Miami Dade College North Campus’ Science Complex: A Gateway to Student Success

United States

Heather Belmont
Organization type: government
Budget: $100,000 - $250,000
Website: http://www.mdc.edu/north/

- Adult education
- Biodiversity
- Community development
- Energy conservation
- Education
- Renewable energy
- Youth leadership

Project Summary

Concise Summary: Help us pitch this solution! Provide an explanation within 3-4 short sentences.

North Campus’ extraordinary science facilities, as well as the institution’s commitment to promote and encourage Hispanic and low-income minority high school students to explore science/ math intensive academic and career paths, has created new opportunities for students and community partnerships.

The new Science Complex and the Title V- Retooling Science to Increase Student Success grant have had a visible impact on our institution and students, and continue fortifying the campus’ commitment to the sciences. The combination of our new technologically advanced facilities in conjunction with a series of successful grants, provide low-income students with educational opportunities to improve academic success in the STEM disciplines.

About Project

Problem: What problem is this project trying to address?

Our project is targeting Hispanic and low-income minorities, and women who have not had the opportunity to have access to STEM fields. It represents the highest need and priority of MDC’s North Campus as we continue to revitalize key science programs to increase both access and success for low-income students. Miami Dade College North Campus’ students are entering the College severely deficient in science content mastery, and only 20% of incoming students meet minimum proficiency level for college readiness in mathematics. MDC’s North Campus is situated on a 245-acre site, in the northern area of Miami-Dade County and serves one of the most disadvantaged regions of the county. The municipalities and communities surrounding the Campus are predominantly populated by Hispanic and Black minorities. The local schools have higher than average numbers of foreign-born students from the Caribbean and Latin America. The majority of students reside within a five-mile radius of the campus – an extremely diverse area that is characterized by high poverty (43.4% of families are low-income, per capita income is only $15,102) and low-educational attainment (40% of adults have not completed high school; 86% have not completed college). The North Campus student population is characterized by a high percentage of academically under-prepared students (84%), and first generation in college (74%).

Solution: What is the proposed solution? Please be specific!

This comprehensive state-of-the-art facility, equipped with the latest science instrumentation and laboratories has sparked more student interest and enrollment in our science programs. In addition, a Palmetum, featuring 400 species of palms from around the world, and several greenhouses offer students an open classroom / laboratory setting to conduct their experiments. Our industry standard instrumentation and facilities have allowed faculty to partake in several collaborative research projects with their students. For example, one of our chemistry professors is mentoring a student in a research project that will produce ion selective membranes from agricultural waste, particularly corn cobs, with the hope that this will lead to low cost filters for the removal of contaminants in water. MDC North Campus’ Science Complex: A Gateway to Student Success has expanded educational access among our predominantly low income service area. Our outreach component continues to establish linkages with area high schools, and to increase STEM awareness. One of the many innovative projects that Retooling offers is a series of science career DVD’s titled “Science Careers: Discover Your Future.” This four-part series, explores the natural sciences, biotechnology, plant sciences and aquaculture, and a Spanish version entitled “Ciencias naturales”. In addition, a CSI Miami Summer Camp continues to generate interest in the sciences among high school students. These activities have been of utmost importance in encouraging exploration of science-intensive academic and career paths.
Impact: How does it Work

Example: Walk us through a specific example(s) of how this solution makes a difference; include its primary activities.

The new Science Complex with the state-of-the-art laboratories and the Title V- Retooling Science to Increase Student Success grant funded by the U.S. Department of Education has played a vital role in strengthening our commitment to student success rates in science and math. Retooling Science provides for a variety of new learning resources as well as faculty development activities addressing the diverse learning styles of students, and the effective use of instructional technology. Through its outreach component, it has developed science and math programs in 12 feeder high schools located throughout Miami-Dade County’s disadvantaged neighbourhoods. MDC’s North Campus, the original campus for the entire college, is situated on a 245-acre site, in the northern area of Miami-Dade County (just 12 miles northwest of downtown) and serves one of the most disadvantaged regions of the county. In addition to managing an enrollment of more than 50,000 a year, North Campus also administers an outreach center, The Carrie P. Meek Entrepreneurial Education Center (MEEC). The center is located between two economically distressed communities, Opa-Locka and Liberty City, Miami’s predominantly Black neighborhoods. MEEC serves as a federal Enterprise Zone and a state Enterprise Community – evidence of the severely poor socio-economic conditions of the area.

About You

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Miami Dade College, North Campus

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Organization Country
Country where this project is creating social impact

How long has your organization been operating?
More than 5 years

Is the project that you are entering related to this organization?
Yes

The information you provide here will be used to fill in any parts of your profile that have been left blank, such as interests, organization information, and website. No contact information will be made public. Please uncheck here if you do not want this to happen.

Innovation

What stage is your project in?
Operating for 15 years

Share the story of the founder and what inspired the founder to start this project

Dr. José A. Vicente, the North Campus President, is committed to making the Miami Dade College North Campus’ Science Complex: A Gateway to Student Success project, a point of reference for our students and our community, and to address the future needs for training professionals in STEM related fields. Dr. Vicente is very well-recognized and respected in the South Florida sector, and has been recognized several times for having taken Miami Dade College North Campus to a “superbly distinguished position.” He was not only a graduate of MDC, but also has been an employee of the college for more than 30 years. With his hard work, dedication, vision and leadership, he has contributed to the recent metamorphosis of the sciences in our campus.

The institutional mission is to provide accessible, affordable, high quality education by keeping the learner’s needs at the center of the decision making and working in partnership with its dynamic, multi-cultural community. Our College President, Dr. Eduardo Padrón, has transformed MDC into the largest institution of higher education in the United States, with a yearly enrollment of more than 160,000.

In 1960, Miami-Dade Community College opened its doors at the location now designated as North Campus. In 2003, the College was officially renamed Miami Dade College (MDC). It is the only public two-year community college serving the 2.4 million residents of Miami-Dade County, Florida, which includes a large number of individuals belonging to a wide variety of minorities.

Social Impact

Please describe how your project has been successful and how that success is measured

During a survey conducted at several high schools, the majority of students responded that they did not have enough information regarding math
and science careers. Interviews were conducted with teachers, administrators, and professionals in the science fields to find out exactly what information students needed to become aware of science careers.

The Title V-Retooling Science team created a DVD series, “Science Careers: Discover Your Future,” a four-part series that explores the natural sciences, biotechnology, plant science and aquaculture, and a Spanish version entitled ciencias naturales. In addition, student booklets, a teacher’s resource guide, and a related research assignment about science careers were distributed. Over 86% of high school faculty surveyed strongly agreed that the DVD series and instructional guide are resourceful teaching tools.

In addition, we piloted a CSI Miami Summer Camp for area students. Over 150 high school students applied, and 50 were selected. The camp provided a unique experience for students to explore science careers, college environment, and financial aid and scholarship opportunities. The three-week college level interdisciplinary camp program provided participants with activities, such as crime scene re-enactment, including DNA testing, and finger printing techniques. Students were surveyed at the end of each week and over 95% responded positively to all camp hands-on activities, specially the crime scene investigation, the chemistry experiments, and the fetal pig dissection.

How many people have been impacted by your project?

1,001- 10,000

How many people could be impacted by your project in the next three years?

More than 10,000

How will your project evolve over the next three years?

We intend to evolve over the next three years by building upon the outreach initiatives that have been piloted during the Title V- Retooling Science grant in order to continue motivating students to pursue STEM related careers. Our goal is to continue making an impact on our students and encourage prospective ones to pursue STEM related college degrees, as we now offer a BS degree in Biological Sciences.

Among the activities that we foresee evolving include but are not limited to the following: Science Complex Student / Teacher high school tours, hosting the Miami Dade County Schools yearly Science Fair, science high school faculty retreats, Science Career Resources, STEM Advisement Day, CSI Summer Camp, and Science Guest Speakers Seminars.

Tell us about your partnerships

Miami Dade College North Campus’ Science Complex: A Gateway to Student Success has provided us with the opportunity to establish significant partnerships within our community as well as with other institutions.

One of our main community partners is Miami-Dade County Public Schools, the fourth largest, and one of the most culturally diverse school systems in the nation. For the last four years, we have hosted the Miami-Dade County Schools Regional Science and Engineering Fair and the SECME Olympiad events as one major STEM Expo, titled STEMulating Minds.

Another partnership is the University of Miami (UM) and Miami Dade College (MDC) Bridge to the Baccalaureate Program. The goal of this program is to encourage students from underrepresented groups to pursue PhDs in the biomedical sciences. It is designed to facilitate their transition into the biomedical sciences at UM.

In addition, the partnership with St. Thomas University offers students opportunities to earn baccalaureate degrees in STEM areas, free peer tutoring and academic mentoring, and internship possibilities.

United States Department of Agriculture (USDA) is another key partner that provides internships and scholarship opportunities through its local food and agricultural station in Homestead, Florida.

Furthermore, MDC North Campus has on-going partnerships with the Environmental Program at the University of Puerto Rico, Rio Piedras, and the Microbiology and Cell Science Department at the University of Florida. These programs provide opportunities for our students to pursue advanced degrees.

Explain your selections

In 2004, the College received special state funding to construct the Science Complex. This science structure marked the beginning of a new era for the college’s science programs. In 2006, the US Department of Education Title V - Retooling Science to Increase Student Success grant became the main source in equipping the Science Complex with state-of-the-art laboratory instrumentation and advanced technology. In addition, the grant provided faculty with innovative teaching tools and outreach activities to the feeder schools in our community.

MDC North Campus has been the co-recipient of several Title III and V cooperative grants. Project Puentes, a grant in collaboration with the University of Puerto Rico, is designed to support bioscience program development and to build an environmental science curriculum. STEM Connections, in collaboration with St. Thomas University, has the goal to increase transition of high school minority students, particularly women, into college level STEM majors. In addition, the MDC’s North Campus was awarded a grant from the U.S. Department of Agriculture for the creation of a Regional Resource Center for Agricultural Science and Science Resources. The Bridge program with the University of Miami is funded and supported by the Howard Hughes Medical Institute (HHMI) and the National Institute of General Medical Science (NIGMS).
Collectively, these awards are helping the North Campus transition into a campus dedicated to providing our primarily Hispanic and underserved students, with access to state-of-the-art STEM resources.

How do you plan to strengthen your project in the next three years?

We plan to strengthen MDC North Campuses’ Science Complex: A Gateway to Student Success through a combination of federal, state and private foundation grant funding, community support/partnerships, and self-sustained activities.

Currently, MDC North Campus has submitted several grant applications that are pending with the U.S. Department of Education Title III and V, the United States Department of Agriculture (USDA), National Science Foundation, and Promise Neighborhood Grant.

We intend to continue receiving support from our community partners, such as Miami-Dade County Public Schools, our programs with the University of Miami and St. Thomas University, as well as our partnerships with the University of Puerto Rico and the University of Florida.

Among the activities that we foresee strengthening and becoming institutionalized are: Science Complex Student / Teacher high school tours, hosting the Miami Dade County Schools yearly Science Fair, science high school faculty retreats, Science Career Resources, STEM Advisement Day, CSI Summer Camp, Science Guest Speakers Seminars, and our Peer-Led Team Learning (PLTL) tutoring program. Already many of these activities are self-sustained.

- Partnerships and Accountability

Please tell us more about how your partnership was formed and how it functions. What specific role does each partner play? What unique resources does each partner bring to the initiative?

Miami Dade College North Campus’ Science Complex: A Gateway to Student Success is a project that has established different levels of partnerships ranging from secondary to higher education through innovative approaches impacting the learning experience of Hispanics and other low-income minorities. The Miami-Dade County Public Schools partnership ensures that we continue motivating students from our area high schools to pursue post-secondary education. The partnerships established with the University of Miami, St. Thomas University, University of Florida, the University of Puerto Rico and the U.S. Department of Agriculture will allow us to continue exposing students to research and advanced educational opportunities. This process creates a multi-level pipeline from high school to post-secondary enrollment at Miami Dade College, with transfer to four-year institutions and completion of STEM baccalaureate degrees.

How are you building in accountability for students’ successful STEM learning outcomes? Please provide a summary and examples.

Miami Dade College (MDC) has been strategic in its efforts to champion a number of teaching and learning initiatives that address not only accountability but also student achievement and success. With the establishment of the College’s 10 Learning Outcomes in 2006, the College pledged to provide high expectations of all of its students and a foundation for learning at MDC that is consistent with today’s workforce, global, and technological demand. These Learning Outcomes drive the curricula and classroom activities.

Each project activity is accompanied with data collection and analysis. Surveys will be collected from students, as well as from college and high school faculty and administrators to provide feedback on the quality and effectiveness of the activities related to the project. STEM learning outcomes will be accounted for by tracking the enrollment and retention of declared STEM majors through the two-year college experience (MDC grades 13-14), to a four-year institution, graduation and career access. MDC Institutional Research Department data will continue to be analyzed in order to monitor student progress and tracking.

Through reports and data submitted at least monthly, the project team will ensure feedback and continuous improvement. Required reports submitted to the administrative and academic deans each month will provide another avenue for upper management to ensure progress of the project.

Needs

- Investment, Human Resources/Talent, Mentorship.

Please use this space to elaborate on your selection above and/or to add needs that may not be listed.

The project requires funds to hire additional staff, to purchase supplies, laboratory instrumentation and software in order to serve the growing number of underrepresented students from our area high schools interested in STEM related disciplines. MDC has the largest Hispanic student enrollment in the country and the second largest enrollment of Black and Haitian students in the country. In addition, 74% of MDC students are first generation in college.

While we have the collaboration of our school district and other higher education institutions, the project will benefit from the support of local and national STEM industry professionals. These partnerships will create networks for student mentorship and internship opportunities.

Offers

- Marketing/Media, Collaboration/Networking, Innovation/Ideas.

Please use this space to elaborate on your selection above and/or to add offers that may not be listed.

Our project can offer marketing tools such as the DVD series, Science Careers: Discover Your Future, to encourage high school students to pursue STEM degrees (see link to this application). It also includes brochures and educational resources for teachers.

We welcome to share our knowledge and our experience in developing, implementing and promoting successful STEM programs, such as our high school summer camps, tutoring programs, internship and scholarship opportunities.

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