# Yale University

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**To:** Provost Salovey and Dean Butler
**From:** The Chairs of Yale Science and Engineering Departments

Dear Peter & Jon,

We are writing as science and engineering chairs, following the recent Science Chairs Council meeting, to convey our great concern over the current plan to cut graduate student admissions next year by 15%.

From a broad perspective, it is a national mandate that we train more graduate students in the sciences and engineering. This is the main source of innovations that will drive our economy and solve the energy and environmental crises. Universities really need to step up to the plate on this, especially now!

In important ways, cuts to the science and engineering departments have a larger negative impact than those to non-science departments.

1. Science and engineering faculty are more reliant on graduate students for their professional work than are non-science faculty. The work done by graduate students is generally part of the research program of the faculty advisor. Cutting the number of incoming graduate students would adversely affect in particular junior faculty who are trying to establish their research careers. The deleterious effect on junior faculty runs counter to Yale's mentoring efforts and the new promotion/tenure system. Reducing a class in any one year probably creates a shortage during 20-30% of a junior colleague's prime student recruiting years, adversely impacting the student cohorts that will actually impact their tenure portfolios. Students that join your lab in year 4, 5, 6 rarely impact your tenure dossier.

2. Since graduate students are needed as TAs, and the UG enrollment is not going to drop, we would need additional funding from the Provost's Office to pay for additional TAs. While this is true for much of FAS, the science and engineering departments also must staff laboratory courses. We would also need to use a higher fraction of existing students to serve as TAs. Students who otherwise would spend all of their time on research will have to teach, which will again negatively impact the research efforts of their faculty advisors.

3. In many disciplines, we are lagging well behind our peer institutions in the ratio of graduate students to faculty. We cannot be great in the sciences/engineering under these circumstances. Building the sciences at Yale requires attention to proper facilities and great faculty, but it also depends on having healthy (highly competitive) graduate programs.

4. Most science and engineering faculty have grants and contracts that require them to conduct research with graduate students. These grant/contracts assume a steady flow of students year by year. Sharp cuts in this flow make it hard to meet the obligations of the grant.

5. Most science and engineering students work on federal grants and having Yale cut the up-front investment in training students to work and help secure funding is penny wise and pound-foolish. We should not apply the humanities metric where the money invested has no such return.

We recognize the current financial difficulties of the university, but given the negative consequences of significant cuts to graduate student admissions in the sciences and engineering, we respectfully ask you to limit such cuts.

Sincerely,

David Bercovici (Chair of Geology & Geophysics)
Menachem Elimelech (Chair of Chemical Engineering)
Mikhail Kapranov (Chair of Mathematics)
Bill Kelly (Chair of Anthropology)
Jeff Kenney (Chair of Astronomy)
Scott Miller (Chair of Chemistry)
Steve Morse (Chair of Electrical Engineering)
Tom Pollard (Chair of Molecular Cell & Development Biology)
Rick Prum (Chair of Ecology & Evolutionary Biology)
Mark Saltzman (Chair of Biomedical Engineering)
Bill Sessa (Divisional Director of Biological Sciences)
Avi Silberschatz (Chair of Computer Science)
Mitchell Smooke (Chair of Mechanical Engineering)
Doug Stone (Chair of Applied Physics)
Patrick Sung (Chair of Molecular Biophysics & Biochemistry)
Meg Urry (Chair of Physics)