

REU Site: An Interdisciplinary Research Experience for Undergraduates in Food Safety, Food Engineering, and Nutrition

June 4, 2018 to August 10, 2018

Illinois Institute of Technology, Chicago, IL and Institute for Food Safety and Health, Bedford Park, IL

Are you an undergraduate student interested in exploring myriad opportunities in food safety, food engineering and nutrition? Food science is a STEM area which produces far fewer graduates than the available job opportunities. Would you like to undergo a rigorous mentoring and professional development training along with a paid research internship to fine-tune your skill sets required to help you to become successful scientists, engineers, and entrepreneurs?. You will be trained by mentors from the Illinois Institute of Technology and Food and Drug Administration for a 10 week period. The selected students will receive a stipend of \$500/week along with support for travel, accommodation, and meal plan via funding from the **National Science Foundation** (Award # 1757989).

The goals of the REU program are

- 1) to provide hands on research experiences to undergraduate students in food safety, food engineering and nutrition to provide exposure to the field
- 2) to systematically train the students in transforming basic research ideas into practical applications aimed at solving real world problems for improving the safety and nutrition of our food supply through interactive seminars and discussions
- 3) to systematically mentor the undergraduate students to hone their research and professional skills through mentoring workshops, student presentations/discussions, interaction with graduate students, and K-12 outreach
- 4) to expose the students to broader fields of food science to enhance their knowledge in this field (with special emphasis on food safety, food engineering, and nutrition) through seminars and tours, and
- 5) to train the students on research and professional ethics.

Projects (major focus of the project is given within the brackets)

- 1) Energy-efficient design of sterilization of foods using pressure assisted thermal sterilization using COMSOL (modeling & simulation)
- 2) Low moisture food safety of legacy technologies (microbiology)
- 3) Shedding light on food safety: Application of a novel pulsed light treatment for inactivation of pathogens (engineering & microbiology)
- 4) Physiological chemistry of plant bioactives in humans (nutrition)
- 5) Application of cold plasma for enhancing safety of sprout seeds (engineering & microbiology)
- 6) Understanding transport processes in food processing using COMSOL (modeling & simulation)
- 7) Affordable nutrition through kinetic hydroponics (engineering design & microbiology)
- 8) Repurposing food ingredients for controlling biofilms of food-borne pathogens (engineering & microbiology)

Requirements

- Be a U.S. Citizen or green card holder currently enrolled in an UNDERGRADUATE program in a science or engineering discipline within the United States
- Must be available in Chicago for the entire duration of the REU (June 4, 2018 to August 10, 2018)
- GPA \geq 3.00 (with proper justification, a GPA of 2.75 may be considered)

Application procedure

Send the following documents to Prof. Kathiravan Krishnamurthy (kkrishn2@iit.edu) by **5:00 PM CST** on **Monday, April 30, 2018** (late applications will be considered if there are vacancies).

- Completed REU application form (access the Google form at <https://tinyurl.com/iitnsfreu>)
- Transcript (unofficial transcript is acceptable)
- Resume
- An essay detailing i) why are you interested in this REU program, ii) what are your goals in participating in this training program, and iii) what are your career goals and how will this training program help you in achieving your career goals
- Names and emails of two people who will be writing recommendation letters for you (at least one from a faculty member; your recommenders should directly send the recommendation letter to kkrishn2@iit.edu by April 30, 2018)