

BIOLOGICS PROCESS ENGINEERING (PHD)

Contacts

Program Director: Parviz Shamlou, PhD

Campus: East Falls

Program Website (<https://www.jefferson.edu/academics/colleges-schools-institutes/kanbar-college-of-design-engineering-commerce/research-and-innovation/institute-for-bioprocessing/academic-programs/phd-in-biologics-process-engineering.html>)

Program Description

- **STEM designated program**

This primary goal of the industry-sponsored program is to meet the career aspirations of qualified students and professionals who wish to develop their practical and foundational skills in the new and emerging areas of biopharmaceutical and biological engineering and bioprocessing. The Ph.D. program will produce well-trained and well-educated individuals who can meet the rising technical and regulatory demands for manufacturing of safe and efficacious medicine including legacy biologics such as vaccines, proteins and monoclonal antibodies, as well as advanced, next-generation biologics such as gene therapy, tissue engineering and regenerative medicine.

Learning Goals/Outcomes

- Create independent research leading to new knowledge in a specialized area relevant to processing and commercialization of biologics.
- Support advanced skills through design of new equipment and technologies, setting up and conducting novel experiments, gathering and analysis of qualitative and quantitative data.
- Defend results and data through effective written and oral communication and presentation.
- Synthesize interactive, multidisciplinary, collaborative experiences through reflection on learning, work and instruction.
- Evaluate decisions based on ethical principles in research, development and professional activities.

Curriculum: 3 Years, 54 Credits

For students matriculating in the PhD in Biologics Process Engineering program with no graduate background in Bioprocessing, a group of foundation courses may be required. The foundation courses will be determined at the time of admission by the program director.

Course	Title	Credits
First Year		
ENGR 801	Doctoral Research II	6
ENGR 802	Doctoral Research III	6
ENGR 803	Doctoral Research IV	6
Credits		18
Second Year		
ENGR 804	Doctoral Research V	4
ENGR 805	Doctoral Research VI	2
ENGR 806		4
ENGR 807		2
ENGR 808		4

Course	Title	Credits
ENGR 809		2
Credits		18
Third Year		
ENGR 810		4
ENGR 811		2
ENGR 812		4
ENGR 813		2
ENGR 814		4
ENGR 815		2
Credits		18
Total Credits		54