

## **Center for Children’s Health, the Environment, the Microbiome, and Metabolomics (C-CHEM<sup>2</sup>) Children’s Environmental Health Summer Teacher Fellowship**

**Purpose:** The purpose of this program is to expose high school teachers in the Atlanta Metro area to the field of children’s environmental health research in order to increase understanding among the students they serve of environmental health disparities and how the environment affects their health.

**Program Description:** Fellows will engage in a six week fellowship under the direction a Center investigator from either the School of Nursing, School of Medicine, Emory College of Arts and Science, or the School of Public Health. Fellows will be placed with a mentor based on their interests and experience and the current needs of the Center. Fellows will work under the direction of a Center investigator but will be assigned an additional co-mentor (research staff, graduate student, or postdoc) who will meet at least weekly with the fellow to support their efforts and provide guidance and feedback as needed. During the first month of the fellowship, the fellow will spend one week rotating in each of three labs within the Center as well as with the Community Outreach and Translation Core. Fellows will spend half their time observing the day to day operations of the Project or Core during this rotation phase. This rotation will allow the fellow to gain a global perspective on the work of the Center. The rest of the time will be spent conducting a systematic literature review on a topic relevant to their fellowship and developing curriculum materials. The final two weeks will be dedicated to working with members of our Administrative and Community Outreach and Translation Cores to develop curriculum materials designed to increase student awareness of environmental health disparities and how the environment impacts their health. The materials developed must be aligned with GA state, NGSS science standards. Fellows will implement their lessons during the first semester of the following school year in their classroom and submit their lesson plan for publication in the National Science Teachers Association Journal, The Science Teacher by February of the following semester. Fellows will also attend guest lectures and participate in other Center activities and attend Pediatric Environmental Health Specialty Unit bi-monthly board meetings. Fellows will be provided a stipend of \$3,000 to cover living expenses and will be provided up to \$500 toward purchase of materials required for their lesson.

### **Center Overview:**

Linda A. McCauley, PhD, RN Dual Principal Investigator

P. Barry Ryan, PhD Dual Principal Investigator

Researchers at the Center for Children’s Health, the Environment, the Microbiome, and Metabolomics (C-CHEM<sup>2</sup>) conduct research to understand the complex interactions among components of the prenatal and postnatal environment — toxicant exposures, the microbiome, and the metabolome — and their impacts on birth outcomes and infant health and neurodevelopment. The human microbiome is representative of microbial organisms that reside in the gut, while the metabolome represents the collection of metabolites and small molecules found in the bodily tissues, organs, and cells.

Environmental exposures among residents of the urban Southeast are likely distinctive from people in other parts of the United States; however, no studies have characterized exposures among minorities within this region from birth. C-CHEM<sup>2</sup> leverages data and samples from a newly funded cohort of African American women and their children living in metropolitan Atlanta to investigate how behavioral factors and the microbiome impact preterm birth and how epigenetics and genetics affect the microbiomes of study participants. The center also leverages rich datasets and resources within the NIEHS-funded Human Exposome Research Center: Understanding Lifetime Exposures (HERCULES) at Emory, and an interdisciplinary team of scientists with expertise in environmental health, neurodevelopment, maternal-child health, and preventive medicine.

### **Project 1: Characterizing exposures and outcomes in an urban birth cohort (CHERUB)**

Project leaders: Dana B. Barr, PhD, and Anne Dunlop, MD, MPH

In this project, researchers are following an urban birth cohort of African American mother-infant pairs to study pre- and postnatal environmental exposures and the independent and interactive effects of these exposures on the maternal microbiome and health outcomes, such as preterm birth.

### **Project 2: Microbiome, environment, and neurodevelopmental delay (MEND)**

Project leaders: Patricia A. Brennan, PhD and Jeannie Rodriguez, PhD, RN

Researchers in this project are following an urban birth cohort of African American mother-infant pairs to determine how prenatal and postnatal environmental exposures influence the infant gut microbiome as well as neurodevelopment and behavior during the first 18 months of life.

### **Project 3: Metabolic, microbiome, and toxicant-associated interactions (MATRIX)**

Project leaders: Elizabeth J. Corwin, PhD, RN, FAAN, Dean P. Jones, PhD

Researchers are employing high-resolution metabolomics analysis techniques to characterize metabolites and metabolic pathways in biological samples collected from an urban birth cohort of African American mother-infant pairs. Researchers will investigate associations between specific metabolites and metabolic pathways and pre- and postnatal environmental exposures, the maternal and infant microbiome, and infant birth and neurodevelopmental outcomes during the first 18 months of life.

### **Community Outreach and Translation Core (COTC)**

Core lead: Linda A. McCauley PhD, RN, FAAN, FAAOHN

The C-CHEM<sup>2</sup> COTC is building upon strong, preexisting partnerships within the Atlanta environmental health community to share research findings with local communities in a format that is relevant, accessible, and culturally-appropriate. The COTC is guiding scientists in community outreach and translation and expanding bi-directional dialogue with metropolitan African American women of childbearing age and their families. The core is also developing innovative strategies to translate research findings into practical information that African American families can use to protect their children's health and is integrating this knowledge into educational programs for health-care professionals.

Learn more about the Center at: <http://www.nursing.emory.edu/c-chem2/index.html>

### **Application Timeline and Instructions:**

- Application packets are due March 16<sup>th</sup> 2018.
- Awards will be announced March 30<sup>th</sup>.
- Teachers must confirm acceptance and participation in program by April 6<sup>th</sup>.
- All items are to be scanned and emailed to Nathan Mutic at [nathan.mutic@emory.edu](mailto:nathan.mutic@emory.edu).
- List "C-CHEMM-CEHSTF-Last Name" in the subject line of your email.
- Incomplete applications will not be reviewed.
- Include the following items in your email submission:
  - Completed C-CHEM<sup>2</sup>-CEHSFT 2018 application page.
  - One page essay describing how your involvement in this program will enhance the environmental health literacy of your students.
  - One letter of recommendation from a recent supervisor
    - Sealed letters can be mailed to the following address if not available to scan:  
Nathan Mutic, Rm 411  
Emory University School of Nursing  
1520 Clifton Rd NE  
Atlanta, GA 30322
  - College transcript (copies of official transcripts are acceptable)
  - Resume (two page maximum)
  - Signed letter of support from building principal approving your participation in the program and supporting of implementation of lessons and publications resulting from this fellowship.

**Eligibility and Requirements:**

- Current high school teacher or program coordinator in public school serving students in the Atlanta Metro area.
- Ability to commit to 6 week summer program at a minimum of 30 hours per week. Note that aside from required meetings and lab rotations, we support flexible work schedules and telecommuting options.
- Any known conflicts must be clearly outlined in the application. The start and end dates may be modified at the Center investigator's discretion to accommodate for pre-existing or unforeseen scheduling conflicts.
- Due to the demands of the fellowship, fellows are discouraged from holding additional summer jobs or having other academic obligations such as course work during the fellowship. In rare instances exceptions can be made at the discretion of the mentor.
- Emory University has the rights to lesson plans and curriculum materials developed during this fellowship and can distribute or publish them for academic purposes to K-12 schools and universities.

**Center for Children’s Health, the Environment, the Microbiome, and Metabolomics (C-CHEM<sup>2</sup>)  
Children’s Environmental Health Summer Teacher Fellowship (CEHSTF) 2018 Application**

Applicant Information	
Name:	School Email:
School District:	School Phone:
Department & Subject:	Supervisors Name:
School Address:	
Home Address:	
Emergency Contact Name:	Emergency Contact Phone:

List any previous honors/awards and a brief description of the award:

Award	Date	Description

If selected for the C-CHEM<sup>2</sup>-CEHSTF program I commit to participating in 6 weeks (minimum 30hrs per week) fellowship during the 2018 summer semester. I hereby give permission to the C-CHEM<sup>2</sup> selection committee to review my transcripts and application materials.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_