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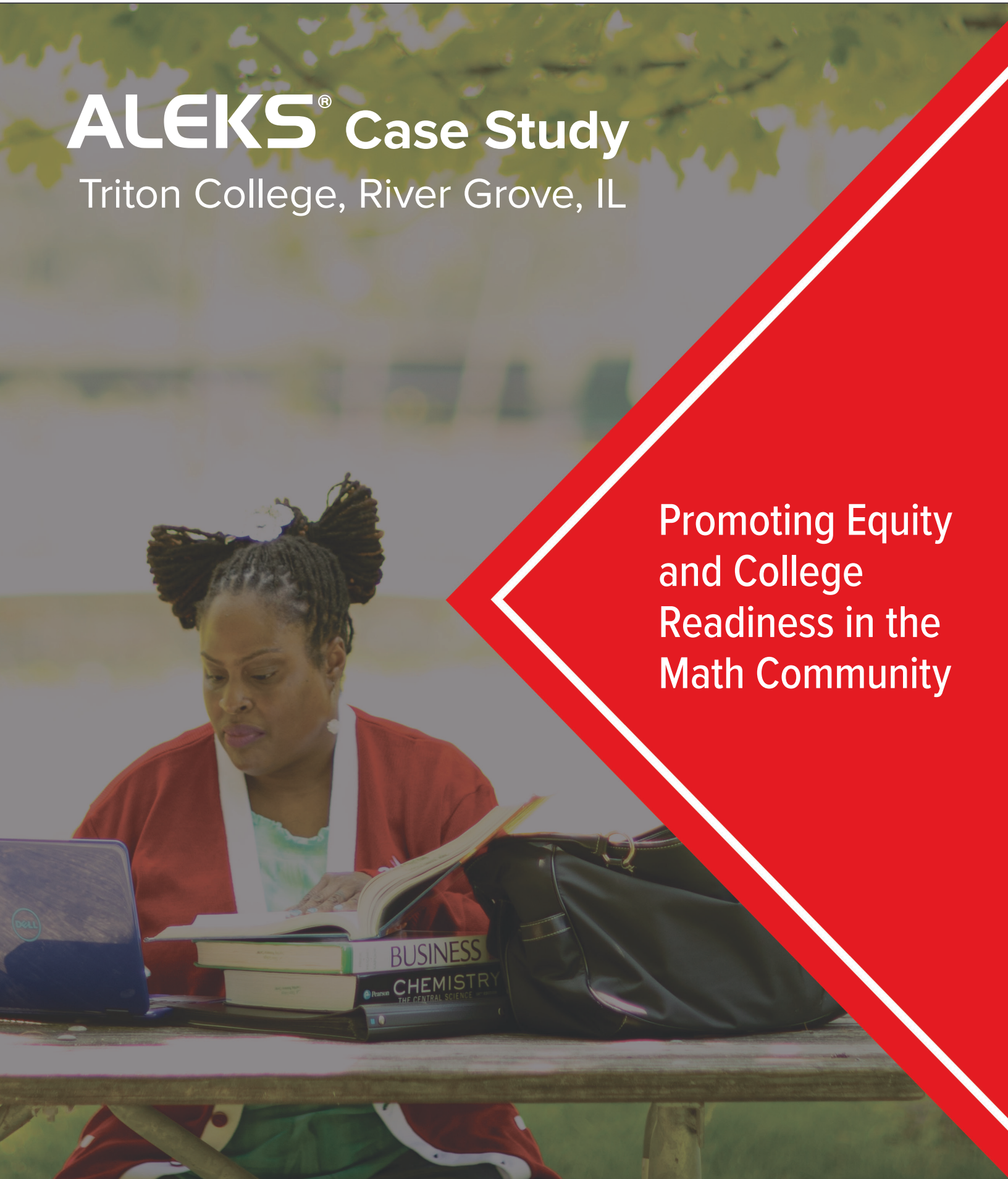
ALEKS® Case Study

Triton College, River Grove, IL



Promoting Equity and College Readiness in the Math Community

Introduction

Triton Community College's math lab is a sleek, open-floor workspace with vaulted ceilings and light pouring in from factory-sized windows. Students at this suburban Chicago space, known as the iLaunch Lab, sit in groups at their computers and work on math problems amid a low hum of human activity that feels relaxed and comfortable. A tableau of historic figures frame the far end of the lab—one that features Benjamin Bannaker, a self-taught 18th century African-American polymath and almanac author; Mary Jackson, the first black female engineer hired by N.A.S.A.; and Emmy Noether, a German émigré from the University of Göttengen whose first theorem, which bears her name, has helped shape the understanding of general relativity for generations of physicists. These historic figures act as the guiding lights overlooking the students in the iLaunch Lab.

The display quietly asserts a counter-narrative to a national trend of underserved students who are less likely to enter into STEM fields. At Triton, hundreds of students who are underprepared for college-level work, students whose life experience, learning styles, ethnic backgrounds, or socio-economic status have worked against them, are quietly and assiduously working their way through college and into the workforce, hoping to beat the odds and break the cycle.

Triton College serves a vibrant and diverse student population of about 11,500 students, 40 percent of which are Hispanic and 16 percent are African American. With almost half of their credit-level students Pell-grant eligible, Triton College strives to create a community with equitable opportunity for growth and success especially for the roughly 65% of students placing into developmental math.

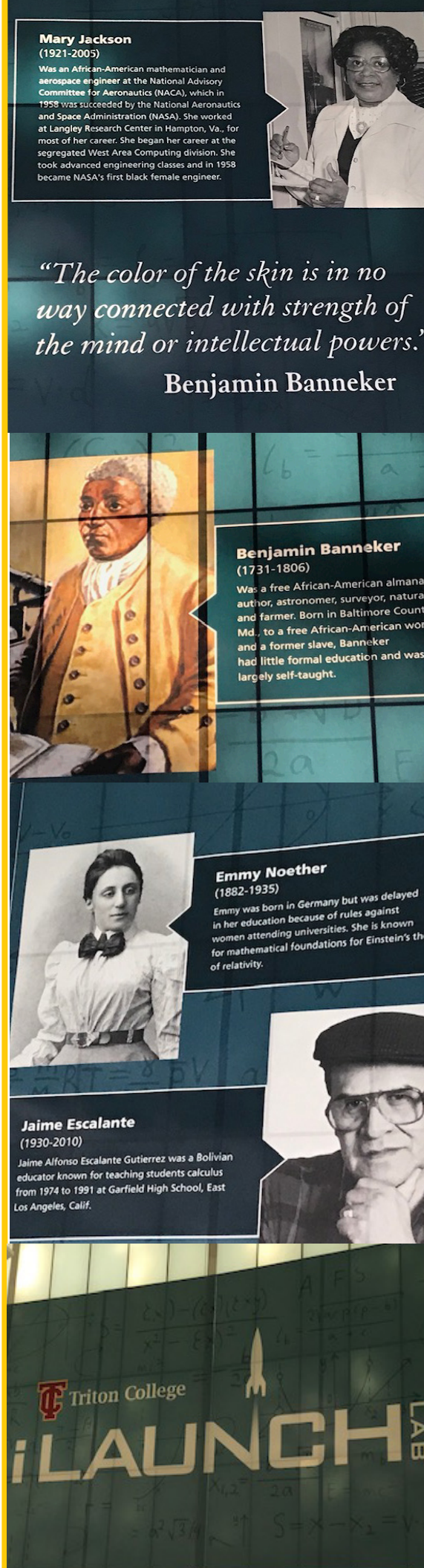
Triton's Mission: Fix a Lengthy Dev Math Pipeline

Prior to 2018, Triton's developmental math completion rates were stalling at about 50 percent, not too far from the national average. Wanting to get ahead of state-imposed mandates, such as linking state funding to improved student performance indicators, Kevin Li, Triton's Dean of Arts and Sciences, and other administrators began to look for ways to accelerate students through Triton's developmental math sequence.

The goal for administrators like Dean Li is for students both to enroll and to graduate. "It's all about retention," Li declares, reflecting on his mission, which can sometimes seem like an overwhelming, multi-faceted challenge, but it often boils down to a basic, zen-like goal: Keep them going, help them graduate.

In Triton's traditional developmental math classroom, instructors were often finding students misplaced. "If I'm a teacher in front of 30 students," says Rich Zelenka, the iLaunch program manager, "and I'm following chapters in a textbook, some students are going to be incredibly bored, other students are going to be incredibly lost. What happens in that traditional classroom setting," Zelenka continues, "is you teach to the middle. What happens is you lose the high-fliers and the struggling students: They both drop out." With the possibility of having to complete a three-semester sequence before reaching credit-level courses, students can't afford to be misplaced. Rather, the department wants to encourage students to accelerate at an appropriate pace.

After evaluating several solutions, the department ultimately decided to implement a lab-based model that incorporated ALEKS as the personalized learning tool. The iLaunch Lab was created in partnership with Northeastern Illinois University as part of an initiative called Exit on Time in STEM. The lab was built with institutional support and with funds from a U.S. Department of Education grant that targeted institutions serving Hispanic and low-income students in STEM fields of study.



iLaunch Lab At a Glance

- Lab-based model with opportunity to accelerate 1 or 2 levels
- 100 students max, up to 4 sections meeting at same time
- Lessons incorporate study skills content, such as growth mindset, college work ethic, college awareness, and career exploration activities
- Peer tutors with a 1:15 tutor-to-students ratio
- Just-in-time mini-lectures available as needed based on ALEKS progress data

In the first term of the iLaunch Lab, **13%** of students completed two courses in one semester, saving approximately $47,000 in tuition.

Creating Equity in the iLaunch Lab

Launched in the spring of 2018, the iLaunch Lab serves a critical role in Triton's goal to close the equity gap by increasing graduation rates and feeding the STEM talent pool. The lab is equipped with ALEKS, McGraw-Hill's intelligent adaptive learning system. This system adapts to each student on an individual level by determining what they know and don't know, providing an opportunity to fill knowledge gaps, and ensuring retention of key concepts. With a focus on mastery, ALEKS builds a solid foundation to prepare students for future science, tech, engineering, and math (STEM) subjects. Feeding the STEM talent pool has become a significant goal for two-year schools, which remain the single-most important gateway to educational and economic opportunity for students in the lowest socioeconomic quintiles.

With less than half of entering students ready for college-level math, the iLaunch Lab is a busy place. However, these students' results show that Triton's efforts are, in fact, helping them pass their math courses. Under the traditional developmental math model, relying on a textbook and basic online homework, **the overall student pass rate for Fall 2017 was 52 percent**. But a year later, using the iLaunch Lab with ALEKS, **the Fall 2018 pass rates jumped to 61 percent.**

Figure 1: Dev Math Success Data

Term	MAT 045	MAT 055	Total
Fall 2017	48%	54%	52%
Spring 2018**	57%	56%	57%
Fall 2018	60%	61%	61%
Spring 2019	63%	57%	60%

***First semester with ALEKS*

Data sourced from Triton College's Research and Institutional Effectiveness Department

All students are welcomed into the iLaunch Lab, with its sense of community and readily available tutors, and make their way through the developmental sequence in ALEKS to their credit-level courses. Instructors keep students motivated and on pace to complete their course by assigning weekly topic goals. As Triton continues to refine its model, it is eager to leverage the iLaunch Lab to retain more students and ultimately increase college completion rates.

A Re-Imagined Collaborative Learning Experience

The advantage of using ALEKS in a lab, according to Rich Zelenka, is the sense of community that it creates—you can bring together all types of students, and nobody ever feels out of place. There is one-on-one interaction at many different levels, which is in keeping with Triton's mission of **"valuing the individual,"** each student belonging to one single community of learners.

What's on display at the iLaunch Lab and other institutions around the country is a bold attempt to tell a very different story, to re-imagine not just the subjects of math and science but perhaps the very idea of the classroom itself. To re-imagine, in effect, the classic power dynamics of the classroom where the teacher is the active agent and the students are the passive receptacles of knowledge. According to Zelenka and many others at Triton who have embraced this new model, students using ALEKS in the iLaunch Lab really do become more active learners— and recent rates of success at Triton prove that their model is working with pass rates increasing each semester at a significant rate. This positive momentum will drive instructors to build upon these methods.

The success of the iLaunch Lab is a story that has been repeated at Triton and other schools so frequently that higher education, and organizations dedicated to improving graduation rates, have caught on. The Gates Foundation and Achieving the Dream Initiative, for example, recently announced a $13.3 million initiative to use adaptive learning technologies to improve graduation rates at two-year institutions nation wide. Adaptive learning platforms are one thing; curricular redesign that accelerates students through remediation is another. Full buy-in of faculty and administration are also important factors in the third wave of transformation in higher education, a transformation that happens at scale. But also, as Triton Dean of Arts and Sciences Kevin Li says, that "all comes down to a renewed emphasis on improving student success, one student at a time."

"We view success in developmental math as a key milestone and a tipping point for our students. Advancing through these courses leads to greater self-efficacy and confidence, and opens the opportunity to succeed in STEM programs and careers."

- Dr. Kevin Li, Dean of Arts & Sciences

Faculty Buy-In: Letting Go of the Old Paradigm

Not everyone has the mindset to adopt adaptive learning systems like ALEKS. Some faculty think that such systems are too labor intensive, some are concerned about technological glitches, and some can't accept, as one survey put it, "yielding their teaching autonomy to an external source."

But for Triton faculty, this is really about relinquishing one idea of control to gain more insight into student learning behaviors. If, in the old sense of control, everyone is moving together like a herd, then teachers lose what's most valuable to them: understanding whether the students are learning the lesson.

"When the teaching paradigm assumes that the class needs to be moving all together," says Tina Mote, who has taught in the iLaunch Lab for three years, **"I actually lose control of being able to cater to individual students. A really inefficient way of learning,"** says Mote, **"is to listen to somebody else talk about how they know how to do something."** Teachers using ALEKS at Triton have helped students quickly cover the math they need, and doubled, if not tripled the amount of material covered. **"Given this kind of effectiveness, the question for educators,"** says Mote, **"becomes rather pointed: "Do you want to teach or do you want to present? Because what we're doing here is teaching."**

Instructors are making a bigger impact in the iLaunch Lab than in a traditional class, according to Triton faculty, because they are responding directly to questions posed by students in an ongoing discussion about math and other aspects of learning—the so-called meta-cognitive skills that can help students improve in other ways.

"An aspect of my role as teacher is to get my students to be honest with themselves about what they need as learners. When you interact with students as much as we do, you have more lightbulb moments. Whereas in a traditional class, sure, you might see an occassional lightbulb—but it's just one light across an ocean."

- Tuan Dean, Math Instructor

Breaking Down Math Barriers

Another focus in the lab is breaking down barriers that students—and even departments—can create between math and other subjects. To that end, Dean and others require their math students to post blog entries on a variety of subjects to reinforce their connection with math, watch a video about growth mindset, and explore career options. For David Chidlow, teaching in iLaunch means staying close to his students, sitting among them as they work on their problems—and, when the conversation ranges too widely, gently steering it back to the subject at hand. "Soon they're talking to each other about their math, and I'm talking to the tutors about math, and next thing you know a little math community is created—a math conversation happens that normally wouldn't happen." And sometimes the self-imposed barriers to math evaporate entirely when the tutor is a fellow Triton student.

Take Adrian Hernandez, for instance, who once thought of himself as "terrible at math" and struggled with math anxiety. But now Adrian is getting A's, most notably in Calculus, and has his sights on a computer science career. **"In eight weeks I was able to finish two math courses, something I never thought possible. Even more unbelievable is that I finished both classes with an A—my first A's I've ever gotten. The iLaunch program is a huge reason I am successful, but ALEKS is also key. ALEKS personalized the practice activities and questions for me, letting me repeat things over and over, without failing, until it made sense. It made it so much easier for me to understand the math concepts that would have made me freeze before. I was able to work at my own pace and felt more comfortable asking for help. Now, between classes, I tutor students in math. I never in a million years would have imagined that I would be good enough to tutor others in math."**

According to Rich Zelenka, the fact that Hernandez was once convinced he was bad at math makes him a powerful asset in the iLaunch Lab—that proximity to an old mindset makes Hernandez particularly valuable to new students entering math with the same kind of trepidation that he once felt. "We want student tutors," says Zalenka of his hiring process, "who can closely relate to the students around them."

"Like so many others, I didn't really have a direction after high school. I knew I wanted to make enough money to help my family, but didn't have a plan for how to get there. Finding a school that supports me and has teachers that look out for me changed my life. I used to think I was bad at school and math. Turns out, I love math and I'm good at it! Who knew one class could change me so much?"

- Adrian Hernandez, Triton student

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