

**Postsecondary State Career Technical Education Leaders Fellowship at
Advance CTE—Sponsored by ECMC Foundation
Real-World Project**

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Project Objective

The objective of this real-world project is to create a dual enrollment career exploration course in the trades for high school students at an alternative high school that does not have access to Career Technical Education (CTE) in the trades. In addition, this course will offer Laramie County Community College (LCCC) the opportunity to grow enrollment through future offerings of career exploration through dual enrollment in trades programs rather than relying solely on traditional admissions and enrollment processes.

Contextual Background of Educational System

LCCC, in Cheyenne, Wyoming, is one of eight community colleges in the state, which has only a single university, the University of Wyoming. Wyoming is the least populated state in the nation despite its rather large geographic footprint, and consequently there are many challenges for higher education, including for CTE, that are derived from a such sparse population.

Laramie County is the most populated county in state, with approximately 100,000 residents served by two school districts, which include three high schools (South, East, and Central) within the city of Cheyenne, two small rural high schools (Pine Bluffs and Burns), and one alternative high school (Triumph) also located in the city of Cheyenne. LCCC has a good working relationship with the local school districts through concurrent and dual enrollment programs. All students in the districts are offered free tuition and fees for up to four courses during their high school tenure. Graduates of any Wyoming high school that meet certain criteria are eligible for scholarship programs through the state and institution as well as traditional federal funding, which reduces the financial barrier for students to attend. While access to education based on geography is a challenge for much of the state, it is less of an issue for Laramie County residents so long as they have reliable transportation.

Although high school students may have access to educational resources in CTE, those resources are not equal across all schools within the district. In the case of the Laramie County School District #1 (LCSD1), which serves the city of Cheyenne through the three major high schools and the alternative high school, the offerings vary from school to school, which excludes certain students from having the opportunity to explore careers and programs of interest.

For example, Table 1 lists the trades related CTE programs available at the four high schools in Cheyenne.

Table 1.

Central High School	Autobody, Construction Technology, Welding, Wood Technology
East High School	Construction Technology, Welding, Wood Technology
South High School	Auto Tech, Construction Technology, Welding, Wood Technology
Triumph High School	None offered

As the district has had to decide over the years how to allocate resources, high school students have been restricted from access to certain programs (Auto Tech and Auto Body) simply based on their geography and what school they attend. Furthermore, Triumph High School has been entirely excluded from any CTE trades courses, which is critical in that many of the “at-risk” students that could benefit from hands-on CTE programs in the trades simply do not have the opportunity.

Triumph High School

Triumph High School is an alternative high school for students who have not fared successfully in the traditional public high school setting for a variety of reasons. Students at Triumph High School could be deemed “at risk” for graduating and less likely to pursue postsecondary educational opportunities. This belief is indicated in the school’s student handbook as part of its philosophy:

THS provides an educational alternative for students in the Cheyenne area. Many of our students enter with negative encounters with school or with life events that have interfered with their success. Students and staff members at THS make conscious choices to provide a productive, challenging, supportive, and caring atmosphere. Triumph’s education programming is designed to provide multiple options for meeting Laramie County School District #1 graduation requirements. As a staff, we believe in applying continuous positive pressure to aid students in developing both academically and emotionally.

For a Triumph student to take any trades CTE, they would have to return the environment in the traditional high school where they likely were not well served for their individual circumstances.

By granting access to postsecondary CTE environments in the trades at LCCC through a career exploration course, the college is helping Triumph High School fulfill its mission “*to graduate students with the knowledge and skills to succeed at work and in life.*”

LCCC Trades Programs

The current postsecondary model for trades program offerings at LCCC does not provide for authentic career exploration. It involves program selection at enrollment followed by an intense program-specific immersion wherein a student progresses to the earning of a credit diploma by completing the technical course requirements without any general education classes. While this model is very effective for students who have absolute certainty about their program selection, it does not offer the opportunity for students to experience the different programs to appropriately select their preference. This situation is problematic for students who did not have certain programs at their high school and especially problematic for Triumph students who do not have access to any trades CTE.

LCCC offers for-credit programs in the following areas:

- Automotive Technology
- Diesel Technology
- Welding
- Industrial Systems Technology (Foundations of Skilled Trades)
- Electrical Technology
- Industrial Maintenance
- Wind Energy
- Advanced Manufacturing (fall 2024 — currently workforce development only)

For this project’s purposes, the focus was to create a dual enrollment course during which the students get to experience the following:

- a hands-on experience within each area of study
- direct interaction with current faculty in each area of study
- interaction and exposure to current professionals and employers within the industry in the local community

Without going into extensive detail, LCCC trades programs have capacity and can incur increased enrollment without significantly increased expenditures using the current tooling/equipment, classroom/lab space, and faculty. A secondary benefit from the creation of the career exploration course will be to increase awareness within the high school population in the community of a viable postsecondary path that is not the traditional academic university path. Ideally, this awareness will drive enrollment in the programs with the ultimate goal of economic growth in the community by providing a pipeline of entry-level workers in the industries named previously. By proving the concept initially with Triumph High School, the model can then be extended to the traditional high schools in the city.

Typical LCCC Student

The Institutional Research department at LCCC recently conducted a study of the student population to determine who the typical student is, and the results were as follows:

- female (62%)
- non-Hispanic White (74%)
- not first generation (71%)
- part time (75%)
- average age: 25 (median age = 21)

When these data were broken down further to the trades and technical studies programs, the typical student profile is as follows:

- male (91%)
- non-Hispanic White (66%)
- not first generation (57%)
- full time (51%)
- average age: 25 (majority category: 47% are 18–20 years old)

Opportunity

As indicated by the data about the typical LCCC student, there is significant opportunity at LCCC to grow enrollment by increasing the number of first-generation college students in the trades and technical studies programs. Rather than focus on a specific race, ethnicity, or income level or on another specific underrepresented group, I believe that a focus on first-generation students and alternative high school students casts a wide net that includes a variety of populations in an area of the country that is not as diverse as others.

Although the demographics indicate that students are primarily non-Hispanic White, a program that targets awareness and promotes opportunity to the high schools from the lower socioeconomic part of the county can increase enrollment in the programs while at the same time increasing the percentage of first-generation students represented. Triumph High school is located in the lower income part of the city and offers a pilot population to test the concept

before extending the offering to South High School, which is also in the lower income part of the city.

Dual Enrollment

In working with LCSD1 and the administrations at LCCC and Triumph High School, it was determined that the best strategy was to adapt an existing course and use the infrastructure already set forth in the LCSD1/LCCC policy to provide the following benefits:

- Quick implementation for fall 2023:
 - Creation of an entirely new course requires a full academic standard process and would delay implementation at least 1 year.

- Zero cost to student:
 - Students have no cost of tuition as they already receive up to four courses paid for by the district per current policy.
 - LCCC agreed to assume the cost of consumables and any other educational expenses.

- Three postsecondary credits:
 - Students enrolled in the course are able to “see themselves” as college students as they attend on campus at LCCC.
 - A passing grade in the course is applicable toward any degree program at LCCC.

Creation of Strategies for Success for the Trades (STRT-1000TT)

All degree-seeking students at LCCC are required to complete a college preparatory course called Strategies for Success (STRT 1000), which consists of traditional college orientation skills competencies but has a significant focus on career exploration along with an entrepreneurial mindset. One of the benefits of the course is that most incoming freshmen (all programs) take this course in the first semester so they can properly explore which program within their chosen career pathway is right for them after interacting with industry, the faculty, and certain program content.

Unfortunately, due to the current program design most trades students never take the STRT 1000 course as they pursue primarily credit diplomas and only take STRT 1000 if they choose to return as a sophomore to pursue a degree after completion of a credit diploma. Students are unable to explore the variety of trades programs for the proper fit other than through the traditional admissions and advising process.

After consultation with the LCSD1 director for CTE, the state director for CTE, and internal stakeholders at LCCC (senior vice president of academic affairs, dean, and key faculty) it is believed there is an untapped opportunity to offer Triumph students career exploration and awareness of CTE as a viable postsecondary option beyond achieving a high school diploma.

In the end, a slight modification of STRT 1000 resulted in a version for the trades with a course number modifier making this course STRT-1000TT (TT indicates trades and tech). The competencies of the traditional course were not modified, but the methodology for meeting the competencies is hands-on career exploration.

Per the school catalog and course syllabi the standard competencies of STRT 1000 are as follows:

- Students develop meaningful relationships essential for success in their communities.
- Students collaborate to solve a common problem.
- Students identify the resources necessary for success.
- Students research career opportunities that align with their individual skill sets.
- Students develop their educational goals based on the skills needed to achieve career goals.
- Students articulate the value of the LCCC general education and essential student experience.

In the traditional STRT 1000 course, these competencies are met in traditional academic settings (classroom lecture or online) with academic assignments. The STRT-1000TT course meets the same competencies achieving career exploration through engagement with faculty, introduction to local industry professionals, and the following hands-on and classroom activities:

Manufacturing:

- manual machine tools (mill, lathe)
- CNC machine tools
- 3D printing and design, Computer Aided Design (Tinkercad)
- industry engagement

Electrical/Industrial Systems:

- 110-volt AC circuit construction
- outlet and fixture wiring
- industry engagement

Automotive:

- vehicle inspections
- introduction to troubleshooting and computerized diagnostics
- use of typical industrial equipment in an automotive shop (lifts, tire equipment, etc.)
- industry engagement

Diesel:

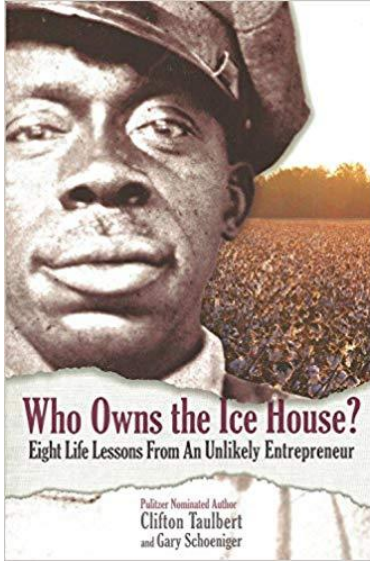
- engine construction and operating systems

- introduction to engine disassembly/assembly (removing and replacing a diesel engine cylinder head)
- industry engagement

Welding:

- introduction to shielded metal arc welding
- fabrication
- metal cutting
- industry engagement

Textbook and Final Project



Chapter Headings, Module Subject from *Who Owns the Ice House?*

- Choice
- Opportunity
- Action
- Knowledge
- Wealth
- Brand
- Community
- Persistence

As part of the course, students are required to complete some assignments outside of class and are given support and allotted time in their high school schedule to do so. Some key assignments created for this area to stay consistent with other STRT 1000 sections include the following:

- Read the required text: *Who Owns the Ice House?* by Clifton Taulbert.
- Complete the required assessments, which ensures that students have read the book.
 - Apply a personal reflection to the subjects listed previously as it pertains to their experience with the different industries as well as their current life and educational trajectory.
- Present a final project reflecting on what they have learned about themselves through this course:
 - What area interests them the most for their future?
 - What action plan they want to pursue for the future?
 - Apply for admission.
 - Set a goal for graduation from high school.
 - Explore different unrelated programs, etc.

By participating in an active learning environment, students are able achieve authentic career exploration. Also, by positively engaging with current faculty and industry professionals, the students ideally are able to remove previous psychological barriers that prevented them from seeing themselves in a postsecondary environment.

An initial section of STRT-1000TT exclusively for Triumph High School students is currently in process in the fall 2023 semester.

Measurement and Growth

Due to the pilot nature of this course and program, the long-term impact remains to be determined. However, a few early indicators show that this project is having an immediate impact and is likely to grow, allowing more students the opportunity for trades exploration and CTE. Examples include the following:

- Triumph High School: Two students involved in the course have volunteered to be part of a service-learning project sponsored by LCCC, which resulted in a trades exploration day at Triumph High on October 18, 2023. During the day LCCC trades programs and industry partners presented and showcased opportunities in trades and technology to the entire population of the high school.
 - Ideally, LCCC and Triumph will be able to offer at least one more section of the STRT-1000TT course exclusively for Triumph High in the spring 2024 semester.
- South High School: Initial meetings with district administrators and a local traditional high school have occurred to explore scheduling and offering a dual enrollment STRT-1000TT class for South High School students.
 - South High School is located in the lower socioeconomic part of the city and has a higher number of underrepresented populations than the other two high schools in the city.
 - Initial talks between LCCC and South indicate as many as three full sections of the course (16 students) may be needed to fill initial demand for spring 2024.

While the project is still in the early stages of launching, certain data points will be tracked to determine the success of the program. These data points include the following:

- short range: successful course completion data measured by the number of students who start the course and successfully earn three college credits with a grade of a C or better
 - target: 70% of students successfully completing the course
- mid-range: eventual enrollment of students who took STRT-1000TT into LCCC postsecondary programs (either for-credit or workforce development programs)
 - target: 20%
 - Assumes students achieve high school graduation or equivalency
- long range: completion of a postsecondary credential at LCCC
 - target: a success rate for this population if enrolled that is consistent with each individual program completion rate
 - potential growth and adaptation to other areas of CTE outside of the trades such as information technology and health care

Timeline

- February 2023–May 2023:
 - Worked with internal and external stakeholders at LCCC and LCSD1 to ensure offering of STRT-1000TT for 2023–24 school year.
 - Conducted visits to Triumph High School to present the opportunity to prospective students and coordinated a tour of LCCC trades programs.
 - Enrolled sufficient students to justify existence and running of a section of the course per LCCC policy (number suppressed to protect identity of students).
- May 2023–August 2023:
 - Created Canvas course shell for STRT-1000TT exploratory trades course.
 - Aligned objectives met through hands-on experiences.
 - Coordinated industry visitor schedules, faculty assignments, and consumables acquisition.
- August 2023–December 2023:
 - Began initial class.
 - Continually confirmed industry visitors and faculty assignments.
 - In November began enrollment process for spring 2024 sections of STRT-1000TT for Triumph High and South High School.

Recommendations/Lessons Learned

After going through this process of building a career exploration course for CTE trades, I found the following to be critical if this project were to be expanded to other CTE areas (information technology, health care) at LCCC or trades areas at other community colleges:

- Creation of a new course is preferable to adapting an existing course if local policy and procedures permit.
- Before embarking on the creation of the course, it is critical to have the infrastructure in place to make the enrollment and execution of the courses seamless, including
 - a robust and functional dual enrollment policy that is not specific to the course,
 - instructor assignments and course load allocation, including ensuring that there is faculty “buy-in” to teach the mini modules,
 - lab space availability that does not conflict with other college courses, and
 - a coordinated schedule that works for both the high school and the college.
- A dedicated recruiting effort that targets principals, counselors, and students is critical to create enough enrollment demand.
 - Meet with students, provide tours, and find those who self-identify as interested in trades.
- The more “hands-on” activities the course includes, the better in terms of career exploration. It is easy to make this type of course academic, but my experience has been

that the students are far more responsive to “hands-on” activities and less likely to take advantage of the “bookwork” aspect of the course.

- o It has been tempting to “cram” in more content for out-of-class assignments, but what the students really need are positive experiences on campus to foster continued engagement rather than get “turned off” by homework.
- The course needs to have an experience in each area of the trades that the college offers to set realistic expectations for what each program will look like should students enroll after high school.
 - o Only allow students to participate in the programs that are offered rather than a general approach to “trades.”
 - o The goal is to drive enrollment at the college postsecondary level in the direct programs offered at the college.
- After starting the program with a small pilot group, a proactive outreach effort to other schools or eligible students needs to be made to grow enrollment over time.
 - o In this program, two out of three traditional high schools in the area have now engaged with LCCC to explore enrollment offering possibilities.
 - o If possible, explore continued dual enrollment possibilities with students after completion of the course.
 - The initial pilot group of students has expressed interest in taking an additional course for the coming spring semester. This experience could foster further interest in formal postsecondary enrollment after high school graduation.
- Patience is important. When working with “at-risk” or alternative high school students the possibility of students not taking the course seriously exists.
 - o Focus on those who engage and stay interested in the offerings.