

# Go Virtual Symposium

MONDAY, JUNE 22 | 1PM-2:30PM



Academic Technology Services

## Rethinking the Classroom: Examples/Models of Virtual Learning

A conversation about what technology use in the classroom looks like, including tools and authentic learning environments.

### ~ Faculty Panel ~



#### **Emily Brauer**

Online Instruction and Instructional Technologies Coordinator  
UC Irvine Composition

#### **Area of Specialization:**

Emily has an MFA in Dramatic Writing from USC and is a screenwriter and playwright. At UC Irvine she teaches in the Composition Program and serves as the Online Instruction and Instructional Technologies Coordinator where she oversees online courses in collaboration with UC Davis. She has developed two online writing courses for UC's Online Education and currently teaches the course every quarter. She has also served as an Instructional Designer at UC Irvine working with faculty in philosophy, education, biology, history, and pharmaceutical sciences. She piloted Canvas Learning Management system at UC Irvine and has trained program faculty to use it. She focuses on how to use technology for best writing practices and promoting active learning. She has presented on online pedagogy and writing practices as well as the Canvas Learning Management system and its tools. She has used Voicethread, Piazza, Zoom, collaborative documents, and ePortfolios as part of her teaching methodology to promote active learning

#### **Relevant Courses (as example, case study, model, etc):**

Introduction to Writing and Rhetoric (WR 39A), Critical Reading and Rhetoric (WR 39B), Argument and Research (WR 39C), and Advanced Expository Writing (WR 139W). Class sizes of these courses range from 19-23 students. Writing 39B and C fulfill the lower division writing sequence at UC Irvine and focus on rhetoric and research respectively.

#### **Teaching or learning challenge that made you rethink your approach / try something new:**

One of the main problems we've faced is wide range of student writing experience and the need to individualize learning for students. Giving students more agency and ownership in their own writing and projects.

#### **How you addressed that challenge (technology, learning strategy, etc.):**

Allowed for students to have optional assignments where they can earn points and class rewards for things that will assist with their writing and revision tasks. Used Canvas to separate assignments into Productions and Rehearsals and assign additional points that could be easily tracked in the gradebook.

#### **How students responded/any challenges/lessons learned:**

Students really rose to the challenges and many commented on how they liked the extra and challenging assignments. It helped them see where they might need to be going in terms of extra work and helped distinguish between the types of work that meet the passing grade for the course vs. what else needs to be done in order to excel.

One of the challenges is that it is a little more grading/workload for me, but for a small class the benefits outweighed the costs. Have to think strategically to only give a few options each week.



**Joshua Cotter**  
Assistant Professor, Exercise Physiology  
CSULB

#### Area of Specialization:

Dr. Joshua Cotter is an Assistant Professor of Exercise Physiology and is co-director of the Physiology of EXercise and Sport (PEXS) lab where his focus is on understanding how the regulation of skeletal muscle mass affects outcomes on health and sport performance. His general interests include optimization of training programs and nutritional support for strength and hypertrophy, exercise countermeasures for spaceflight, the biology of the myogenic satellite cell, biomechanics of the knee joint, and ergogenic aids for sports performance. He has a Bachelor's Degree in Management Information Systems and has always considered himself a "techie." He utilizes various technologies in his courses including BeachBoard, Khan Academy style videos, video announcements, Zoom, Camtasia, and others.

#### Relevant Courses (as example, case study, model, etc):

Exercise Physiology, 160 students: Basic concepts of the physiology of muscular exercise with emphasis on the responses and adaptations of the circulatory system, the respiratory system, and skeletal muscles to the physical stress of acute and chronic exercise.

#### Teaching or learning challenge that made you rethink your approach / try something new:

Teaching a class of 160 students was something new to me when arriving at CSULB. After a semester teaching, I realized that it was mostly me talking and the students 'hopefully' listening and learning. Although I wanted to have the course be more student-centered, it seemed like a daunting task to have students be more interactive in class. ATS soon after offered a hybrid teaching training course that I signed up for, especially given my background in technology. This led to constant transformation and improvement in how I address student needs in a large lecture science course.

#### How you addressed that challenge (technology, learning strategy, etc.):

A big step in the right direction for allowing my large lecture class to be student centered was by the incorporation of technology. By putting my basic lecture materials online, much of it considered as challenging topics by students, allowed students to prepare for our in-class meetings by watching videos that I carefully crafted to be concise, entertaining, and engaging. Students can stop the video as they please and review portions of my lectures as many times as they like on their own schedule. Weekly low risk quizzes allow students to assess their readiness before we meet in-person. Over the last few years, I have used a strategy called POGIL, or Process Oriented Guided Inquiry Learning, that allows me to create lessons that help guide students through a series of problems presented in class that drives their learning. It has been a wonderful learning experience for myself as a teacher and my students seem to enjoy the kind of learning they are getting in class.

#### How students responded/any challenges/lessons learned:

Student feedback regarding my online lectures has been fantastic. They really appreciate the ability to stop, start, and review the material as they see fit. I've even heard of some students listening to my material while in the car, which is a place many of our commuting students find themselves!

Although I am still working on refining the incorporation of POGIL methodology, students seem to appreciate the problems presented to them and also the ability to work together in small groups; something many students have a fear of. I have had some students tell me they developed some really great friendships through the incorporation of teams in class.

#### What images or media might help tell your story?

- CSULB PEXS Lab Facebook: <https://www.facebook.com/csulbpexs>
- Build Mentor Video: [https://www.youtube.com/watch?v=BojB1pVXptw&feature=emb\\_title](https://www.youtube.com/watch?v=BojB1pVXptw&feature=emb_title)



**Robert Desharnais**

Professor of Biological Science , Director of Virtual Labs Courseware project  
CSULA

**Area of Specialization:**

CSULA Faculty Leader Virtual Labs Project, Theoretical Population Biology

**Relevant Courses (as example, case study, model, etc):**

General Biology (GE): Introductory biology for non-majors with an emphasis on the process of science and principles common to all domains of life; topics include metabolism, inheritance, evolution, organismal structure and function. Lecture 2 hours, laboratory 3 hours. No credit toward Biology major or minor.

**Teaching or learning challenge that made you rethink your approach / try something new:**

GE biology courses are a challenge for non-science majors, who often view science as a static body of facts. Labs are intended to involve students in science, but there is no room for error, and so most wet labs are “cook-book” activities. The lack of engagement and opportunity for creativity may be one reason why some students perform poorly in these courses.

**How you addressed that challenge (technology, learning strategy, etc.):**

We redesigned a GE biology course by using existing web-based software to replace traditional wet labs. Two new modes of lab instruction were compared to the traditional offering: (1) all labs online with a “drop-by” help center and (2) a hybrid “flipped lab” model with two tracks of online and in-person labs alternating every week. Both modes included a face-to-face lecture. Engaging inquiry-based exercises were developed around each online activity where students were provided background information, guided through a series of basic experiments, encouraged to design their own experiments, and required to produce a simple scientific report that was delivered electronically.

**How students responded/any challenges/lessons learned:**

There were statistically significant differences in the student course grades for the three types of laboratory formats (tradition, all online labs, hybrid flipped labs). Students taking the courses with hybrid flipped labs showed a significant increase ( $P < 0.001$ ) in their mean GPA. Survey results also showed that the hybrid-flipped lab format has the potential for increasing students’ attitudes towards problem solving and their enjoyment of biology. Virtual labs also decreased the cost of running GE General Biology, allowing us to offer more sections of this bottleneck course.

**What images or media might help tell your story?**

- <https://bit.ly/2Yqa5uy>
- <http://teachingcommons.cdl.edu/virtuallabs/about/index.html>
- <http://www.ScienceCourseware.org/>



**Jelena Trajkovic**

Assistant Professor, Computer Engineering and Computer Science

**Area of Specialization:**

Research experience in the domains of computer architecture, computer-aided design, network-on-chip, silicon photonics, multicore systems, parallel applications for biomedical vision applications, and avionics systems. Her research has been recognized by three Best Paper Awards at international conferences, and the Graduate Dean's Dissertation Fellowship at UC Irvine. Dr. Trajkovic's research interests include multicore embedded systems, pervasive computing, and Internet of Things technologies for critical biomedical and control applications. She has extensive experience in program and curriculum design, excellence in teaching (recipient of the Teaching Excellence Award at Concordia University) and diversity-focused work.

**Relevant Courses (as example, case study, model, etc):**

Computer Logic Design 1, 30 – 46 students: We start by building theoretical foundation by learning number representations, basics of Boolean algebra and how to use it to for formal representation of digital designs, followed by methods for optimizing the designs. We apply the concepts onto combinational and sequential circuits with applications to the design of digital devices, namely basic processor components. The theory is complemented by creating designs (solving problems "on paper"), and lab assignments where we model and simulate the designs. Lab assignments solidify theoretical knowledge and introduce Electronic Design Automation (EDA) tools and Field Programmable Gate Arrays (FPGA). Hands on experience is supported by teaching hardware description language (HDL), modeling techniques and "how to" use the tools.

**Teaching or learning challenge that made you rethink your approach / try something new:**

The 3 course components: theory, language/modeling, and tools are very different from what the students have experienced so far. There is a steep learning curve in this course, especially in the first half of the course. The importance of developing solid foundation in the first half of the course is exacerbated by the fact that the latter topics build on top of former ones.

The problem was especially pronounced in the lab environment. When I was teaching "live" in class topics for modeling, language and tools, the students were not able to follow or retain concepts, as it was different from the previous programming languages and tools. Moreover, there was not enough time to lecture, help students and take demos.

**How you addressed that challenge (technology, learning strategy, etc.):**

I decided to move the instructions for the language/modeling and tools online and create a "flipped" mode of delivery for the lab portion of the class, in order to free up the time for helping the students and take demos (and provide the feedback). I organized the labs and supporting materials as follows:

1. I provided materials (video and written) for setup of tools; setup was due before the lab 1.
2. Each lab assignment supported one topic from theory, a small subset of modeling/language concepts and tool skills.
3. Each lab assignment was accompanied by a set of videos and PDF materials, each covering one or two topics from language, modeling, or tool skills concepts, each, to support the theoretical concept showcased in the lab.
4. Videos were kept short: between 4-8 minutes.
5. I implemented conditional release: the students had to watch all videos to be able to see a text of the lab assignment.
6. The students were instructed to watch all videos and review all the materials for lab X before the lab session in which we started working on the lab X, so that we can work on the lab X during the lab session, and get help.
7. F2F learning in the lab was conceptualized to be tailored towards the individual need of a student/class.

## Jelena Trajkovic (cont'd)

### How students responded/any challenges/lessons learned:

Vast majority of students has positive response: in the informal conversation they reported that the materials were sufficient and comprehensive. It did not take them long time to do the lab assignments by themselves. Even during Emergency Covid-19 distance learning, most of the students were requiring little help in addition to online materials.

### The challenges were:

- A. About 30% of student population did not covered the materials required to prep for the lab ahead of the lab session, but worked on the materials during the lab session – this was counter productive as they did not get any help that they might have needed ( #7. was not utilized)
- B. The students who ended up with the total number of points in the lower part of the curve did not understand the benefits of “flipped” approach and lacked motivation to do the work ahead of time dedicated for the lab session
- C. This resulted in poor lab grade, and often in poor overall grade

### To remedy the shortcomings, I am contemplating:

- A. Creating an introductory video to point out the benefit of the “flipped” approach, and emphasize the importance of regular work in this class.
- B. Creating a short quiz based on the videos that the students need to take before the lab assignment, and include this in the grade.
- C. I will also attend several Professional Development courses to be able to enhance my skills and hopefully get more ideas on how to reach the entire student population.

### What images or media might help tell your story

- <https://youtu.be/5hFOA7ppz4o>



**Long Wang**

Associate Professor, Nutrition  
CSULB

**Area of Specialization:**

Long Wang is an associate professor of nutrition in the CSULB Department of Family & Consumer Sciences. He has a PhD in Foods and Nutrition and is a registered dietitian/nutritionist (RDN). He has been a Program Reviewer for the Accreditation Council for Education in Nutrition and Dietetics (ACEND) since 2013 and currently sits on the ACEND Board. Long Wang has experience teaching online and hybrid classes in different Learning Management System (LMS) including Desire2Learn (D2L), Blackboard, and Canvas. He is a Quality Matters Master Reviewer and a CSU Quality Learning and Teaching (QLT) Reviewer. He is currently facilitating Introduction to Online Teaching Using QLT workshops for CSU instructors offered by the CSU Chancellor's Office in Summer 2020.

**Relevant Courses (as example, case study, model, etc):**

Medical Nutrition Therapy I, 30 students/section: This is a senior-level class required for dietetics students. The Nutrition Care Process and evidence-based practice are applied to specific pathophysiological conditions. The application of this process includes nutrition assessment, nutrition diagnosis, nutrition intervention, and nutrition monitoring and evaluation.

**Teaching or learning challenge that made you rethink your approach / try something new:**

1. Students were struggling with lectures on pathophysiology of different disease conditions. When the class was offered F2F, students often asked for permission to record my lectures.
2. With lectures on different disease conditions, it was challenging to fit workshops and guest speakers in to the schedule.
3. Students had to practice calculations and work on case studies (group projects) after class.
4. Exams carried heavy weight in final grade.
5. Knowledge and skills from this class are essential for student success in their supervised practice. However, students would lose access to materials in LMS (D2L) after graduation.

**How you addressed that challenge (technology, learning strategy, etc.):**

Overall strategy: Flipping the class to be delivered in a hybrid format:

1. Asynchronous: Lectures on pathophysiology were recorded using Camtasia and upload to Youtube
2. Low-risk weekly online self-assessment quizzes were deployed in LMS (D2L). Students could take each quiz twice before the deadline with the higher score recorded.
3. Weekly quizzes simulated the format and time allowance in the real Registration Exam for Dietitians
4. F2F sessions were used for workshops, practice sessions, case studies, and guest speakers

**How students responded/any challenges/lessons learned:**

Student Response:

1. SPOT evaluation received 6.0 out of 6.0 for five consecutive semesters after the conversion
2. Senior exit surveys have consistently named this class as one of the favorite classes
3. Student comments reflect appreciation of the course design (eg. The ability to listen to the recorded lectures multiple times as necessary, even beyond graduation; low-risk self-assessment quizzes, simulation of the registration exam, guest speakers, in-class discussion and practice, etc).

Lessons Learned:

1. Communication is key. Explaining the rationale of the course design at the beginning of class helps students understand.
2. Due to the fact that evidence-based practice guidelines are updated periodically, it would be good to keep the lectures short
3. By popular demand, will continue to invite guest speakers to class