

Opportunity Title: FDA Summer Student Research Opportunity in Chemistry
Opportunity Reference Code: FDA-CFSAN-2020-0023

Organization U.S. Food and Drug Administration (FDA)

Reference Code FDA-CFSAN-2020-0023

How to Apply A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- One educational or professional recommendation

All documents must be in English or include an official English translation.

If you have questions, send an email to ORISE.FDA.CFSAN@rau.org. Please include the reference code for this opportunity in your email.

Application Deadline 7/9/2020 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

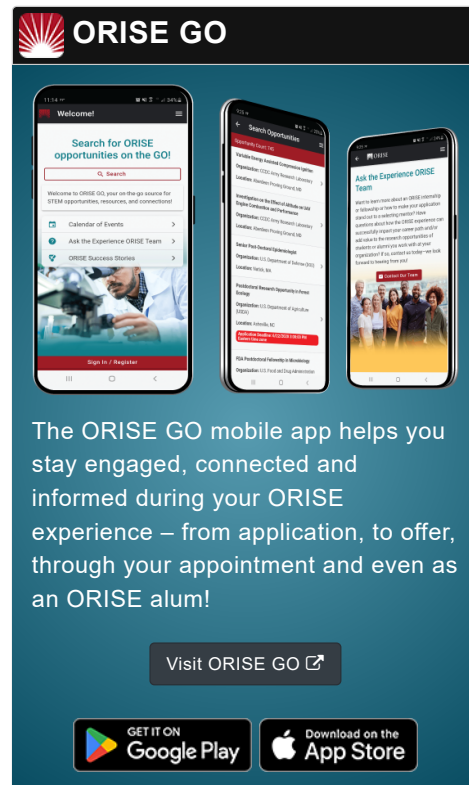
A research opportunity is currently available at the U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition (CFSAN), Office of Food Safety (OFS), located in Bedford Park, Illinois.

Because of the potential for FDA regulated products to be manufactured with polymer nanocomposites (PNCs), there is a need to acquire information about the potential exposure to these materials. Recent studies suggest that release of nanoparticles from PNCs might occur during prolonged storage, but mechanisms responsible for this process are still poorly understood. Also, there is a need to understand whether current guidelines for migration testing are adequate for testing packaging materials that contain nanoparticles.

Our research program develops model systems designed to evaluate relationships between the characteristics of nanocomposites and the likelihood that their components (organic or inorganic) can be released into liquid environments. Our materials are fabricated in house using lab scale polymer processing equipment.

The training for this participant's appointment will build on the results of related projects that have been completed in the last few years. Specifically, we have recently purchased two new pieces of equipment: a Cryomill with Liquid Nitrogen Delivery System and a Contact Angle Analyzer. Respectively, these devices are intended to powderize polymer resins at cryogenic temperature and measure contact angles of finished polymer specimens. As newly purchased equipment, our laboratories do not have established operating procedures. Validation of these instruments and development of SOPs will be a chief focus of the research project. Time permitting, the participant will learn to apply these methods to manufacture and characterize new materials produced in the lab, and examine how polymer milling impacts the physical properties of injection-molded specimens.

Throughout the course of this project, the selected participant will receive training in the following techniques: (1) Cryomill and contact angle analyzer theory and

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operation; (2) polymer processing; and (3) additional analytical chemistry or materials characterization methods. In addition, the participant will gain knowledge and experience during this appointment into food packaging regulations, mass transfer theory, and potentially computational modeling, as well as basic laboratory skills such as keeping accurate records, writing reports, safe handling of chemicals, etc.

The proposed project involves stakeholders across FDA and will explore conditions that are relevant to the use of PNCs in food contact materials and medical devices. Information resulting from these efforts will help FDA make informed decisions about nanotechnology enabled consumer products and thus ensure that the commercialization of such products is safe for humans and the environment.

Anticipated Appointment Start Date: Summer 2020

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and FDA. The initial appointment is for three months, but may be renewed upon recommendation of FDA contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at FDA in the Bedford Park, Illinois, area. Participants do not become employees of FDA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management is required for an applicant to be on-boarded at FDA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for a total of three of the past five years.

FDA requires ORISE participants to read and sign their FDA Education and Training Agreement within 30 days of his/her start date, setting forth the conditions and expectations for his/her educational appointment at the agency. This agreement covers such topics as the following:

- Non-employee nature of the ORISE appointment;
- Prohibition on ORISE Fellows performing inherently governmental functions;
- Obligation of ORISE Fellows to convey all necessary rights to the FDA regarding intellectual property conceived or first reduced to practice during their fellowship;
- The fact that research materials and laboratory notebooks are the property of the FDA;
- ORISE fellow's obligation to protect and not to further disclose or use non-public information.

Qualifications

The qualified candidate should be currently pursuing an undergraduate degree in one of the relevant fields.

Preferred skills:

- Completion of laboratory course in physics, chemistry, or related discipline
- Excellent verbal and written communication skills
- Experience with maintaining accurate scientific records and familiarity with safe





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practice in a scientific laboratory

- Knowledge or experience related to polymer processing, materials properties measurement, nanomaterials, or analytical science

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Currently pursuing an Associate's Degree or Bachelor's Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (4 )
 - **Engineering** (27 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )