Central Piedmont Community College Success Story

Charlotte, NC



Study Specifics

School Name
Central Piedmont Community College

Educator
Serenity Stokes, Biology Lecturer and Microbiology Lab Coordinator

Course Name
Microbiology

Program
Talaro's Foundations in Microbiology 12th edition, Connect Microbiology, Microbiology McGraw Hill Virtual Labs

Online Sections
Digital Only with SmartBook® and Virtual Labs

Blended Sections
SmartBook, Printed Lab Manual, and Virtual Labs

LMS
D2L BrightSpace with LTIA

The Study

The shift to online education during the COVID-19 pandemic posed significant challenges for educators, particularly in STEM disciplines like Microbiology, where hands-on lab experiences are crucial. Instructor Serenity Stokes began using Connect Virtual Labs when classes went entirely online at the beginning of the pandemic. Instructor Stokes also wanted:

- A textbook with more modern applications.
- To maintain a low cost for students.
- To increase student engagement.

To address these challenges, Instructor Stokes turned to Connect. Connect, integrated with *Talaro's Foundations in Microbiology* 12th edition, Virtual Labs, Adaptive Learning Assignments, and SmartBook, helped Instructor Serenity Stokes overcome obstacles and achieve her goals:

- Deliver lab content to students in a fully online modality.
- Avoid the use of expensive lab kits for online classes.
- Utilize Connect Virtual Labs to compensate for missed in-person classes and reinforce learning.
- Increase student engagement and help students be more prepared for class.

Connect and Connect Virtual Labs offers an innovative solution to bridge the gap between theoretical knowledge and practical application, providing students hands-on experiences in a virtual environment.

> **The increasing number of topics included in the Microbiology Connect Virtual Labs helps to deliver the content delivered in face-to-face classes without fully online students having to buy lab kits. In-person students can access the same information covered in wet labs outside of class to review procedures and experiments for exams – ensuring consistency across modalities."**

Implementation

Course Grade Breakdown:

Connect administered lecture exams - 50%
SmartBook Assignments - 4%
Connect Lecture Assignments - 10%
Virtual Labs Assignment - 10% (fully online only)
Connect administered lab exams - 20%
Project not embedded within Connect - 16%

On average, 1-3 assignments in blended sections and 4-6 assignments in online sections are assigned weekly. Instructor Stokes finds the assignment content robust. "The chapters on immunity (14-15) are my favorite, and I like the animation question bank assignments to help students engage in the content," says Instructor Stokes. The Connect assignments are deployed in BrightSpace using the Learning Tools Interoperability Advantage (LTIA). "LTIA benefits students because of ease of access, and automatic grading also helps keep the students happy with knowing their progress throughout the course," says Instructor Stokes.

SmartBook and Connect Lecture Assignments

Students are assigned SmartBook chapters to be completed before the class meeting, correlating with topics covered in the lecture. Instructor Stokes covers 1-2 chapters each week, depending on the modality, and spreads the reading assignments throughout the week. Students complete a quiz on the week's materials. The lecture assignments are created in the Connect Question Bank.

Virtual Labs

- In blended classes, Virtual Labs were not graded but provided for review purposes.
- Fully online students were assigned 4-5 Virtual Labs per week, aligning with topics covered in face-to-face classes.
- Elective Adaptive Learning Assignments were created from Virtual Labs to aid student review before exams.
- Consideration is given to reintroducing Virtual Labs as pre-lab assignments due to the increased variety of available topics.

Adaptive Learning Assignments

At the end of each lab unit, Instructor Stokes deploys an Adaptive Learning Assignment with all the content covered in that lab unit for students to use to review for the unit lab exam. "The Adaptive Learning Assignments I have easily created for lab help both my online and in-person students prepare effectively for exams by helping students identify areas of study needed," says Instructor Stokes. Students complete a unit lab exam that Instructor Stokes creates using Connect questions and test banks.

Connect Administered Lecture Exams

Students take an exam at the end of each unit. The exam typically consists of a combination of Connect questions and Connect test bank questions.

Inclusive Access

The decision to deploy Inclusive Access stemmed from a college-wide policy shift to provide all students equitable access to course materials. "I am so glad we did this because our campus bookstore was not ordering enough access codes for our students for the beginning of any term," says Instructor Stokes. The situation severely impacted students' ability to succeed, particularly in shorter, eight-week format classes where delayed access to textbooks hindered progress. "The college has transitioned to offering more classes in an eight-week format, so when students don't gain access to their text until a third of the way through a course, it impedes their ability to succeed in that course," says Instructor Stokes. Instructor Stokes now experiences a significant reduction in time spent coordinating textbook access, allowing more time to focus on course content.

> **Students can gain access to their text and the work in Connect on the first day of class – this is significant for students enrolled in short-session classes since the amount of work each week is doubled."**



Results

Impact on Exam Performance and Student Engagement

- Review assignments based on Virtual Labs contributed to better student exam performance.
- Students are more engaged with the textbook content in class.
- Modern, real-life examples increased student engagement.
- Inclusive Access increased student success by having access to course materials on the first day of class.

Flexibility in accessing Connect Virtual Labs helped bridge the gap between theoretical knowledge and practical application, enhancing student understanding. "Quiz scores are always in the 90th percentile for all my sections, and about 30-50% of students are earning A's," says Instructor Stokes.

More Teaching Time

- Real-time data from Connect helped identify challenging topics, enabling instructors to allocate more time to address them in class.
- The self-grading features of Connect reduced grading time, enhancing efficiency for instructors.
- Inclusive Access resulted in less time spent getting students their course materials, allowing more time to focus on teaching.

Instructor Stokes finds the ADA-compliant PowerPoints helpful in reducing the time spent preparing for lectures. Connect also affects the content covered in lectures and the time spent grading. "I can see the real-time data on topics my students find challenging and spend more time on these subjects in class, and with the self-grading features in Connect, I spend less time grading," says Instructor Stokes.

Conclusion

Connect proved instrumental in overcoming the challenges of the shift to online education. By providing a comprehensive and accessible platform for delivering lab content, Connect empowered educators to maintain the quality of Microbiology education across different modalities, ensuring students received a robust learning experience despite the limitations imposed by the pandemic.



Setting

Central Piedmont Community College is one of the largest community colleges in the Carolinas, offering nearly 300 degree, diploma, and certification programs, customized corporate training, market-focused continuing education, and special interest classes.

Course Description

General Microbiology covers principles of microbiology and the impact these organisms have on man and the environment. Topics include the various groups of microorganisms, their structure, physiology, genetics, microbial pathogenicity, infectious diseases, immunology, and selected practical applications.



Instructor Profile

Serenity Stokes is a dedicated Microbiology and General Biology Lecturer at Central Piedmont Community College, where she has been inspiring students for the past decade. Driven by the birth of her twin children in 2007, Serenity pursued her education with determination, earning a BS in Biology from Queens University of Charlotte and an MS in Biology from Winthrop University. Serenity excels at making complex biological concepts accessible to her students.



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