

# A new vision for educating tomorrow's scientists

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Fundamental changes are needed in the education of the scientists whose work impacts medicine, drug discovery, development of sustainable new fuels and other global challenges society is facing in the 21st century. Those changes in graduate education in chemistry are the topic of a special symposium here today at the 245th National Meeting & Exposition of the American Chemical Society, the world's largest scientific society.

The speakers will discuss results of one of the most comprehensive reports on [graduate education](#) in [chemistry](#) and the next steps in implementing its recommendations. The report, [\*Advancing Graduate Education in the Chemical Sciences\*](#), resulted from a year-long project of an ACS presidential commission.

Although it concluded that the state of graduate education in the chemical sciences is productive and healthy in many respects, it found that the education of doctoral-level [scientists](#) has not kept pace with major changes in the global economic, social and political environment that have occurred since World War II, when the current system of graduate education took shape.

Bassam Z. Shakhashiri, Ph.D., convened the panel, the Commission on Graduate Education in the Chemical Sciences, as one of his major initiatives as 2012 ACS president. The [William T. Evjue distinguished chair for the Wisconsin Idea](#) at the University of Wisconsin-Madison, Shakhashiri organized and moderated the [symposium](#). More information

about the presentations in the symposium appears at the end of this release.

"The time for a close look at the education of tomorrow's scientists in this key discipline was long overdue," said Shakhashiri. "We hope the Commission's work will create the best possible experience for future scientists upon whom society will depend so heavily to address the great global challenges facing us all. They include climate change, population growth, finite resources, malnutrition, spreading disease and water management."

The Commission found that:

- Current educational opportunities for graduate students, viewed on balance as a system, do not provide sufficient preparation for their careers after graduate school.
- The system for the financial support of graduate students, as currently operated by private, institutional, state and federal funds, is no longer optimal for national needs.
- Academic chemical laboratories must adopt best safety practices. Such practices have led to a remarkably good record of safety in the chemical industry and should be leveraged.
- Departments should give thoughtful attention to maintaining a sustainable relationship between the availability of new graduates at all degree levels and genuine opportunities for them. Replication in excess is wasteful of resources and does injustice to the investment made by students and society.
- Postdoctoral training and education is an extension of graduate education that is important for success in a variety of career paths, particularly for faculty appointments. Postdoctoral associates should be treated as the professional scientists and engineers they are. A postdoctoral appointment should be a

period of accelerated professional growth that, by design, enhances scientific independence and future career opportunities.

The Commission developed its recommendations to address several fundamental concerns. Graduate programs, for instance, must prepare Ph.D. candidates for the present and future marketplace of opportunity. Second, the globalization of science necessitates stronger communication skills across disciplinary and cultural lines. Third, as many nations worldwide have greatly strengthened their scientific capacity by building universities and developing new businesses and markets, it is essential for the U.S. to engage more women and students from underrepresented populations to revitalize the chemical enterprise with new ideas and energy.

ACS is a leader in science education policy. ACS serves as co-chair of the [STEM Education Coalition](#). For a full discussion of additional policy points, please visit the [ACS STEM education policy webpage](#).

Provided by American Chemical Society

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