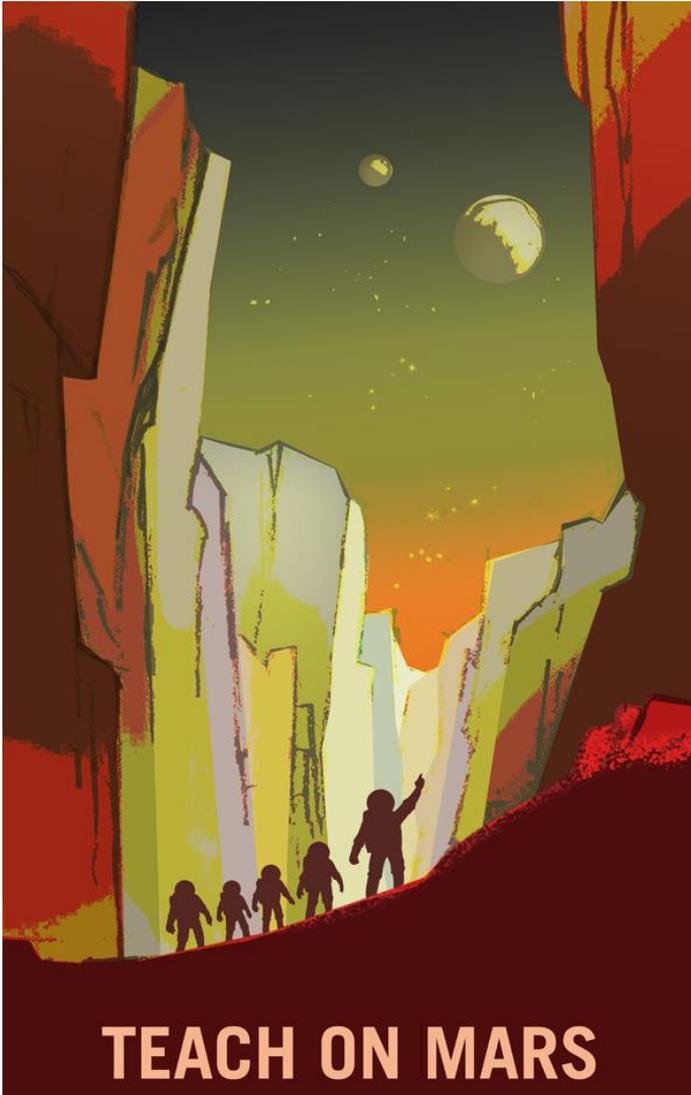


CTLO

CENTER FOR TEACHING, LEARNING & OUTREACH

7th Annual Caltech Teaching Conference



TEACH ON MARS

Photo Credit: NASA/KSC

On The Cover: Teach on Mars and its Moons*

Learning is out of this world! Learning can take you places you've never dreamed of, including Mars and its two moons, Phobos and Deimos. No matter where we live, we can always learn something new, especially with teacher-heroes who guide us on our path, daring us to dream and grow!

-NASA

The sentiment of the “Teach On Mars” poster resonates greatly with us here at the Caltech Center for Teaching, Learning & Outreach. We believe Teaching and Learning are out of this world! And we are committed to **advancing evidence-based, inclusive practices** through our programs and services, and to **fostering innovation** based on our Vision and Mission: Caltech’s **vision** is for our teaching and educational excellence to parallel our renowned research excellence.

The **mission** of the Center for Teaching, Learning, and Outreach is to work toward this vision by:

- Supporting instruction,
- Enhancing learning, and
- Facilitating educational outreach.

We hope your attendance at the 7th Annual Teaching Conference will be informative, enjoyable and a memorable start to your educational experience here at Caltech!

PLEASE VISIT US

Center for Student Service Building (CSS) 3rd. Floor

Webpage: <http://ctlo.caltech.edu>

Email: ctlo@caltech.edu Office

Phone: 626-395-8427

Facebook: <https://www.facebook.com/caltechctlo>

Instagram and Twitter: @caltechCTLO

*NASA commissioned this (& other) posters for an exhibit at the Kennedy Space Center Visitor's Complex in 2009. All posters are available online:

<https://mars.nasa.gov/multimedia/resources/mars-posters-explorers-wanted/>

Guidance on Choosing Your Sessions

Caltech instructors and TAs with a wide variety of prior experience participate in the Teaching Conference. First and foremost, please choose sessions according to your interests and upcoming teaching. Participation in the Opening Session is required for all G1s; experienced TAs and instructors are more than welcome to attend!

Sessions are divided into 3 different tracks:

Essential TA Skills

Teaching Development

Professional Development

If you have never taught before or are new to teaching at Caltech, choose mainly from **Essential TA Skills** and **Teaching Development** tracks.

If you already have some teaching experience, you may choose any track, but the **Teaching Development** and **Professional Development** tracks may be of special interest to you.

If you are not sure whether you are going to teach or not, the **Professional Development** track is for you! Also take a look at the **Teaching Development** choices, some of which are broadly applicable to a wide range of settings, now or later in your career.

Material from today's conference can be downloaded at:
<https://ctlo.caltech.edu/teachingconference>

Teaching Conference

Opening Session 10-10:50AM	Learning to Teach at Caltech		
	Baxter Lecture Hall	Dabney Lounge	Beckman Behavioral Biology B180 (BBB B180)
Block 1 11-11:50AM	*Fair Grading & Effective Feedback		*Leading Successful (& Popular!) Office Hours
Block 2 12-12:50PM	*Effective Recitations: The Power of being Prepared		*Fair Grading & Effective Feedback
Lunch	Dabney Gardens Table Discussions		
Block 3 2-2:50PM	TA'ing at Caltech: Panel Discussion with TAs		*Effective Recitations: The Power of being Prepared
Block 4 3-3:50PM	*Leading Successful (& Popular!) Office Hours	Thinking on Your Feet: Teaching as Improv	Caltech 101: What You Need to Know if You're Going to Teach Undergraduates

**Indicates a Session Offered Twice*

Tracks: **Essential TA Skills**

Schedule of Sessions

Prof. Antonio Rangel, Bing Professor of Neuroscience, Behavioral Biology, and Economics; Head Faculty in Residence

Baxter B125	Baxter 125	Baxter 127	Baxter 128
Classroom Communication for International TAs & Others	Time Management: Focusing on Meaningful Activity	Life as a Lab TA	Transparent Teaching
Your First Class	Facilitative Teaching: Helping Students "Get It" Themselves	Teamwork Makes for Dream Work: Strategies for Efficient TA'ing	Outreach: Good for the CV, Good for the Soul!

Tables 1 and 2: Copyright and Attribution
Table 3: Your Students + Accessibility Services

Table 4: Supporting Students in Crisis

Table 5: Navigating Race, Gender, Sexuality, and More in your TA Role

Table 6: Designing Writing Assignments for STEM Classes **Table 7+:** Ask a TA!

Motivating Yourself and Your Students	Mitigating Unconscious Bias and Microaggressions in the Classroom	Using Caltech Teaching to Propel Your Future in Industry, Academia & More	Effective Mentoring Practices
Writing Problem Sets and Exams	Backward Design for Effective Lesson Planning	Starting Small with Active Learning	Responding to Student Writing in STEM

Teaching Development

Professional Development

Welcome by CTLO and Opening Session

Learning to Teach at Caltech

Professor Antonio Rangel, Bing Professor of Neuroscience, Behavioral Biology, and Economics; Head Faculty in Residence

Prof. Rangel is a student of teaching who is constantly humbled by how difficult it is to be an effective instructor. He continues to search for ways of bringing state-of-the-art teaching methodology to Caltech level learning. In this session, Dr. Rangel will share some of his teaching experiences at Caltech, discuss how he has found success in integrating teaching with research, and give us some tips on how to balance teaching with research and strategies for effectively teaching at Caltech.

Baxter Lecture Hall | 10:00 – 10:50AM

Backward Design for Effective Lesson Planning

Dr. Susie Newcomb, Biology & Biological Engineering, Post-doc

Planning is the key to success; in life and in the classroom! During this session we will explore and engage with the three phases of backward design as it pertains to planning for the STEM classroom: setting learning objectives, aligning assessments and designing student-centered learning activities. Instructors at any level will benefit from incorporating backward design into their planning process for lessons, office hours, recitations or even whole courses and your students will reap the reward of an outstanding educational experience!

Baxter 125 | Teaching Development | 3:00 – 3:50PM

Caltech 101: What You Need to Know if You're Going to Teach Undergraduates

Valère Lambert, Geophysics, G4

In order to effectively teach students, it is crucial to understand your population and how they learn. In this session, we will provide an overview of key aspects of undergraduate life at Caltech and their relevance to being a teaching assistant for the undergraduate student body. The session format will be an open discussion, in which session facilitators will share their thoughts on what undergraduates hope for in terms of an effective TA.

BBB B180 | Essential TA Skills | 3:00 – 3:50PM

Classroom Communication for International TAs & Others

Stephanie Kong, Chemical Engineering, G4

Voon Hui Lai, Geophysics, G6

In this session, we will introduce techniques to present your course material and enhance your verbal and non-verbal skills. We will also discuss several facilitation skills to manage classroom situations, to enrich both your teaching experience and your students' learning experience.

Baxter B125 | Teaching Development | 11:00– 11:50AM

Effective Mentoring Practices

Dr. Matthew Hankins, Astronomy, Post-doc

Mentoring is a near-ubiquitous part of the university experience and can be largely beneficial to both the mentor and mentee. In this session, we will discuss strategies for mentoring that borrow from techniques for effective teaching. We will review methods for evaluating students' prior knowledge, effective communication, as well as establishing and adapting goals with your mentee. This session will also offer opportunities to reflect on our own experiences as mentors as a way of identifying additional strategies to use moving forward. Throughout this session, we will examine how mentoring mirrors teaching and how your skills in these areas can work together.

Baxter 128 | Professional Development | 2:00 – 2:50PM

Effective Recitations: The Power of Being Prepared

Rajashik Tarafder, Physics, G2

Valère Lambert, Geophysics, G4

“Give me six hours to chop down a tree and I will spend the first four sharpening the axe.”—Abraham Lincoln

Hosting recitations can be the most rewarding role in your career as a teacher. They can also be the most terrifying. Experienced teachers have overcome this with careful planning and rehearsal. In this session, we shall discuss some of the best practices you can employ in your preparation for recitations; and how you can learn to inspire, entertain and energize your students.

Baxter Lecture Hall | Essential TA Skills | 12:00 – 12:50PM

BBB B180 | Essential TA Skills | 2:00 – 2:50PM

Facilitative Teaching: Helping Students “Get It” Themselves

Dr. Cassandra Horii, CTLO, Director

From flipped classes to problem-solving recitations to office hours, helping students work effectively in small groups is an increasingly important teaching skill. This session explores the ins and outs of “facilitative teaching” – the kind of teaching that coaches, guides, and supports students, while encouraging them to figure out their own next steps and collaborate productively. Topics will include student group logistics, expert vs. novice problem solving processes, effective questioning, helping students get un-stuck, and troubleshooting.

Baxter 125 | Teaching Development | 12:00 – 12:50PM

Fair Grading and Effective Feedback

Dr. Carolyn Ladd, Chemistry, Post-doc

Olivia Harper Wilkins, Chemistry, G4

It can be difficult to balance your research and your own courses with the responsibility of being a fair and effective TA for your students. In this session, we will discuss communicating expectations to students about assignments, grading efficiently and fairly, and providing effective feedback. You will become familiar with best practices for grading and feedback that won't take up all of your time!

Baxter Lecture Hall | Essential TA Skills | 11:00 – 11:50AM

BBB B180 | Essential TA Skills | 12:00 – 12:50PM

Leading Successful (and Popular!) Office hours

Dr. J. Elliott Robinson, Biology & Biological Engineering,

Post-doc

Harrison Parker, Environmental Science and Engineering, G4

Office hours are a great opportunity for students to enhance their learning but can also be intimidating as a TA. In this session, we will explore how to prepare for office hours, guide students through problems, and address questions on the fly. Lastly, we will discuss strategies for effective use of office hours within a course to help inspire students to attend all quarter long.

BBB B180 | Essential TA Skills | 11:00 – 11:50AM

Baxter Lecture Hall | Essential TA Skills | 3:00 – 3:50PM

Leveraging Caltech Teaching to Propel Your Future in Industry, Academia & More

Dr. Peter Hung, Aerospace Corporation, Project Leader

Dr. Cassandra Horii, CTLO, Director

Whether you have to teach Caltech, want to teach at Caltech, or aren't sure, this session is all about what's in it for YOU. That may sound selfish, but the clearer you can be about the career-worthy skills you are developing through teaching and mentoring, the more your students will benefit, too. Join us for an active exploration of professional and personal skills that matter in industry, academia, and beyond, and ways to improve them through teaching and mentoring.

Baxter 127 | Professional Development | 2:00 – 2:50PM

Life as a Lab TA

Karli Holman, Chemistry, G3

This session will be an introduction to the various duties of being a lab TA, which can be one of the most fulfilling and intellectually engaging teaching opportunities. We will discuss the major responsibilities of a lab TA, with emphasis on in-class duties and interactions with students. We will cover how to communicate effectively in lab, how to facilitate lab sessions, and how to handle tricky situations with your students, including examples of common, challenging situations and strategies on how to handle them.

Baxter 127 | Essential TA Skills | 11:00 – 11:50AM

Mitigating Unconscious Bias and Microaggressions in the Classroom

Erin-Kate Escobar, Center for Diversity, Assistant Director

Through this workshop participants will learn strategies for supporting students' social identities in the classroom, and how you as the instructor can thoughtfully address each of the following concepts in your classroom: equity, unconscious bias, stereotype threat, and micro-aggressions.

Baxter 125 | Teaching Development | 2:00 – 2:50PM

Motivating Yourself and Your Students

Alex Barth, Chemistry, G3

Hannah Allen, Chemistry, G6

What actually motivates students beyond bribery and sweeping claims of future success, and how do we motivate our students and help them feel like effective learners? We will take you through several strategies on how to motivate your students (and yourself) from day one in the classroom! An emphasis will be placed on strategies for encouraging community, building student confidence, and giving context to activities within your classroom environment.

Baxter B125 | Teaching Development | 2:00 – 2:50PM

Outreach: Good for the CV, Good for the Soul!

Dr. Florian Hofmann, Geology, Post-doc

Dr. Kitty Cahalan, CTLO, Outreach Program Manager

Mitch Aiken, CTLO, Associate Director for Educational Outreach

What does outreach at Caltech look like, and what should it look like? Who is the population we are serving, locally and beyond? What are the benefits of outreach, both to members of the Caltech community as well as to the people we are connecting with? In this session, we'll address these questions and more! Participants will then share past outreach experiences and we'll brainstorm new ones together in a roundtable discussion.

Baxter 128 | Professional Development | 12:00 – 12:50PM

Responding to Student Writing in STEM

Dr. Susanne E. Hall, Humanities and Social Sciences, Campus Writing Coordinator and Lecturer in Writing

This interactive presentation will offer guidance about how to respond to student writing in various STEM contexts, including courses, labs, and research.

Baxter 128 | Teaching Development | 3:00 – 3:50PM

Starting Small with Active Learning

Hannah Allen, Chemistry, G6

Jaron Tong, Chemistry, G2

Research has shown that “active learning” techniques improve student learning and retention compared to lecture alone. But how can you get started with these methods, especially if you have limited experience with them yourself? In this session, you’ll gain experience with a variety of active learning techniques that are relatively easy to incorporate in recitations or lecture halls and plan for when and how you can incorporate them into your own teaching.

Baxter 127 | Teaching Development | Time 3:00 – 3:50AM

TA'ing at Caltech: Panel Discussion with TAs

Dylan Freas, Chemistry, G4

Rebecca Gallivan, Material Science, G3

Dr. Florian Hofmann, Geology, Post-doc

Harrison Parker, Environmental Science and Engineering, G4

Dr. Jenn Weaver, CTLO, Associate Director

What is being a TA at Caltech REALLY like? This session will feature Q&A with 4 Caltech graduate student TAs who will share their experiences and strategies for engaging our students. Bring your questions to this interactive session!

Baxter Lecture Hall | Essential TA Skills | 2:00 – 2:50PM

Teamwork Makes for Dream Work: Strategies for Efficient TA'ing

Dr. Jenn Weaver, CTLO, Associate Director

Teaching any class doesn't involve just you – but is a team effort, whether with the professor, administrators or other TAs. You can be more efficient with your time and preparation by sharing a range of teaching responsibilities throughout the quarter. In this session, we will discuss strategies that can help TAs manage, organize, and communicate effectively with the instructor, students and TAs. This workshop will be especially helpful for current and aspiring future head TAs!

Baxter 127 | Teaching Development | 12:00 – 12:50PM

Thinking on Your Feet: Teaching as Improv

Brian Brophy, Director of Caltech Theater

It's the first day of class and a student asks you a question you can't answer—what happens now? Will your heart pound so loud that you can't hear yourself think, much less speak? Or will you be ready to go with the flow? It turns out that you can prepare for the unexpected. Kick start your Caltech experience with Brian Brophy, Director of Caltech Theater (*Star Trek: TNG*; *Shawshank Redemption*) for a low-pressure improvisation and game-playing workshop to help answer these questions in real time.

Dabney Lounge | Professional Development | 3:00 – 3:50PM

Time Management: Focusing on Meaningful Activity

Dr. Grace Ho, Student Wellness Services, Occupational Therapist

Get off to a good start with our time management workshop! With an approach tailored to Caltech graduate students and post-docs, we'll take time in this session to define success, plan an ideal week, and begin setting goals based on your values. Participants will also learn practical strategies for reducing barriers to productivity and will leave the session ready to tackle the term.

Baxter 125 | Professional Development | 11:00 – 11:50AM

Transparent Teaching: Clarifying Expectations in STEM

Alex Barth, Chemistry, G3

Dan Johnson, Geochemistry, G6

Entering Caltech, each undergraduate and graduate student has lived a different set of educational experiences. These varying experiences may result in unequitable learning outcomes if instructors fail to proactively address these disparities in educational background by clarifying the purpose and expectations of assignments. In this session, we introduce the basics of transparent teaching and discuss how transparency may be successfully incorporated into the STEM classroom.

Baxter 128 | Teaching Development | 11:00 – 11:50AM

Writing Problem Sets and Exams

Voon Hui Lai, Geophysics, G6

This session will focus on how to write homework and exam problems so that we can use these assessments as a teaching tool to maximize student learning. We will present step-by-step guidelines for designing effective problems, and discuss practical issues associated with authoring problem sets, including scaffolding and logistics.

Baxter B125 | Teaching Development | 3:00 – 3:50PM

Your First Class

Dr. Matthew Hankins, Astronomy, Post-doc
Dan Johnson, Geochemistry, G6

Teaching your first class is exciting...and a little terrifying! Here, we'll discuss simple things you can do to prepare for your first class as a TA or instructor and strategies that can help you set the tone for a successful term. We'll also discuss ways to navigate some common classroom scenarios and maintain an enjoyable, motivating environment in the first class and beyond.

Baxter B125 | Essential TA Skills | 12:00 – 12:50PM

Lunchtime Table Discussions

Tables 1 and 2: Copyright and Attribution

Dr. Donna Wrublewski, Caltech Libraries, CCE Librarian

Dr. Kristin Briney, Caltech Libraries, BBE Librarian

Work through a case study to understand copyright and attribution for your work both in the classroom and in external presentations.

Table 3: Your Students + Accessibility Services

Dr. Kate McAnulty, Graduate Studies Office, Associate Dean

Join the round table to learn about CASS (also referred to as Disability Services), and discuss the support that's available to you and the students you will teach.

Table 4: Supporting Students in Crisis

Dr. Charisma Bartlett, Counseling Center, Staff Psychologist

TAs are often in a position to encounter students that are struggling for various reasons. Learn more about the Caltech Care team which helps TAs refer and connect students to appropriate resources.

Lunchtime Table Discussions

Table 5: Navigating Race, Class, Gender, Sexuality, and More in your TA role

Erin-Kate Escobar, Center for Diversity, Assistant Director
Dr. Hanna Song, Center for Diversity, Senior Director for Diversity

Please join us for informal Q&A over lunch where we can help troubleshoot and talk through supporting students and their identities in the classroom.

Table 6: Designing Writing Assignments for STEM Classes

Olivia Harper Wilkins, Chemistry, G4
Dr. Matt Hankins, Astronomy, Post-doc

At this table talk, we will discuss different kinds of writing assignments you can design for STEM courses as well as how you can effectively communicate your expectations to students.

Tables 7+: Ask a TA!

Valère Lambert, Geophysics, G4
Jaron Tong, Chemistry, G2
Harrison Parker, Environmental Science and Engineering, G4
Rajashik Tarafder, Physics, G2

This unstructured discussion will be your opportunity to ask a TA anything!

The CTLO would like to thank this year's Teaching Conference Volunteers!

Hannah Allen, Chemistry, G6

Alex Barth, Chemistry, G3

Dr. Charisma Bartlett, Counseling Center, Staff Psychologist

Dr. Kristin Briney, Caltech Libraries, BBE Librarian

Brian Brophy, Director of Caltech Theater

Erin-Kate Escobar, Center for Diversity, Assistant Director

Dylan Freas, Chemistry, G4

Rebecca Gallivan, Material Science, G3

Leopold N. Green Biology & Biological Engineering, Post-doc

Dr. Susanne E. Hall, Campus Writing Coordinator and Lecturer

Dr. Matt Hankins, Astronomy, Post-doc

Dr. Grace Ho, Student Wellness Services, Occupational Therapist

Dr. Florian Hofmann, Geology, Post-doc

Karli Holman, Chemistry, G3

Dr. Peter Hung, Aerospace Corporation, Project Leader

Dan Johnson, Geochemistry, G6

Neehar Kondapaneni, Computational & Neural Systems, G2

Stephanie Kong, Chemical Engineering, G4

Dr. Carolyn Ladd, Chemistry, Post-doc

Voon Hui Lai, Geophysics, G6

Valère Lambert, Geophysics, G4

Marcus K. Lee, Mechanical Engineering, G5

Dr. Kate McAnulty, Associate Dean of Graduate Studies

Dr. Susie Newcomb, Biology & Biological Engineering, Post-doc

Harrison Parker, Environmental Science and Engineering, G4

Prof. Antonio Rangel, Bing Professor of Neuroscience, Behavioral Biology, and Economics; Head Faculty in Residence

Dr. J. Elliott Robinson, Biology & Biological Engineering, Post-doc

Dr. Hanna Song, Center for Diversity, Senior Director for Diversity

Rajashik Tarafder, Physics, G2

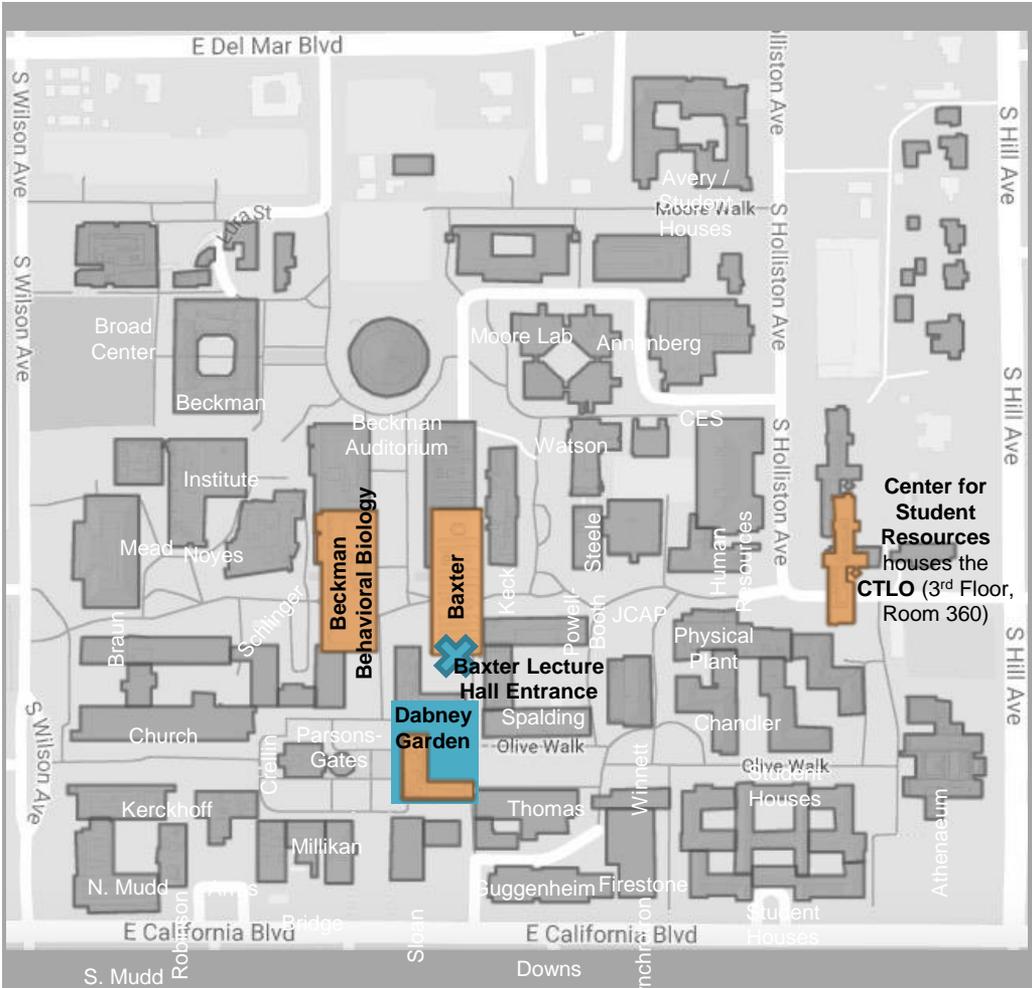
Jaron Tong, Chemistry, G2

Clarisse N. Whisenand, Office of the Provost

Olivia Harper Wilkins, Chemistry, G4

Dr. Donna Wrublewski, Caltech Libraries, CCE Librarian

Conference Map



Restrooms:

- Dabney:** Binary Single Stalls (Women and Men): Lounge Southeast Corner, Basement, 1st Floor
- Baxter:** All Gender Single Stall, 1st Floor; Binary Single Stall (Women), Basement
- Baxter Lecture Hall:** Binary Multi-stall (Men and Women)
- BBB:** Binary Single Stalls (Women and Men), 3rd Floor

Elevators:

- Baxter Central hallway:** Enter from Beckman Mall; exit 2nd Floor for Baxter Lecture Hall
- BBB Central hallway:** Enter from Beckman Mall; exit basement for B180 and B101