CAL-BRIDGE

Mentorship Handbook

Building Successful Relationships Between
Cal-Bridge Faculty and Scholars

Version 10 • July 2021

Table of Contents

Introduction

Mentorship is a critical element of Scholar/Mentee talent development. Mentorship is defined as "a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychosocial support (NASEM 2019)." This definition highlights the critical role both mentor and mentee play in the effectiveness of the relationship. Research indicates that the frequency and quality of mentee-mentor interactions positively correlates with students' persistence in STEM degree programs. Mentorship has also been positively associated with students' identity, research self-efficacy and their sense of belonging. For students from underrepresented racial and ethnic groups in STEM, mentorship has been positively correlated with enhanced recruitment into graduate school and research-related career pathways (see Pfund 2017, NASEM 2018, and NASEM 2020 for summary of the literature).

Mentors and mentees both play important roles within mentoring relationships. These roles largely fall into 5 categories which include development of 1) research skills, 2) interpersonal skills, 3) diversity–focused/culturally–focused skills, 4) psychosocial skills, and 5) sponsorship skills (NASEM 2017, Abedin et al. 2012; Pfund et al. 2016; Ragins and Kram 2007). Importantly, the ability of mentors to meet the psychosocial needs of their mentees is associated with increases in how mentees perceive the quality of the mentoring relationship and satisfaction with that relationship (Tenenbaum et al. 2001; Waldeck et al. 1997). Additionally, skills in cultural awareness can help students from underrepresented groups navigate the often challenging experience they face in majority environments and reinforces their research self-efficacy (Byars-Winston et al. 2015).

Mentoring relationships can occur in many forms including the traditional dyad, single mentors working with multiple mentees, and groups of mentors working with a single mentee as a mentoring network. "Mentorship networks—the constellations of mentoring relationships and resources that a mentee taps for support—have gained increasing recognition both within and outside of STEMM" (NASEM 2019). Thus mentorship roles can be fulfilled by many individuals who engage with a

given mentee including research advisors, instructors, program directors, program meeting leaders, peers, committee members, etc. (Rath et al. 2018).

Mentoring networks can include peer and near-peer mentors as part of the overall support system for mentees, often as part of a peer network. Peer mentorship groups have been shown to promote collaboration, provide mentees with both psychosocial and career support and increase retention. In their 2014 study, Tenenbaum et al. (2014) demonstrated gains for both near-peer mentors and their mentees highlighting the positive impacts on all engaged in this type of arrangement. Peer or near-peer groups may also serve to enhance self-efficacy and diminish feelings of isolation. For example, the Fisk-Vanderbilt Master's-to-PhD Bridge Program has found that a tiered, peer-mentoring approach involving seniors linked to first year students, helps students feel emotionally supported (Stassun et al. 2011).

Throughout this handbook we focus on the Faculty Mentors–Mentee portion of a Cal-Bridge Scholar's mentorship network. Peer mentorship will be addressed in a separate Peer Mentorship handbook. The manual begins with sections on the Handbook History and Handbook Philosophy. Each of following sections will begin with a brief introduction intended for both the Faculty Mentor and Scholar, followed by content specifically geared toward Mentors (indicated with "*Faculty Mentors:*"), then Scholar–specific content (indicated with "*Scholars:*") and finally the section will conclude with further information for all parties. While the individual portions of each section are directed toward one party or another, **we strongly encourage everyone to read all portions**. Familiarizing yourself with the responsibilities and guidance of the other member(s) in this mentoring relationship will breed a more fruitful network.

Handbook History

This Handbook was originally written by a small group of experienced mentors within the Cal-Bridge program and was addressed entirely to mentors. The tone and content was such that it was not shared with Scholars due to concerns that the tone of some of the content would be taken as portraying the Scholars as lacking agency.

Recently, the decision was made that the handbook should be rewritten to address both Faculty Mentors and Scholars to acknowledge that mentorship was a mutual group activity in which the participants both learned from the other, and to emphasize the importance of Mentors understanding and accounting for the individual needs and circumstances Scholars in the Cal-Bridge program may face due to their various, often underrepresented, identities.

To accomplish this shift in tone, the program asked a carefully selected group of alumni of the program to redraft this handbook along those lines. The resulting draft was then reviewed and further edited by an outside national expert in mentorship, as well as by the directors of the Cal-Bridge program and sub-programs (physics, astronomy and CS/CE). We are grateful to those alumni and everyone who contributed to this handbook.

Handbook Philosophy

This Handbook is designed primarily for prospective and current Faculty Mentors officially assigned to Scholars by the Cal-Bridge program. These assigned Faculty Mentor–Scholar pairings are truly reciprocal relationships. The goal of the Cal-Bridge program is to prepare Scholars to successfully apply to STEM PhD graduate programs. In this pursuit, the Faculty Mentors are presented with a great opportunity to deeply learn the new, fresh perspectives of Cal-Bridge Scholars and thus continue to cultivate and diversify the STEM community. Cal-Bridge assigns two Mentors to each Scholar, one from their home Cal-State University campus (CSU Mentor) and one from a UC campus (UC Mentor). In this Handbook we use Mentor (or Faculty Mentor) to refer to both CSU and UC Mentors

generally, but where appropriate we use the terms CSU Mentor or UC Mentor to describe specific responsibilities.

Within this handbook, the sections on Best Practices are useful for other mentors, for example, a postdoctoral research scientist or faculty member working closely with a Scholar during a summer program, or other faculty member or scientists providing substantial guidance beyond course-related advice. While each Best Practices subsection contains specific portions directed toward the Faculty Mentors or Scholars, we strongly encourage everyone to read all portions. Familiarizing yourself with the responsibilities and guidance of the other member(s) in this mentoring relationship will only breed a more fruitful mentorship network for the Scholar.

Faculty Mentors: As a Faculty Mentor, your work is critical to the success of your Scholar — but you are not alone. The Cal-Bridge Director, co-Directors, Steering Committees, and other program staff are all there to help you when you need it. If issues arise that neither you nor your co-Mentor are sure how to handle, or you just want advice, you are strongly encouraged to reach out to Cal-Bridge program staff or more experienced Mentors. It is important to enter the relationship with your Scholar with an openness to learn from them especially regarding their individual path, histories, and cultures. You will likely be mentoring a Scholar who does not hold the same identities as you — compassion[1] and empathy are crucial in creating a successful relationship in these circumstances (and in any mentoring relationship).

Scholars: Your academic success and the success you achieve from your involvement with Cal-Bridge is your responsibility. The effectiveness of the program to support your academic career path is within your power to guide. One of the greatest keys to success here is to be proactive with your Mentors, e.g. bringing up concerns before they become serious issues, being candid in all your discussions and completing tasks on time, if not early.

The Faculty Mentor–Scholar Mentorship Agreement is meant to serve as a guideline to establish norms for this multi-party relationship. While it is critical for both Faculty Mentors to complete the form with their Scholar, this handbook will be the essential tool to create a successful relationship.

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[1] See section below on [The Role of Compassion in Mentoring](#)

The handbook refers to academic years as senior and junior year. However, many Scholars are not on a four-year track; hence the senior and junior year designations are meant to reflect the academic year they will be applying to PhD programs and the academic year prior to that, respectively. For Masters students, the year of application to PhD graduate programs can be viewed as the "senior year" in the timelines of this Handbook.

This Handbook is a living document, and will be updated. If you — Mentor or Scholar — have suggestions for new additions or changes please contact the Director, Associate Director, co-Directors, Mentorship Committee or other staff of the Cal-Bridge program. In particular if you identify as an LGBTQ+ student or a AB540/DACA student and are comfortable providing insights into your experience to be included in this handbook, please reach out to anyone of the parties mentioned above. We would love to have more marginalized identities directly represented in this handbook!

Best Practices for a Successful Mentor-Scholar Relationship

There are many popular, scholarly articles (**see resources in Cal-Bridge Faculty Drive linked in** [Appendix](#)), and entire books written on mentoring relationships, so throughout the following subsections we only highlight some challenges that come up frequently for Cal-Bridge Scholars and Best Practices that Mentors have found to address these challenges.

Ideally, Cal-Bridge Mentors will become part of a wide support network of mentors, professors, peers, friends and family members for Scholars. To accomplish this:

Scholars: Use the [*Cal-Bridge Mentorship Map*](#) to identify your support network. If you feel you are lacking in a support area, seeking out individuals or groups to serve in those groups is strongly encouraged. In your search, you do not have to approach people with the direct question of "Will you support me in *this* area?". You can simply build a relationship with them or join a specific group that you feel can provide the support you seek. (Alternatively, if you feel comfortable specifically asking for support, do so!) Your support team can change and grow frequently and one specific group

or person may be able to provide support across a range of areas. The goal with the Mentorship Map is not to have a different person/group in each slot or to have one person/group fill all the spots — the goal is simply to have a range of people/groups you trust to help guide and support you through life and your academic/STEM career.

Faculty Mentors: Help your Scholar identify and connect with individuals or groups who could fill roles to strengthen various areas of their support networks. If your Scholar feels comfortable, discussing their Mentorship Map with them may be a great way to identify areas they need support now or even may need support in the future.

Current research into effective mentorship techniques points towards a mentorship/support network being vastly superior to the "*traditional*" guru view of mentoring. While a mentorship network may take more time to cultivate and maintain, the benefits of gaining insight and support from a variety of sources greatly outweighs the cost.

The Role of Compassion in Mentoring

One of the key components of quality mentorship is compassion. Gilbert (2017) defines compassion as "sensitivity to the suffering (or distress) in self and others with a commitment to try to alleviate and prevent it." In the context of a program like Cal-Bridge with high expectations (standards) it is easy to judge or condemn people who don't meet those expectations as unwilling or incapable of ever meeting those expectations. Even if meant kindly ("they should do something they are good at"), such thoughts ignore the complex factors that can lead to a failure to meet expectations. Maybe the student has a living situation which makes studying hard; maybe there is a sick parent or grandparent who needs their help; maybe they are undergoing a level of stress and anxiety caused by their situation, or just because people suffer from mental health problems, that makes it difficult for them to meet their obligations.

Maintaining standards does not require thinking less of a person for not meeting the standard; it is possible to hold a person in high regard while working to help them overcome their failure. You don't condemn them for their mistake; they are not a bad person. Holding a person in high regard even as they fail at meeting an important standard for their success is a

form of compassion in that it redirects the focus of the mentor from the failure to compassion for the distress of the person who has failed. Compassion towards a student's distress over their failure can lead to a healthy curiosity about what caused the failure, which can lead to better understanding and ability to help them overcome their failure. Therefore, compassion is key to good mentorship since it opens up the mentor to acknowledge the student's distress and therefore deal with it.

Compassion is not kindness, though it can include kindness. It is possible to be kind in ways that do not address another's distress. Both compassion and kindness have an important role in mentorship, but compassion is the more difficult to implement, as it requires the courage and willingness to engage rather than avoid distress (Gilbert et al. 2019). Compassion requires attentional sensitivity, the capacity for being emotionally moved (sympathy), the ability to be able to make sense of distress, and most importantly, must be non-judgmental (Gilbert et al. 2019).

Faculty Mentors: Some examples of situations you may encounter could include:

- A scholar fails or does poorly on a test
- A scholar misses multiple mentoring sessions or other obligations
- A scholar brings major life issues to your attention, e.g., homelessness, food insecurity, mental health issues, physical health issues

A mentor confronting such failures or difficulties experienced by a scholar should generally follow the following steps:

1. Remain non-judgmental; don't assume that their failure or distress is their fault
2. Display courage: be willing to engage with their distress
3. Be curious: why did they fail?; what is the cause of their distress?

For example, if a scholar misses multiple mentoring sessions or other obligations, be curious about why this has happened — don't assume that they are lazy or don't care. Are they disorganized and need help with time management? Are they depressed or anxious or have some other mental health issue? Did they have to take a relative to a doctor's appointment or care for a parent, grandparent, sibling, child (sick or otherwise)?

At all times one should maintain "the basic assumption:" the assumption that every scholar is well-intentioned, wants to benefit from the mentorship relationship, and is trying their best.

Scholars: When dealing with stresses and setbacks such as those described above, keep in mind that your mentors are there to help you and assume they will bring compassion to any discussion of how to deal with the problem. Your mentor will *not* think less of you or be disappointed in you for having difficulties. It may take courage on your part to discuss your own setbacks or troubles with your mentors, but if you do, they may be able to help you; that is what they are there for.

If at any time, you feel that your mentors are not showing you appropriate compassion or you have any other issues with your mentors, you should approach your program's co-Director, or the Director of program staff.

Power Imbalances & Harassment

As has been recently brought to light, abuse of power and all types of harassment are far too common in academia. While systemic change is required to truly eradicate these problems, there is a lot all parties in a mentoring relationship can do to combat these systemic issues. In the following paragraphs, we focus on what can be done specifically in the Cal-Bridge mentoring relationships. Much of the following guidance — recognizing imbalances, having zero-tolerance for aggression and regularly attending related training — can be followed by everyone in academia to help create more equitable and inclusive environments.

Note: The following section is edited from the "Group Policies portion of the Fostering Wellbeing Workshop" developed by House S., Ruiz J.P., Miller C., Mondisa J., O'Connell A., Posselt J., & Roesch L.

Faculty Mentors: It is important to recognize that the imbalances of power in academia can lead to abuses of said power and threaten the physical and psychological safety of Cal-Bridge Scholars, especially those of underrepresented demographics. It is imperative to do your best to model and promote a harassment free and micro-aggression free workplace, including participating in regular professional development workshops on unconscious bias and culturally-aware mentoring. Listen to and protect your Scholar who, due to differences in experiences (such as race,

nationality, gender identity/expression, sexual orientation, and/or disability), might be at a higher risk of harassment. This includes having no tolerance for aggressions including, but not limited to:

- Sexual assault or quid-pro-quo sexual arrangements
- Discrimination on the basis of any of the demographics listed above
- Holding visa and letters of recommendations "hostage," or other forms of career sabotage
- Racial, sexist, anti-LGBTQ+, or ableist comments, jokes, or slurs

Scholars: Recognize that working in a team environment (e.g. in a classroom, during an REU or in a research group) requires promoting equitable, fair, and respectful treatment of everyone in the group, and model such behaviors. When possible take courses on preventing unconscious bias and sexual harassment, become educated on effective and safe bystander intervention techniques to become an ally, and report toxic behaviors seen within your academic groups.

Mental Health

Mental health-related issues are equally as common, if not more so, as harassment issues and also require true systemic change to help eradicate. In fact, a recent study found that more than 1 in UC graduate students are thought to meet the criteria for clinical depression (Charles et al. 2020). All members of the academic community can help fight the stigma surrounding mental health just by having conversations about it and being open about resources, healthy habits, and struggles. As in the prior section, we focus on what can be done specifically in the Cal-Bridge mentoring relationships. Much of the following guidance — discussing mental health, assisting in finding resources and maintaining healthy habits — can be followed by everyone in academia to help create more equitable and inclusive environments.

Note: The following section is an edited version of a section in the Group Policies portion of the Fostering Wellbeing Workshop developed by developed by House S, Ruiz JP, Miller C, Mondisa J, O'Connell A, Posselt J, & Roesch L.

Faculty Mentors: As a Cal-Bridge Faculty Mentor it is important to verbally acknowledge your role in supporting the mental and psychological health of your Scholar. Keep conversations relating to the health of your Scholar confidential to the degree that institutional and legal policies allow, and communicate to your Scholar where confidentiality is not guaranteed. Do your best to provide equitable accommodations to allow your Scholar to thrive in their academic careers, and seek institutional help when unable to do so. This especially extends to disabled and/or neurodiverse mentees. An excellent resource for mental health resources at various campuses has been created by the Cal-Bridge Mental Health Action Group and can be found [here](#).

Scholars: Acknowledge your own primary role in maintaining healthy habits that promote your wellbeing, as well as your role in communicating and disclosing (where comfortable) issues arising or accommodations required to your Mentor. Acknowledge that your Mentor is not tasked with or responsible for treating or supporting you in a mental healthcare professional capacity, and that you will seek appropriate professional support if needed.

Recommended Coursework and Degree of Difficulty

We have observed that many Scholars who enter the program with high GPAs after completing 2-3 years of intro courses can struggle during their junior year, as CS/CE/Physics/Astronomy/Math courses suddenly become more rigorous and abstract—and often 2-3 such difficult courses must be taken concurrently. One strategy for dealing with this steep increase in difficulty is advanced knowledge, which has proven to be an effective technique in preparing Scholars for the challenge ahead.

Faculty Mentors: Continually acknowledge and normalize the difficulties of this adjustment. Help your Scholar recognize that the increased demands of their major courses may require adjustments to their study habits, including joining a study group, increased attendance at office hours, and beginning homework and exam preparation earlier than they are used to. If your Scholar is struggling academically, discuss these study habits in detail and make recommendations for how they can usefully engage more with the material. If needed, ask the Cal-Bridge program to provide a tutor. Your Scholar is still growing as a student, but your Scholar was chosen

for their grit and perseverance, and with your help they can develop into the type of student who can achieve the academic success needed to successfully matriculate to a PhD program.

    Scholars: Know that this increase in difficulty of your courses is challenging; it is or was challenging for every CS/Physics/Astro major (including most Mentors when they were undergraduates!), but you can get through it, likely after making significant adjustments to how you approach coursework, and you will be proud of yourself for doing so. Throughout these difficult courses, remember to ask for assistance from not only your professors and peers but, also, your Cal-Bridge Mentors and the program itself. Often tutoring can be arranged for those struggling with a specific topic. Sharpening study techniques and time management skills are also crucial ways to prepare for the difficulty of these upper division courses.

    We also recommend that Physics & Astronomy students pick up a programming course at some point during their final two years, even if such a course is not required by their major. Independent study/research courses with a strong programming component can also give students this critical preparation for a programming-intensive research career in astronomy or physics.

Study Habits and Exam Anxiety

    There isn't one perfect method to study and learn, as each person's strengths and weaknesses are different. The time management exercise described in [this following section](#) is a good first step toward improving study habits. These topics are covered briefly during one of the mandatory academic year workshops and in the past have been topics of discussion during the optional Peer Mentorship Workshops.

    Faculty Mentors: Rely on your own experience as professors/former students to question your Scholar deeply during mentoring meetings to assess their needs. In addition, we have found the following strategies can help Scholars struggling with coursework (this is by no means an exhaustive list):

- Encourage Scholars to form study groups with their peers, especially with other Cal-Bridge Scholars or similarly strong students within their departments.
- Scholars should attend office hours as much as possible.

- Scholars can and should bring samples of their coursework, e.g., graded exams or lab reports, to their Mentors for feedback. Mentors can help Scholars interpret which comments from their instructors identify serious weaknesses versus relatively minor mistakes—this is not always clear from the written feedback and scores.

- Scholars can request group or individual tutoring through Cal-Bridge! If a Scholar is struggling in a particular course, you may need to encourage them to request tutoring through the program or their department. If the course is sufficiently advanced that an undergraduate peer tutor at the Scholar's home CSU campus cannot be found, program staff can assist Mentors and Scholars in identifying graduate students at UC campuses who can be hired as tutors.

- Look out for mental health issues, especially those that are anxiety related. Every campus has counseling and disability resource centers where students can seek help for anxiety and related mental health illnesses, including those that can affect test-taking. If you suspect your Scholar may have a condition that could make them eligible for accommodations on exams (e.g. extra time, private room), the Scholar should be referred to the appropriate campus center immediately. An excellent resource for mental health resources at various campuses has been created by the Mental Health Action Group and can be found here. (Note: This specific tab (Disability Resources) is currently under construction with a completion date at the beginning of Fall 2021.)

Scholars: Many students feel anxious or even panicked before exams, whether it be an exam for a course or a GRE exam. High-stakes testing can trigger a variety of responses in student populations, including Impostor Syndrome (see below) and Stereotype Threat. As you proceed through the program and gain confidence, these issues often diminish, but they are hard to extinguish completely. We have found that a few simple pieces of advice can help you prepare for exams:

- *Start studying early.* Create a schedule for yourself to space out exam preparation which can reduce stress and fatigue. Research has shown that working in 2–3 hour chunks is more effective on

cognitive performance and long–term memory than studying for, say, 8–hours at a time (even if the 8–hour session is well before the exam date, Bjork 2017).

- *Do not cram.* A good night's sleep the night before an exam is worth far more than the same number of hours of last-minute studying. No one can perform at their top level when they are exhausted.

- *Relax!* It sounds like a cliché, but a very helpful strategy is to take a few deep breaths and find your "happy place" during the tense minutes between sitting down to take an exam and opening the exam paper. Your Faculty Mentors can help you identify your own centers of strength, for example you might want to focus on past successes or imagine yourself in a favorite location or with a beloved person during stressful moments. Guided meditation and affirmations, such as [those found at the Kaiser Health website](), have been shown to reduce stress and increase confidence.

- *Rely on your resources.* Utilizing the vast resources and networks afforded to you by Cal-Bridge is one of the smartest things you can do! Studying/learning and test taking are skills that need cultivated — working with peers, discussing your weaknesses with your Mentors and seeking outside help are excellent ways to learn about and improve these skills.

Imposter Syndrome and Growth Mindset

The *Imposter Syndrome* is the feeling that you are an imposter who has reached your current position due to luck or trickery/deception, and who doesn't belong there. People from groups currently underrepresented in STEM can be even more prone to Imposter Syndrome than other students due to lack of role models in their field from their same group. *Growth Mindset*[2] is a concept that can help Scholars understand and overcome the challenges they face in the program itself and academia as a whole. It can be a positive antidote to Imposter Syndrome as well as an important skill that

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[2] Carol Dweck and her colleagues at Stanford University have developed and studied the idea of *Growth* and *Fixed Mindset* for over 30 years, and have published numerous articles and books about them, including the bestseller entitled, *Growth Mindset*. You should read that book: not only will it help you be a better mentor, but it may even help you in your own career.

has been shown by extensive research to lead to greater success in all aspects of life, but particularly in academic and research settings. The basic concept is that there are two types of mindset: *Growth* Mindset and *Fixed* Mindset.

- A person with a *Fixed Mindset* believes that intelligence is a fixed quality, and that no amount of effort can increase it. People with a Fixed Mindset, when they encounter an obstacle (e.g., a poor grade on an exam) will take it as a reflection on their intelligence, and may decide to give up trying, since more effort won't help.

- A person with a *Growth Mindset*, on the other hand, believes that intelligence, and therefore accomplishment, can be increased through effort. A person with a Growth Mindset, when they encounter an obstacle, will consider it a sign that they need to work harder, or differently, to do better next time.

No one has one mindset or the other all the time; we all can move between them (though some people can get stuck in a Fixed Mindset). If you are not familiar with these concepts, some resources can be found at: www.mindsetworks.com/science/. When it is safe to do so, Scholars will participate in an in-person, day long workshop specifically on these two topics.

Scholars: Imposter Syndrome is commonly the fear that you will be found out as a fraud at any moment and asked to leave (school, the Cal-Bridge program, your job). Some important points to keep in mind about Imposter Syndrome during discussions with your Faculty Mentor are:

- Everyone experiences imposter syndrome at some point or even continuously in their life, even highly successful people!

- Being vulnerable around your Faculty Mentors in order to discuss such feelings and thoughts is not a sign of weakness in you as an academic.

Additionally, you are encouraged to seek out role models that 'look like' you and organizations that foster and cultivate these relationships such as NSBP (the National Society for Black Physicists), SACNAS (the Society for the Advancement of Chicanos and Native Americans in Science), LUMA (the League of Underrepresented Astronomers), AISES (American Indian Science and Engineering Society), MAES (Latinos in Science and Engineering), CAHSI (Computing Alliance of Hispanic–Serving Institutions), NSBE (National Society of Black Engineers), SWE (Society of

Women Engineers) and [SHPE](#) (Society of Hispanic Professional Engineers). There are also a variety of committees and working groups focused on populations which are underrepresented in STEM through national organizations such as the American Physical Society, the American Astronomical Society, the Association for Computing Machinery and the Institute of Electrical and Electronics Engineers.

Faculty Mentors: During discussions with your Scholar, here are some important reminders regarding Imposter Syndrome and Growth Mindset:

- The bi-weekly meeting is a great opportunity to show vulnerability to your Scholar, as we have all likely experienced some version of Imposter Syndrome at some point in our careers. If your Scholar knows that their trusted Faculty Mentor also struggles with doubts and has had to overcome obstacles, this can be very comforting.

- You are encouraged to assist your Scholars in seeking out role models that 'look like' them and organizations that foster and cultivate those relationships (for specific examples see those listed in the above Scholars bullet points).

- Even if a Scholar does not show signs of Imposter Syndrome for a time, they can reappear when the Scholar experiences an adverse event (e.g., low exam score, bad GRE score, rejections from graduate schools, ect.) or even after a success (e.g., being awarded a fellowship or gaining acceptance to their top choice graduate program). You should always be vigilant for signs of Imposter Syndrome and be ready to help your Scholar through it.

- If your Scholar has always found school relatively easy, and then encounters the challenges of upper division STEM classes (for example, receiving their first ever C or lower on an exam or in a course), they may exhibit a Fixed Mindset and feel like giving up. This desire can be enhanced if they are also suffering from Imposter Syndrome.

- If your Scholar is struggling and is exhibiting signs of Fixed Mindset, Imposter Syndrome, or both, you should remind them that they are strong students and that they have overcome such obstacles in the past.

- While the Cal-Bridge program runs workshops on these topics for the Scholars, these issues come up frequently in mentoring meetings.

Equally important to a Scholar's mindset (Fixed vs Growth), is the mindsets of the people with influence on a Scholar's life: family, friends, faculty, and **their Faculty Mentors**! As a Mentor, cultivating your own Growth Mindset and that of others in your department and field can dramatically change the sense of well-being and belonging of faculty, staff, and students.

Family and Relationship Pressures

Many scholars are first-generation college students whose culture, and therefore family and likely their key friends, place value on things that can be traditionally seen as negative in academia. It is important not to undermine family values because they do not align with academia's values. Cultural awareness and sensitivity are crucial to respecting the boundaries and differences of those with underrepresented identities in STEM.

Faculty Mentors: You are encouraged to learn from your Scholar about their culture, remembering to keep in mind cultural awareness, cultural sensitivity, and your Scholar's boundaries. Learning about your Scholar's culture will greatly aid you in assisting them through the process of preparing for and entering graduate school. This can take many forms but one of them is not to discourage your Scholar from considering their family and support systems in the final decision for a grad program. Other points of friction could be solved by educating your Scholar and their family/personal support system on PhD programs as seen in these concerns below:

- "We cannot afford graduate school"
    - Neither the Scholar nor their family may realize that PhD programs pay stipends and that tuition is typically waived or covered by the university.
- "You've already had so much schooling, why do you need six more years of it?"
    - Scholars' support systems may not realize that only the first year or two involve coursework and the remaining 3-5 years are a paid research apprenticeship.

- "What kind of job can you get with a PhD?"
    - Educating everyone involved on career paths in and out of academia is crucial for the success and happiness of your Scholar and their support systems.
- "When will you start making money?"
    - New TAs in the UC system typically make $22,500/academic year (not including additional summer work) due to their union contract (per the [AY21-22 UCOP pay scales](#) where graduate students can be up to 50% employed during the Academic Year). RAs may have a different hourly rate depending on their status in the program, and campus/department funding. Students receiving other funding sources, such as internal or external fellowships, may make either more or less.
    - In addition, the majority of STEM PhD students will have the option of on-campus employment during the summer months, either as a TA or RA (some fellowships cover a 12-month period versus a 9-month academic year period). CS/CE scholars may have an off-campus summer internship that pays more. The monthly income during these few months can vary from position to position and even year to year depending on availability of TA positions and faculty funding for RAships.
    - Additionally, many campuses subsidize housing costs, health care insurance and even dependent care for graduate students.
- "You cannot move to another state; your family needs you here and you'll be homesick!" (See "Culture Shock" below)
- "I (the Scholar) will miss my romantic partner — what if we break up?"

Scholars: Educating yourself and those in your support system on your concerns regarding pursuing a PhD is one of the best things you can do to ensure your success as a future graduate student. An excellent place to start this education is by discussing any and all your concerns with your Cal-Bridge Mentors and peers! Remember there are no "dumb" questions!

Culture Shock

It cannot be overstated how isolated and/or in "culture shock" a Scholar can feel in the new environments that they will navigate in academia. These feelings of isolation and culture shock could take the form of any of the following:

- Arriving at an REU site and realizing you are the only person belonging to your main identity group (e.g. the only LGBTQ+ person, the only person with a visible disability, the only person of color).

- Visiting graduate programs and being intimidated by the surroundings, both the people and the facilities.

- Being prepared to enter a graduate program with students who come from more "elite" undergrad schools and who seem more polished/confident.

- Contemplating moving across the country for grad school, adjusting to a new local culture, potentially being the furthest away from family you have ever been and even how to dress in a different climate.

Faculty Mentors: Many mentors may be unable to relate to being a minoritized/ first-generation student in a new culture or environment but should be able to relate to things such as navigating the broad cultural differences between institutions, or the climate between different cities. Mentors are encouraged to leverage your knowledge while outsourcing information for things you do not understand. Further, a Scholar may suppress their own cultural identity while in any academic environment — which can be a detriment to their mental health. A critical task as a Cal-Bridge Mentor is to assist your Scholar in integrating academic culture into their own through continual learning and development of effective methods. It should not be expected that the Scholars give up their cultural identity to assimilate into academia's culture. One method to assist your Scholar in integrating their two cultural identities (familial and academic) is to invite your Scholar to educate you on their personal identity through questions, then allow and encourage them to develop their scientific identity *within* their personal identity. Remember to maintain cultural awareness, sensitivity and respect for your Scholar's boundaries.

Also, be aware that international students face additional significant challenges when navigating higher education in this country. In addition to the social isolation and academic demands, they also are often threatened by financial instability and possible changes in visa regulations. Not only have they often committed to leaving their families to chase their dream, but they also may face a significant level of imposter syndrome due to their language barriers. Some possible social challenges are:

1. Living in uncomfortable situations with extended family or friends due to financial or other hardships imposed by their immigration status.
2. Fear of becoming "Americanized" and thereby becoming foreigners in their land.
3. Losing confidence due to accent or inability to speak good English, which further prevents them from participating in group study.

In addition to the social challenges, international scholars face added stress when applying to grad schools. They have limited funding and internship opportunities at their disposal. As graduate school applicants, they may have to compete in an international pool, often where most non-U.S. students have better GRE scores. Moreover, their home education system may have raised them to be uncommunicative in classes or meetings. For example, in some Asian countries there are power dynamics where students do not speak up in classrooms without the professor's permission. This cultural aspect may hinder their ability to participate in discussions or go to office hours. Finally, international students are subject to much higher fees and the Cal-Bridge program cannot assist them with those costs due to grant restrictions. Many students attending CSUs do not come from affluent families and hence often rely on part-time jobs on campus or loans to afford their education and living expenses.

Moreover, the changing visa regulations may impose a constant fear of deportation on these students. Prior to the COVID-19 pandemic international students were required to take full-time course credit with a maximum of one online class and were required to complete their degree within a specific time frame. They cannot take a semester off if they are struggling with mental health issues. Hence, additional care and support may be needed while mentoring international students.

Another group of students that face additional significant challenges when navigating higher education in this country are DACA students. The Deferred Action for Childhood Arrivals (DACA) program invites undocumented immigrants, who meet exclusive requirements, to work legally in the United States. Students brought here as children nearly two decades ago qualify for the program. The AB 540 statute, which is a different piece of legislation only for California students, exempts certain students from paying nonresident tuition (higher than resident tuition) and/or allows them to apply and receive state aid at certain California public and private colleges. DACA/AB 540 student experiences are different from visa-holding international students in several ways: (i) They were brought to the U.S. by their parents to escape poverty, gang violence, or other forms of extreme inequities and forms of violence with or without visas, (ii) they have fear of having grown up in a country actively trying to deport them and their families, and (iii) the collective hope of obtaining citizenship. These distinctions are not exhaustive. The shared experiences between DACA and international students include: (i) being excluded by social structures, whether intentionally or otherwise, leading to a sense of otherness, (ii) living in anxiety and fear of government entities who control and enforce immigration policies, and (iii) due to their immigration status, they do not qualify for federal grants or programs, such as the NSF GRFP.

Faculty mentors should be aware of the basics of DACA and AB 540:
- DACA is a *federal* program that grants work permits to anyone who qualifies for two years at a time, upon which individuals must renew it by paying a fee of $495. Without DACA, undocumented students cannot work legally in the country.
- DACA was issued by executive action by the Obama administration in 2012. This means that any president can change the law without consulting Congress.
- AB 540 is a *state* law that grants students in-state tuition passed in 2001.
- AB 2000, the extension of AB 540, allows undocumented students to receive state financial aid and expands the scope of eligibility to AB 540.

Faculty Mentors can foster a welcoming environment for DACA/AB 540 students by:
- learning the basics of immigration policy and staying attuned to changes,

- identifying and challenging their own biases and misconceptions about immigrants,
- learning more about their student's culture, past experience as a DACA student, and their specific needs,
- connecting their Scholars with community resources such as legal support, funding sources, health services, advocacy, and activist groups,
- and learning about funding sources which accept DACA students including the Paul & Daisy Soros Fellowships For New Americans and Ford Foundation Fellowship Programs.

Scholars: It is ok to have any/all of these feelings and to work through them, even if doing so takes time. You've proven yourself resilient against all the austerities your personal life, the turbulent climate of this country's politics and academic institutions have placed on you. Remember that you are not alone — your family, friends, professors, partners and the Cal–Bridge program are here to advocate for and support you. Though you may feel you cannot identify with those around you, it is ok to ask for help from those in the position to do so such as your Cal-Bridge Faculty Mentors and peer mentors — help can come in many forms. Your mentors may not have the answers to your questions or methods to help alleviate your concerns themselves but as voluntary mentors, they want to help you find those solutions. Take this opportunity to build comradery with your fellow Cal–Bridge scholars and alums to form connections that will outlast your disenfranchisement. The beautiful story that Cal–Bridge is achieving by bringing as many of us together as possible is cultivating a welcoming academic environment and a path forward to graduate school.

Everyone: It is very easy to feel "otherized" amongst a group of people — to be made to feel intrinsically different from the majority by the majority. Any one identity you hold that is different from the majority in that group can incite feelings of not belonging. In turn, it is unfortunately easy for those that identify more fully with the majority to highlight the different identities in others, thus "otherizing" those in the minority group. To create a truly inclusive, beautifully diverse and equitable academic community, those who identify at all with the majority groups have a responsibility to actively not "otherize," but rather invite those identifying with less populous groups into academia and teach others to be inclusive and equitable as well.

Summary of Essential Responsibilities

Throughout the Junior and Senior <u>academic</u> years
Scholar-Dual Mentor Meetings (in-person or via Zoom)   every two weeks
Scholar Academic Progress Report   about 3-4 per year
     Mentors submit to Steering Committee
Mentor Progress Report   about 1 per year
     Scholars submit to Mentorship Committee

More frequent meetings or communications are likely during the following time periods or whenever a Scholar has need of them:
<u>Junior Year</u> - *Specific deadlines can be found in this year's Grad School Handbook*

REU/Summer Research Application List	End of Fall Term
REU Application/Letters deadlines	December - March
Cal-Bridge Summer (CAMPARE) deadline	February 1
Physics GRE exam (if applicable)	April
GRE prep courses	various

<u>Summer before Senior Year</u>

Write Draft of Graduate Essay	May - June
Submit Essay for Peer Review	early July
Peer review comments returned	mid July
Submit Essay to Mentors for comments	end of July
SoCal/NoCal Physics GRE bootcamps	August
Iterate on essay draft essay with Mentors	late Summer/Fall

<u>Senior Year</u> - *Specific deadlines can be found in this year's Grad School Handbook*

Physics GRE exam (P&A only; if applicable)	September-October
General GRE exam (if applicable)	Before November
Graduate committee receives NSF GRFP application	mid September
Graduate committee returns NSF GRFP comments	late September
Initial Grad School Application Lists due	early October
NSF GRFP Deadline	mid-late October
Graduate committee receives final grad essay	early November
Graduate committee returns essay comments	mid November
Planned Grad School Application Lists due	early December
Graduate Application/Letters Deadlines	December-January
Submitted Grad School Application Lists due	late January

Responsibility Details

The Cal-Bridge Mentorship Agreement

New in the 2021-2022 Academic Year is a Cal-Bridge Faculty Mentor-Scholar Mentorship Agreement. This form is meant to be completed by each Cal-Bridge Mentorship triad — each Scholar, their CSU Faculty Mentor and UC Faculty Mentor. It serves to establish norms for this multi-party relationship. The agreement contains various questions to answer which serve as guidelines for establishing and maintaining the relationship as well as statements to acknowledge and a section for names and signatures. The three members of the mentorship triad should jointly discuss the agreement before signing it.

The agreement can be updated as often as the three members feel necessary. Upon the first meeting of each academic year, the agreement should be completed by both Faculty Mentors and their Scholar then submitted to this Drop Box link. *This agreement is not meant to replace either the Scholar Academic Progress Report or the Faculty Mentor Progress Report. For this initial year of implementation, AY 2021–2022, completion and submission of this Agreement is voluntary.*

The Biweekly Meeting

Scholars and Mentors should review the [“Best Practices” section](#) above for general advice for conducting these biweekly meetings. These mentorship meetings ideally should go beyond academic and professional development conversations to break down barriers between students and faculty. Scholars consistently report that they value their Mentors' interest in their personal well-being and happiness. The mentorship group should also discuss career planning and professional development issues as appropriate (e.g. why you want to go to grad school, grad school selection, GRE, careers in CSE, Astronomy, or Physics).

Faculty Mentors:

- Both Mentors are expected to meet together with their Scholar at least once every other week, for about an hour. Typically, when in-person meetings are safe, the off-campus Mentor will still need to join these meetings via Zoom or other forms of video conference.

- If there is a reason your Scholar thinks they need to miss a mandatory workshop, they should discuss the reason with you first. If you both agree that your Scholar should miss the workshop, then either the Scholar or a Mentor needs to complete the Exception Form located in the Resource section of our [Cal-Bridge Website](#) to request permission for the Scholar to miss the workshop. Permission will generally not be granted except in extreme circumstances. However, the earlier you inform the program, the more likely that the request may be granted. Unexcused absences from workshops may lead to your Scholar being placed on non-academic probation.

- These meetings should be holistic.
    - As you get to know your Scholar, any change in mood or behavior should become apparent. If you notice that your Scholar has become uncharacteristically reticent but is not forthcoming about what might be troubling them, you should ask some probing questions, while respecting their privacy. This can be a difficult line to walk. In general, it is best to take a posture of compassion and concern while assuring the scholar that they should only share information that they are comfortable sharing.
    - *If a problem seems to rise to the level of a mental health issue, the Mentors/Steering Committee should help the Scholar identify counseling services on their home campus and/or in the community.*
    - If Mentors have doubts about how to handle any situation, you are encouraged to reach out to the appropriate Cal-Bridge co-Director, Director, or program staff for support.
    - An excellent resource for mental health resources at various campuses has been created by the Mental Health Action Group and can be found [here](#).

Scholars:

- Update your Mentors with your progress in all courses, with a focus on computer science, computer engineering, physics, math, and astronomy courses, as appropriate. Any academic struggles must be brought forward and discussed.

- It can be difficult to share more personal struggles with your mentors. You should never feel pressured to share information you don't want to, but keep in mind that your mentors are there to support your success, and if personal issues are interfering with your ability to pursue your goals, asking for help is the right thing to do. There is no need to suffer in silence. Your mentors should not judge you but should show compassion for your plight.

- You are expected to attend all Cal-Bridge workshops — they are mandatory. (Caveat: Cal-Bridge Peer Mentoring workshops and events are not mandatory but attendance is highly encouraged.) Unexcused absences from workshops may lead to you being placed on non-academic probation.

- This is your opportunity to ask any questions related to your coursework, or other aspect of your academic career, and to get ahead of any issues you may have.

Guidelines for the Scholar Academic Progress Report

Faculty Mentors: Completion of the Scholar Academic Progress Report (APR) is one of the most important tasks a Cal-Bridge Faculty Mentor has. This report gives the Cal-Bridge Steering Committees the chance to review each Scholar's progress and determine if any extra support is needed. **Examples of both good and not-so-good reports are given in the** [Appendix](#).

Cal-Bridge program staff will request Scholar APRs in advance of Steering Committee Meetings. Typically, 1-2 progress reports will be completed per academic term, ideally soon after a round of midterm exams. The CSU Mentor assumes responsibility for collecting feedback from the Scholar's course instructors. **Both** mentors are expected to

contribute to the Mentor Report based on conversations during the biweekly meetings.

The report consists of three parts:

1. A short narrative integrating input from **both** Faculty Mentors (CSU and UC) describing the Scholar's overall status. This can include academic progress, personal struggles (including stress and other mental health struggles), or anything else the Scholar has shared with you as their Mentor. These tend to be 1-2 paragraphs long, but can be longer if there are concerns or issues raised. *This is the most important part of the report, and Mentors should be sure to give enough detail to allow the Steering Committee to understand how the Scholar is really doing.*

2. Reports on each class the Scholar is taking, including course number, title, and instructor. These reports can be fairly short and should capture whatever information the course instructor has provided to you as a Mentor. If there are struggles in a given course, highlight the need for a tutor, if appropriate.

3. An overall rating using the following color scale: Green=doing fine, Yellow=some concerns, Red=major concerns. The majority of Scholars will be rated Green in any one review period. In general, if a Scholar is struggling academically (grade estimated at B- or lower), is becoming uncommunicative, or has significant personal challenges, they should be rated Yellow. If concerns or issues suggest that the scholar may need to be asked to leave the program if not addressed, if the struggles are major (e.g., serious mental health concerns, if the Scholar goes AWOL for a time), or if their problems persist for more than one term (semester or quarter), they should be rated Red.

4. If your scholar is rated Yellow or Red, you should:
    a. inform the Cal-Bridge Co-Directors and Program Coordinator ASAP, and

b. plan to attend the next Steering Committee Meeting, to be available to explain the issues in more detail.

Guidelines for Mentor Progress Reports

Scholars: The purpose of the Mentor Progress Reports is to provide a regular feedback and reflection mechanism for the Scholars. The Scholars' reflections on the relationship with their Mentors are meant to track growth and any issues that may be arising so they can be resolved.

[This Google Form](#) will be disseminated once per academic year, typically during a mandatory workshop. This form contains 3 open response questions and 2 multiple choice questions per mentor (UC and CSU) with a few additional administrative questions. While your responses may be as general as you wish, one suggestion is to write very short and quick summaries after meetings/interactions with your Mentors. Keeping these notes in one location will enable you to quickly complete this feedback form.

These reports will not be seen by your faculty mentors, or other faculty mentors who are not in leadership within Cal-Bridge. The individuals who will have access to these reports include the Director, Associate Directors, and Mentoring Committee co-Chairs. Mentoring Committee members will only see anonymized reports. The Cal-Bridge program may aggregate and anonymize these responses to help evaluate the effectiveness of the program with the possibility of using such information in publications or presentations. Any information that is obtained in connection with this survey that can be identified with you will remain private and will be disclosed only with your permission or as required by law.

IMPORTANT REMINDER: If you ever have specific issues with either of your Mentors or any person in the Cal-Bridge program, you are encouraged to reach out directly to Cal-Bridge Leadership, specifically the Director, Dr. Alex Rudolph, or subprogram Co-Directors, Dr. Carol Hood (P&A South), Dr. Aaron Romanowsky (P&A North), or Dr. Mohammad Husain (CS/CE).

Time Management

The following exercise has proved invaluable for Scholars and should be done at the beginning of each term.

Scholars: Utilizing the [Time Management Worksheet](#) found in the Scholar's Google Drive, block out a weekly schedule, including (in order):

1. Scheduled time commitments, e.g. class meetings and work hours (recall that work hours are limited to <10 hours/week by the Cal-Bridge contract)
2. Related time commitments, specifically number of hours required to study/homework and succeed in *each* class—this will depend on the class, students must know which classes are their most time-consuming
3. Hours committed to research during the academic year (if any)
4. Hours committed to extracurricular commitments (e.g. student clubs)
5. Hours for eating, sleeping, and exercise
6. Time for family and friends
7. Other personal time/hobby time

Remember: there are only 168 hours in a week.

Faculty Mentors: Discuss together whether the Scholar's time budget is reasonable and accurate, and revise if necessary. It is often difficult to understand how much time is required to be the kind of student a Scholar wants to be, i.e., one who will get into a PhD program. The program, at their first orientation meeting, tells them to expect to spend 50-60 hours per week on academic work. Some commitments may need to be put on hold or minimized for the time being.

Achieving & Maintaining a High GPA

Often the upper division courses required to complete a Physics/Astronomy/CS/CE Bachelor's degree, require a whole different level of study skills than is required in lower division and general education courses.

As new Scholars enter this challenging part of their undergraduate career, class load can be a difficult thing to manage, especially for international students who are under strict unit requirements due to visa policies.

Faculty Mentors: Advising on both the number of classes and the type of classes they should take can be invaluable for all students. Due to the patterns of course offerings, some terms are going to be more difficult than others, and helping your Scholar understand that up front can be beneficial to their success. Additionally, if there is any way to put a non-major class in their schedule to go with their major classes, it can help to balance out intense upper-division major courses.

In these challenging courses, Office Hours and Tutoring (which can be provided for free through Cal-Bridge) could be the difference between passing and excelling in a class — between maintaining/achieving a high GPA and not. We urge you to suggest to your Scholar that, even if they are doing well in a class, they should attend Office Hours and prepare a list of questions about the current problem set, recent lecture, or even perhaps the professor's career path or research. This could be the first steps towards creating a good relationship between the Scholar and their professor that could lead to a strong personal letter of recommendation for future REU and/or graduate program applications.

Scholars: It is essential to be honest and open with your Mentors, professors, and even peers about your academic struggles. Asking for help is not a sign of weakness! If you feel you don't have the peer support you would like within your home institution's department, seeking/creating study groups amongst your Cal-Bridge peers is an excellent way to create an academic support system. The Peer Mentoring program is another resource to help create a peer support network.

Additionally, Study Groups can act as a source of accountability and aid. Study Groups should solve problems together (which of course is integral to STEM courses) while providing opportunities for members to practice teaching one another. Fruitful discussions may even take place that tend to lead to great questions to ask the professor during Office Hours.

Summer Research and Internship Programs & Applications

One of the mandatory workshops for new Scholars is designed to introduce the Cal-Bridge Summer (CAMPARE) program, NSF REU, and other summer research and internship opportunities.

Faculty Mentors: Your Scholar will need you to:

- help them identify which REU and other summer research or internship opportunities to apply to (*including sometimes in a Mentor's own research group!);*

- give feedback on application materials;

- provide letters of recommendation;

- in the event of multiple offers, help your Scholar select the best fit for their needs, interests, and goals;

- discuss professional norms in a research/internship setting (e.g. common attire, work hours, how to ask for help);

- and if your Scholar will be traveling to a distant site, you may want to discuss travel logistics, coping with homesickness, forging new friendships, navigating unfamiliar culture/climate, and possibly feeling out-of-place (see the [Culture Shock](#) section in Best Practices).

If your Scholar is an international or AB540/DACA student, extra work may be required to find research or internship opportunities open to them and ones that will support them. The Cal-Bridge Summer program has opportunities available to international and AB540/DACA Scholars.

Scholars: Beginning your opportunity search and the application process early is an excellent way to manage the stress of this additional work and ensure your Mentors and letter writers are able to provide their best help to you.

Assisting Scholars in Selecting Graduate Programs

Faculty Mentors:

- **As a Cal-Bridge Mentor, this is one of your most important tasks.** Mentor input into grad school selection has already made the difference between success and failure for many scholars!

- Cal-Bridge Scholars typically must apply to 10 graduate programs, including at least 4 of the UCs. If there is a reason you believe your scholar should apply to fewer programs or fewer UCs (e.g., the UCs don't have any/many programs in their area of research interest), you should have your scholar fill out a request for an exemption from these requirements, in consultation with you.

- Scholars may be unfamiliar with universities outside of California; here your connections and knowledge of the "lay of the land" can prove critical. You should help Scholars identify programs that match their research interests and span a reasonable selection of "reach" and "target" programs based on selectivity metrics.

- Scholars may need encouragement to apply to programs that are far from California and/or different climates!

- Often, one or both Mentors will provide recommendation letters in support of the Scholar's graduate applications. It might be advantageous for Scholars to apply to some programs where their Mentors have friends/collaborators in the department.

- Faculty in the Scholars area of interest (physics, astronomy, CS/CE) will review all Scholar graduate school application lists for approval; they will sometimes give feedback to the Scholar and Mentors on the schools selected. If there are special circumstances leading to a list which does not meet the program requirements, or otherwise need some explanation, the Mentors should convey to the Steering Committee information to allow them to understand and ultimately approve the list.

- In some circumstances, Mentors and/or Scholars may feel that applying to PhD programs in the fall of their senior year is not advisable, for example, if the Scholar is struggling to maintain the appropriate grades for PhD admissions (As and Bs). In that case Scholars can request to be allowed to postpone applying to PhD

programs and can instead explore Masters programs as an additional bridge to the PhD. Options include Masters-Bridge programs such as APS Bridge or Columbia's program for all fields, Fisk-Vanderbilt for physics and astronomy, and Wesleyan University for astronomy. Many Scholars in these circumstances apply to CSU Masters programs. In that case, the Cal-Bridge program will provide one additional year of financial support, either in fall and spring of the first year, if the Scholar intends to apply to PhD programs in the fall of their first Master's year, or in spring of the first year and fall of the second year, if the scholar intends to apply to PhD programs in the fall of their second Master's year.

Cal-Bridge Scholars:

- As a reminder, there are multiple excellent sections in the [Grad School Handbook](#) specifically written for you about this topic.

- Openness with your mentors is important in the selection process and your happiness in a given PhD program is crucial to your success. If you have restrictions to where you are willing/able to live for the next 4-6 years or requirements for the types of communities you will be able to thrive in, have these honest and still open discussions with your Mentors

- If you have special circumstances that will lead to your Selected Grad Programs List not meeting the program's requirements, make sure to discuss these circumstances with your Mentors early as it is their job to communicate these exceptions back to the Steering Committee

- As an aid to learning more about graduate programs, Cal-Bridge Alumnus, Rob Tejada Arevado, has compiled example introduction emails to send to potential PhD Research Advisors - [found here](#).

- Rob also shared his list of [Grad School Faculty Research](#) - a document compiling faculty in various programs, their research interest, email and other notes.

Reviewing NSF GRFP and Grad School Applications

See [Grad School Handbook](#). Additionally, Cal–Bridge's Graduate School Committee has created an [Essay Review Rubric](#) to aid in

evaluating each essay's submission readiness level in both content and editorial components.

Letters of Recommendation and Advocating for Scholars

Scholars and their Mentors may have built a strong enough relationship for their Mentor(s) to be able to serve as an excellent Letter of Recommendation writer for the Scholar's REU and/or Grad Program applications.

Faculty Mentors:

- There can be special considerations in writing letters for students who have overcome particular obstacles, whose academic transcripts and test scores may expose some gaps or stumbles in the past. *These should be addressed by you as a Faculty Mentor; you cannot pretend they do not exist.*
- Links to example letters of recommendation can be found in the [Appendix](#).

Cal-Bridge Scholars:

- As a reminder there is an excellent section in the [Grad School Handbook](#) specifically written for you about this topic.
- Additionally, keep in mind that your letter writers are probably not only writing letters for you so asking early (2-6 weeks before the deadline) and providing all necessary information as soon as possible are critical in providing your letter writers with the best opportunity to write. Gentle reminders of deadlines and sending any pertinent updates can also be of great assistance to your letter writers.

The Choice

Faculty Mentors:

- Even if only *one* offer is on the table, your Scholar may need help coming to terms with it if it was not their first choice.

- In the happy event that your Scholar is accepted to multiple PhD programs, you can be of great assistance to them in making their choice.

- Some suggestions for helping Scholars make their choice are:
  - help them build a list of Pros/Cons — encourage them to be thorough and to include things that are important to *them (*e.g. proximity to family, climate, local culture);
  - for the various graduate programs, discuss potential PhD advisors, departmental culture and reputation, stipend/fellowship offers versus cost-of-living, encourage your Scholar to use the [Cal-Bridge/CAMPARE Alum Contacts and Associations Database](requires login to access) if they would like to speak with Cal-Bridge or CAMPARE alums about their experiences and encourage them to ask Alums how the different intersections of their identity would be acknowledged.

Scholars:

- As a reminder there is an excellent section in the [Grad School Handbook](#) specifically written for you about this topic

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Appendix: Supplementary Electronic Documents and Links

Sample Scholar Academic Progress Reports

o The format below is different from how APRs are now submitted, but the content is all there.

o Scholar names have been changed

Good examples

Soraya Maalouf   CSU Mentor:**Name goes here, school**CSULB: Fall Semester

Cohort █   UC Mentor: **Name goes here, school**   **Week #**<u>11 of 13</u>

Mentor Assessment: Feedback/Comment/Actions	Status
Soraya attended the Undergraduate Research Day in Syracuse on 11/10. The trip was funded by Duncan Brown from Syracuse University. This indicates that there is an interest from the graduate school for Soraya. Soraya will not pursue a double major, although very close. She will only major in Physics, for which she has finished all upper-division requirements. The CE courses (see below) have suffered a bit, since Soraya decided to concentrate on PHYS 340B and on the Physics GRE and GRFP application. In the Spring, Soraya will take Math 370B, Applied Math II, PHYS 496 (research units with ███████), and Astro 370 - Planetary Environments. We recommended to strengthen math skills as much as possible before graduate schools. She is excited for graduate school and has created a good list of schools, she aims to apply to. Most of them in the US, with one abroad (England). Not only has Soraya selected the schools, but she has made contacts with faculty from several universities. --- **PHYS 340 Electricity and Magnetism II (█████):** According to █████, Soraya is performing well in the course. This is her last physics course for the B.S.	GREEN

38

CE 364 Environmental Engineering (XXXXX**):** Expected grade is B or C.	
CE 456 Timber Design (XXXX**:** The grade will depend on the final exam. Expected to pass course with C or better.	
CE 481 Professional Practice in CE (XXXXX**):** Expected grade is B or A	
CE 325 Transportation Safety and Sustainability (XXXXX**):** Expected grade is C or B. After urging, Soraya contacted instructor and spoke with her after the instructor communicated with XXXXXXX that Soraya could get a D in the course. There was some miscommunication and this has been cleared up now.	

Enrique Garcia   CSU Mentor: **Name goes here, school**   CPP: Fall Quarter

Cohort 2   UC Mentor: **Name goes here, school**   Week #6 of 10

Mentor Assessment: Feedback/Comment/Actions	Status
CSU Mentor: Enrique has been struggling a great deal lately. The first sign that he was becoming overwhelmed was when he began to miss deadlines for his NSF GRFP application and grad school essays. He then emailed me out of the blue on a Sunday to express doubt that he wanted to pursue a PhD and continue with Cal-Bridge. XXXX and I met with him the next day and began the process of working out a strategy to help Enrique cope and get through the next couple of years. One positive development is that he has become more and more open to discussing his internal thoughts and challenges with his mentors, and I have noticed a particular improvement in his ability to verbalize things that bother him. His research supervisor and quantum mechanics instructor, XXXXXX, should also be able to offer perspectives on Enrique, and they have been conversing frequently about his struggles as well. From his descriptions, he feels that he suffers from severe imposter syndrome and general burnout. Counting his two years at CSULA, Enrique has already been in college for four years, and he has worked very hard. There may be a clinical component to it as well, but he has not received any formal diagnosis of depression or anxiety	YELLOW

yet. Fortunately Enrique has resumed regular, on-campus counseling sessions, which he says help him significantly.

Enrique has decided to withdraw from all of his courses except Quantum Mechanics (his main required major course) this quarter, and to delay his graduation by a year. He therefore did not submit his NSF GRFP and will not be applying for grad school this year. He seems already to feel relieved by this decision. He will present at AAS as planned, and hopes to find another REU for next summer, since he will once again be eligible (he's even eligible for CAMPARE, as he's never been a CAMPARE scholar). Our hope is by taking it more slowly, Enrique will be able to enjoy his studies and his research once again, and renew his enthusiasm.

UC Mentor: Enrique has decided to step back from his courses and research to deal with personal mental health issues that he has been having. He's decided to not apply to graduate school this fall to give himself time to feel more prepared and seek counseling. I wasn't aware that Enrique was having some of these issues - he has always been good at putting up a front that things are going ok, with only minor struggles. He also expressed strong enjoyment of his research experience over the summer and excitement over graduate school. So I was a bit surprised to hear about his decision, but now feel that I have a better understanding of who Enrique is and how there is a different face he presents to us versus what is really going on. I think it was brave of him to make this decision given that he was on the fast track to grad school with Cal-Bridge and his research advisors. I want to make sure he continues to get the support he needs as he scales back his academic load and takes care of himself.

PHY 410 Quantum Mechanics I (INSTRUCTOR): Midterm is 11/2/16. Seems to be doing well so far. Is NOT dropping this course.

PHY 206 History of Physics (INSTRUCTOR): Has dropped the course before sitting for the first midterm or submitting the first term paper. There is no homework in this class. But I assign rotating cohorts of students each week to be "discussion partners" who should expect to be called upon to discuss that week's readings. Enrique did well on this, so he had at least a B.

PHY 409 Computational Physics (INSTRUCTOR**):** Has dropped the course. No progress report received from instructor. Enrique described the course as very challenging, with a lot of work. **PHY 431L Solid State Physics Laboratory (**INSTRUCTOR**):** Has withdrawn from the course. Grade up to that point was a C.	

Sam Martin   CSU Mentor:**Name goes here, school**   CSUN: Spr Sem

Cohort X   UC Mentor: **Name goes here, school**   Week #<u>8 of 15</u>

Mentor Assessment: Feedback/Comment/Actions	Status
Sam has opted not to apply to any PhD programs this winter, because he was not academically ready, and instead is planning to continue in the Masters program at XXXX before applying to PhD programs next Fall. He has not yet taken either the General or Physics GRE. He was very reluctant to take either, because he felt he was not prepared, but has signed up for the General GRE in April. Sam earned a C- in his computer applications (Python) course last semester. We set him up with a UCI grad student tutor, but he didn't seem to figure it out. He did not attend any of the Professor's office hours. We are worried about his performance in Astro 401 and the Quantum Mechanism course (PHYS 375) this quarter. (QM is a repeat for him; he got a D previously). The instructors of both courses have reputations of teaching undergrads at the graduate level, and thus both courses are challenging. **ASTRO 401-** 50% on each of 2 homeworks. 20% on first exam, below class average. **PHYS 402-** 4 homework sets and 2 quizzes so far; on track for a B+. **PHYS 465-** Currently has a B+ under XXXXXX half of the course. **PHYS 375-** 40% on Exam 1, below class average. Already has a tutor for this class as he failed it previously.	Yellow- On Probation Spr 2017 Mentors- RED

Not-so-good examples

1) Problem(s): Almost no report from mentors. Only scholar self-report.

Sofia Gonzales   CSU Mentor:**Name goes here, school** CPP: Fall Quarter

Cohort 3   UC Mentor: **Name goes here, school**   **Week #6 of 10**

Mentor Assessment: Feedback/Comment/Actions	Status
CSU mentor: Everything is going well with Sophia. Nothing bad to report. **UC mentor:** As far as I can tell, she seems to be on top of both academics and research and has no major issues with time management. --- Sophia's self report: **Thermal Physics (333):** Homework average is an 86 Midterm 1: Friday, First 2 chapters Feel good about this class. We have just gone through ideal gas laws, first two laws of thermodynamics and some statistical mechanics. **Astronomy (424):** Homework average is a 90 Midterm: Yesterday, feel like I rocked the test! Up next is just more homework and then the final. So far we have covered Kepler's Laws, two body problems, some properties of light and binary systems. **Math Methods (306):** Homework average is 100 (credit/no credit) Midterm 1: (Vector Analysis) I did not do so well. I got 60/100 but I definitely deserved something around the 80s. This was last week. I completely misread one problem which lost me huge points and about 15 points were taken off for simple notation mistakes. We still have 2 more exams to go which involve Fourier Analysis and Differential Equations. I will be ready for them. **History of Physics (306):** No homework, only reading. (Caught up) 10 page paper due Nov 4th. (I am writing it on Newton)	GREEN

Midterm: This Friday and it will just be essay style questions. I feel good in this class.	
Nuclear Lab:	
1st Lab Report was a 70/100. Now that I know what she expects, I will make my next lab report better which is due this Thursday.	
Research:	
I have begun my AAS poster. All my data/code is now in my new computer. I began to re-read paper: "Tracing kinematic (mis)alignments in CALIFA merging galaxies Stellar and ionized gas kinematic orientations at every merger stage" by Jorge Barrera Ballesteros.	
And began reading "The SAMI Galaxy Survey: Asymmetry in Gas Kinematics and its links to Stellar Mass and Star Formation" Bloom et al.	
I have done this with the purpose of formulating questions I might be asked as I talk about my project. (Prof. UC mentor, feel free to read them in order to gain insight into my project) I am running simulations on FIRE to investigate the kinematic decoupling between stellar and gas components. (Also, feel free to reach Prof. CSU mentor who can give me more details.)	

2) **Problem(s): Very little detail for a scholar on probation. Written by someone not his mentor. No input from UC mentor.**

Diego Martinez CSU Mentor: **Name goes here, school**
CSUSB: Fall Quarter

Cohort 2   UC Mentor: **Name goes here, school**
Week #6 of 10

Mentor Assessment: Feedback/Comment/Actions	Status
Diego is overwhelmed with the number of courses he is taking (18 units) and struggling to juggle school and applications. PERSON NOT HIS MENTOR spoke to him on Tuesday and he isn't completing many of his assignments in Materials Science and Quantum, but doesn't seem concerned as he thinks he still has a good grasp of the material and will do well on the exams. I am	YELLOW

concerned. –WRITTEN BY PERSON NOT HIS MENTOR	

NSCI 314 Life in the Cosmos (XXXXXX): He has an A in the course. I would be upset if it was anything else.	
PHYS 421 QM I: Has a low homework grade from a combination of getting some problems incorrect and also not attempting a lot of the assignments. Midterm was Monday and has not been graded yet.	
PHYS 318 Materials Science (XXXXXX): 85 on the midterm, B in the course	

Scholar Resources on the Cal-Bridge Website

o Cal-Bridge Grad Application Handbook
o Cal-Bridge Mentoring Map

Resources in Cal-Bridge Faculty Drive

o Sample Mentoring articles
o Cal-Bridge Time Management sheet
o Graduate Program & NSF GRFP Application Essay Rubric
o Sample letters of recommendation