

Stemblem Case Study

Concordia University

How an Adaptable, Virtual Chemistry Platform Enabled a General Chemistry Program to Expand Online

Stemblem partnered with Concordia University to bring their entire general chemistry lab program and homework assignments online, creating a highly adaptable, modern chemistry program.

This allowed Concordia to:

- Better prepare their students for lab, increasing safety and compliance;
- Reduce lab downtime to zero by offering a synchronous virtual lab experience to students who couldn't be on campus;
- Automatically assess their cohort of over 800 students, saving countless hours of grading time;
- Provide scalable, individualized feedback to every student.
- Establishing a strong, professional relationship with the chemistry instruction team, Stemblem was also able to offer sound advice for how to improve the teaching and learning environment to effectively meet its challenges.

| About Concordia University

Concordia University is a large Canadian university located in Montreal, Quebec. The Chemistry Department is home to many world-renowned scientists, and they have a large cohort of about 800 general chemistry (freshman) students.

| The Challenges

Concordia University's challenges were typical of higher education programs in 2020. They were looking for a way to deliver a meaningful lab experience to their students when they knew that the campus had to shut down in the fall of that year.

Concordia also has a large teaching team split among lecture faculty and lab faculty, including many TAs and support staff. While many instructors were teaching the same course, Concordia needed a way to bring all the stakeholders together to unify course instruction and offer a more consistent experience.

| Stemble's Solution

Stemble's solution was ready-made to meet Concordia's challenges.

Working with Concordia faculty, we custom-built lab simulations that matched their in-person procedures exactly. We tested them with real students and then trained their faculty on how to use the product. We also developed custom assignments based on their curriculum with integrated feedback and grading algorithms.

We also helped instructors to be able to deliver consistent content and level of instruction, no matter who was teaching – instructors, faculty, or teaching assistants.

Stemble's platform naturally handles the logistics and complexity of the chemistry teaching environment. Whole classes and lab sections can be broken into individual course sections, each with their own instructor (and possibly their own assignments, grading policies, etc).

Additionally, because Stemble is a digital product, the course administrator could easily monitor how each cohort was doing. Stemble's tracking and reporting functions allow instructors to track exactly what students are doing in the virtual lab, which is not possible in an in-person lab. So if a student wasn't getting the correct result, the instructor or TA could look up what they did wrong, which is an advantage over a live lab, where it is often anyone's guess what exactly happened.

If a student was struggling, instructors could easily tell not only that the student wasn't understanding something, but could also determine the specific areas for which the student needed additional support. Lab reports could all be submitted through the platform so there was a consistent place to find the full record of any student's performance.

Through our onboarding procedures and follow-up calls for feedback, we were able to deeply understand what the instruction team needed and provide them with real help. They really value being able to call upon our staff by name and have their questions answered immediately.



| The Benefits

"Stemble's advantage is that it is customizable, and the app covers both the lecture and lab."

– Jennifer Romero, laboratory instructor

Concordia University saw Stemble as an easy-to-work-with partner that could solve their problems. By incorporating Stemble as part of their chemistry instruction, Concordia:

- Was able to deliver a consistent student experience even during the pandemic;
- Saved the teaching team an immense amount of time with automated grading;
- Allowed students to easily access their grades, refocusing students' questions on chemistry, rather than what grade they'd gotten on a particular assignment;
- Provided a single point of contact between the teaching team and the students;
- Enabled faculty to share and collaborate on assignment creation;
- Established a full library of customized, digital, virtual lab simulations to use as preparatory modules and assessments.

| The Outcome

Concordia University's chemistry department has thrived while using Stemble.

Stemble has "disruption-proofed" their lab program, reducing concern over laboratory absences and freeing lab staff to turn over the lab without concern. If a student misses a lab, Stemble can provide the lab experience virtually. And because Stemble has fully unique and realistic data, the experience is as close to the real thing as possible. Weather cancellations are also no big deal anymore, for the same reason. Similarly, there's no need to worry about more extended absences either.

Because Stemble provides a baseline of high-quality, consistent instruction to students, teaching staff no longer need to worry about inconsistent instruction. Teaching assistants, who are just students themselves, can approach the subject matter more confidently with Stemble's video content to assist in teaching.

Concordia no longer needs to worry about a lack of preparation among their students, nor do they need to wonder if their students are actually doing their homework. Stemble allows you to attach a grade to any assignment, which is the ultimate motivator for students to do it, and using our user analytics you can see whether your students are actually engaging with the content.

Stemle handles all of the homework assessments, tests for students, and the lab experience for Concordia's students. The teaching team is delighted that they no longer need to grade anything. (Ask any teacher and they'll tell you that's the most challenging part of their job.)

And finally, we handle all of the student support requests (which often include a bit of chemistry instruction).

In many ways, we've become an extension of their own chemistry department. That is exactly the kind of relationship that we foster with all of our clients, but Concordia University was the first, and therefore holds a special place for us.



Stemle builds technology-forward teaching and learning tools for chemistry. We allow instructors to easily deploy engaging online homework assignments and interactive laboratory simulations that help prepare students for success both in and out of the classroom.

To get started building robust digital resources to support your course, [book a demo](#) today.