

CNDG Case Study: Biology



PROPOSAL

We were contacted by Michele Yeargain, the Laboratory Course Coordinator in the University of Central Florida's Biology Department, to find out if VLEs could help relieve some of the burden on the department of running a very large introductory undergraduate course. At the time, the department was using up to three-quarters of its available Teaching Assistant hours to deliver this one course, taken by approximately 4,000 students per year.

Michele had been looking for an alternative to face-to-face labs that would not jeopardize the quality of interaction that the students had with the teaching staff. She heard about our VLEs from a Pearson representative, who explained what we do, and introduced her to us.



We plan to continue using CNDG's virtual environments for our labs. I feel that it is the ultimate customized and customizable lab, because CNDG built exactly what I asked them to build. It sounds cliché but really, to me, if we can dream it, we can do it.

Michele Yeargain

Lab Course Coordinator, Department of Biology, University of Central Florida

PROJECT

Working with Michele and her Teaching Assistants, we designed a series of ten VLEs which allow students to familiarize themselves with the analytical machines and safety equipment they use in real laboratories, practise core lab skills, and test their theoretical knowledge.

The modules include simulations of real life experiments, explorations of habitats, and imaginative conceptualisations. They are delivered both as supervised class sessions and as self-directed exercises that can be accessed at any time.



Students study enzymes in virtual wet laboratories, explore the effects of the Hardy-Weinberg equilibrium by collecting and analyzing data on beetle populations in a jungle, use the principles of Mendelian genetics to save a dying alien species at a desert crash site, and observe meiosis and mitosis while walking around inside a giant cell.

Teaching Assistants hold advice sessions within the VLEs at times convenient to themselves and their students. In addition, CNDG provides 24/7 orientation training and technical support for users of the VLEs.



They just love it, they embrace it, they spend a lot of time here, they want to come back and do the labs over and over again. They also will help each other in the environment, and that to me is a beautiful thing. I don't feel we are limited by anything other than our imagination in a virtual environment.

Michele Yeargain

Lab Course Coordinator, Department of Biology, University of Central Florida

OUTCOME

As of 2016-17, approximately 4,500 students are enrolled annually on this course, using a fraction of the resources of the traditional classroom-based course, but without any negative impact on the students' grades, or their acquisition of the information or the learning objectives.

We are currently developing three more VLEs (organelles, photosynthesis, and basic compounds), which we hope to launch in the next academic year.

