIPI



Students in the virtual reality lab at the Super Computing Center.





outhwestern Indian Polytechnic Institute (SIPI) is home to one of the Cultural Learning Centers being built at tribal colleges in 12 states. The community action project demonstrated how partnerships can be created and maintained between the private sector and tribal colleges. Initiated by the American Indian Higher Education Consortium (AIHEC) the project will impact over 250 federally recognized tribes. The AIHEC Cultural Learning Centers will be used for a variety of purposes with the shared objectives of celebrating Native culture and facilitating cross-cultural understanding and education while promoting educational tourism and economic development and reinforcing tribal identities.

SIPI is unique among the AIHEC members because it is a national Indian community college with a mission to provide a rigorous and tribally responsive post-secondary learning environment within which American Indian and Alaska Native students acquire advanced technical skills needed by industry and tribal governments.

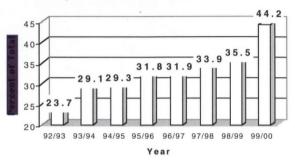
SIPI students are also constructing a "Wall of Fame" within the learning center which will celebrate the achievements of Native American scientists, engineers and mathematicians.

# New Mexico AMP Annual Report to NSF....

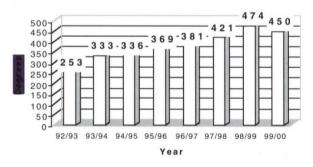
he annual Government Performance Review Act (GPRA) report was sent to NSF on October 31, 2000. This document reports on the program initiatives of New Mexico AMP alone and in collaboration with other NSF-sponsored programs, national laboratories, industry and other state and federal agencies. Based on a matrix of reporting items required by NSF, it provides an overview of the Alliance's activities and program initiatives which include scholarships, community service, summer bridge, SMET 101, mentoring, undergraduate research assistantships, internships, tutoring, transfer and articulation, recruitment, retention, program evaluation, and the Annual New Mexico AMP/WERC Statewide Undergraduate Student Research Conference.

New Mexico AMP again demonstrated continued progress toward our goal of increasing the number of B.S. degrees awarded to minorities in SMET disciplines. The number of SMET degrees awarded to minorities in the state has risen from 253 in 1993 to 450 in 2000 a **78 percent increase**. In 1999/00, **44.2 percent** of SMET degrees were awarded to minorities, up from 24% in 1992/93.

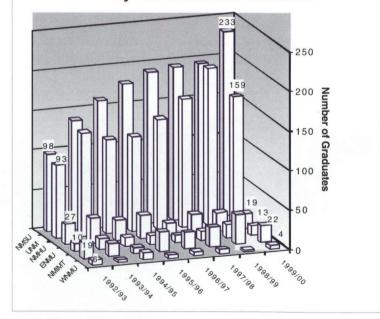
Percentage of Minority SMET B.S. Degrees by New Mexico Institutions



Minority SMET B.S. Degrees Awarded by New Mexico Institutions



Total SMET B.S. Degrees Awarded to Minorities by New Mexico AMP Institution



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Continued from page 1



(left to right) NMSU President G. Jay Gogue, Sylvia Baca, Asst. Secretary for Land and Minerals Management, Department of the Interior, Elba Garcia-Burke, BLM, and Ricardo B. Jacquez, New Mexico AMP Director.



Guest Speaker Judge Rudy S. Apodaca (left) with Chemistry Professor Dr. Glenn Kuehn who was recognized at the conference for his mentoring of AMP/WERC students.





(above left) Oral and poster presenters. (above right) Frank Jurado III (r) discusses his poster with a judge.

(left) Oral presentation winners Stephanie Fevig (NMSU) and DeNita Wilson (ENMU).

(right) Presentation judges Nancy Chanover (l) and Mack Haley (r) offer comments to UTEP student Jose Gabriela Mares after her presentation.







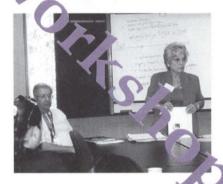
Dr. Gerard Puccio, Director of the Center for Studies in Creativity at Buffalo State College, NY, conducted workshops on creative problem solving.

(left) Students build newspaper sculptures of what creativity looks like to them.



(right) AMP Coordinator Jim Phillips from San Juan College and his students share a laugh.





(far left) Martin Ahumada, President, International Center for Higher Education and Philanthropy, presents "Rethinking Leadership and Leadership Training."

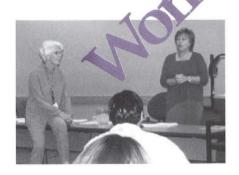
(near left) Elba Garcia-Burke and John Matis discuss internship opportunities at the Bureau of Land Management.

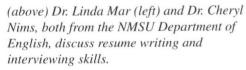




(above left) AMP Director Ricardo Jacquez facilitates the student panel with panel members Cristina Briones and Geno Higgins.

(above right) Professional panel members (l to r) Pam Herrera (BLM), Leonard Lowe (NASA/WSTF), Luz Elena Mimbela (NMSU/SWTDI), and Ralph Tildon, NMSU/ET.





(right) The Graduate School Panel members

Quincey Quick, Amorita Solano, Dr. Gabriel Garcia, and moderator Dr. Sarah Harcum.



## 

n January 2000, New Mexico AMP began a series of teambuilding workshops for the Institutional Coordinators (ICs) at the Alliance institutions. The workshops were developed based on New Mexico AMP's internal evaluation process. These discussions indicated a need to expand and strengthen campus-wide participation, collaboration between institutions, and leveraging of existing resources (programs, staff, and funding) to accomplish our goals. The need for building long-term sustainability and support for New Mexico AMP initiatives and goals was emphasized in order to support the attainment of increased activity in these areas. With the program near the mid-point of Phase II, and with new ICs and administrators on many of the campuses, it was determined that it would be appropriate to have the campuses review their current teams and determine where and how they could be strengthened.

The workshops generated ideas for identifying and recruiting team members; designing strategies for using the team concept; and identifying a process to develop and promote AMP on individual campuses.

The first workshop, held in January and repeated in March, presented four main topics for discussion. First, <u>History and Barriers</u>, examined reasons for

non-institutional buy-in and what can or cannot be done to overcome those barriers; second, New Mexico AMP's Mission and Your Institution's Mission, looked at the ways in which the missions of AMP and the mission of the institutions converge and diverge; third, The Campus Team and Team Functions determined the offices and

DC & SJC NNMCC UNM-T & & ИМНИ UNM-LA ☆ ☆ UNM-G MTC UNM & SIPI NMSU-G ☆ UNM-V ☆ CCC & ENMU & NMIMT ENMU-R ENMU-RC WNMU 3 NMJC ☆ NMSU NMSU-DA ☆ NMSU-C ☆

individuals that support the program elements and how they could be brought together as a team, and then defined the team's purpose and functions. Fourth, Desired Outcomes and Goals, looked at the overall desired outcomes on the individual campus and the program as a whole and what could be done to achieve that goal.

A key area of agreement was that the ICs would need to meet with their campus administrators to strengthen the team concept and to ensure the institution's support for AMP activities on their campus. To assist in that process, it was suggested that an "Alliance-level report card" and an "institutional report card" be devel-

oped. These would be used to demonstrate the success of the program statewide and the individual activities and successes on each campus.

In May, the ICs met again to report on their team-building progress. At that time the Alliance level report card, developed in the AMP administrative office was presented along with a suggested template for the institutions' use. Several campuses indicated they were making good

progress, others had trouble meeting with the campus administrators, or there had been changes in the administration and they had to begin again. At the annual conference in September, several ICs presented a written report on their success to date in their total team building process. Those are summarized on the following page.

## Eastern New Mexico University - Regina Aragon, IC

Regina Aragon met with VP-Academic Affairs Dr. K. Paul Jones and updated him on AMP activities on campus as Dr. Jones is new to the campus. They also discussed support for AMP initiatives beyond 2003. Dr. Jones requested 5-7 year averages on data including the number of SMET graduates who were AMP supported vs. those who were not AMP supported; SMET majors vs. non-SMET majors; and the numbers of SMET minorities both before and after AMP began. Subsequent to that meeting, two advisory committees were formed. One, a support staff advisory committee will include the directors of recruiting, admissions, financial aid, the office of development, and alumni affairs. The faculty advisory committee will include representatives from the physics, chemistry, mathematical sciences and biology departments. The focus of the campus team at ENMU will be to assess, improve, and find future support for scholarships, a URA/ internship program, and recruitment of SMET students who are minorities.

#### San Juan College -Jim Phillips, IC

Jim Phillips first met with the Dean of Math and Science who shared the campus AMP information with the Dean of Learning and the President of San Juan College. In early November a meeting was held with the administrators, faculty and staff who will form the campus team and are most involved with the program areas affecting AMP students. The group worked through the individual AMP program elements soliciting comments and concerns about implementation. The results included ideas for adding a unit on programming graphing calculators to the SMET 110 (SMET 101) class; looking to the community for mentors and tutors; and increasing internships or other summer employment for students with local SMET companies. Further discussions are planned.

#### New Mexico Highlands University -Dr. Tomas Salazar, IC

Tomas Salazar met with NMHU President Selimo Rael and VP-Research and Planning Dr. Juan Juarez. A list of significant AMP contributions to NMHU were presented and included the URA program, cooperative learning agreements, faculty members involved in advisor-mentor roles, SMET 101, and enhanced student undergraduate experiences through student organizations and community outreach, among others. The campus team concept has the potential for being very useful on the NMHU campus as it helps direct careful decisions in times of diminishing resources and allows for the best interests of the entire institution to be addressed.

#### SIPI - Cathy Abeita, IC

Cathy Abeita met with the SIPI Board of Regents and the SIPI President and shared the results of the AMP program on the SIPI campus including the SIPI/UNM Collaborative, the student newsletter, student organization, and writer's workshop among many others.

The SIPI campus team will be made up of the President, Dean of Student Services, SMET Chairs, and identified faculty leaders and key support staff.

#### New Mexico Junior College -Robert Turner, IC

Robert Turner put together a team at NMIC consisting of the NMJC president, Dean of Arts and Sciences, the Director of Counseling, math, chemistry and computer science faculty, administrator of Computer Analysis and a student representative. In particular, the Dean will have a major role on this team because the SMET disciplines are administered from his college. Prior campus awareness of the program has helped in recruiting new AMP participants, Study Buddy Groups and the AMP student club. The goal of the campus team is to increase that awareness and to identify and implement successful SMET classes and opportunities that fit the demographics of the service area.

#### UNM-Los Alamos - Lori Heimdahl, IC

Lori Heimdahl is integrating the AMP team into the existing College Cornerstone program at UNM-LA with the support of the Executive Director, Associate Director for Instruction and others from all areas of faculty, staff and administration. Their goals will be to provide educational opportunities and academic strategies for underrepresented minority student success.

## AMP in the News.

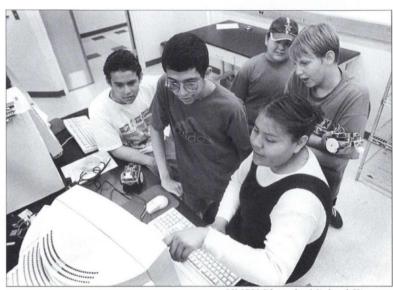
#### From "The Hobbs News-Sun":

Pete Garza, Jr., former NMJC AMP student and ENMU graduate was featured as "teacher of the week" in The Hobbs News-Sun weekly profile of teachers new to the Hobbs Municipal Schools. Garza teaches math to seventh and eighth graders at Heizer Junior High School. As part of the interview Garza was asked what he hoped to accomplish as a teacher. He replied, "I wish for my students not only to learn, but also be able to apply the information. I wish to be effective."

#### Press Release/Santa Fe, NM

The National Center for Genome Resources awarded six minority scholarships and summer internships to undergraduate students; four were awarded to AMP students—two from UNM and two from NMSU. An additional NMSU student was funded directly by AMP to participate as an NCGR intern.

Intern Jacquelyn Jacques from NMSU noted that she was glad she had applied for the internship because "I'm actually having to do some of the things that the other scientists are doing."



NMSU Photo by Michael Kiernan

## From "Aggie Panorama" (NMSU) and The Bulletin (Las Cruces):

New Mexico AMP student Kimberly Nelson, (pictured above right) shows local middle and high school students how to build and program robots. With her are (from left) Nick Mendoza, ninth grade, Las Cruces High School; Chris Simpson, tenth grade, Onate High School; Aaron Rodriguez, seventh grade, Vista Middle School; and Jeffrey Evans, ninth grade, Las Cruces High School.

Nelson is an Electrical Engineering Technology major who transferred to NMSU from Diné College. Her summer project involved learning how to build and program light and heat-seeking robots. The project was sponsored by the Regional Alliance for Science, Engineering and Mathematics for Students with Disabilities (RASEM).

## Las Cruces KGRT Radio & KFOX-TV:

KGRT radio and KFOX-TV (Las Cruces cable channel 8) picked up a story in the NMSU publication <u>Aggie Panorama</u> written by Rachel Kendall, NMSU University Communications which featured New Mexico AMP.

#### From the "SIPI Times" Student Newspaper and "Albuquerque Tribune":

SIPI student Genevieve Eros was selected as the American Indian Higher Education Consortium Student of the Year, for 2000. This honor was a result of her academic abilities and her commitment to improve the school. She is President of Phi Theta Kappa, the honor society at SIPI.

## **New Mexico AMP Participating Institutions**

## Albuquerque Technical Vocational Institute

Jenna Johnson, Dean of Students (505) 224-3674

#### Clovis Community College

April Dickenson Director of Financial Aid (505) 769-4064

#### Diné College

Clarissa Bowman Institutional Coordinator (505) 368-3555

### Eastern New Mexico University (ENMU)

Dr. Regina Aragón Assistant Professor of Mathematics (505) 562-2328

#### **ENMU-Roswell**

Bob Bowman, Dean Student Services (505) 624-7158

#### **ENMU-Ruidoso**

James P. Miller, Jr. Campus Director (505) 257-2162

#### Luna Vocational Technical Institute

Hilario Francisco Rubio AMP Coordinator (505) 454-2533

#### Mesa Technical College

Christine Allen AMP Coordinator (505) 461-4413

#### **New Mexico Highlands University**

Dr. Tomas Salazar Dean of Arts & Sciences (505) 454-3399

### New Mexico Institute of Mining and Technology

Eric Van Coordinator of Minority Affairs (505) 835-5538

#### New Mexico Junior College

Robert Turner Program Coordinator (505) 392-5411

#### **New Mexico Military Institute**

Dr. William E. Gibbs Academic Dean (505) 624-8022

Jerry Garcia Program Coordinator (505) 624-8152

#### New Mexico State University (NMSU)

Michele Auzenne Buntain Program Manager (505) 646-1847

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#### NMSU-Alamogordo Branch

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Mike Adams Division Head, Technical Studies (505) 527-7590

#### **NMSU-Grants Branch**

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#### San Juan College

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#### **UNM-Gallup Campus**

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Lori Heimdahl Senior Academic Advisor (505) 661-0332

#### **UNM-Taos Campus**

Jim Gilroy Academic Head for Science & Natural Resources (505) 758-7898

#### **UNM-Valencia Campus**

Dr. Miriam Chavez Science Department Chair (505) 925-8613

#### Western New Mexico University

Mary Dowse Asst. Professor, Geology (505) 538-6352

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