

Producing the Right Technical and Professional Science Workforce: Ensuring Inclusivity, Increasing Diversity, Improving Training

- How can society produce the science & technical workforce needed for our future?
- How can graduate research institutions produce the best science and technology?

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- ❖ Align K-16 science teaching (including in HBCUs, Tribal colleges and minority serving districts/institutions) with:
 - the innate scientist in all humans -- curious, creative, thrilled by discovery;
 - the capacity and imperative for science and technology to help address existential societal challenges.

- ❖ Expand the breadth of “citizenship” in the science and technical ecosystem (see the Biotechnology and Biomanufacturing Initiative). Examples:
 - researchers and engineers engaged in discovery and development;
 - growers and processors of novel sustainable biomass for creating biobased products;
 - biomanufacturers of products spanning health, energy, agriculture and industrial sectors.

How can graduate research institutions produce the best science and technology?

- ❖ Act on finding that a diverse science community does more innovative science;
- ❖ Teach and incentivize bold thesis projects, and open, transdisciplinary science;
- ❖ Teach the public context of science; ethics/equity in research and technology development; role of science in addressing societal challenges;
- ❖ Incentivize thesis projects that develop both specialized expertise and broad literacy (including computation)
- ❖ Adopt hiring and promotion policies that replace careerism incentives with behaviors that produce the best science.

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- Transform K-postdoc education and research training to center, motivate and reward its capacity for bold discovery and application; underscore both its rigor and excitement, and its impact on societal challenges.
- Redefine the science and technical workforce to become an ecosystem -- one that is large, inclusive and broadly populated by those with a range of background, education, talents and skills -- advancing knowledge and improving society.