November 22, 2012

Dear Prospective Student:

Thank you for your interest in attending Caltech. Graduate study, and in particular graduate study at Caltech, is quite different than your undergraduate experience. Graduate study does not have a fixed duration, although 50% of the students are awarded the PhD within 5-1/2 years of entering Caltech. In graduate school, the emphasis is on carrying out research rather than classroom learning. All graduate students are required to have an advisor who will play a different and much more important role than the typical undergraduate advisor. Graduate student advisors are research supervisors, career mentors, and in most cases, the main source of funding for the student's stipend, tuition and fees. Graduate students work closely with the advisor, often meeting with them on a regular basis, and are an integral part of a research group of between 2 and 10 students, postdoctoral scholars, and research staff.

Because graduate school is so different than the undergraduate experience, please take the time to read on and learn some important facts to consider in applying for admission to graduate studies at Caltech.

Admission to Caltech graduate study is highly competitive with over 5000 applicants each year and less than 10% of these being offered admission. The faculty in each discipline makes the selection of admitted students on the basis of the material in the application and sometimes, personal interviews. Our Faculty evaluate many factors including academic preparation, experience and interest in research, standardized test scores, recommendations from teachers and mentors, English speaking and writing ability, and a desire to pursue advanced graduate studies at the highest level. Given applicants of comparable quality, a key factor in admission decisions is a match between faculty and applicant research interests. Caltech only has 300 professorial faculty members and many specialized topics in science and engineering are not represented. This means that due to our small size, each year highly accomplished applicants will not be given admission.

The graduate school at Caltech is unique and with few exceptions, all graduate students that are admitted to Caltech are eligible for financial support that will enable them to complete their studies without going into personal debt. We do not consider an applicant's personal or family financial situation when making financial aid or admissions decisions for graduate study at Caltech.¹ Caltech does not offer fellowships or scholarships

¹ A few students may be admitted without aid each year and must demonstrate the ability to have sufficient personal finances to provide for the cost of education during their time in graduate school in order to matriculate.
that prospective graduate students can apply for directly - all of our Institutional funding is awarded at or after the time of admission. Student financial support is in the form of a combination of fellowships, teaching and research assistantships. Because Caltech is a private institution with a modest endowment, we depend heavily on research contracts or grants to support our graduate education program. We strongly encourage all students to apply for any national or private scholarships as well as any fellowships for which they are eligible. Prospective students seeking external financial support for graduate study must take the initiative to identify and apply to the relevant organizations, usually a national or private agency in their home countries.

There are a large number of graduate schools and many different models for graduate education in the world. One common factor is that graduate education in research-intensive universities is an extremely different experience than undergraduate studies. Undergraduate programs offer a classroom or tutorial-based education that is focused on developing mastery of skills and subjects through a set curriculum with specific education goals that prepare a student for careers and further learning. Graduate programs in research-intensive universities provide some classroom education but the majority of the experience is centered around learning through working on an open-ended problem, with the goal of developing the ability to independently formulate and carry out a research program. About one-half of our PhD graduates continue their careers in academic research, initially as postdoctoral scholars or as educators at research-oriented universities. Our PhD graduates who do not continue an academic career go into advanced research and development positions in industry, government laboratories or agencies, non-profit organizations, or in some cases attend a professional school to prepare for a career in a field such as law, medicine, or finance.

Graduate students spend the majority of their time not in the classroom but in small research groups or individually working with faculty mentors. The early stages of a graduate student’s career often are an apprenticeship and require mastering technical skills. After a certain level of mastery is reached, students will be expected to take on more responsibility, developing their own research program as well as mentoring younger graduate students and undergraduates. Graduate students will be expected to participate in group and department academic activities such as research seminars and literature discussion groups; they are expected to author or co-author research papers, and travel to conferences to present their research findings. In many universities, graduate students also assume substantial teaching responsibilities, presenting lectures or running recitation sections, grading homework, and coordinate teaching laboratories. At Caltech, we expect that all students will get some experience as teaching assistants as part of their graduate studies; however, at any time only about 1/3 of the graduate student body is engaged in this activity and it is limited in extent.

Caltech offers a special experience, even among research-intensive schools. We are by far the smallest of the leading schools that are research-intensive with comprehensive undergraduate and graduate programs. Our graduate programs are among the top programs in the world. There is a high level of research productivity and
the faculty has high expectations for student performance. The small size and private control enables highly interdisciplinary adventures in both education and research in a casual but intellectually intense atmosphere characterized by informal interactions. The graduate student population (about 1250) at Caltech is larger than the undergraduate population (about 1000), the focus is almost exclusively on students working toward a PhD, and there is a strong emphasis on quantitative studies in all disciplines. Caltech requires graduate students to be enrolled full time and focused completely on their studies without any other commitments from the time they enter until they graduate. Students may not be instructors but a portion of the financial aid is for teaching assistants, who help run teaching laboratories, grade papers, and provide group tutoring. Any significant activity other than graduate study at Caltech is exceptional and requires explicit approval of the Dean of Graduate Studies.

We are eager to have applications from students that are passionate about research, willing to be dedicated exclusively to earning a doctorate\(^2\), and have an excellent academic background. The application process is open in the fall and admissions decisions are made during the winter term, with notification before April 1, and a decision deadline of April 15 for acceptance. Details about the admissions process and application submission can be found on the graduate office website. In your application, you must choose to apply to one of the specific degree programs that are offered at Caltech; see the Caltech Catalog for the detailed descriptions of each program. The faculty Admission Committee in each graduate program area will consider your application for admission together with those of other applicants. You may desire to contact faculty personally but because of the nature of the admissions process, you will find that the faculty generally do not respond or are unwilling to commit to your joining a group at this time. In order to be considered for admission, you must apply through the Graduate Studies Office online system – once your application is complete it will be passed on to the faculty for consideration. When an Option has made their admission decisions and notified our office, we will provide you with the official notification of your status. If you apply and have not heard, please be patient, we get many applicants and it takes some time to make thoughtful decisions.

Best wishes,

Joseph E. Shepherd
C.L. "Kelly" Johnson Professor of Aeronautics and Professor of Mechanical Engineering, Dean of Graduate Studies, PhD ‘81.

\(^2\) A few students are admitted to terminal Master’s degree programs each year – most Options only allow students to apply for admission to the PhD program; see the Caltech Catalog for details.