

FUTURELAB+

Capstone Project

Masterclass Educator Guide

Developed in partnership with:

Discovery Education

Masterclass Educator Guide

A CLOSER LOOK

A Capstone Year is an empowering year of study that requires facilitation strategies to keep students on track and ensure they have the resources they need to complete their project. The following themes are represented in this Masterclass series: introduce educators to Futurelab+ resources and share vital resources that help students complete their Capstone project.

Theme 1

Managing a Capstone Year of Study

Theme 2

Supporting Students Throughout Their Capstone Year

Theme 3

Connecting with Industry Professionals

FEATURED EDUCATOR

Pedro Delgado (he/him), computer science and science teacher, Young Womens' STEAM and Preparatory Academy, El Paso, Texas.

Originally from the borderland, Pete was an English language learner who majored in neuroscience and moved into a career in education. Pete has only taught in Title I schools, minutes from the Juarez, Mexico/El Paso, Texas border. Many of his students will be the first in their families to graduate high school and/or college. Students from low socioeconomic backgrounds learn alongside their peers who have some of the highest socioeconomic backgrounds in the borderland. He teaches science and computer science to high school students. His campus specifically focuses on project-based learning to ensure relevancy and engagement for all students.

OBJECTIVES

Illustrate how educators can use Futurelab+ resources to facilitate and guide students through a Capstone Year of study.

Equip educators with the tools and background knowledge to lead students throughout their Capstone Year.

Connect educators to the breadth of resources needed to manage this vital year of study.



Theme 1

Managing a Capstone Year of Study



The Futurelab+ capstone is a culminating year that supports students' entrepreneurial drive, creativity, and innovative spirit. During this year, students will explore and research a topic about which they are passionate. This project is directed by an educator and supported by industry professionals. Through this Masterclass video, educators will discover the full range of resources available through the Futurelab+ program to support their students and their Capstone Year.

Reflect

Now that you have had the opportunity to learn about facilitating a Capstone Year with your students, take a moment to reflect on the following questions:

- How are the primary goals and learning outcomes defined for the capstone project?

- How can you help students combine their interests, meaningful research, and information about careers in biotech to identify their capstone project focus?

- What strategies can be used to ensure that capstone projects are manageable within the given time frame and resources?

- How can you facilitate and encourage students to communicate their ideas and progress throughout the project?

- What are the best ways to help students identify and connect to mentors who can provide guidance and professional expertise throughout their capstone project?

Resources

Empowering Students to Solve Inequities in the Biotech Classroom
<https://futurelabplus.com/educators-in-action/theme-one/sam-long>

Biomed CTE Curriculum
<https://futurelabplus.com/classroom-instruction/biomed/>

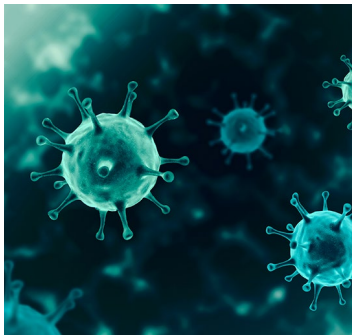
Ag/Environmental CTE Curriculum
<https://futurelabplus.com/classroom-instruction/ag-environmental/>

Futurelab+ Student Interactives
<https://futurelabplus.com/classroom-instruction/student-interactives/>

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Theme 1

Continued



Managing a Capstone Year of Study

Next Steps

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- Consider the ideas introduced in the video to help your students create a sense of autonomy and organizational practices as they work through their capstone.
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- Use the Futurelab+ resources to help your students identify interests through research about innovations and practices in biotech. Use the [Career Finder](#) to see what biotech career pathways align with their current interests and invite students to roleplay scientists in the lab using [interactive modules](#).
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- Start finding ways to help connect your students with industry professionals and stakeholders as they identify the focus of their capstone.
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- Encourage students to think about real-world problems that need solutions within their classrooms, schools, and local or global communities.

Theme 2

Supporting Students Throughout Their Capstone Year



A Capstone Year has many possibilities that drive innovation. However, many challenges can occur when supporting students from the conception of their capstone to completion. This Masterclass video will dig further into the Futurelab+ Capstone Year resources and give educators proven strategies to overcome challenges that students may face throughout this year of innovation.

Reflect

Now that you have had the opportunity to understand the support that students will need as they take on a capstone project, take a moment to reflect on the following questions:

- What strategies will help balance providing structure throughout the project while still allowing student autonomy?

- How can you support students in overcoming the obstacles and challenges they will face during their projects?

- What are ways that encourage students to adapt and pivot as needed throughout the capstone project?

- What resources or strategies are most effective in helping students resolve issues they may face as they work through their projects?

- What type of schedule and tools are useful to facilitate regular mentor-student meetings to offer feedback and support throughout the Capstone Year?

Resources

Futurelab+ Instructional Support

<https://futurelabplus.com/classroom-instruction/instructional-support/>

Social Emotional Learning

<https://futurelabplus.com/pdfs/instructional-support/Gen-IS-InstructionalResources-SEL.pdf>

Computational Thinking Projects

<https://futurelabplus.com/pdfs/instructional-support/Gen-IS-InstructionalResources-CT.pdf>

Career Finder

<https://futurelabplus.com/files/modules/career-finder/>

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Theme 2

Continued



Next Steps

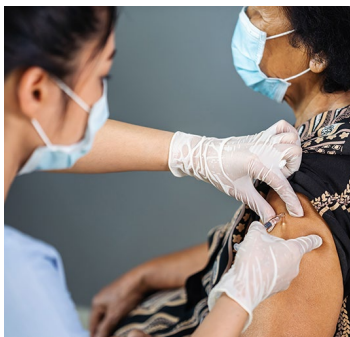
- Consider how best to work with students to create a capstone calendar with specific deadlines for tasks that will be completed throughout the projects.

- Encourage students to embrace and discuss the challenges and roadblocks that they may face as they work through the steps and tasks for their capstone.

- Ensure there is a system of regular and intentional communication between students, instructors, and mentors.

Theme 3

Connecting with Industry Professionals



Educators often cite that the greatest obstacle to their programs is finding industry professionals to guide their students along their capstone journey. Through this Masterclass video, educators will learn about virtual opportunities to connect students with industry professionals to drive real-world connection and support the Capstone Year.

Reflect

Now that you have learned that the mentorship piece is one of the most valuable and challenging parts of facilitating a Capstone Year for students, take a moment to reflect on the following questions:

- How can you help students identify and connect to possible local or global industry professionals who can serve as potential mentors?
- How can you facilitate collaboration among students and between students and mentors?
- What are effective strategies to ensure that community members or stakeholders are involved in the projects?
- How could the role that external partners play in the capstone be expanded or improved?

Resources

- Connect with industry professionals from multiple organizations across the United States using [Career Connect](#).
- Meet Real-World Biotech Professionals
<https://futurelabplus.com/college-career-readiness/career-profiles/>

Next Steps

- Assess the specific needs of each student's project to determine the type of expertise required of a mentor.
- Connect with nearby colleges and universities where professors or advanced students might be interested in mentoring.
- Bring industry leaders and subject matter experts into your classroom through [Career Connect](#).
- Work with students to conduct outreach through emails, calls, and meetings to recruit potential mentors.
- Schedule periodic check-ins to address any concerns or challenges in the mentor-student relationship.

Look Forward



We had the opportunity to visit Pedro and determine how he empowers students throughout their Capstone Year of Study. Hopefully, you can see where these approaches connect to your teaching practice and educational journey and feel more at ease about leading your students.

Below are key thoughts to consider, as you think about leading your students through this vital year of research and learning:

- 1 Consider how you can help students combine their interests, meaningful research, and information about careers in biotech to identify their capstone project focus.
- 2 Provide resources and professionals to help students complete their Capstone Year (this may require connecting with members of your community or organizations located outside your community).
- 3 Allow for flexibility and recalibration, for you and your students, throughout the project.
- 4 Encourage students to communicate their ideas and progress throughout the project, to ensure a successful Capstone Year of study.