University College Cork

CASE STUDY

Dr Therese Uniacke-Lowe

Overview

Dr Therese Uniacke-Lowe is a Senior Technical Officer at University College Cork (UCC) at the School of Food and Nutrition Sciences. She holds a PhD in Food Chemistry and a Master's in Teaching and Learning. Her Master's thesis focused entirely on the use of Labster as an educational technology bridging the gap between teaching and lab work in food science education.

University College Cork is the first university in Ireland to use Labster on a large scale across both its Colleges of Science, Engineering and Food Science and Medicine and Health. From Microbiology to Introduction to Food Macromolecules, Labster simulations have been used across ten different schools and departments, covering science, engineering, medicine, and health.

Dr Therese Uniacke-Lowe first learnt about Labster during a workshop as part of her Master's degree at UCC three years ago. Since then, she's been using Labster as part of her teaching and bringing this virtual element to other science programs at the university.

Challenge: Improve student engagement, ensure lab safety across the university, enable teaching subjects that are difficult to teach on-site.
Number of students: Around 3000 students. More than 80 modules incorporate Labster in their teaching.
Simulations used: All Labster simulations. Most used simulations: Introduction to Food Macromolecules, Microbiology and Lab Safety.

> ***"Introduction to Food Macromolecules is one of the more challenging simulations. But the students really like it because they do learn a lot."***
>
> *— Therese Uniacke-Lowe, University College Cork.*

Labster

Post-COVID-19 lab supplement

Labster's virtual simulations serve as additional teaching resources and not a lab substitution at University College Cork. "For the last few years, I've been promoting the use of Labster [as a supplement], not as — an "instead of" — and I'm quite emphatic about that," said Dr Therese Uniacke-Lowe.

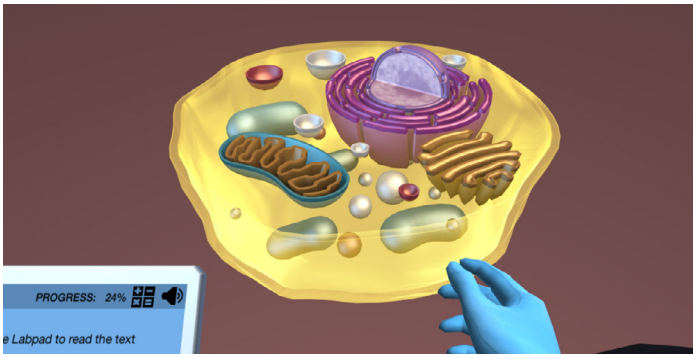
After first introducing Labster in 2018, the university significantly expanded the use of virtual labs two years later. For example, the Lab Safety simulation has been made mandatory for fourth-year students, researchers, and postdoctoral researchers arriving from other institutions with unknown experience to ensure that everyone has the prerequisites for laboratory work. The Safety Officer at the university has supported this strategy. "COVID-19 has simply accelerated the process of using Labster by about five years rather than caused it," said Therese.

> ***"I came across Labster at a workshop in our university — I was very impressed."***
>
> *— Therese Uniacke-Lowe, University College Cork.*

Labster allows teaching scientific techniques that are otherwise troublesome to implement in the wet lab. "Labster serves us well for some of the topics in food chemistry. For example, we use a simulation for the Kjeldahl technique, which is a lengthy and dangerous procedure for measuring protein in foods and therefore it is not possible to give students hands-on experience in laboratory classes," said Dr Therese Uniacke-Lowe. Virtual labs serve as a prerequisite to some lecture material and a post-lecture supplement. "We'll show the students the instrumentation, but they'll learn how to use it effectively using the simulation," explained Dr Therese Uniacke-Lowe. Teaching science with virtual labs is an example of some of the changes that "we will probably hold on to," said Uniacke-Lowe.

Short-form simulations

As of April 2021, Labster additionally offers shorter focused simulations adapted from existing full-length simulations. Introduction to Food Macromolecules simulation has proven to be one of the most used simulations at University College Cork. As Dr Therese Uniacke-Lowe mentioned, it would be beneficial for her teaching to use part of this simulation separately. "Splitting up a long and challenging simulation such as Introduction to Food Macromolecules would be good. As I teach protein, carbohydrates, and fat chemistry separately, I'm always trying to figure out when to introduce that particular simulation. Shorter, focused simulations extracted from the long ones, therefore, are useful," she added. As multiple departments at University College Cork use Labster, "we need to make sure that the course content and the simulations used for biology or biochemistry classes don't overlap. In that way, the faculty can only use parts of the simulation needed for a particular course and subject," added Uniacke-Lowe.



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