

# YEAR IN REVIEW: CAMSEE ACTIVITIES AY 2019-20

## BIWEEKLY MEETINGS (Presenter, Title, Abridged abstract)

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**10/23/19**

**Topic: Welcome Meeting**

Abstract: Welcome to UC San Diego! CAMSEE (Center for Advancing Multidisciplinary Scholarship for Excellence in Education) is UCSD's research and teaching community focused on undergraduate education. We invite you to join us for lunch on Thursday, October 23, to learn about what we do, the presentations for fall quarter, and how you can get involved. Importantly, we have a blanket IRB for pedagogical research and we will discuss how to participate.

You'll meet colleagues from a number of academic divisions as we discuss project collaborations we've completed or are working on that improve education and advance discipline-based educational research.

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**11/6/19 [Dr. Ella Tour, Associate Teaching Professor, Cell and Developmental Biology](#)**

**Topic: Current research**

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**11/20/19 [Dr. Celeste Pilegard, Assistant Teaching Professor, Psychology](#)**

**Title: Media vs. Methods: Technology, Metacognition, and Active Learning in the Classroom**

Abstract: How do we help students learn with technology? Well, the same way we help them learn anywhere. I will discuss why video games haven't fulfilled their promise to transform the educational landscape and my research on improving learning outcomes from video games. Principles of learning will also be discussed, including the difference between teaching method and teaching medium, the importance of instructional guidance, and what active learning really means.

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**1/15/20 [Dr. Scott Klemmer, Professor of Cognitive Science and Computer Science & Engineering, co-founder of The Design Lab](#)**

**Title: Question Makers**

Abstract: When I was a kid, and I came across something unknown, I would ask my parents what it was. Often, one of them would respond, "it's a question maker." It's cheeky: a playful wink with a dose of magic realism. Looking back, I also find it pretty profound. I've researched and taught design—at UCSD, Stanford, Berkeley, and online—for nearly two decades. The key practice I hope to impart is prototyping. From the outside, a prototype looks like an artifact: a student, professional, or hobbyist makes a 'thing' (a first pass at a teacup, smartphone app, etc.). I'll suggest that, more importantly, a prototype is a 'question maker': a means of acquiring knowledge in artifact form. In this talk, I'll show examples—both from my research group and more broadly--of how that conceptual shift can have huge impacts on what we design and how. For me, this is our field's defining trait: designers are question makers. Questions can be lofty or pedantic, wise or naïve, well-posed or rambling. Using artifacts to ask is a skill we all can learn. And sometimes, one important way to deploy that is to question makers.

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1/29/20 [Dr. Sarah Schneewind, Professor, Dept. of History](#)

**Title: "What Can We as Teachers Do to Protect and Promote Academic Freedom?"**

Description: Academic Freedom lies at the heart of the academic enterprise, both in research and teaching. But it is facing a barrage of threats, some new, some not-so-new. I would like to make some suggestions and hear your suggestions about what we, as teachers, can do to protect and promote our academic freedom and our students' freedom of inquiry, while still making our classrooms a safe space.

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2/12/20 [Alicia Magallanes, UCSD Basic Needs Coordinator](#) and [Damian Ruiz, UCSD Off-Campus Housing Coordinator](#)

**Title: Food and Housing Insecurity Among Undergraduate and Graduate Students at UC San Diego**

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2/26/20

**Title: Inclusive Classroom 2.0**

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4/15/20 [Dr. Beth Simon, Teaching Professor, Education Studies](#)

**Title: Building Community in Digital Learning**

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4/29/20 [EdTech Services \(ETS\)](#) and [Teaching + Learning Commons \(The Commons\)](#)

**Part 1: ETS: New Student Information System and How It Will Impact Instruction and the Quarter Course Lifecycle**

**Part 2: Commons: Collaborations between UCSD Faculty and the Commons**

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5/20/20 [Stephen Schneid, School of Medicine and Pharmacy](#)

**Title: Trademarked Team-Based Learning (TBLTM)**

Description: Trademarked Team-Based Learning (TBLTM) is an instructional strategy that is on the rise in medical and pharmacy schools nationally and internationally. It is a collaborative learning teaching strategy designed around units of instruction, known as "modules," that are taught in a three-step cycle: preparation, in-class readiness assurance testing, and application-focused exercises. We will discuss the basic principles of this methodology and I will share how my experiences with it personally and as a mentor for faculty trying to incorporate this methodology into their courses.

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6/3/20 [Dr. Tiffany Omeara and Dr. Christina Lambert](#)

**Title: CAPS - Student Mental Health**

Description: The presentation will consist of how faculty and instructors can navigate certain difficult situations with students by way of 3-4 scenarios. Following the scenarios there will be time for questions and answers.

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## AFFILIATED TALKS

10/25/19 [Dr. Gregory M. Walton, Associate Professor, Psychology, Stanford University and Michael Forman University Fellow](#)

**Title: Questions of Belonging: Their Implications for Performance Merit and Intervention**

Abstract: When anyone enters a challenging academic environment, they may wonder whether they will be respected and be able to belong and succeed. If your group is disadvantaged in the setting, such as for negatively stereotyped racial-minority students in school generally and for women in male-dominated STEM fields, these worries can become acute. Discussion addresses implications for equity and decision-making.

**10/28/19 [Dr. Iris Ruiz, Visiting Scholar](#)**

**Title: Decolonizing Pedagogical Praxis Within Composition and Literacy Studies**

**10/30/19 [Dr. Eric Robinson, Professor, Indiana University Bloomington](#)**

**Title: Cities on the Edge of War: Teaching Greek History Through A Strategy Role-Playing Game**

Abstract: Integrating role-playing games into the history of classroom is becoming more common, and for good pedagogical reasons. Cities on the Edge of War is a strategy role-playing game designed from the ground up by the instructor for use in a Greek history course focusing on the era of the Peloponnesian War. The class was taught in the fall of 2018 at Indiana University. This lecture will describe the game, the course, and student reactions, as well as assess the game's pedagogical effectiveness and potential as a model for role-play designs in other classes.

**11/6/19 [Joe Palca](#)**

**Title: Explaining Everything in Two Minutes or Less: learn how you can crisply capture a research story to reach a wide audience**

Abstract: You really can convey a lot information in two minutes. Of course your audience won't be getting a graduate seminar understanding of your topic, but that level of detail should be saved for graduate seminars. Join renowned NPR science correspondent, Joe Palca, to learn how you can crisply capture a research story to reach a wide audience.

**11/13/19 [Dr. Stanley Lo, Associate Teaching Professor, Cell and Developmental Biology](#)**

**Title: "When active learning fails: Student outcomes, faculty beliefs, and curriculum design"**

**11/15/19 Dr. Peter Mahaffy, Professor of Chemistry, co-director of King's Centre for Visualization in Science (KCVS), The King's University**

**Title: Systems Thinking, SOCMEs, and Educating About the Molecular Basis of Sustainability**

Abstract: Systems thinking shows promise as a new (to chemistry) approach to guide students to see the relevance of their chemistry and STEM education for addressing multiple emerging global sustainability challenges such as powering our planet while addressing climate change, living within our planetary boundaries, and achieving the UN Sustainable Development Goals. This talk builds on progress to date by the IUPAC Systems Thinking in Chemistry Education (STICE) initiative, which has the goal of moving learners from fragmented knowledge of chemical reactions and processes toward a more holistic understanding of the field. We will discuss approaches and exemplars that can be used by chemistry educators in courses such as general chemistry to help students develop a deeper understanding of the molecular basis of sustainability. One tool developed in collaboration with Tom Holme (Iowa State University) is to use Systems Oriented Concept Map Extensions (SOCMEs), which we will illustrate with examples from planetary cycles of reactive nitrogen and carbon. We will also suggest key steps forward for systems thinking in chemistry education, including insights from a forthcoming special issue of the Journal of Chemical Education on "Reimagining Chemistry Education: Systems Thinking and Green & Sustainable Chemistry."

**11/25/19 [Dr. Niral Shah, Assistant Professor, University of Washington](#)**

### **Title: Is STEM Education Compatible with Racial Justice?**

Abstract: STEM education is typically seen as intrinsically beneficial to individuals and to society, particularly in the context of a technology-driven modern economy. For people from racially minoritized groups, who remain excluded from this high-tech, high-paying labor market, access to STEM education is often framed as a matter of racial justice. In this talk, I question the underlying logic of these dominant narratives by asking: Is STEM education compatible with racial justice? Drawing on several lines of research on how STEM learning becomes racialized for students of color, I argue that we cannot assume that participating in STEM constitutes a net benefit for people of color. Specifically, I discuss how dominant forms of STEM education can do substantial harm by dehumanizing both Asian students and non-Asian students of color. I conclude with an invitation to consider how less STEM education might actually better serve a vision of racial justice.

**12/9/19**

### **Title: Teaching in Chemistry Symposium, featuring posters of "Backward-by-Design" Lesson Plans for Undergraduate Labs and Lectures in Chemistry.**

Abstract: As part of CHEM 105 / 509 (Teaching Methods in Chemistry and Biochemistry), our first-time graduate instructional assistants (TAs/IAs) and undergraduate tutors apply the backward design process to develop a lesson plan focused on learning goals, assessments, and active-learning strategies and activities for lectures and labs. The "Teaching in Chemistry Symposium" is a venue for the 65+ course participants to present their teaching projects and to exchange ideas and resources with other students and faculty.

Please help us to celebrate the achievements and contributions of IAs/TAs to our department's and university's undergraduate education mission, and to recognize the critical roles that faculty, instructional lab staff, and senior graduate students play in guiding and supporting these teaching apprentices.

**1/9/20 [Dr. Chandralekha Singh, Department of Physics and Astronomy, University of Pittsburgh](#)**

### **Title: Facilitating thinking and learning in and beyond the physics classrooms**

Abstract: I will discuss, using my research in physics education, how research can be used as a guide to develop curricula and pedagogies to reduce student difficulties. My research has focused on improving student understanding of introductory and advanced concepts, for example, in learning quantum mechanics. We are developing research-based learning tools such as tutorials and peer instruction tools that actively engage students in the learning process. I will discuss how we evaluate their effectiveness using a variety of methodologies. I will also discuss our research studies that provide guidelines for how to enhance physics by making it inclusive.

**1/31/20 [Dr. Brian Donovan, Research Scientist, BSCS Science Learning](#)**

### **Title: The Science of Teaching: Evidence-Based Approaches in Biology Education**

Supporting the Development of Genomics Literacy Through Genetics Education Could Reduce Racial Prejudice

Abstract: Throughout history, the science of genetics has been used to support ideological claims about the naturalness of racial inequality. What role, if any, does biology education play in the development of ideas about the genetic causes of social inequality? In his talk, Dr. Brian M. Donovan will present data from randomized control trials (RCTs) carried out in schools to highlight how students unintentionally learn genetic explanations for racial inequality in school biology. Then, Dr. Donovan will use evidence from RCTs and thinkaloud protocols to explain how these harmful beliefs could be reduced through curriculum

and instruction that enhances students' disciplinary literacy in genomics. Dr. Donovan will argue that the teaching of human genetics is not a socially neutral endeavor — it could produce humane or inhumane social attitudes depending on what we teach students about human genetic variation and how we teach it. By teaching about the social and quantitative complexities of human genetic variation, we can help students develop a better understanding of human difference, which in turn, could reduce the risk that students develop naïve and harmful beliefs about the genetic basis of racial inequality. The implications of this work for genetics education will be discussed.

**4/14/20 [Dr. Matthew Voigt, UC San Diego](#)**

**Title: Queer-Spectrum Student Experiences and Resources in Undergraduate Mathematics**

Abstract: Supporting student success in introductory mathematics courses is a growing national imperative in order to both diversify and increase the number of well-prepared Science, Technology, Engineering and Mathematics (STEM) graduates. Efforts to diversify STEM fields have focused on broadening participation, address equitable outcomes, and promote inclusive learning environments for an array of student identities. At the same time, educational research, institutional programs, and policies to support Queer-spectrum students remain largely underdeveloped and undertheorized. By Queer-spectrum, I mean students who identify as Lesbian, Gay, Bisexual, Transgender, Two-spirit, Intersex, Pansexual or in other ways Queer because of their queer sexual identity or non-cisgender identity (Kumashiro, 2001). Broadly speaking, this dissertation seeks to explore the lived experience of Queer-spectrum undergraduate STEM students through a transformative mixed methods design, which is structured in three phases.

Drawing on large scale quantitative survey data (n=25,785), I examine how Queer-spectrum students describe mathematical learning opportunities in introductory mathematics courses and how these reported descriptions differ within queer-spectrum students and between Queer-spectrum and Straight students. In the qualitative portion of this study, I draw on individual interviews with 17 Queer-spectrum students and focus groups of three to five Queer-spectrum students at four universities across the United States. I use a phenomenological approach and grounded theory techniques with the individual interview, to identify the mathematical discourses (e.g., beliefs, norms) related to Queer identity and the navigational strategies that students utilize within STEM environments. Based on this analysis I define the exclusion-irrelevancy space to network together mathematical discourses that positions queer identity as excluded and irrelevant to the pursuit of STEM. I draw on thematic analysis and Nasir's (2011) identity resource constructs with the focus groups to document the resources that support Queer-spectrum students in STEM.

Taken together, these three phases seek to transform and advocate for inclusive STEM environments for Queer-spectrum students. The aim of this study is to provide both a broad understanding of Queer-spectrum experiences in mathematics while providing illustrative accounts to capture the nuance of the lived experiences for queer-spectrum students. I conclude this dissertation study by looking across the three phases and most importantly provide implications for practice and policy in STEM education to promote a more inclusive STEM environments for all students.

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## SPECIAL EVENTS AND WORKING GROUPS

### 1. Workshop: Creating an Inclusive Classroom

2. **IRB Working Group:** Christine Alvarado (Chair), Stacey Brydges, Crystal Goldman, Lisa McDonnell, Laurel Nelson, Katie Petrie  
Outcome: extension of campus-wide IRB with opt-out consent form
  
  3. **Book group: Race Talk by Derald Wing Sue, led by Sarah Stockwell**
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## SOCIALS

### **Social Fall Quarter CAMSEE Gathering!**

Wednesday, December 11th

TIME: 4:30-6:00pm

LOCATION: Faculty Club, Patio Area

### **Winter Quarter Social**

March 19th

We hope you are all doing well. Many of us are adjusting with the recent worldwide developments and their many impacts on our lives. In particular, with the big changes underway in education on campus for the foreseeable future, we have decided to cancel this quarter's CAMSEE social meeting. We encourage you all to use the CAMSEE listserv and/or basecamp to share ideas and for us to support one another as we make our way through these uncharted waters.

### **Spring Quarter Social**

June 10

In reflection to the current events we are all living, our colleague Adam Burgasser has invited us to discuss what faculty, staff, and instructors can do to address anti-blackness at UC San Diego, as the STEM Shutdown for anti-black racism (<https://www.shutdownstem.com/>) is taking part tomorrow. We will take some time of our social gathering tomorrow to conduct small break-out groups to discuss specific needs, resources, and action plans for our various units.

For reference, this is what #shutdownstem recommends for researchers: <https://www.shutdownstem.com/for-researchers> and for department leaders: <https://www.shutdownstem.com/for-department-leaders>  
[shut down STEM anti-racism activity](#)