



2027 Summer Research Project

Section	Description
Project title	Plastic Release from Everyday Consumer Products
Hours & delivery	20–36 hours per week, On campus
About the project (150–250 words)	Plastic is an integral part of modern life and is found in many everyday products, including food and beverage packaging, takeaway cups, food containers, household products and other consumer materials. As these products are used, heated, washed or exposed to different environmental conditions, they may release very small plastic particles, including microplastics and nanoplastics. However, the extent of this release and the potential contribution of everyday products to human exposure remain poorly understood. This project will investigate the release of micro- and nanoplastics from commonly used plastic products and materials. Students will investigate how different products and use conditions influence the release of plastic particles and will apply advanced analytical techniques to detect, quantify and characterise the particles generated. The project will build on an established research program investigating plastic contamination from everyday products and their potential contribution to human exposure. The research will provide important evidence about the types and quantities of plastic particles released during normal use and help improve our understanding of exposure to micro- and nanoplastics in everyday life.
What you'll do (100–150 words)	Students will investigate the release of micro- and nanoplastics from selected everyday plastic products. Depending on the specific project, activities may include: - Selecting and preparing commonly used plastic products for laboratory experiments. - Designing experiments that simulate realistic use conditions, such as heating, washing, repeated use or contact with food and beverages. Collecting and preparing samples for micro- and nanoplastic analysis. Applying laboratory extraction and sample-cleaning procedures. Using advanced analytical techniques to detect, quantify and characterise released plastic particles. Identifying the polymer types and particle characteristics where possible. Applying appropriate quality assurance and quality control procedures to minimise contamination. Analysing and interpreting experimental data and preparing figures and summaries of the findings. Students will work closely with the research team and receive training in the relevant laboratory and analytical techniques.
What you'll learn (100–150 words)	Students will gain practical experience in investigating an emerging environmental and human exposure issue. They will learn how to design laboratory experiments to investigate the release of micro- and nanoplastics from everyday products and how to collect, prepare and analyse samples using advanced analytical approaches. Students will develop skills in laboratory experimentation, sample preparation, contamination control, quality assurance and quality control, analytical measurements and data interpretation. They will also learn about the challenges associated with detecting very small plastic particles and interpreting measurements from complex samples.



	The project will provide experience at the interface of environmental science, analytical chemistry and human exposure assessment. Students will also develop skills in scientific data presentation and communication, providing valuable preparation for honours, postgraduate research or careers involving environmental and analytical science.
Project outcomes (75–125 words)	The project will generate experimental data on the release of micro- and nanoplastics from everyday plastic products under selected use conditions. The results will provide information on the quantity, polymer composition and characteristics of particles released from the investigated products. The findings will contribute to a broader understanding of how everyday plastic products may contribute to human exposure to micro- and nanoplastics. Students will produce quality-controlled datasets, figures and a summary of their findings and may contribute to presentations or research outputs from the broader research program.
Who should apply? (75–125 words)	This project is ideal for a motivated undergraduate student interested in environmental pollution, human exposure, analytical chemistry, materials science or environmental health. Students studying environmental science, chemistry, chemical engineering, environmental engineering, food science, materials science or related disciplines are encouraged to apply. Previous experience with micro- and nanoplastic analysis is not required, as training will be provided. The ideal candidate will be curious, enthusiastic about laboratory research and willing to learn new analytical techniques. Good attention to detail, careful laboratory practice and an ability to work both independently and as part of a research team will be highly valued.
Team & supervision (75–125 words)	The project will be supervised by Dr Elvis Okoffo, Research Fellow at the Queensland Alliance for Environmental Health Sciences (QAEHS), The University of Queensland. Additional supervision will be provided by Dr Grace Davies and Dr Jinglong Li Postdoctoral Research Fellow at QAEHS. Students will be embedded within an active research environment focused on environmental contaminants, human exposure and advanced analytical methods for micro- and nanoplastics. The student will work closely with members of the research team and receive guidance in laboratory procedures, sample preparation, analytical measurements, quality assurance and data interpretation. The project provides an opportunity to gain experience in a collaborative research environment and interact with researchers working at the forefront of plastic contamination and environmental health research.
Additional opportunities (optional)	Students will have the opportunity to participate in the broader research environment at QAEHS and gain exposure to research discussions, laboratory activities and scientific presentations. Where appropriate, students may present their findings to the research team or contribute to research outputs arising from the project. The project may also provide a pathway for students interested in continuing into honours, postgraduate, MPhil, PHD or other research opportunities in environmental analytical science and micro- and nanoplastics.
Additional requirements (if applicable)	Laboratory safety training will be required before commencing laboratory work. Students must follow laboratory safety procedures and relevant protocols for sample preparation and analytical work.
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