

2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

Project title:	Quantitative analysis of micro-bioplastics in wastewater treatment plants
Project duration, hours of engagement & delivery mode	<p>4 weeks during Winter Vacation and 1 day a week during semester 2, 2022.</p> <p>Hours of engagement must be between 20-36hrs per week</p> <p>COVID-19 considerations: Please outline if the project can be completed under a remote working arrangement or if on-site attendance is required.</p> <p>Applicant will be required on-site</p>
Description:	<p>Conventional plastics are being slowly replaced by bioplastics to reduce our plastic pollution. However, for bioplastics to decompose completely, they require specific environmental conditions that are rarely met in ecosystems, leading to fast formation of microplastics from biodegradable materials, i.e., micro-bioplastics. However, as micro-bioplastics is still a very new area of research the qualitative and quantitative exploration and knowledge of micro-bioplastics present or released into the environment is lacking. Using advanced analytical techniques including pyrolysis gas chromatography mass spectrometry, this project aims to qualitatively and quantitatively analysis micro-bioplastics in wastewater and biosolids samples from selected wastewater treatment plants around Queensland.</p>
Expected outcomes and deliverables:	<p>Please highlight what applicants can expect to gain/learn from participating in the project, and what they will be expected to complete as a part of the project.</p> <p>Applicants will gain skills in laboratory techniques for extracting environment samples and advanced analytical techniques including mass spectrometry. Applicants may also have the opportunity to produce an oral presentation on their research at the end of the project.</p>
Suitable for:	<p>Please highlight any particular qualities that individual supervisors are looking for in applicants to assist with the selection process.</p> <p>A background in chemistry is desirable but not necessary for applicants, with 3rd-4th year students preferred.</p>
Primary Supervisor:	Dr. Elvis Okoffo
Further info:	<p>Applicants do not need to contact the supervisor before submission, but if they would like more information on the project please email e.okoffo@uq.edu.au</p>

2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

Project title:	Microplastic tyre wear particles in sediment and soil
Project duration, hours of engagement & delivery mode	<p>4 weeks during Winter Vacation and 1 day a week during semester 2, 2022.</p> <p>Hours of engagement must be between 20-36hrs per week</p> <p>COVID-19 considerations: Please outline if the project can be completed under a remote working arrangement or if on-site attendance is required.</p> <p>Applicant will be required on-site</p>
Description:	<p>Tyre wear particles are now recognised as one of the largest sources of microplastic to the urban environment, yet we still know very little about their occurrence in our environment. This project will assess concentrations of tyre wear microplastics in the soil, sediment and road dust from key habitats in Queensland. The applicant will learn advanced analytical techniques including pyrolysis gas chromatography mass spectrometry analysis. The overall objective of the work is to provide new data on historic and current environmental exposure to these microplastics around Queensland.</p>
Expected outcomes and deliverables:	<p>Please highlight what applicants can expect to gain/learn from participating in the project, and what they will be expected to complete as a part of the project.</p> <p>Applicants will gain skills in laboratory techniques for extracting environment samples and advanced analytical techniques including mass spectrometry. Applicants may also have the opportunity to produce an oral presentation on their research at the end of the project.</p>
Suitable for:	<p>A background in chemistry is desirable but not necessary for applicants, with 3rd-4th year students preferred.</p>
Primary Supervisor:	<p>Dr. Cassandra Rauert</p>
Further info:	<p>Applicants do not need to contact the supervisor before submission, but if they would like more information on the project please email c.rauert@uq.edu.au</p>

2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

Project title:	Investigating human exposure to pesticides
Project duration, hours of engagement & delivery mode	6.5 weeks
Description:	The research project is part of an Australian Research Council Grant that is looking at human exposure risks when using common pesticide products. In this project you will be trained on preparation of sampling techniques, recruitment of study participants and data interpretation techniques, with the help of Industry partners involved in the study. The project is in collaboration with a number government and industry partners (such as Queensland Health, Department of Transport and Main Roads, 3M, Massey University New Zealand) and aims to help draft better guidelines and policies to reduce public health risks. You will work alongside a PhD student and as part of a team of academic and professional staff.
Expected outcomes and deliverables:	<p>Students will be exposed to a dynamic laboratory environment that uses state of the art instruments and techniques. Students will learn new techniques for measuring and identifying chemical pollutants of concern as well as how to interpret data. All this while they network with Honours and PhD students and post-doctoral academics in an engaging and fun way.</p> <p>Students may be asked to produce a brief (1 page) report or oral presentation at the end of their project.</p>
Suitable for:	This project is open to applications from students with a passion for science and plenty of curiosity. A background in chemistry / analytical chemistry / environmental chemistry would be highly regarded.
Primary Supervisor:	Dr Sarit Kaserzon
Further info:	<p>For additional information or to discuss applications please contact Dr Sarit Kaserzon on: k.sarit@uq.edu.au</p> <p>QAEHS listing: Summer & Winter Research Programs - Queensland Alliance for Environmental Health Sciences - University of Queensland (uq.edu.au)</p>

2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

Project title:	Characterising hazardous contaminants in everyday use products
Project duration, hours of engagement & delivery mode	6.5 weeks
Description:	The research project will assess what compounds of potential concern are present in products we use every day in our households such as cleaning products and detergents. The project will involve the use of highly advanced analytical instruments and methods. You will be trained on how to extract and analyse samples for chemicals of concern as well as data interpretation techniques. The project is in collaboration with a number of European partners and will inform risk of presence and exposure to detected contaminants to inform public health guidelines. You will work alongside a Postdoctoral fellow and as part of a team of academic and professional staff.
Expected outcomes and deliverables:	<p>Students will be exposed to a dynamic laboratory environment that uses state of the art instruments and techniques. Students will learn new techniques for measuring and identifying chemical pollutants of concern as well as how to interpret data. All this while they network with Honours and PhD students and post-doctoral academics in an engaging and fun way.</p> <p>Students may be asked to produce a brief (1 page) report or oral presentation at the end of their project.</p>
Suitable for:	This project is open to applications from students with a passion for science and plenty of curiosity. A background in chemistry / analytical chemistry / environmental chemistry would be highly regarded.
Primary Supervisor:	Dr Sarit Kaserzon
Further info:	<p>For additional information or to discuss applications please contact Dr Sarit Kaserzon on: k.sarit@uq.edu.au</p> <p>QAEHS listing: Summer & Winter Research Programs - Queensland Alliance for Environmental Health Sciences - University of Queensland (uq.edu.au)</p>

2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

Project title:	Nanoplastics from bottles and cups
Project duration, hours of engagement & delivery mode	4 weeks during Winter Vacation and 1 day a week during semester 2, 2022. Hours of engagement must be between 20-36hrs per week On-site attendance is required.
Description:	Nanoplastics are suspected to be ubiquitous contaminants of emerging concern, yet there is little data on their environmental occurrence. This short project will assess the release of nanoplastics from plastic bottles and cups when hot water is added. The successful applicant will perform laboratory experiments with products commercially available in Australia and collect the samples for nanoplastic analysis. The applicant will learn how to perform laboratory experiments and analyse samples.
Expected outcomes and deliverables:	Scholars may gain skills in lab analysis and specifically microplastic analysis by gas chromatography-mass spectrometry, data processing and may have an opportunity to generate publications from their research. Students may also be asked to produce a report or oral presentation at the end of their project.
Suitable for:	This project is open to applications from students with a background in environmental sciences or chemistry or 3 rd – 4 th year students only.
Primary Supervisor:	Professor Kevin Thomas.
Further info:	Professor Kevin Thomas k.thomas@uq.edu.au .