



## PROGRAM INFORMATION

**Mission Statement:** Collaborate & Strengthen, Engage & Connect

- **Collaborate & Strengthen.** *Collaborate with UNM STEM programs to strengthen UNM STEM education efforts.*
- **Engage & Connect.** *Engage students in STEM exploration and enrichment activities. Connect students to STEM departments and support programs.*

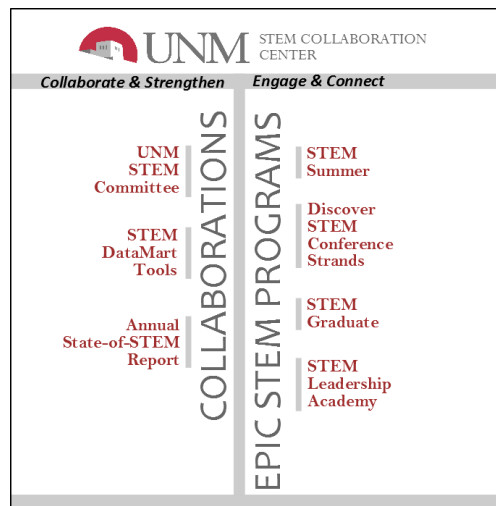
### Overview

The STEM Collaboration Center (STCC) is funded through a five-year developmental grant from the US Department of Education for approximately \$2.6M.

This grant is available only to institutions who serve large Hispanic student populations. Consequently, the STCC activities are designed to increase the institution's capacity to address the needs of Hispanic students (as well as low-income and "high need" students in accordance with the grant guidelines). However, the activities are open to ALL students. This is an important distinction. While many of our reporting outcomes are focused on select populations of students, we will recruit and serve all students.

In relation to this grant, the STCC programs fall into two categories: (1) Strategies designed to strengthen collaboration between UNM programs that serve STEM students, and (2) Strategies designed to further engage first- and second-year students in STEM exploration and planning (figure 1).

***Figure 1. STCC Structure***



## **PROMOTING COLLABORATION**

### *Collaborate & Strengthen*

**UNM STEM Committee.** This committee or coalition will include cross-institutional participation among faculty, staff, administrators, students and community representatives. It will focus on STEM support programming anchored at UNM, including outreach programs designed to improve the STEM education pipeline. The STEM committee will collaborate on multiple projects, including:

- Researching, proposing and monitoring UNM STEM goals
- Developing an online STEM directory of UNM programs, and creating a concept map that illustrates how these programs are connected
- Studying high impact practices utilized by UNM student support programs
- Building a communications network and service that promotes STEM activities and opportunities to UNM students

**DataMart Tools.** Working closely with the STEM committee, the STCC and the Office of Institutional Analytics will create DataMart tools that help University administrators and STEM program faculty & staff improve STEM education at UNM. These tools will include:

- A cohort tracking tool that helps STEM programs track student participation, and correlate that participation to student achievement outcomes.
- An accountability and credit tool that helps STEM departments and programs quantify their impact on STEM student graduation, regardless of major or academic discipline.
- Data collection tools to help the "State of STEM" team to identify strengths, challenges, overlaps and gaps in STEM education at UNM.

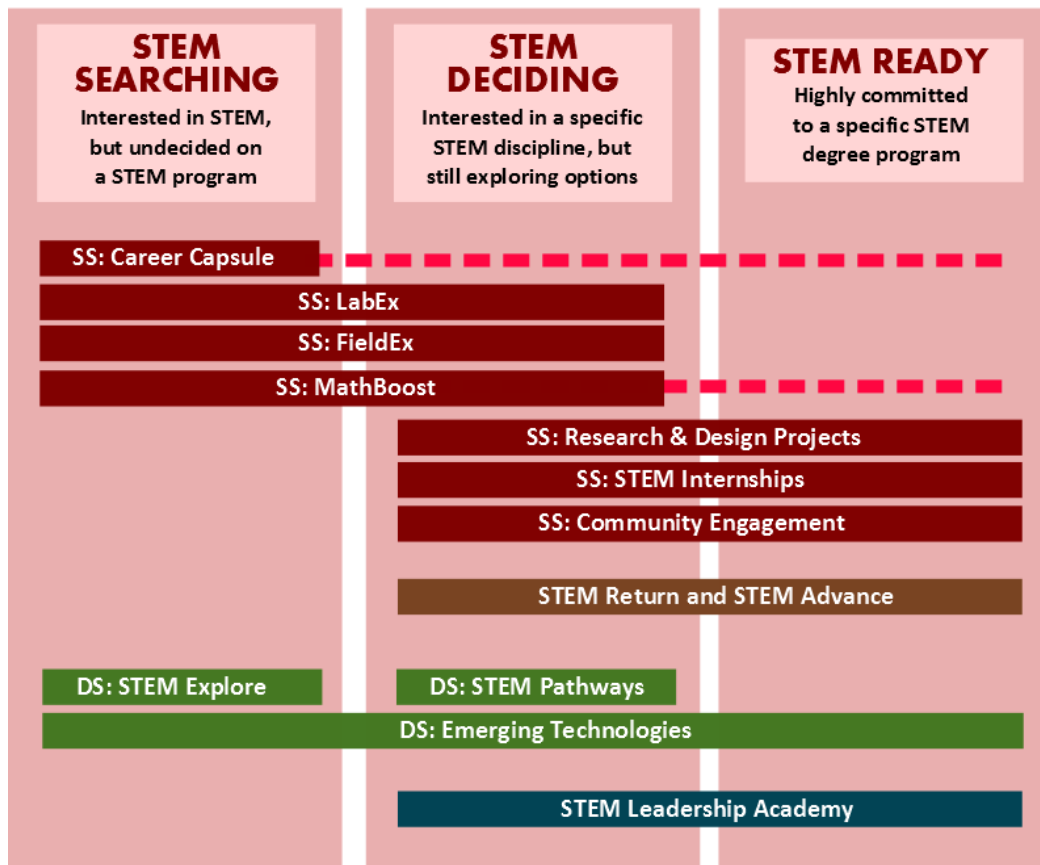
**Annual "State of STEM" Report.** A team of faculty, staff, students and community members will research and publish an annual "State of STEM" Report. This report will be presented to the Provost and to the President, but will also be available publicly on the STCC website. The report will include (1) a description of current STEM student support programming, (2) an assessment of UNM's progress towards improving STEM student achievement outcomes, and (3) recommendations for improving STEM achievement.

## FIRST-YEAR AND SECOND-YEAR STEM STUDENT PROGRAMMING (EPIC STEM)

### *Engage & Connect*

Many STEM students have limited exposure to STEM activities during their first two years. While they may be advised by department advisors, they may not participate in undergraduate research or engage in substantial or exciting STEM programming until their third year. This is especially true for students who are “STEM searching” or “STEM deciding” (see figure 2). EPIC STEM programs are designed to keep these students engaged with their STEM aspirations during the first two years, and to connect them to existing STEM departments and programs at UNM. EPIC STEM activities will encourage students to learn about and utilize more comprehensive STEM programs at UNM, including those that offer substantial mentoring, instruction and academic support services.

**Figure 2. STEM Students and EPIC STEM Programs**



**STEM Summer.** STEM Summer will provide first-year and second-year students with opportunities to explore STEM disciplines, see themselves as STEM practitioners, plan for STEM degree completion, and accelerate their acquisition of key skillsets. STEM Summer will be offered in a modular format, so that students can pick the activities that most resonate with them. STEM Summer programming initially will be offered in these formats:

- **STEM Discovery Series.** One-day workshops or trips that introduce students to innovative research projects or future employment/internship opportunities. Examples: (1) Visit the Very Large Array with a faculty member who conducts research there, (2) Learn about Sandia National Lab research and opportunities from Sandia scientists, and (3) Visit Valles Caldera with graduate student researchers to learn how they conduct research there.
- **Innovation Projects.** Classes or comprehensive workshops designed to engage students in scientific research, innovation or product design. These projects will be taught by UNM faculty researchers, and will include significant collaboration among participants. Examples include: (1) Innovation academy interdisciplinary courses, and (2) Engineering research & design workshops.
- **STEM Special Topics Studios.** Month-long classes designed to introduce students to special interest STEM topics. Examples include: (1) The Science of National Security, (2) Cultivating an Entrepreneurial Mindset, (3) The Science of Self-Efficacy and Learning, (4) Introduction to Information Literacy.
- **STEM Outreach & Internships.** Volunteer opportunities that provide students with important STEM workplace skills, or that allow STEM students to contribute to others. Examples include: (1) Internships at Explora for STEM-Education students, and (2) STEM Student-to-Student Welcome Day for incoming STEM-interested freshmen.
- **STEM Career Exploration & Pathways Resources:** Workshops or online resources designed to assist students in exploring STEM careers, and charting their paths to specific STEM degrees and professions.
- **STEM Leadership Series:** Workshops designed to provide students with the skills to assume leadership roles within their STEM majors and professions. Examples include: (1) STEM Leader Coffeehouse Chat (with leading STEM leaders and researchers in the ABQ region), and (2) Hot Topics Brown Bag Luncheons (with UNM faculty members who are leading the way in areas such as pandemic research, 3D printing & materials, and drone technology).
- **Emerging Technology Series:** Tours, trips and workshops designed to introduce students to emerging technologies. Examples include: (1) Tours of UNM's STEM research centers, (2) Tours of Intel, and (3) Technology Fair in the Student Union Building.
- **Summer Academic Support Opportunities:** Structured learning support opportunities for students enrolled in STEM summer courses. The first of these projects will be MathBoost, a program that will allow students to complete two math courses during one summer within a highly supported environment.

**STEM Graduate.** The STCC will support the Office of Student Academic Success in their efforts to assist (1) STEM students who have stopped attending UNM prior to completing their degrees, and (2) STEM students who are taking longer than expected to complete their degrees. Support will be provided in the form of a Graduate Assistant to work with students, and DataMart tools to help staff identify, track and support these STEM students.

**Discover STEM Conference Strands.** The STCC will work with Career Services, the Graduate Resource Center and other partner departments to participate in existing student conferences. This participation will include three strands: (1) The Career Exploration Strand will introduce students to STEM careers and disciplines; (2) The STEM Pathways Strand will help students chart their pathways to degree completion, graduate school and future employment; and (3) The Emerging Technologies Strand will introduce students to emerging technologies in STEM, especially those connected to UNM faculty research and development.

**STEM Leadership Academy.** The STCC will partner with El Centro and University College to develop an annual leadership academy for STEM students. This program will build upon the expertise of faculty members from programs such as IMSD, and will be designed to feed, supplement or align with existing leadership programs. This program begins during the 2015-16 academic year, and tentatively includes the following strands: (1) The Civic Engagement strand will encourage students to participate in STEM outreach, especially to elementary and secondary schools; (2) The Information Literacy strand will strengthen skills related to critical thinking and analysis; (3) The Organizational Leadership strand will better prepare students to organize and lead peers, and to advocate for positive change within their chosen STEM discipline; and (4) The Scientific Presentation strand will teach students strategies for successfully presenting their ideas, research and findings.