



University of California, Santa Barbara  
Program Learning Outcomes

## PhD in Chemical Engineering

***Upon graduation with a PhD in Chemical Engineering:***

*Core Knowledge of Chemical Engineering*

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- Students will master and integrate the fundamental thermodynamics, transport, kinetics, and design concepts that are central to chemical engineering.
- Students will master the necessary applied mathematics for original research in chemical engineering.

*Scholarly Communication*

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- Students will demonstrate the ability to communicate their research findings in oral presentations to both specialized and non-specialized audiences.
- Students will be able relate their specialized research to core chemical engineering concepts and to technological and/or societal needs.
- Students will write reports on their research which can be understood by a non-specialist chemical engineering audience.
- Students will write technical papers on original research and publish their results in peer-reviewed journals.

*Independent Research*

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- Students will demonstrate the ability to review, understand, and summarize the literature in their areas of specialization.
- Students will be able to formulate research objectives, hypotheses, and original research plans.
- Students will independently execute original research and analyze the findings.
- Students will relate their results to previous findings and explain the impact of their results on future research.