



Building Classroom and Organizational Structure Around Positive Cultural Values



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About

What is Compass?

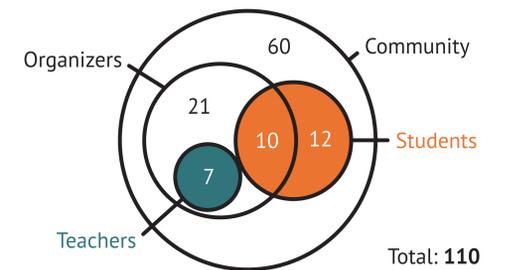
The **Compass Project** is a self-formed group of graduate and undergraduate students in the physical sciences at UC Berkeley. Our goals are to **improve undergraduate physics education**, provide our members with opportunities for **professional development**, and increase **retention** of students, especially those from populations typically underrepresented in the physical sciences. Compass fosters a diverse, collaborative student community by providing a **wide range of services**, including a summer program, fall and spring semester courses, mentoring, a research lecture series, and other academic and social support.

Demographics: Compass vs. Department

Compass summer program 2008-2011 students ($N=62$) vs. Berkeley physics department average

	Summer Program (%)	Berkeley Physics (%)
Female	47	16
Chicano/Latino	21	7
African American	5	0.5
Native American	3	0.5
First-generation	26	N/A

Compass Membership, 2011/12



Classroom

Supporting the Whole Person

Support both in the classroom and organization

Academic
Explore and develop physical models
Collect and interpret scientific data
Practice metacognitive reflection



Personal
Meet with mentors twice a month
Interpret and make use of grades
Perform weekly self-evaluations



Professional
Present results in posters and talks
Write grants to secure funding
Coordinate summer program



Social
Build strong friendships with peers
Participate in leadership retreats
Attend social events

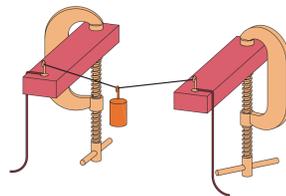


Organization

Learning from Experience

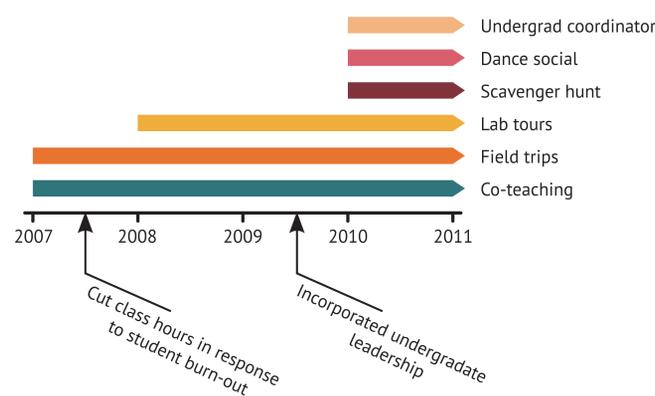
Iteration in the spring semester course

Students measured the thermal expansion of a wire. They used their characterization of the measurement error to improve the apparatus, data collection, and analysis procedure.



1. Collect data
2. Quantify uncertainty
3. Improve experiment

Iteration in the summer program design



Ownership with Collaboration

Fall semester course final projects



Each student asks a question that he or she finds interesting.



To answer their questions, students develop models by talking with peers, consulting the literature, and conducting experiments.



Graduate student research advisors help guide this process.

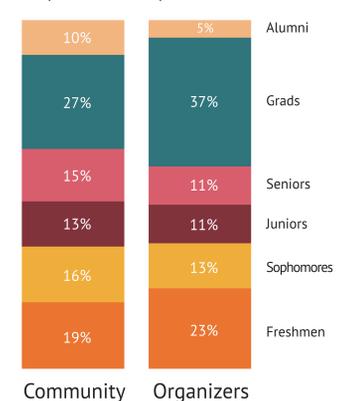


Students present their work through final papers and presentations.

Undergrad representation in leadership

- Undergrad leadership examples
- Spring course co-designer and co-teacher
 - Summer program logistical coordinator
 - PER researcher

Composition of Compass, 2011/12

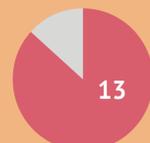


Survey Data

In fall 2011, an online survey was administered to the 17 students who participated in the 2010 summer program and the subsequent fall 2010 course; 15 of them responded. This group of students did not take a spring course because it was not offered that year.

How often did you see 2010 Compass students over the course of last year?

See other Compass students at least once per week

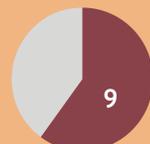


See other Compass students daily



In what ways?

Live with or plan to live with other Compass students



Study with other Compass students



After your first year as a Cal and Compass student, what (if anything) is important for you about Compass?

"Compass has given me a community of fellow students and graduate students who I can go to whether I need help with my homework or just someone to talk to. Having Compass and its community as a first year student at a large university helped me find my way and transition to Cal."

"I love the sense of community and belonging Compass offers. I always feel included in any activity and the people are very approachable. Compass has become a family for me and a support system I can count on for guidance and help."