



**Caltech  
Co-Curricular Group (C3)  
Final Report**

APRIL 2022

**Caltech**

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## Preamble

The California Institute of Technology is one of the leading research universities in the world. Its long list of Nobel laureates, Fields Medal awardees, and MacArthur Fellows is a testament to the high standards of the school and the quality of the student academic enterprise.

All academic evidence points to undergraduate and graduate student success. Six-year graduation rates for undergraduates and program completion rates for graduate students are very high. Immersed from the start in an intensive academic environment, the vast majority of the students do exceedingly well, establish long-lasting friendships, develop leadership skills, and leave Caltech well prepared for their post-college lives.

However, there are several data points and general sentiments that suggest a study of campus co-curricular activities and support elements would be in order. Some of the data points and general sentiments shared are reflective more broadly of generational norms, and all schools are affected. Students today are more likely to be interested in participating in governance, more demanding that the campus become diverse and inclusive, and more insistent that interactions on campus be respectful. Other concerns are unique to Caltech.

At Caltech, career plans for all students have shifted significantly over the past decade. Now, more than 60% of undergraduate students report that they plan to pursue a non-academic career, up from approximately 36% in 2010. Also, at Caltech, undergraduate students reported the Houses are by far their most important anchors, akin to class, major, team, or other affinity-based anchors common at other campuses. Trust in campus administrators waxes and wanes, and students believe they are not listened to when decisions affecting their lives are made and implemented. Finally, a large percentage of Caltech seniors and graduate students report in exit surveys a hesitancy to recommend Caltech to future students who are like them.

In September 2021, President Thomas F. Rosenbaum established the Caltech Co-Curricular (C3) Group to

review existing data and conduct research with recent graduates to understand what concerns they have and what recommendations should be considered to improve the quality of student life on campus. The C3's goal is to recommend to Caltech improvements to the "quality of the student experience" to make it "on par with quality of the education received."

Every interview and focus group produced excellent insight, and the survey data yielded broader-ranging insights that were helpful as well. Importantly, the feedback was very consistent and generated observations and recommendations that are actionable and realistic. Many items in this report could be considered for immediate implementation and would help enhance goodwill with students. The findings and recommendations of the C3 Group have the potential to improve campus life meaningfully. We hope these changes will set the stage for a significantly improved living and learning environment for future generations of Caltech students.

Diana Jergovic and I, Deborah McWhinney, would like to thank the C3 Group for their time and hard work. We would particularly like to thank Dr. Lindsey Malcom-Piqueux and the office of institutional research for their leadership in the primary research conducted and the superb work they did for the C3 Group throughout our process. We would also like to thank all the undergraduates, graduate students, and recent alumni who contributed to the effort. All the participants gave us meaningful perspective and insights from which we could formulate the findings and recommendations in this report.

We want to thank President Rosenbaum for his trust in the C3 Group. The Student Experience Committee of the Board of Trustees looks forward to working with the Caltech leadership team to monitor the implementation of the report's findings as Caltech becomes the campus it aspires to be: one that matches its leading academic reputation.

**Deborah D. McWhinney**  
New York City, 2022

# Executive Summary

In September 2021, President Rosenbaum tasked the Caltech Co-Curricular (C3) Group to explore how to enhance the co-curricular experience for all Caltech students. Dr. Rosenbaum charged the C3 Group to “identify the elements that play significant roles in how students feel about their time at Caltech, to articulate the most successful approaches, and to make recommendations on how to enhance the Caltech co-curricular program in a manner that will strengthen the experience for all students.”

The C3 engaged with this charge in a deliberate and methodical manner. The Group implemented a process that included: reviewing the recent reaccreditation process and areas of focus; gathering information from existing offices, programs, and prior efforts related to the student experience; analyzing and prioritizing student needs via data; speaking with student leaders; and conducting surveys and focus groups with recent alumni to understand their experience outside of the classroom and laboratory.

Twelve learnings emerged from C3’s early process. The C3 then deliberated and consulted student leaders and colleagues across peer institutions. The Group arrived ultimately at practical and actionable recommendations for the Caltech community. The intent of this report is to set the stage for Caltech to strengthen programming in high-impact areas to enhance the student experience.

Seventeen recommendations are presented. Each one requires, and is designed to benefit from, further collaborative discussion and action by those closest to, most cognizant of, and most impacted by, the area highlighted. These recommendations are grounded in the commitment to support each student’s development as a whole person. This includes their academic achievement, professional development, mental and overall well-being, and preparedness to contribute meaningfully to a diverse and inclusive world.

At the same time, the recommendations to improve the student experience at Caltech are presented below as a vision that encompasses the whole student experience: from matriculation through graduation. The recommendations aim to enhance specific efforts and support services and to strengthen and operationalize the connections between these efforts and services so that there is a shared understanding and objective of how students should develop through their experience at Caltech. The C3 Group recommends a universal, strategic, goal-oriented, and cohesive approach to the student experience be articulated through an approach that ensures enhancements that strengthen each of the interdependent components, is overseen by one individual assigned to serve the function of holistic student experience oversight, is implemented in a collaborative manner with the students, and contains an assessment component to ensure that progress is made and the efforts are supporting students as intended.

Finally, these recommendations arrive with a sense of urgency for action. This moment in Institute history affords a unique opportunity to examine intentionally the student experience and likewise provides an opportunity to carry forward the required monitoring and adjustments that will help the Institute elevate the student experience to one that is on par with the excellence of the student academic experience.

# Background

In September 2021, President Rosenbaum tasked the Caltech Co-Curricular (C3) Group, guided by a steering committee, to explore how to enhance the co-curricular experience for all Caltech students. Dr. Rosenbaum charged the C3 Group to “identify the elements that play significant roles in how students feel about their time at Caltech, to articulate the most successful approaches, and to make recommendations on how to enhance the Caltech co-curricular program in a manner that will strengthen the experience for all students.” The committee convened weekly starting in early September and delivered the report and recommendations to President Rosenbaum on April 4, 2022.

## Process

The committee’s process included: reviewing the recent reaccreditation process and areas of focus; gathering information from existing offices, programs, and prior efforts related to the student experience; analyzing and prioritizing student needs via data; speaking with student leaders; and conducting surveys and focus groups with recent alumni to understand their experience outside of the classroom and laboratory. The committee also solicited input from peer institutions to understand their challenges and best practices toward cultivating a positive student experience, one equal in caliber to the excellence of the academic offerings at Caltech.

The committee then spent several weeks discussing the variety of information gathered and prioritizing work that was practical and actionable for the Caltech community. The intent of this report is to set the stage for Caltech to implement programming in high-impact areas. The resulting recommendations are unanimously supported by the committee.

## Committee Membership

The C3 Group was chaired by Trustee Deborah McWhinney and co-chaired by Diana Jergovic, vice president for strategy implementation. Members include: Lorinda Dajose (BS '16, content and media strategist), Natalie Gilmore (assistant dean of graduate studies), Felicia Hunt (assistant vice president for student affairs and residential experience), Mark Longo (senior director of strategic initiatives and development administrative management), Candace Rypisi (assistant vice provost and director of Student-Faculty Programs), Hima Vatti (assistant vice president, equity and equity investigations and Title IX coordinator), and Nicolas Wey-Gomez (professor of history). Lindsey Malcom-Piqueux (MS '03, chief diversity officer and assistant vice president for diversity, equity, inclusion and assessment) served as research director and advisor to the Group, and Hillary Tribbs (director of special projects, Office of Strategy Implementation) staffed the Group.

The C3 Steering Committee included Dexter Bailey (vice president for advancement and alumni relations), Kevin Gilmartin (vice president for student affairs and the William R. Kenan, Jr., Professor of English), Cassandra Horii (then–assistant vice provost and director of the Center for Teaching, Learning, and Outreach), and Trustee Mason Smith (BS '09).

## Methodological Approach and Data Collection

The recommendations formulated by the C3 Group were informed by a significant research effort carried out by Caltech's Office for Institutional Research (IRO). Using a concurrent, mixed-methods design, the goal of this research was to address the following questions:

- What are the most salient aspects of the Caltech student experience?
- How do Caltech students experience the Institute's culture and climate?  
In what ways do these experiences vary over time? Across student populations?
- To what extent do students engage with co-curricular support structures? What factors are associated with participation in various support structures? What are the outcomes associated with engagement with Caltech's co-curricular support structures?
- What aspects of the Caltech student experience are most influential on students' development, sense of belonging, and connection to the Institute?
- What additional actions or support could Caltech provide to positively affect student experience?

Data collection took place over three months (between October 2021 and December 2021) and included three methods: survey research, qualitative focus groups and interviews, and process benchmarking. Each of these methods is discussed below.

### COFHE Alumni Survey

Since 2013, Caltech has administered the Consortium on Financing Higher Education (COFHE) Alumni Survey. The purpose of the quadrennial survey is to enrich our understanding of the outcomes of and perceptions held by the undergraduate alumni population. Given the alignment between the planned launch of the 2021 COFHE Alumni Survey and the C3 Group's work, the survey provided a unique opportunity to gather input from undergraduate alumni who had graduated from Caltech in the past 15 years.

The survey spans a range of topics including graduate education, jobs and careers, finances, well-being, and community, as well as satisfaction and connection with Caltech. For the 2021 alumni survey, an additional survey module was developed in collaboration with the C3 Group to address the research questions at the center of the Group's work. These questions asked respondents to reflect upon their undergraduate years and provide input on the challenges they encountered, when they encountered them, where they found support, and what they would like to have changed about their student experience.

The alumni survey was administered via Caltech's Qualtrics online survey platform between November 10, 2021, and December 10, 2021. All living Caltech undergraduate alumni who graduated between 2005 and 2020 were invited to participate. Out of the 3,141 alumni who were solicited, 416 Caltech undergraduate alumni participated, resulting in an institutional response rate of 13%.

## **Alumni Focus Groups**

To further support the C3 Group's efforts to explore and understand the Caltech experience, focus groups were held with undergraduate and graduate alumni. These focus groups provided a venue for alumni to communicate their experiences, perspectives, and reflections regarding their years as Caltech students. In addition, these discussions gave alumni an opportunity to reflect upon their student-to-alumni journey and how their life beyond the Institute offered new or different perspectives on how Caltech might improve the student experience for current and future students. Unlike surveys, which can collect data from a wider audience on a wider range of topics, the focus groups were intended to open a space for a smaller set of alumni to describe, in their own words, what their experiences were and how they have made meaning of them. These dynamic discussions offered a way to hear the voices and the stories, which included rich contextual descriptions of participants' situations and experiences, that other forms of data are unable to capture. Given the unique nature of each person's individual experiences, the goal of the focus groups was not to generate a representative sample of alumni who could represent all experiences among the alumni body; rather, the intention was to learn and discern from these individual experiences any common themes that emerged and to assess how such themes connect or conflict with other data.

The focus groups provided an opportunity for several alumni to tell their stories and perspectives in a single session. Moreover, unlike interviews, focus groups challenge participants to consider and discuss how their own journey was either like or different from that of others in the group. However, to mitigate the challenges of scheduling conflicts and to encourage participation among interested alumni, one-on-one interviews were conducted with those who were interested in participating but unable to attend the scheduled focus groups. Although these interviews were done in a slightly different venue and format, they brought additional voices and experiences into the data collection effort.

### **Participant Selection and Recruitment**

Undergraduate alumni were recruited for the focus groups by opting in at the end of the COFHE Alumni Survey. If a survey respondent indicated that they were interested in participating, they were redirected to a separate form where they could note their name and contact information. Fifty-five alumni completed the initial interest form. These alumni were subsequently contacted and asked for their availability for one of nine focus-group time slots. Thirty-one alumni signed up for a focus group, with 18 undergraduate alumni ultimately participating across four focus groups. An additional seven alumni participated in a one-on-one interview, as these individuals were unable to meet during a scheduled focus group or were the only person who confirmed for a particular time slot.

Graduate alumni who earned their degrees between 2005 and 2020 were emailed directly from [iro@caltech.edu](mailto:iro@caltech.edu) to invite their participation in graduate student focus groups. Thirty-six graduate alumni signed up to attend, with 18 alumni ultimately participating in a focus group. Two additional graduate alumni were interviewed separately, as they were not available to join the focus groups that were offered.

The undergraduate and graduate alumni who participated in one-on-one interviews were asked the same questions as the focus group participants.

### Characteristics of Focus Group Participants

Between December 6 and December 20, focus groups and individual interviews were held via Zoom. A total of 45 alumni participated in one of the focus groups or interviews; a total of 10 focus groups were convened, four with undergraduate alumni and six among graduate alumni. Additional information about the participants is included below:

Constituent	Participants	Focus Groups	Interviews
Undergraduate Alumni	25	18 (4)	7
Graduate Alumni	20	18 (6)	2
<b>Total</b>	<b>45</b>	<b>38 (10)</b>	<b>9</b>

Constituent	Undergraduates	Graduates
<b>Total</b>	<b>25</b>	<b>20</b>
Female	11	8
Minoritized	5	7
International	3	6
Classes '16 – '20	8	4
Classes '11 – '15	11	9
Classes '05 – '10	6	7

### Data Collection

Each of the 10 focus groups was moderated by two Caltech staff members: one who facilitated the conversation and another who took notes and provided technical support with the Zoom software. The nine interviews provided additional Caltech alumni the opportunity to participate in the project even though they were not available for one of the scheduled focus group opportunities. Unlike the focus groups, the interviews were conducted on a one-on-one basis, with one Caltech staff member leading the conversation. Each focus group lasted approximately 60 minutes, with the individual interviews ranging between 30 and 60 minutes.

Apart from one focus group, all the focus groups and interviews were audio recorded. From the audio recording, a transcript was automatically generated by the Zoom cloud platform. Caltech staff reviewed and updated the transcripts to ensure their accuracy and to redact personally identifiable information.

### Analysis

After all the transcripts were prepared for analysis, they were loaded into MAXQDA Analytics Pro 2022 for analysis. Using the MAXQDA analytical software, the IRO conducted open coding on each transcript. Through this process, text segments of each transcript were assigned a code that categorized the participants' experiences, observations, reflections, and opinions. After each of the transcripts was coded through the open coding process, each code was reviewed with its assigned group of text segments to assess the reliability of each code. Through this process, several text segments were recoded, and a smaller set of the most salient codes emerged as core findings from re-analyzing the transcripts.



## **Process Benchmarking**

The final research method upon which the C3 Group relied was process benchmarking. Our application of process benchmarking involved consultation and engagement with higher education practitioners at three peer institutions that have developed and implemented promising, evidence-based practices to enhance the student experience at their home institution. The goal of process benchmarking was to inform the C3 Group about the additional actions or support that Caltech could provide to affect positively the student experience. Our discussions with colleagues at the three peer institutions centered on the following questions:

- What are the core components of the program/practice, and how do these components support student learning and development?
- Who at your institution is involved in the program/practice?
- What outcome measures are monitored to determine the effectiveness of the program/practice?
- What challenges related to the student experience was your institution trying to address?
- What, if any, challenges related to this aspect of the student experience does your institution continue to navigate?

These discussions and the information collected through this process informed the recommendations presented in this report.

## **Presentations to the C3 Group by Current Caltech Students and Staff**

While much of the research effort focused on the perspectives of alumni and learning about promising approaches to supporting the student experience at Caltech's institutional peers, the C3 Group also heard from a range of current Institute staff and administrators to better understand the current approaches the relevant centers and offices use to support the co-curricular experience at Caltech. Presentations from staff in the provost's office and the IRO, as well as from the directors of Student Wellness Services (SWS), the Caltech Center for Inclusion and Diversity (CCID), and the Office of Residential Experience (ORE), provided valuable insights about current and emerging approaches to supporting the student experience and responding to evolving student needs.

To gather input on the Caltech student experience and to understand how recent additions to Caltech's support structures have shaped the student experience, the C3 Group hosted two meetings with current Caltech students—one with undergraduate student leaders and one with graduate student leaders. These meetings were held in a focus group format, with student leaders sharing their perspectives on how the Caltech student experience could be improved. Undergraduate and graduate student leaders were asked to identify aspects of the Caltech student experience that “make Caltech great,” “what's good but needs improvement,” and “what needs to be transformed.” Unlike the alumni focus groups, however, these meetings were not recorded because they involved current students who could be identified based on their high-profile student leadership positions. Though the meetings were not recorded, notes taken during the meetings ensured that the C3 Group could accurately incorporate the current student leaders' input into recommendations.

# Findings and Considerations

## Defining the Caltech Student Experience

### **Finding 1. Alumni described the Caltech student experience as a rigorous one, dominated by academics.**

Though the C3 Group set out to understand the nature of the Caltech student experience in a co-curricular sense, it quickly became evident that the non-academic and academic lives of undergraduate and graduate students at the Institute are inextricably bound together. Of the 45 alumni who participated in the focus groups, nearly all of them—whether they earned an undergraduate or graduate degree from Caltech—characterized their student experience as being dominated by academics. Even when prompted by the focus group facilitator to think about their co-curricular experiences, respondents had a difficult time disentangling the non-academic and academic aspects of their lives as Caltech students. Respondents often said that the academic demands of Caltech constrained their opportunities to engage in co-curricular activities by limiting their free time and depleting their mental energy. This feeling is captured succinctly by an alumni survey respondent who wrote: “There barely was an ‘outside the classroom’ experience, my baseline was stressed about academics and overworked.”

*“It’s just so easy in the Caltech environment to be like, you know, I got this set due today, this set due tomorrow, three sets due the next week, and then before you know it, you’re not thinking about personal development or hobbies, you know, it’s just get all your studying done, get all your homework done, and maybe if you have time, then you can, you may, do something.” – Undergraduate Alum, graduated between 2015 and 2020*

Undergraduate alumni respondents reported spending much of their time out of class completing “sets” and other assignments, while also attempting to manage the stress induced by the rigor, difficulty, and size of Caltech’s academic workload. The undergraduate culture on campus seemed to fuel this work/life imbalance as respondents reflected on the self-imposed pressure they felt to push themselves by overloading<sup>1</sup> units, despite knowing that this behavior was unhealthy. Though many undergraduate alumni respondents described the archetypical Caltech student as one who has very little time for anything beyond study, others noted how their involvement in co-curricular activities like athletics, performing arts, and student clubs provided space to take a break from academics, even if for a short time. Both current undergraduate and graduate students and the alumni participants recounted how important access to activities, particularly on weekends, is to help de-stress and to interact with their peers.

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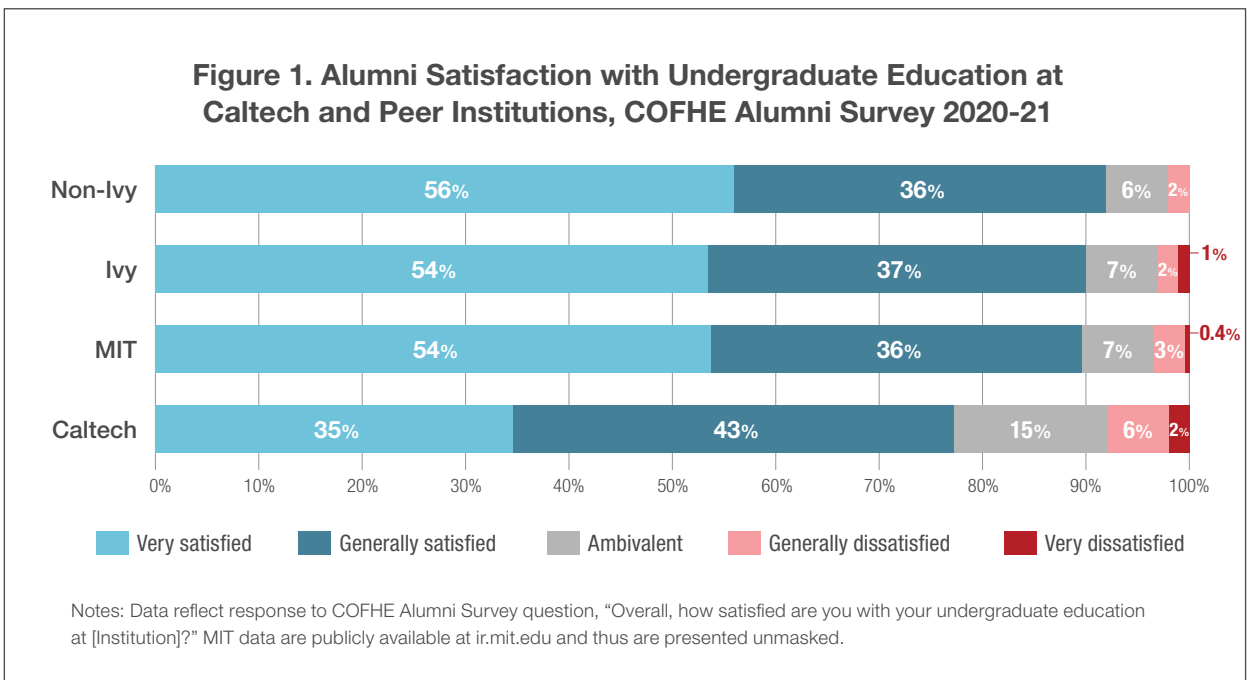
<sup>1</sup> In academic year 2016-17, Caltech revised its policies to prevent students from overloading on academic courses, encouraging students instead to leave time for growth and development in other areas of their lives.

*"I was an athlete while I was at Caltech and I found the athletics department to be a really great place, like the coaching staff...they were very understanding of, you know, the academic pressures that we were under and my coach tried to make practice and competition a safe space from academics, you can kind of leave all of your problem sets, on the other side of California [Boulevard], and that was a very positive experience." – Undergraduate Alum, graduated between 2015 and 2020*

While the rigor of a Caltech education shaped the contours of the experiences of undergraduate alumni, these respondents often described the culture of collaboration as another fundamental aspect of their time at the Institute. The collaborative nature of the undergraduate student body was perceived to be a unique quality of Caltech borne out of necessity and facilitated by the Institute’s small size.

*"I learned a lot academically, especially from my classmates. Collaborating on problem sets is an amazing thing that Caltech has that I feel most institutions just don't have. That sense of collaboration is really necessary in the workplace." – Undergraduate Alum, graduated between 2010 and 2014*

Results from the 2021 COFHE Alumni Survey indicate that approximately three-quarters of undergraduate alumni respondents were satisfied with their Caltech education (see Figure 1). A similar percentage of survey respondents indicated that they had “very positive” or “generally positive” perceptions of their student experience outside the classroom/ research setting. Among the survey respondents who were ambivalent or dissatisfied with their Caltech education, the workload and associated stress were commonly cited reasons for their perspectives.



It is notable that among COFHE peer institutions, many of which also boast rigorous academic programs, a significantly higher percentage of their alumni were satisfied with their undergraduate education. For example, according to comparative COFHE alumni survey data (administered during the same survey cycle as Caltech's survey), 92% of alumni respondents at non-Ivy COFHE institutions, 91% of alumni respondents at Ivy institutions, and 90% of alumni respondents at MIT indicated that they were "very satisfied" or "satisfied" with their undergraduate education (Figure 1). The different perceptions of Caltech undergraduate alumni compared with those at our COFHE peers begs the question of how well the Institute's co-curricular experiences and support structures contribute to the student experience.

Graduate alumni respondents described the Caltech experience as being entirely dependent on one's advisor. Respondents noted that the intensity and rigor of the graduate student experience at Caltech was common across divisions, options, and advisors, but nearly all other aspects of their experiences were determined by the alignment of their working style and research interest with their advisor's. Respondents perceived that the typical challenges faced by any graduate student were significantly magnified if their advisor's way of working—including providing feedback and guidance—did not match with their own

## **Finding 2. The Caltech student experience opened professional doors for undergraduate and graduate alumni in their post-Caltech lives; for some alumni, however, these benefits came at a price.**

Both undergraduate and graduate alumni respondents expressed complex feelings about their experiences at Caltech. On the positive side, respondents spoke of lasting bonds with friends from Caltech as well as the technical skills, scientific knowledge, and ability to solve challenging problems that they gained at Caltech. Many respondents noted that, after entering their careers or graduate school, they realized how well prepared they were compared to peers in terms of their scientific knowledge and technical skills. Several respondents also spoke of the "doors that opened to them" with the Caltech "brand name"; however, this experience was more prevalent among alumni with careers in academia and technology. Alumni who pursued careers in business noted that they would have benefitted from additional support for summer internship opportunities. Respondents also perceived that the interdisciplinarity characteristic of much of the research on campus provided them with unmatched opportunities to gain experience in fields outside of their option. Graduate students found the culture of interdisciplinary science, with frequent interactions and collaborations across labs, to be one of the strongest elements of the Caltech experience.

*"Interdisciplinary is definitely one of Caltech's hidden strengths that allows amazing science to happen much more quickly than it would in any other place." – Graduate Alum, graduated between 2015 and 2020*

For undergraduate alumni, the opportunities to engage in research under the direction of Caltech faculty comprised a significant part of their academic experience. Some students who had prior laboratory experience described how easy it was to connect with faculty and laboratories and to be able to participate immediately in a Summer Undergraduate Research Fellowship (SURF) or fully participate in a lab group. Although some found their experiences unsatisfying or that those experiences did not corroborate their interest in a particular field, many explained how these experiences benefited them during their time at the Institute and in their careers. These sentiments were corroborated by the alumni survey results. One of the open-ended questions on the survey involved an opportunity for alumni to name two specific programs or individuals that helped them prepare to transition to their career. Out of the 272 responses, there were 112—more than 40 percent of the responses—that listed or referenced a SURF. There was not another program or individual that received comments nearing the frequency of references to the SURF program as helpful in preparing for the transition to a career. It is important to note, however, that in addition to the importance of the SURF program, alumni also spoke of the need for Caltech to expand significantly summer internship opportunities for undergraduate and graduate students.

In contrast to these positive characteristics, respondents often described the student experience at Caltech as “difficult,” “painful,” “a struggle,” and “traumatic.” While alumni acknowledged how the challenging curriculum and high standards sharpened their skills and prepared them for graduate school or their careers, the extreme levels of stress that respondents described as routine were widely shared. Many respondents noted that, since graduating, they had not experienced the kind of constant stress that was normalized at Caltech.

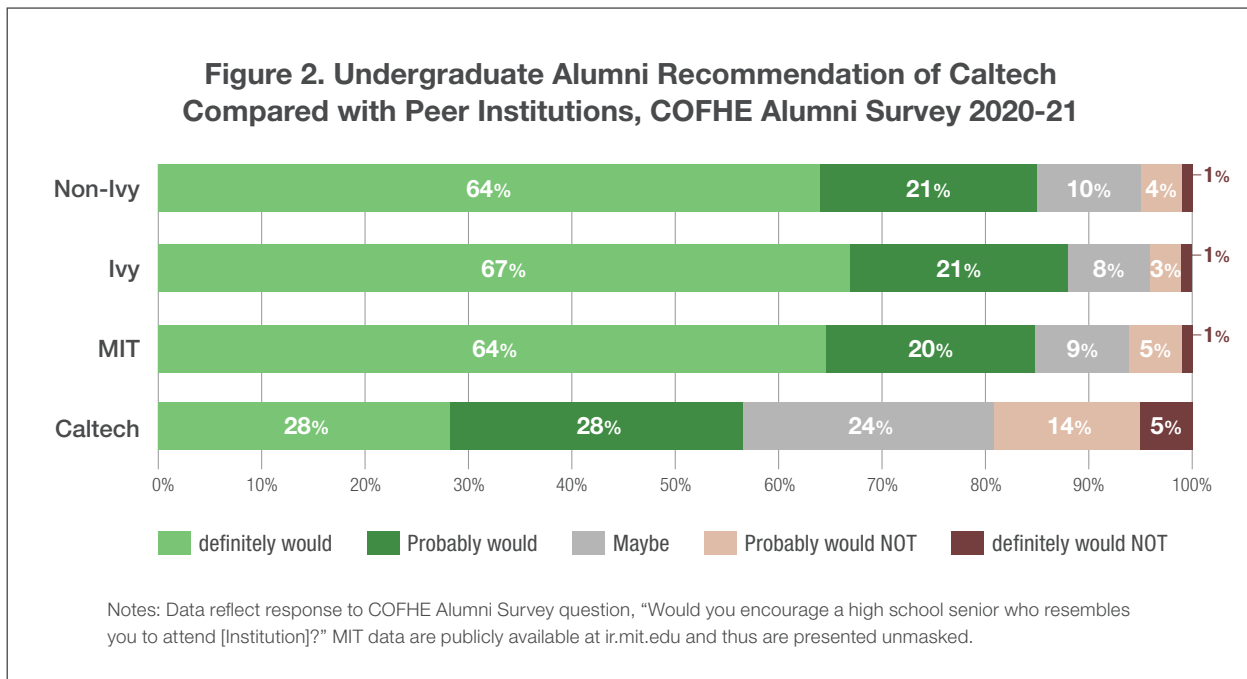
*“What was hard for me, toward the end of my time there, is I felt like my self-esteem was very low in terms of like as a scientist, I just felt like I barely scraped through the program. It felt like I just like barely graduated, and so I think I didn’t have the confidence to apply for, I don’t know, maybe jobs that I would have been really excited about.” – Graduate Alum, graduated between 2015 and 2020*

For most respondents, the fact that they had “made it through” Caltech gave them confidence that they could “face anything” in their careers. Many respondents also spoke to the sense of pride that they felt in themselves for “getting through Caltech.” However, others noted that the Caltech experience challenged their self-confidence or self-image in ways that left them, or their peers, feeling inadequate as scientists, as professionals, and/or as individuals. The experience of having one’s confidence shaken or broken was noted by many, yet the extent to which participants felt supported by the Institute in being built back up varied substantially.

Respondents said that their struggles as students seemed to “go unnoticed” by the Caltech administration and believed that the Institute should have done more to support student wellness and mental health. Some respondents expressed that temporal distance from their years at Caltech helped them to focus more on the positive aspects of their experience than on the challenging ones. However, other respondents were emphatic in their assessment that what they gained from Caltech was not worth the harm they experienced as students.

**Finding 3. Caltech alumni who are reluctant to recommend the Institute to prospective students often cited the lack of opportunity for exploration of interests outside of science and engineering and perceptions of a challenging environment for populations historically excluded from and underrepresented in STEM fields.**

Data from Caltech’s exit surveys administered to graduating students over the past decade illustrate that, consistently, approximately one-quarter of undergraduate and graduate alumni are reluctant to recommend Caltech to prospective students who share their same background, ability, interests, or temperament. Between 2012 and 2019, for example, an average of 75% of graduating doctoral students’ “definitely would” or “probably would” encourage a student who resembles them when entering graduate school to attend Caltech. Between 2010 and 2018, the percentage of graduating seniors who “definitely would” or “probably would” recommend Caltech never exceeded 70%. Among respondents to the 2021 alumni survey, 56% indicated that they “definitely would” or “probably would” encourage a high school senior who resembles them to attend Caltech, while nearly a quarter were unsure, answering that they would “maybe” recommend the Institute. Nearly one in five alumni respondents indicated that they would not recommend Caltech.



The percentage of alumni survey respondents who would recommend Caltech was significantly lower than that of our peers. Comparative data from the 2021 COFHE alumni survey (Figure 2) reveal that 85% of non-Ivy COFHE institutions’ alumni, 89% of Ivy League alumni, and 84% of MIT alumni “definitely would” or “probably would” recommend that a high school senior like themselves attend their undergraduate alma mater.

The focus groups provided rich data helpful for understanding Caltech alumni perspectives on whether they would recommend Caltech. When reflecting on whether they would

recommend Caltech to a student like themselves, undergraduate alumni respondents voiced the importance of “knowing what you’re getting into.” Respondents cited the unique qualities of Caltech—its small size, rigorous yet narrowly focused coursework, and emphasis on preparing researchers and future academics—as pull factors for students with cemented goals that align with what these respondents perceive the Institute does well.

*“I... appreciate the fact that they just really urge the undergraduates here, even freshman, to get involved in research even if it’s something that they’re maybe not thinking of pursuing as a career... [the Institute] is very open minded about giving people a chance to try stuff, and I think that was really important for, for you know my starting my career in research.” – Undergraduate Alum, graduated between 2005 and 2009*

It was noted multiple times across focus groups that Caltech was “not the place to explore” interests outside of science and engineering. In addition, alumni expressed that having a general appreciation for, or interest in, science and engineering was usually insufficient to thrive at the Institute. Those who were indecisive about their specific academic interests, or who were interested in areas beyond what Caltech offers, experienced greater challenges and were less positive about their Caltech experience as compared with those peers who entered with a clear, specific interest that aligned with an existing lab or area of research.

Graduate alumni respondents noted the stark differences between their experience as undergraduates at other institutions and their lives as Caltech graduate students. Respondents perceived that, at Caltech, graduate students need to be singularly focused on their research, to the exclusion of their other interests. Several respondents recounted struggling to maintain a “life beyond the lab” and attempting to remain connected to the world “outside the bubble” of Caltech.

*“Many of us had other interests outside of lab, and I almost felt like that was almost like washed away at Caltech. For those of us who were interested in political activism or in music or other things, that it almost felt like, you know, it was science, science, science. You know, a lot of beautiful community building, a lot of support, but it didn’t seem like those other aspects of our life were really, not even encouraged, but it wasn’t even obvious to us that there was space to do that thing as graduate students.” – Graduate Alum, graduated between 2005 and 2009*

Those respondents who managed to engage in co-curricular activities (e.g., Theatre Arts at Caltech (TACIT), intramural sports, Graduate Student Council (GSC), Caltech Y) or connect to others outside of Caltech expressed how important these activities were to maintaining perspective on their lives and the world. Graduate alumni relayed their observations that faculty now seem more likely to accept and encourage life outside of the lab as compared to when they were students, although there is much more progress to be made in this

regard. Their observations were either from comparing their experiences within the focus groups or through their continued connections to Caltech or to their academic fields. Both undergraduate and graduate alumni explained how valuable certain off-campus experiences (e.g., sponsored excursions, trips to the beach) were in relieving stress and contributing to their overall wellness and happiness.

*“The other thing that I got out of my Caltech experience that was really helpful to me...is this sense that I do need to maintain involvement and community. I care about community and that helps me be a better scientist and avoid burnout. You know for me, there’s only so many productive data analysis hours in the day, but I can do two more hours of program planning or some other things...it makes me happier and more invigorated.” – Graduate Alum, graduated between 2015 and 2020*

Alumni respondents from populations historically excluded from or underrepresented in STEM fields (e.g., women, racially minoritized populations, LGBTQ+ individuals, persons with disabilities) were hesitant to recommend Caltech to someone like themselves due to negative experiences that they perceived to be connected to their social identities.

*“I went in wanting to do math and a lot of people were just like, well what color is your parachute, because the core is so difficult, they just assumed that I wouldn’t be able to do math, but yeah, I think that it was mainly other students that sort of made me feel like I didn’t belong there sometimes.” – Underrepresented Undergraduate Alum, graduated between 2015 and 2020*

Respondents from these underrepresented groups cited experiences of harassment, bullying, microaggressions, and isolation, and their perceptions that faculty and the Institute “prioritized research over people,” as reasons why they would not recommend Caltech to others. A handful of graduate alumni respondents stated that they actively dissuade their undergraduate advisees and other students from attending Caltech to “protect them” from what the respondents felt was an inhospitable environment. Even graduate alumni respondents who said that they would recommend Caltech’s graduate programs did so with caveats. Due to what respondents described as a highly variable experience among their peers, even those who had completely positive experiences said that they would counsel prospective students away from working with specific professors who have a reputation for being “problematic.”

Currently the Institute is engaged in an inclusion, diversity, equity, and accessibility (IDEA) focused self-assessment process to better understand what supports are needed to ensure that all students thrive at Caltech. This work, which involves both qualitative and quantitative analyses, will inform institutional practices moving forward to ensure that all community members can live up to their full potential.



#### **Finding 4. Caltech undergraduate alumni characterized the Houses as the nexus of campus life and community.**

During the focus groups, undergraduate alumni respondents identified their House as their primary community on campus. For many, their Caltech experience centered on their House, as it was a primary venue for social interactions and events as well as for academic collaborations on coursework. Several alumni described how they would walk the halls of their House, finding an open door or communal space that offered the support or interaction they needed at that moment. In addition, Faculty in Residence (FIR) were referenced as valuable assets within the House system to support students and to facilitate community building. However, several respondents also noted that the system could breed a sort of tribalism that limited their ability to connect with students living in other Houses. For students who were able to develop close relationships with peers from other Houses, the primary vehicles for this were athletic teams, off-campus Frosh Camp, Freshman Summer Research Institute (FSRI), the Caltech Y, performing and visual arts, and involvement in student governance (e.g., Interhouse Committee [IHC], Associated Students of Caltech, Inc. [ASCIT], Board of Control [BOC]). Tom Mannion, the senior director of student activities and programs and student activities instructor, was also repeatedly named as playing an important role in helping undergraduate alumni respondents to develop their sense of belonging and build inter-House ties. Additionally, alumni survey respondents who described their Caltech experience outside the classroom/research setting as “very positive” or “generally positive,” cited the Houses, and the friendships that they developed within their House community, as a particularly impactful part of their experience. These sentiments were also echoed by the current undergraduate student leaders with whom the C3 Group met.

*“I mean one of the advantages [of Caltech] is, I think, the nature of the undergraduate experience, there it’s so much more community than anywhere else that I’ve ever seen. I think part of that has to do with the House system, I think part of that has to do with the fact that it’s just so small that everyone kind of gets the chance to know everyone, and so that sort of community kind of feeling is a real plus.” – Undergraduate Alum, graduated between 2010 and 2014*

While many undergraduate alumni found their House to be a tight-knit community that defined their experience, several participants recalled negative experiences at the Institute because they did not fit into the culture of their (or any) House. In addition, several students commented on how the House system situates upper-class students as key advisors for the first-year students. While some participants benefited from the support and advising they received from their upper-class peers, other alumni perceived the upper-class students to be misleading new students or providing harmful advice (e.g., to forego attending class or to temper initial enthusiasm). Some alumni also found the upper-class students to be more interested in acquiring power within the House than in providing authentic support in the best interests of the first-year students. While undergraduate alumni acknowledged the new role of the Upper-Class Counselor (UCC) to improve and formalize the way upper-class students support first-year students, there were mixed perceptions as to their effectiveness or utility.

Despite negative experiences in the Houses described by some undergraduate alumni focus group participants, nearly 87% of alumni survey respondents indicated that they were “very satisfied” or “generally satisfied” with the sense of community on campus during their Caltech student experience. More than half of alumni survey respondents also described their affiliated House as “essential” or “very important” to them when considering their current connection to Caltech. Though the House system was characterized as the organizing framework for campus life among undergraduates, several undergraduate alumni focus group participants described how they were able to build relationships beyond their House through co-curricular activities and other out-of-class interactions.

*“My freshman year...I didn’t feel I belonged in my dorm, but afterwards, I think I found a good group of friends and I really felt like I had a much greater sense of belonging. I think that was a benefit of attending [Caltech], I think it actually helped me come out of my shell, socially... I think the environment at Caltech being around people who had similar interests and similar backgrounds and similar maybe life trajectories in terms of what they wanted to do, actually made me feel a sense of belonging and helped me come out of my shell.” – Undergraduate Alum, graduated between 2010 and 2014*

### **Finding 5. Alumni and current students noted that experiences of the impostor phenomenon while at Caltech acted as a barrier to belonging.**

While Caltech students are talented and admitted based upon their record of achievement, several alumni participants—both undergraduate and graduate—described feeling like impostors or feeling academically out of place while at the Institute. Many described feeling this early in their educational journey, especially as they encountered academic struggles or earned lower grades for the first time in their student careers. The alumni also noted how such feelings were present throughout their entire time at Caltech, even after they had adjusted and had found success in their coursework, research, or publications. In this way, alumni described how impostor phenomenon was something they learned to manage over time rather than something they overcame.

*“There was always definitely, for me, an impostor syndrome effect where it’s like ‘Oh, I made it into Caltech but really, I just like slipped through the cracks, like I’m not Caltech level.’ That doesn’t go away, even when you publish papers and you’re doing well and you’re on track. It’s just somehow, it feels that it’s not...that somehow academically maybe you’re just a notch lower.” – Graduate Alum, graduated between 2015 and 2020*

Some participants said they never quite felt that they belonged at Caltech because their achievements or talent lagged in relation to their peers. In this way, feeling like an impostor in the classroom or lab intersected with how alumni perceived whether they belonged at

the Institute. For many alumni, their sense of belonging at Caltech came from the research they conducted, their ability to move through the course material, the amount of work they completed, or the effort they put into their academics. While these academic elements were central to these alumni's experiences and to their sense of belonging, some participants' early assessments of their academic talent and abilities prevented them from feeling fully part of the Caltech community, even as their accomplishments, at Caltech and beyond, suggested otherwise. The alumni focus group participants and current students indicated that receiving additional support during Orientation and throughout the first year would help to mitigate the negative impact of impostor phenomenon.

### **Finding 6. Undergraduate and graduate alumni identified their peers as the most important source of support throughout their Caltech student experience.**

During the focus groups, undergraduate and graduate alumni were asked to describe how they found support as Caltech students. With few exceptions, respondents named peers, family, and others outside of Caltech as their primary sources of support.

*“There wasn't really a support network like formally in place...you rely heavily on your internal friend group; if you haven't established that, then you're pretty much alone and I definitely saw plenty of people who were in that situation as well.” – Undergraduate Alum, graduated between 2010 and 2014*

Undergraduate alumni described how crucial it was to establish a solid group of friends who would provide support and who could be counted on as academic collaborators. These friend groups were often established early on in students' undergraduate careers, carrying through their entire time at the Institute. At the same time, several participants acknowledged that peers can only provide so much support and that professional staff are needed to support students in ways that peers cannot. One of the key themes that emerged is that the Caltech experience is meant to be challenging and difficult and, at the same time, that it is impossible to confront those challenges alone.

Alumni survey results underscored the importance of peer support during the Caltech undergraduate experience. When asked to identify the person(s) who helped them manage their most personally challenging year at Caltech, more than 70% of undergraduate alumni respondents indicated that “friends in [their] house” were “extremely helpful” or “very helpful,” and 34% of respondents indicated that “friends elsewhere in the Caltech community” were “extremely helpful” or “very helpful.”

A similar pattern was evident among graduate students in the 2019 Graduate Student Council (GSC) Quality of Life Survey conducted during Caltech's reaccreditation process. In that survey, 54% of graduate women respondents and 43% of graduate men respondents identified their peers as their primary source of support. Graduate alumni who participated

in the focus groups described the importance of their peers, particularly those in their option and division, as sources of support while at Caltech. Participants also noted that given the rigor of the academics, changes to advising, broadly defined, would have better supported their success.

### **Finding 7. Undergraduate and graduate alumni characterized Caltech formal institutional support structures as inconsistent.**

While many alumni relied upon their peers for academic, social, and emotional support, respondents described the institutional support network as “inconsistent” and “inadequate.” Though most respondents named specific academic and co-curricular support structures (e.g., advisors, career center, deans, counseling center) that they accessed as students, many also noted that these offices could not fully meet their needs and did not offer support proactively. The lack of a strong institutional support network was particularly poignant for students who did not have a strong friend or peer network to rely upon. Notable exceptions mentioned by respondents included International Student Programs (ISP), the CCID (previously known as Minority Student Affairs and the Caltech Center for Diversity), and the former Women’s Center. In addition, a specific dean, staff member, or other administrator was often named as a key resource who could listen, counsel, and support during trying times. In this way, support was experienced through a personal relationship rather than through an intentional effort or structure within the Institute.

The alumni survey results corroborated the perspectives on Caltech’s institutional support structures discussed during the focus groups and interviews. Although undergraduate alumni surveyed were permitted to select all the sources of support that helped them manage academically and personally challenging times at the Institute, the formal support structures were identified as “extremely helpful” or “very helpful” by a minority of respondents. Student Wellness Services, which was the formal support structure rated as most helpful, was described as “extremely helpful” or “very helpful” by 12% of respondents. It is important to note, however, that professors/faculty were described as “extremely helpful” or “very helpful” by 13% of survey respondents.

*“I just hope that Caltech continues to provide visible non-departmental support, so if you have an advisor or department that isn’t supportive you can get help without a lot of stress.” – Graduate Alum, graduated between 2015 and 2020*

Graduate student alumni respondents were more likely than undergraduates to identify Caltech faculty as a source of support. The small size of Caltech’s community provided more opportunities to interact with faculty, some of whom provided valuable support to graduate students in the form of mentorship, research opportunities, and advancing their development as STEM professionals.

*“Caltech being small, the professors—the ones that I interacted with—would treat you like a future colleague as opposed to many places where they would take in many students and then decide which ones to keep, you know, where there was like a culling effect. I think there was more of an upfront investment in each student, at least in my experience at Caltech which I really appreciated.” – Graduate Alum, graduated between 2005 and 2009*

While some graduate alumni respondents identified their advisors as a source of support, others experienced the opposite, noting that they often sought support from other Caltech faculty or staff to navigate difficult and contentious relationships with their advisors. Another set of participants described not knowing where to go or whom they could ask to help process or address various conflicts. Several graduate student respondents said that they turned to a relevant dean, vice president, or the Caltech ombudsperson to seek guidance on dealing with conflicts with their advisor. However, the satisfaction with this former ombuds Caltech resource varied across experiences. Some respondents felt the support from the ombudsperson was helpful, while others were frustrated that the ombudsperson was not empowered to require that faculty change their behaviors. Racially minoritized graduate alumni respondents often cited the verbal support and encouragement that they received from Black and Latinx administrative assistants, groundskeepers, custodians, food service, and maintenance workers on campus as vital to “keeping them going.” Described as “friendly faces,” the shared identities among these graduate student respondents and non-academic Caltech staff members connected them in important ways.

### **Finding 8. The Caltech alumni community is an important means of staying connected to the Institute; however, the potential of the Caltech alumni network, to both alumni and current students, has not been fully realized.**

Participants described how their views of Caltech have evolved upon affiliating with different colleges and universities as graduate students, postdoctoral scholars, or professors, or as they interact with industry colleagues from different institutions. One of the things that stands out for the participants is that alumni—no matter how busy or well-known—have been extremely gracious with their time to connect with other Techers about job opportunities or to share their expertise or knowledge about a particular field or industry. Many focus group participants noted how they try to maintain willingness to take time for other Techers, including current students, who seek them out or who ask for their guidance or support. These types of interactions, along with the lifelong friendships with peers from Caltech, have served as a primary way alumni have stayed connected to the Institute after graduation.

*“[Caltech] alumni are remarkable. I don’t think I’ve ever met an alum who isn’t willing to talk to you, who you can’t cold call or cold email. However prominent they might be in their field, however amazingly busy they are, they find time for alumni. I think that that’s something really, really special because there aren’t many of us in comparison to other larger institutions. It’s so wonderful to know that the alumni help one another and are willing to just speak with one another. I don’t think that that’s true of many institutions. – Graduate Alum, graduated between 2010 and 2014*

While the participants reported that they have almost always found Caltech alumni to be gracious with their time, the participants also reflected on how the Institute had not cultivated the alumni network or formalized interactions between students and alumni as deeply as other institutions. The participants described how their colleagues or friends who attended other highly rated colleges and universities appeared to be plugged into an alumni network from the outset of their college experience, and how the engagement with, and participation in, an alumni body was part of attending that institution. While alumni were concerned that Caltech will mimic other institutions and lose its unique characteristics and qualities, alumni at the same time seemed to desire an alumni experience and network that mirrors, or that at least serves the same needs as, those found at other highly rated colleges and universities.

The alumni survey results also illustrate that a significant percentage of undergraduate alumni respondents currently have a tenuous connection to Caltech. More than one-quarter (30%) of alumni survey respondents felt “not very connected” to the Institute, though nearly nine in ten (87%) reported being regularly in touch with classmates and/or friends they met at Caltech. One third of respondents described themselves as being “very connected” or “moderately connected” to Caltech as alumni. Finally, only 5% of alumni survey respondents indicated that the Caltech Alumni Association was “essential” or “very important” to their connection to the Institute.

### The Caltech Student Experience and Development, Learning, and Growth

**Finding 9. Alumni indicated that, while their experiences at Caltech prepared them well for the research and technical aspects of their careers, they did not have sufficient opportunities to develop the complementary skills that they needed in their post-Caltech lives.**

During the focus groups, respondents stated that their experiences at Caltech strengthened their research and technical skills, critical thinking, and problem-solving abilities. Because they were often forced to “figure it out,” respondents noted that being at Caltech helped them become comfortable learning new complex things quickly and independently. The rigorous and theory-laden approaches to STEM fields used at Caltech established a strong foundation upon which respondents began building their careers.

*“...I still remember in our graduation dinner, Professor Rosenbaum said that, ‘yes, this is important to learn how to solve problems, but it’s even more important to ask the right questions to guide and to lead the science research forward.’ I feel like that is the essence of the Caltech experience or the Caltech teaching philosophy. [T]he professors don’t just assign us problems, the professors inspire us to ask the right questions...” – Undergraduate Alum, graduated between 2015 and 2020*

Despite their robust scientific and technical preparation, respondents expressed a wish that their experiences at Caltech had strengthened their written and oral communication skills, project management abilities, and interpersonal skills. In these areas, respondents felt underprepared by Caltech.

*“One significant disadvantage that I didn’t realize at the time, but has become clear to me in retrospect, is that, while many universities and institutions...have a strong implicit understanding of what professional networking is and what it means and manage to instill that in their graduates in a way that benefits them through the rest of their careers, Caltech does not.” – Undergraduate Alum, graduated between 2005 and 2009*

The alumni survey provided additional insights into how well undergraduate alumni believed Caltech prepared them for their post-undergraduate years. When asked about how Caltech prepared respondents for a variety of skills, there was a notable link between the types of skills and the percentage of respondents who thought the Institute prepared them “very well.” Many of the skills that were associated with acquiring knowledge and problem-solving, particularly in areas of science, were rated highly by many of the respondents. Conversely, most alumni did not think that their Caltech experience prepared them “very well” to develop skills associated with leadership and self-concept, or their ability to understand social contexts and issues. This tension might be best understood by viewing the discrepancies between the fact that many respondents felt that the Institute did “very well” to prepare them to “acquire a broad foundation in the sciences” (58%) and to “understand the process of science and experimentation” (56%). At the same time, a much lower percentage felt Caltech did “very well” to prepare them to “understand the role of science and technology in society” (19%).

The Caltech graduate student experience, with its unique opportunities to collaborate with peers and faculty across the divisions, prepared graduate student alumni well to enter research careers that required them to employ interdisciplinary approaches while working with others.

*“[T]oday’s science...requires a lot of multi-disciplinary research and I think that Caltech is an ideal place to accomplish that.” – Graduate Alum, graduated between 2010 and 2014*

Graduate student alumni respondents stated that their experience at Caltech helped them to learn to work with “difficult” people given their negative experiences with faculty, postdoctoral scholars, and sometimes other graduate students in their research group. Graduate student alumni respondents believed that because the Caltech experience required such a “thick” skin, they had to recalibrate their behaviors once they moved on in their careers. Some respondents noted that they grew accustomed to defending their ideas against relentless (and sometimes hostile) challenges from faculty and colleagues.

**Finding 10. Although three-quarters of Caltech undergraduate alumni indicated that they participated in leadership opportunities during their student experience, a significantly smaller percentage of alumni indicated that these experiences prepared them to be effective leaders.**

During the focus groups, undergraduate alumni respondents who engaged in student governance, House leadership, study abroad, the performing and visual arts, and athletics believed that these co-curricular experiences provided them with opportunities to develop their leadership skills in a safe environment with the support of Caltech Student Affairs staff. Many respondents noted that, until arriving at Caltech, they did not see themselves as leaders; however, the small size of the Caltech undergraduate student body meant that there were enough leadership and co-curricular opportunities for anyone who desired them.

*“One of the more impactful moments from my time on student leadership was in a meeting, with the Dean, all of the House presidents, and some other student leaders. Somebody mentioned that their House and the sense of belonging they got from the smaller group of people living [in their hallway] prompted them to be confident enough to try out student leadership. They were not that type of person in high school...they did not think they were the type of person who would put themselves out there like that.” – Undergraduate Alum, graduated between 2015 and 2020*

Focus group respondents who participated in these leadership opportunities reported that they helped them to develop interpersonal skills and conflict-resolution skills. However, other respondents recalled realizing after graduating from Caltech that their student experience helped them best to interact and communicate only with other Techers and Techer-like people.

The alumni survey results also reflect this perspective. Approximately two-thirds of undergraduate alumni respondents felt that Caltech did “very well” to prepare them to do the following three things: “acquire new skills and knowledge on your own”; “think analytically and logically”; and “think critically.” By contrast, only 12% of survey respondents indicated that their undergraduate experience at Caltech prepared them “very well” to be effective leaders and 32% indicated that Caltech prepared them “very well” to work effectively as team members. At MIT, these percentages were 18% and 33%, respectively.

When those surveyed were asked about which experiences outside the classroom/research setting had the most impact on their development as individuals, the most common experiences involved the Houses, athletics, friends, student leadership opportunities and experiences (both within and beyond the Houses), additional co-curricular clubs and organizations, and House events and socializing. References to the Houses involved the environment, the daily opportunities to be around others in pursuit of similar goals, and the opportunities to lead within the House. One alum commented: “The boundary-pushing, self-governing environment of the Houses. I learned so much about myself, who I am, what I stand for, and became a leader in that environment. I want to emphasize that a mix of positive and negative experiences were necessary for me to develop as much as I have.”



It is interesting that many describe the importance of leadership in their open-ended text responses. Data indicate nearly 75% responded that they had held a leadership role on- or off-campus, and at the same time 30% thought the Institute did a “very poor” or “less than adequate” job of preparing them to become effective leaders.

The Houses and the socialization that took place therein were also described in ways that linked the academic and social experiences: “Working on problem sets with friends and hanging out doing projects / building things / discussions that happened in the evenings in the Houses. This was a great way to get to know people, and to take pressure off work and remember what other fun and engaging things there are to do (which can be forgotten when you are doing problem sets all waking hours).” In addition to the Houses and events, several alumni referenced athletics—either a varsity or club sport—as a key set of experiences. Alumni respondents often mentioned a specific leadership position (e.g., Student Government, House Government, Academic Research Committee, Associated Students of Caltech, Inc. [ASCIT], Board of Control [BoC]) that had the most impact on their development as individuals. Lastly, several undergraduate alumni respondents pointed to how other elements of the Caltech experience, like the Honor Code, allowed students to develop a sense of ownership and responsibility within the campus community.

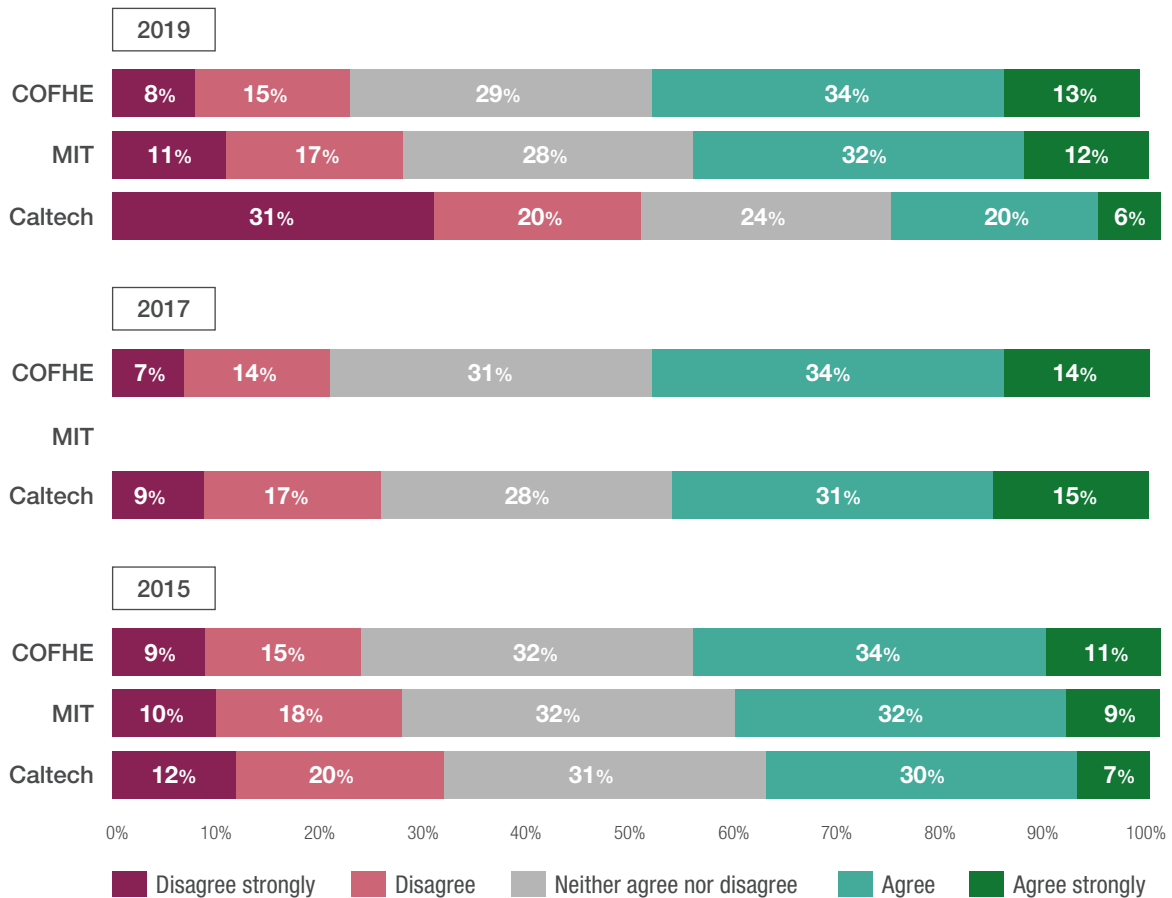
*“Probably one of my favorite things about Caltech was the reliance on the honor system and the Honor Code and that it really gave the students ownership of their situation, and I know there have to have been flaws with it and places where it didn’t work, but the fact that, as a group of students, I felt like we were trusted made a big difference...” – Undergraduate Alum, graduated between 2005 and 2009*

While the Houses provided an opportunity for students to engage in leadership and develop their social experiences and skills, several respondents referenced how the Houses and House leaders clashed with administration on issues relating to students’ co-curricular or out-of-class experiences. Alumni reflected how regulations on their social lives, including proposed pranks, were in stark contrast to the freedom they experienced in their academic lives. Clashes with administrators and the perceived limitations on their social lives were viewed as bureaucratic, legal maneuvers that restricted students’ creativity and development—a dissonance with their academic lives, which were marked by uninhibited freedom to be creative, independent, and bold. Such limitations were also viewed as an administrative effort to strip away the unique elements and traditions of the Caltech experience to align the Institute’s social life more closely with the social lives found at other highly rated colleges and universities.

The alumni respondents’ perspectives on the relationship between Caltech undergraduates and administrators are also visible in data from the COFHE Enrolled Student Survey (ESS). The ESS is administered to all undergraduates at COFHE institutions bi-annually. Between 2015 and 2019, the percentage of undergraduates who indicated that they strongly disagreed or disagreed with the statement “administrators at Caltech are genuinely concerned with my welfare” increased from 42% to 51% (see Figure 3). Between 2015 and 2019, Caltech students were more likely to disagree that administrators are genuinely concerned with their welfare than their counterparts at MIT and at all COFHE institutions. Furthermore, the differences in attitudes of Caltech undergraduates and undergraduates

at MIT and all COFHE institutions increased over time. By 2019, Caltech students were more than twice as likely to disagree that administrators were genuinely concerned about their welfare compared with their counterparts at all COFHE institutions. While the Enrolled Student Survey data do not indicate the reasons for which a growing proportion of Caltech undergraduates do not agree that the administration are genuinely concerned for their welfare, the alumni focus group data, as well as the C3 Group’s meeting with current undergraduate student leaders, provide some insight into what might be driving student perceptions. Current undergraduate student leaders, for example, identified divergent perspectives on oversight of the House system and the rotation process as a primary source of recent disagreements with Caltech administrators. However, the student leaders also emphasized their desire to partner with administrators to move toward a solution that is responsive to student and institutional concerns.

**Figure 3. Undergraduate Perceptions of Administrators’ Genuine Concern for Student Welfare at Caltech Compared to Peer Institutions, COFHE Enrolled Student Survey 2015-2019**



Note: Respondents were asked to indicate their agreement/disagreement with the statement, ‘Administrators at [Institution] are genuinely concerned about my welfare.’ MIT data are publicly available at [ir.mit.edu](http://ir.mit.edu) and thus are presented unmasked.

Source: COFHE Enrolled Student Survey, 2015, 2017, 2019.

**Finding 11. Caltech alumni indicated that they would have benefited from additional career preparation, professional development, and exposure to opportunities in careers beyond research and academia.**

Among undergraduate and graduate alumni respondents in the focus groups, there was significant variation in perceptions of how well Caltech prepared students to choose a career and enter the workforce. Many respondents noted that they did not receive effective career advising from Caltech faculty or staff if they desired to enter a non-research career or a career outside of academia. Undergraduate respondents noted that they received very little support if they wished to complete a summer internship to gain experience in business/industry. Though more recent graduates welcomed the changes made to the career center over the past two years—including increased support for graduate and professional school applications, non-academic job searches, and finding internships—these respondents perceived that such support was more geared toward computer-science majors.

*“Academia is not for everyone, nor should it be, but unfortunately there weren’t many resources for those of us who didn’t want to pursue academia and very few faculty, very few faculty in the division had the network and also the desire to help students transition into those types of professions.” – Graduate Alum, graduated between 2010 and 2014*

These sentiments were also corroborated by the alumni survey results. Among undergraduate alumni survey respondents who attended graduate school after completing their Caltech degree, 58% indicated that Caltech prepared them “very well” for graduate school, with an additional 21% responding that Caltech prepared them “more than adequately” for their graduate or professional degree program. By contrast, 38% of survey respondents indicated that the Institute prepared them “very well” for their current career and 30% responded that Caltech prepared them “more than adequately” for their current career. The disparity between the percentage of surveyed alumni who felt well-prepared for a graduate degree program and those who felt well-prepared for their career was reflected in respondents’ open-ended answers to the question, “When you think back to your student experience at Caltech, what do you wish you would have had to help your development as an individual?” Career development support was the second most common response cited by the surveyed undergraduate alumni. For example, one alum noted that they wished they would have had more help to train and prepare for their career: “No one told me how to apply to grad schools, how to write a CV, how to interview. There really wasn’t any training or preparation for life after Caltech.”

Caltech alumni survey respondents’ perceptions of how well the Institute prepared them for their career are like those held by alumni of our COFHE peer institutions. At Ivy League institutions, for example, 44% of survey respondents indicated that their alma mater prepared them “very well” for their career, with an additional 31% indicating that they were prepared “more than adequately.” At MIT, the percentage of respondents who felt they were prepared “very well” or “more than adequately” for their career was 43% and 33%, respectively.

**Finding 12. Caltech undergraduate and graduate alumni indicated that the Institute did not adequately support their development as a whole person. While alumni universally indicated that their Caltech experience helped them grow intellectually and creatively, other aspects of their development (e.g., psychosocial, moral, ethical, identity, and career development) were not fully attended.**

Respondents, with few exceptions, reported that Caltech did not support their development as a whole person. Many undergraduate and graduate alumni respondents believed that Caltech emphasized academic performance and research productivity to the exclusion of other aspects of life. Several respondents opined that Caltech did not tend to “the whole student.” For example, some graduate alumni respondents described some faculty as only being interested in what students could contribute to their research. Other respondents believed that Caltech students were expected to work like robots (i.e., to keep working despite illness, family emergencies, and mental exhaustion). Indeed, additional support for student wellness was one of the most common responses to the open-ended question about what alumni wished they would have had to support their development as an individual. For example, one respondent expressed their wish that the Institute had done more to support the development of improved habits: “Constant reminders to get enough sleep, take fewer classes, eat well, and exercise. I don’t think there was any guidance on personal health, let alone frequent enough to build habits.”

*“I did have a good Professor as well, who I could like reach out to if anything was happening on a personal level. I also know that that’s not the case for every student though. I had other friends who did not have that ability, so I was lucky with my Professor.” – Graduate Alum, graduated between 2015 and 2020*

Alumni survey respondents also indicated that they wished they would have had more connections with faculty, including effective mentorship from Caltech faculty beyond their course instructors. “I wish I would have had stronger mentorship outside of the professors who taught my courses. For me, the undergraduate faculty advisory experience left a lot to be desired.” This sentiment is illustrated in the following open-ended survey response: “Unfortunately, my undergraduate faculty advisor was too busy with other work as a professor, and the mentor-mentee relationship did not receive the care or attention it deserved. I was left to manage the struggles associated with the experience of dropping a class and [changing my] living arrangement.”

Similar themes also emerged from the analysis of the alumni focus group and interview data. When prompted to reflect on their experiences with their first-year advisors, many undergraduate alumni respondents said that they had minimal interaction and often saw their advisors only to get their add card signed. A minority of respondents conveyed that they did connect with Caltech faculty members who were genuinely interested in their success and invested in their future. However, these respondents perceived negative experiences were common and that they were particularly fortunate to have an advisor or mentor who displayed genuine care and provided holistic support throughout their time at the Institute.

Other graduate student alumni responded that they learned to go without validation or praise from faculty because everyone at Caltech was so exceptional and that great research was expected. Though these experiences were perceived as typical among graduate students, several respondents said that they were damaging to their self-confidence and dampened their desire to pursue an academic career. Those graduate student alumni respondents who worked in academia noted that they are careful not to emulate the unfortunate faculty-student relationships that they either experienced or observed while at Caltech.

The alumni survey results support the themes from the focus groups about increasing emphasis on developing the “whole student.” For example, 58% of undergraduate alumni survey respondents indicated that Caltech should increase the emphasis placed on teaching leadership skills “a great deal” or “somewhat.” Similar percentages of the survey respondents indicated that Caltech should increase the emphasis placed on teaching global awareness (56%) and promoting moral and ethical development (56%). Approximately 40% of respondents said that Caltech should increase the emphasis on fostering teamwork and cooperation among its undergraduates.

## **Alumni Suggestions to Improve the Caltech Student Experience**

Respondents offered many recommendations on how to improve the Caltech student experience. Some of these were very specific requests (e.g., better, healthier food options; improved health insurance for graduate students), while others were loftier and vague (e.g., change the Caltech culture). These recommendations are discussed below.

1. ***Improve and expand the advisor-advisee relationship:*** Respondents recommended that Caltech develop training to help “problematic” faculty become better advisors and mentors. Such training would ensure that faculty are aware of the power dynamics inherent in student-advisor relationships and understand how to navigate these relationships in ethical and inclusive ways. Graduate student respondents noted the importance of striking the right balance between independence and close collaboration when working in their advisor’s research group and suggested that any training for faculty assist them in building these skills. Women alumni and alumni with gender-expansive identities noted that some male faculty engaged in sexist behaviors and often used exclusionary language openly. According to many respondents, these trainings should be mandated because not all faculty would attend of their own accord.

Respondents also recommended that Caltech put in place some organizational structure (e.g., staff member, office, program) to help students mediate conflicts with faculty by providing support and intervening when advisors engage in intimidation, bullying, and microaggressions. Those respondents who experienced these behaviors from their advisor believed that they had no recourse and could not turn to other faculty members without fear of negative consequence. Though these respondents knew of Caltech’s Equity and Title IX Office, they believed that their negative experiences did not always rise to the level of needing to be formally reported.

Lastly, some respondents acknowledged that it would be better for students to build a “constellation of mentors,” with each mentor providing a unique element of support to students; the full suite of mentors would be able to provide the holistic support that is seen as essential for an enriching and supportive graduate school experience. In this approach, the advisor is not expected to be the sole or all-knowing support for a student but would serve as a crucial part of a larger whole. While alumni were enthusiastic about this approach, they recognized that it cannot be left to the students to establish their own constellation and that faculty—who have many demands on their time—would need support and incentives to participate more fully in this type of approach.

2. ***Provide more proactive support for student mental health and wellness:*** Respondents recommended that Caltech dedicate more resources to support student mental health and wellness. While respondents seemed to accept stress and rigor as part of the Caltech experience, they suggested that Caltech be more proactive to help students learn to manage stress before mental health challenges become severe. Though many respondents said that they turned to the Counseling Center during their time as Caltech students, the quality and helpfulness of the support provided was reported as varying widely.
3. ***Provide more consistent support for career exploration and development across a range of fields and sectors:*** Undergraduate and graduate student alumni respondents recommended that Caltech provide additional support to students who do not aspire to enter academic or research careers. Respondents stated that they were “on their own” to select a career and find a position if they wished to enter business/industry or another career outside academia. Though some respondents turned to other Caltech alumni for support, they said these connections were made through their House community or research group, and not by intentional Institute efforts.
4. ***Rebuild trust between the Caltech administration and the student body:*** Undergraduate alumni respondents spoke to the tension and sometimes adversarial relationship between the students and Caltech administrators. Much of the tension centered on changes to the House system and other campus policies that respondents perceived as eroding what makes Caltech “unique.” Given how some undergraduate alumni respondents perceived that these changes were made, they believed that while they were trusted with their academic lives, they were not trusted with their social lives. Respondents described how they, in turn, lost trust in Caltech administrators. Many respondents described feeling more connected to their House than to Caltech as an institution as a result, and they recommended that the Caltech administration work proactively to repair the relationship with alumni and students and take steps to rebuild trust. The current undergraduate student leadership expressed their desire to work productively to improve the situation.
5. ***Become more student-centered:*** Many respondents believed that Caltech prioritized research over students and their well-being. Respondents recommended that Caltech become more student-centered by setting minimal, enforceable standards for how faculty are to interact with students in the classroom and research environments. Graduate student alumni respondents noted that becoming more student-centered would require

Caltech to implement and enforce policies that provide consistent protection of graduate student well-being (e.g., vacation policies, time off to preserve and attend to mental health) rather than leaving it up to each faculty advisor. Further, with an increasingly diverse student population, respondents indicated the importance of the administration being responsive to evolving student needs.

The interviews and focus groups highlighted the unique elements of the Caltech undergraduate and graduate experience: the academic rigor and excellence; the small, tight-knit and collaborative community; the interdisciplinary research among scientists and scholars; the undergraduate House system; and the lifelong relationships and friendships that form amidst the challenges and pressures of the Caltech experience. At the same time, some alumni participants described how they felt they did not belong at such an institution, how they encountered unwelcoming or incredibly stressful environments, how their life outside the lab or classroom seemed irrelevant or unsupported, or how they lacked the institutional support or guidance they needed to make the most of their experience.

The alumni participants graciously discussed the positive and not-so-positive aspects of their time at the Institute to inform the C3 Group's efforts to understand the Caltech student experience and shape its recommendations. It was evident from the data that alumni appreciate the unique strengths of Caltech, and they offered ideas to build upon these strengths. A common refrain among participants was that improvements are needed but should be pursued in ways that recognize, and build upon, the unique structure and strengths of the Institute.

## A Vision for the Student Experience at Caltech: Discussion and Recommendations

The C3 Group undertook this work to offer, ultimately, a set of recommendations that elevate the student experience at Caltech and set it on par with the Caltech academic experience. Based upon the research findings and input from current students, and presentations from practitioners at peer institutions, the C3 Group developed 17 recommendations. These recommendations are grounded in the commitment to support each student's development as a whole person. This includes their academic achievement, professional development, mental and overall well-being, and preparedness to contribute meaningfully to a diverse and inclusive world.

The recommendations developed by the C3 Group each relate to one of seven thematic areas that emerged during the data collection period: supporting student health and well-being; alleviating financial stressors; enhancing campus life and the Caltech residential community; supporting first-year undergraduate and graduate students' transition to Caltech; enhancing undergraduate and graduate advising; supporting career exploration, advising, and development; and supporting an inclusive and equitable student experience. Each recommendation extends and deepens efforts already in place, drawing attention to what the C3 Group believes to be the most impactful enhancements.

At the same time, the recommendations to improve the student experience at Caltech are presented below as a vision that encompasses the whole student experience: from matriculation through graduation. The recommendations aim to enhance specific efforts and support services and to strengthen and operationalize the connections between these efforts and services so that there is a shared understanding and objective of how students should develop through their experience at Caltech. The C3 Group recommends a universal, strategic, goal-oriented, and cohesive approach to the student experience be articulated through an approach that ensures enhancements that strengthen each of the interdependent components, is overseen by one individual assigned to serve the function of holistic student experience oversight, is implemented in a collaborative manner with the students, and contains an assessment component to ensure that progress is made, and the efforts are supporting students as intended.

The remainder of this section details the 17 recommendations offered.

### As Students Enter Caltech...

C3 heard students and alumni recount challenges that they faced adjusting to Caltech. Many encountered these challenges within the academic and co-curricular environment and spoke of the need for support structures to assist students as they transition to Caltech and, in some cases, throughout their entire first year.



We envision an initial transition period that is designed intentionally and discussed as the foundation for an integrated four-year student experience; one that supports students as they arrive to Caltech, may extend an entire year, and launches their living and learning experience in a manner that fosters successful adaptation to college life, psychological and social comfort in one's first home away from home, and one that serves as the anchor for, and sets the tone for, the remainder of the student experience at Caltech.

**Recommendation 1. Reimagine orientation for today's students. In recognition of the first year at Caltech as a significant transition for many students, provide programming, experiences, and support to assist students in navigating the Institute, building community, mitigating impostor phenomenon, seeking help, engaging with faculty, and choosing one's option/advisor.**

**Recommendation 2. Consider establishing a formal first-year experience (FYE) program for undergraduates and graduate students. The newly developed FYE program might incorporate elements from the Freshman Summer Research Institute (FSRI) and Graduate Summer Research Institute (GSRI) but would not replace these programs, which are intended to support students from populations that are historically underrepresented and minoritized within STEM fields.**

### While Students Are on Campus...

As the C3 Group heard repeatedly from current students and alumni, the academic demands of a Caltech education shape all aspects of their lives at the Institute. Stress was often described as an inevitable and unyielding feature of the Caltech student experience. Current students and alumni spoke of needing to manage stress to maintain their mental, emotional, and physical well-being and to succeed academically. Caltech, like many of its peer institutions, has experienced increased demand for mental health care over the past decade, exacerbated by the COVID-19 pandemic. Given the relationship between student wellness and student learning and success, effectively supporting student health and well-being is a foundational and vital component of improving the Caltech student experience.

We envision a supported student experience that helps students develop the tools to buffer, remediate, and respond to stressors while enrolled at Caltech. Based on the recommendations below, the goal is to ensure that there is a shared vision for approaching student well-being on campus, so that all support services and structures build upon and enhance one another. In so doing, the Institute would expand upon efforts underway and operationalize intentional connections between offices and groups. To achieve this vision fully, the C3 Group recommends building upon the directed and impactful support Caltech already provides its students by incorporating the enhancements as detailed below.

**Recommendation 3. Expand Student Wellness Services' capacity to support students' mental health and overall well-being by expanding capacity for on-campus care: especially offering expanded hours, growing occupational therapy services, and proactively offering wellness education, services, and support to students before they reach the verge of crisis.**

Over the past six years, Caltech Student Wellness Services has employed an integrated care model to support the health and well-being of Caltech students. In addition to developing new services and adjusting existing services to meet this mission, Student Wellness Services has established close partnerships with the Dean of Undergraduate Students Office, Graduate Studies Office, the Office of Residential Experience, and other offices to support student well-being through the CARE Team. The CARE Team, coupled with education and training, helps faculty, staff, and students to recognize those in need of wellness support and to alert the appropriate Caltech staff so that these students receive proactive offers of assistance and resources. The C3 Group recommends that SWS continue to expand its capacity by developing additional services and resources to meet the evolving needs of our current and future students.

The C3 Group also heard, not surprisingly, that among Caltech graduate students, finances (including access to affordable housing, food, and health care) are often a source of stress above and beyond the demands of their degree programs. Though Caltech graduate stipends are on par with those of our institutional peers, and despite the graduate stipend levels increasing more than the rate of inflation, the high cost of living in the communities surrounding Caltech place a heavy burden on graduate students, particularly those who are first-generation, from low-income backgrounds, or are supporting dependents.

**Recommendation 4. Given the high demand for the Catalina Apartments and the rapidly increasing costs of off-campus housing, identify mechanisms to increase the supply of safe, affordable housing for graduate students and their families. Explore expanding guaranteed on-campus housing to all G1 and G2 students, graduate students with families, and graduate students from first-generation and low-income backgrounds.**

**Recommendation 5. To alleviate financial stress—including food and housing insecurity and high health-care costs associated with chronic conditions—eliminate current barriers to accessing emergency funds and other forms of material support for graduate students in need. Such barriers include requiring students to disclose unreasonable amounts of personal information and taxation of emergency fund payments.**

The research findings discussed earlier in this report highlighted for the C3 Group the importance of community building and peer interaction outside of the academic environment. Caltech alumni and current students commonly expressed their wish for safe, healthy, and intentionally designed ways to decompress with their peers. Currently, such on-campus

events and off-campus experiences intended to help students decompress—simply put, to have fun—are often organized and led by students themselves. While the Institute provides funding to support these efforts, students are responsible for planning the logistics of these events, which places an undue burden on them as they navigate their degree programs. To address this, the C3 Group makes the following recommendation:

**Recommendation 6. In partnership with undergraduate and graduate student leaders, review and expand campus activities and engagement opportunities, including venues for civic engagement, that support students' personal development while promoting community building among undergraduates and graduate students. Ensure that Caltech provides logistical and, when needed, event planning support and other resources for these activities and opportunities.**

The undergraduate alumni who participated in focus groups and responded to the COFHE alumni survey discussed the benefits of interacting with their peers from other Houses and residences on campus. While the landscape of the Caltech residential community has evolved in the years since many of the alumni participants graduated, current Caltech undergraduate leadership also expressed the importance of campus-wide community building, regardless of House or residence of choice, and voiced a desire for programs and space where such interactions can occur.

**Recommendation 7. With the aid of robust student engagement, develop opportunities for students to interact in informal, relaxed settings, and utilize campus event-planning support to build community across Houses, residences, and generations of students and alumni.**

Given the importance of the Houses to undergraduate student life at Caltech, as reinforced by the research findings, the C3 Group recognizes the need for the Institute to partner with current students and alumni to build upon this unique aspect of the student experience. Though prior disagreements about the House system and the rotation process have engendered continuing discord from affected students, the C3 Group carefully considered how this situation could be remediated.

**Recommendation 8. In partnership with students and the Interhouse Committee (IHC), develop programming to ensure the Houses remain safe, inclusive communities in which students have opportunities to develop formally their leadership skills, build collaborative relationships, and receive support from Caltech staff as well as their peers. Work with students to evaluate the rotation process and make recommendations for the 2023 cycle. Work with administrators across campus to renovate the North Houses and bring them on par with the quality of the other Houses and residences.**

**Recommendation 9. Conduct a formal conversation that engages current students and alumni to develop and monitor metrics about the health of the Houses (e.g., condition of facilities, culture, inclusivity) and, along with Institute staff, identify areas for improvement so that each House can raise the bar on its overall academic and co-curricular experience and its general living environment.**

The undergraduate and graduate alumni focus group participants discussed the need for Caltech to improve the quality of academic advising provided to students as well as the relationships between advisors and advisees. Participants often spoke of the detrimental effects of negative relationships with their advisors and the need to rely on peers for support in the absence of a close, positive relationship with their faculty advisor. Graduate alumni discussed the need to support doctoral students who may be experiencing negative interactions or conflicts with their research advisors. Given the importance of the advisor-advisee relationship to the student experience, Caltech has developed resources to assist faculty interested in learning more about effective advising. For example, the Center for Teaching, Learning, and Outreach (CTLO) and Student-Faculty Programs (SFP) have developed trainings to help faculty build their awareness of and capacity for inclusive advising and mentoring practices. Additionally, the Dean of Undergraduate Students Office provides support and resources to assist faculty who opt to serve as advisors to entering undergraduates throughout their first year at Caltech. The C3 Group recommends that the Institute build on these efforts to enhance undergraduate and graduate advising.

**Recommendation 10. Supplement undergraduate advising structures to include a focus on well-being, success, and each student's development as a whole person. Considerations might include using professional advisors along with faculty advisors; assigning advisors who will follow students throughout their time at Caltech; and creating advising "pods" that include a professional advisor and a faculty advisor.**

**Recommendation 11. Develop a robust institutional plan to address the uneven nature of support that options, divisions, and advisors provide to graduate students. Identify and provide resources to help graduate students optimize their experiences with their faculty advisors, including formalized access to other faculty members who act as an additional advising and academic support resource.**

**Recommendation 12. Continue to expand Caltech's capacity for inclusive advising and mentoring through education and training for faculty, postdocs, and graduate students. Such training would include information and resources on creating an inclusive research environment, conflict resolution, and having difficult conversations.**

As the C3 Group discussed each recommendation and program enhancement, the Group agreed that the principles of inclusion, diversity, equity, and accessibility should be embedded into all programs and initiatives intended to support the Caltech student

experience. At the same time, several factors that have a detrimental effect on the quality of the experiences of historically underrepresented and minoritized populations emerged over the course of the Group's data collection and warrant specific attention and correction. Across the focus groups, it was clear that although all Caltech students likely encounter challenges during their experience at the Institute, students from historically underrepresented, underserved, minoritized, and/or marginalized backgrounds often experience disparate, negative impacts on their perceptions of campus climate, sense of belonging, self-confidence, and connection to faculty. The results of Caltech's recent climate survey provide additional evidence of inequitable experiences of students from underrepresented groups. To support a more inclusive, equitable student experience for these students, the C3 Group identified two additional recommendations.

**Recommendation 13. Address the disproportionate rates of gender-based harassment experienced by graduate student women and trans-spectrum undergraduate and graduate students.**

**Recommendation 14. Establish intermediate mechanisms for students experiencing identity-based, exclusionary conduct or microaggressions to obtain support and resources as an additional resource to Caltech's Title IX/Equity Office.**

### As Students Prepare for Life After Caltech...

Alumni research participants and current student leaders called for Caltech to provide adequate opportunities for career exploration and to strengthen career advising and development for undergraduate and graduate students. A widely shared perception among alumni and current student leaders was that while Caltech prepares students for careers in academia and research, the Institute provides little to no support for students who wish to pursue a different career path. In response to changing student needs and to implement effective, evidence-based models of career advising and development, significant efforts have been made to offer guidance and assistance to students across a range of career goals in recent years.

The C3 Group envisions that this process of transformation be accelerated so that additional support for career exploration, advising, and development provided by a combination of Caltech staff, faculty, and alumni is available throughout students' Caltech experience with the expressed goal of ensuring that 100% of the students who want to enroll in a graduate program or transition to a professional career know what their next step is immediately after graduation.

**Recommendation 15. Ensure that undergraduates and graduate students are provided with ample support as they apply for a range of post-Caltech opportunities including careers in business, industry, entrepreneurship,**

**education, policymaking, and other sectors as well as applying to graduate and/or professional degree programs within and beyond STEM. Significant interaction with Caltech alumni would be very important.**

**Recommendation 16. Expand resources and support for students seeking summer internships and consider providing Caltech-funded stipends to students who wish to pursue internships in non-profit organizations.**

**Recommendation 17. Provide early and frequent opportunities for students to explore potential careers and prepare for those careers through engagement with Caltech alumni in addition to Caltech's professional career advisors.**

## Conclusion

Over the course of the C3's work, one point came to the fore: Caltech's community is driven to produce the best science, engineering, and educational experience possible and aspires to do so in an environment that is diverse, inclusive, supportive, and fun for each individual.

It is evident that while Caltech's co-curricular student experience in many ways meets these aspirational goals, there is room for improvement that reinforces and fosters formal support structures and community building efforts.

The report presented here attempts to provide a heuristic and a roadmap for addressing these opportunities and improving the student experience in meaningful ways in relatively short order. The goal would be to move forward in a manner that optimizes collaborative work across the Institute and emphasizes measurable progress that with continuing attention and improvement will lead to a holistic student experience on par with the outstanding academic training provided.

# Appendix

## Email Calling for Committee Formation

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TTo: The Campus Community  
From: Thomas F. Rosenbaum  
Sonja and William Davidow Presidential Chair and Professor of Physics  
Date: September 9, 2021  
Re: Ad hoc Caltech co-curricular group

Trustee Deborah McWhinney, chair of the Board's Student Experience Committee, will be leading the newly formed Caltech Co-Curricular Group (C3 Group), a committee charged to delve into the co-curricular experiences of Caltech undergraduates and graduate students.

The C3 Group is a follow-up to a successful re-accreditation process. It will explore the broad impacts of the Caltech co-curricular experience, striving to identify the elements that play significant roles in how students feel about their time at Caltech, to articulate the most successful approaches, and to make recommendations on how to enhance the Caltech co-curricular program in a manner that will strengthen the experience for all students. The C3 Group will have representatives from recent alumni, the office of student affairs, faculty, and staff. A steering committee will serve alongside the C3 Group to offer additional perspectives.

Over the next four months the C3 Group will engage in a consultative and collaborative process that includes input from students and alumni, and from student affairs professionals at Caltech and across the nation. They will review existing data, conduct focus groups, and conduct cognitive interviews, all to validate what we do exceptionally well and recommend where there are opportunities to improve. The C3 Group is planning to submit a summary report with recommendations to me by calendar year's end.

The C3 Group will be chaired by Trustee Deborah McWhinney and co-chaired by Diana Jergovic, vice president for strategy implementation. Members include: alumna Lorinda Dajose (BS '16, content and media strategist in the office of strategic communications), Natalie Gilmore (assistant dean of graduate studies), Felicia Hunt (assistant vice president for student affairs and residential experience), Mark Longo (senior director of strategic initiatives and development administrative management), Candace Rypisi (assistant vice provost and director of student-faculty programs), Hima Vatti (assistant vice president, equity and equity investigations), and Nicholas Wey-Gomez (professor of history). Alumna Lindsey Malcom-Piqueux (MS '03, assistant vice president for diversity, equity, inclusion and assessment) will serve as research director and advisor to the group, and Hillary Tribbs (administrative affairs manager, office of strategy implementation) will staff the group.

The C3 Steering Committee includes Dexter Bailey (vice president for advancement and alumni relations), Kevin Gilmartin (vice president for student affairs and the William R. Kenan, Jr., Professor of English), Cassandra Horii (assistant vice provost and director of the center for teaching, learning, and outreach), and Alum and Trustee Mason Smith (BS '09).

I am grateful to the C3 Group and Steering Committee for taking on this important initiative.