

Criterion Four. Teaching and Learning: Evaluation and Improvement

The institution demonstrates responsibility for the quality of its educational programs, learning environments, and support services, and it evaluates their effectiveness for student learning through processes designed to promote continuous improvement.

4.C. The institution demonstrates a commitment to educational improvement through ongoing attention to retention, persistence, and completion rates in its degree and certificate programs.

1. The institution has defined goals for student retention, persistence, and completion that are ambitious but attainable and appropriate to its mission, student populations, and educational offerings.
2. The institution collects and analyzes information on student retention, persistence, and completion of its programs.
3. The institution uses information on student retention, persistence, and completion of programs to make improvements as warranted by the data.
4. The institution's processes and methodologies for collecting and analyzing information on student retention, persistence, and completion of programs reflect good practice. (Institutions are not required to use IPEDS definitions in their determination of persistence or completion rates. Institutions are encouraged to choose measures that are suitable to their student populations, but institutions are accountable for the validity of their measures.)

Argument

Retention, Persistence and Completion Appropriate to Mission, Student Population and Educational Offerings

Retention Initiatives and Success

As discussed in 1.A., students who enroll at NMT are coming for a degree in STEM; thus, we want them to keep this focus and be successful. For the last ten years, the NMT President has made improved retention one of his peak performance goals to the Board of Regents. A five-year longitudinal study into retention and completion began in 2003 that included surveys, focus groups, institutional data and comparisons of attrition and

graduation rates with peer institutions. A Retention Task Force was formed in 2005. Retention and completion are the first items of the 2006-2011 Strategic Plan, stated as follows:

GOAL I. NEW MEXICO TECH WILL ENHANCE ACADEMIC EXCELLENCE AND STUDENT SUCCESS.

Strategy A: Create a strong student development and retention program

Metrics:

1. Increase 6-year graduation rate to 50 percent and first year retention to 80 percent. A fully developed retention plan will be in place and in operation by June 2007.

About this same time, the economic downturn occurred. Piloting academic initiatives often takes funding, so when NMT became eligible for applying for funding through the Department of Education as a Hispanic-Serving Institution, the Office of Academic Affairs led the institution in obtaining funding to pilot retention initiatives.

In 2009, members of the Retention Task Force, which included Academic Affairs, faculty and student success and institutional research staff, functioned as the Title V Planning Team to design the A Model for Student Engagement and Success (SES) grant proposal, which has retention as its focus.

The grant, awarded in 2010, initiated the following to increase student engagement: Living Learning Communities (LLCs) with a research/design component, Learning Coaches/Tutors, faculty teaching resources through the Center for Innovative Teaching and Learning, 11 smart classrooms, and 4 learning labs in the residence halls. With the research/design component for Freshmen, students no longer have to wait until Junior year to become involved in research or design, which is again, the reason they come to NMT.

The LLCs (to be retitled First Year Research and First Year Design) are showing great results that is contributing to retention: the retention of Freshmen involved in the first LLC cohort (2011-2012) was 82%. Results from the last completed cohort (approximately a quarter of the incoming Freshman in 2013-2014) has seen the retention rate climb to 84%.

The institutionalization of this grant is the Office for Student Learning; this academic student support office and its initiatives are discussed in 3.D.

Because success in Math is critical to success at NMT, our retention study suggested that not progressing to Calculus as quickly as possible could contribute to not retaining students; the lower the Math they begin at NMT, the greater their chances for not staying until Sophomore year or, if they do persist, the longer it will take for these students to graduate. Thus, as is stated in several other places in this report, supporting students in gaining competency in the Math courses prior to Calculus, specifically Pre-Calculus and Trigonometry, so that they can pass quickly into Calculus, is the basis for success at

NMT. Thus, Academic Affairs led the creation of a proposal submitted to the Department of Education that grant focuses on student success in Pre-Calculus and Trigonometry as well as on increasing the attainment of Engineering degrees by Hispanic and low-income students in New Mexico, whether freshman or transfer, was written -- the HSI-STEM: Entryway to Engineering Success. NMT was awarded this grant in 2011.

Through this grant, we have redesigned our Pre-Calculus and Trigonometry courses that include interactive computer-based instruction to help students get to Calculus I, which is, again, critical for all degrees. The baseline pass rate for Pre-Calculus was 43%. As of Fall 2013, with the redesign in place, the pass rate jumped to 77%. The Trigonometry baseline was 64%. In Spring 2014, this pass rate had increased to 73%. [evidence files]

Also, with Engineering being nearly three-quarters of our enrollment, to keep students engaged upon entering NMT, we have redesigned our Introduction to Engineering course, which uses the new Engineering Lab, through funding by the HIS-STEM grant.

The Alcohol Safety Awareness Program (ASAP), a program run by undergraduate student co-leaders with the direction of the Associate Vice President for Academic Affairs and with the Behavioral Intervention Team as its advisory committee, began at NMT in Fall 2012. Funded by the grant, the program is designed to increase student retention, persistence and completion by educating students on positive behaviors and the risks of binge and illegal drinking. While we cannot assess if the program has contributed directly to student retention, studies show/suggest that drinking does contribute to students leaving college and that awareness programs can help in keeping students focused on being successful in college. The six-college consortium of which ASAP is a part conducts an annual survey that reveals that in a five-year period, from , risky drinking has decreased among these college students in New Mexico. [evidence] After just 6.5 months of the presence of the ASAP on campus, 24.2% of students surveyed stated that the campus ASAP information has been helpful and/or informative [New Mexico Tech Student Lifestyle Survey 2013, n=348].

Resulting from these retention efforts, NMT's IPEDS retention rate has increased steadily from 69% in Fall 2008, making significant increases since the Fall 2011 piloting of the SES grant initiatives to 74% in Fall 2012 to 77% in Fall 2013, and to our Fall 2014 retention of 79%.

Thus, we are moving steadily to our goal of 80%.

Based on the trend line in the evidence file, NMT expects the 2016 Freshman cohort to have an 83% retention rate. Our plans for retention improvement over the next three years include:

1. Continued growth of and institutional support for the freshmen Living Learning Communities, which have directly contributed to increased retention for the last four years.
2. In depth analysis of our undergraduate admission requirements to ensure

- we are admitting students who are prepared to succeed at NMT.
3. Increase initiatives to involve undergraduate students in research, including new internal funding for this purpose.
 4. Implementation of two new software programs to help us identify additional factors to improve student retention and success.
 5. Continue Pre-Calculus and Trigonometry redesign, which has resulted in a higher pass rate for both courses.

Persistence and Completion Analysis and Initiatives

Because our majors require from 130 to 136 credit hours, with Math courses before Calculus I often not counting in this required number of hours, and due to a very rigorous curriculum to create scientists and engineers who perform surgery and build bridges, as is discussed in 1.A., expecting the majority of our majors to graduate in four years is not realistic. We expect a five to six-year graduation rate.

However, we also expect to see an increase in our six-year graduation rate due to the increase of students passing into Calculus I, as discussed above in our retention initiatives. This is because studies show that if we retain our students to Junior year, a large percentage will graduate in 6 years or less. Thus, the IPEDs percentage is probably showing the percentage of students that left NMT before Junior year more than the number who are graduating in greater than six years. [analysis of completion rates located on the Institutional Research webpage] [analysis of transfer student retention rates located on the Institutional Research webpage]

Concerning graduation rates, IPEDs only tells us how long it took for a percentage of a cohort of students entering in the same year to graduate in 6 years or less.

Thus, to discover the contributing factors to student retention, persistence and completion, Academic Affairs collects data about the students who graduated in one year, for example the 2012-2013 academic year, such as student preparedness upon entering Tech based on: dual credit, AP credit, Math placement, and transfer credit. Then, we look at completion rates, whether the student is a science or engineering student, and student GPAs upon graduation. We collect the same data by major. [evidence files]

From this study, our data reveals, for the students who graduated in 2012-2013:

- Average graduation for FTF in Engineering is 4.85 yr.
- Average graduation for FTF in the Sciences is 4.94 yr.
- Average graduation for FTF & Transfer in Engineering is 4.48 yr.
- Average graduation for FTF & Transfer in Sciences is 4.68 yr.
- 87.6% total students (FTF & Transfer) graduated in 6.0 years or less.
- 53.4% of these placed in Calculus I or higher when they enrolled at NMT.

Persistence initiatives include discussions about Sophomore research or design opportunities, similar to the First Year Research/Design, and the Student Research Symposium, our HLC Quality Initiative for 2011 to 2024, which engages students in sharing knowledge about their research and design projects and, thus, building community.

New strategic plan and retention, persistence and completion

The Growth Task Force of the new Strategic Plan reports that retention, persistence and completion “goals are purposefully included in the strategic plan.” This Task Force adds: “The strategic plan calls for increased activity in this area [of collection and analysis of data for retention, persistence and completion.] We will begin analyzing new metrics at the undergraduate and graduate levels and will be implementing new software packages to assist with identifying areas that obstruct student retention, persistence, and completion.” [evidence]

Faculty Senate Retention Committee and Institutional Student Learning Team

The faculty senate retention committee investigates issues of retention, persistence, and completion at New Mexico Tech and provides reports and makes recommendations to the full senate. In recent years members of the committee have been involved in planning for the SES and HSI-STEM grants.

Advising **need something here**

The PPOHA grant strives for improved student learning through the process of assessment and evaluation of the programs developed and implemented through the grant. Annual, and in some cases biannual, assessments are conducted on each of the new or ongoing programs developed under the PPOHA grant. Strengths and deficiencies of each individual program are identified, and each program is redesigned in accordance with the assessment results.

As evidenced in the graph, NMT has reached its objective to increase Hispanic graduate student enrollment by 10%. The enrollment was due, in part, to the funding provided by T5 PPOHA for summer Fellowships to low-income and minority students. Without this funding, many of the students would have gone unsupported and would have been unable to continue their education through the summer. This summer Fellowship funding freed up financial aid for graduate students to help offset costs for Fall tuition.

The attached manual explains the data reporting standards for institutions of higher education in New Mexico. The Higher Education Department ensures that NMT stays in compliance with these standards of data collection and reporting.

Attached is a screen shot of the IPEDs webpage, which lays out its expectations for collecting and analyzing student data and with which we are compliant.

Attached is the current job description for NMT's Institutional Researcher to demonstrate the required education and skill set for the position.

Attached is a screen shot of NMT's Institutional Research webpage, which demonstrates that we make our IPEDs data available to the public.

Attached is the portion of the New Mexico Administrative Code that states the legal standards for auditing NMT's enrollment numbers. New Mexico Tech collects and reports its data in a manner that assures the institution would pass this audit.

Attached is the portion of the New Mexico Administrative Code that states the legal standards for reporting enrollment numbers. New Mexico Tech applies this definition when reporting any official enrollment figure.

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