Master of Science in the field of
FOOD SAFETY AND TOXICOLOGY
Addressing risks of food toxicology in broad dimensions

Apply for entry in September 2023
Established by the School of Biological Sciences in 2009, the MSc in the field of Food Safety and Toxicology programme:

- provides comprehensive training on a multi-disciplinary field involving general toxicology, food toxicology, regulatory toxicology, and food safety management
- emphasises on basic knowledge and practical skills in recognition and evaluation of human exposure to potentially hazardous chemicals and pathogens in our living environment and via intake of food
- makes particular reference to food safety evaluation and regulation

World-class Rankings of HKU

Quacquarelli Symonds (QS)
- World Rankings 2023 #21
- Asia Rankings 2022 #3

Times Higher Education (THE)
- World Rankings 2022 #30
- Asia Rankings 2022 #4

Top-notch Scientists in the Faculty
Clarivate Analytics’ Essential Science Indicators 2021
- 18% of our professoriate staff are the world’s Top 1% scholars

Composition fee: HK$160,000* (subject to approval)
Students are required to pay Caution Money (HK$350, refundable on graduation subject to no claims being made) and Graduation Fee (HK$350)

Programme duration
Full-time: 1 year

Study load
Credits: 69 credits
Learning hours: 1,600 -1,800 hours (including 360 hours for project and contact hours of 276-414 hours)

Class schedule
- Each 9-credit course is an intensive workshop offered over 2 weeks, consisting of about 36-54 contact hours, each class will last for 3 hours and will be held between Monday to Saturday
- Preceded by preparatory study of carefully-selected distance-learning material and followed by consolidation and assessment, each course is self-contained and is individually assessed

Tuition fees
- Fee shall generally be payable in 2 instalments over 1 year

World-class Rankings of HKU

- First multi-disciplinary postgraduate Toxicology programme of its kind in Hong Kong designed to address specifically on food safety
- Focuses on general principles of toxicology, chemical and microbial hazards in food, toxicity evaluation, exposure assessment, risk assessment and management
- Taught by a teaching team with considerable experience in the fields of policy development, law enforcement, and research and consultancy for industry and government
- Internationally renowned visiting lecturers to give lectures and workshops

School of Biological Sciences

The School was founded in 2007 following the merger of the Departments of Zoology, Botany, and Ecology & Biodiversity. Through a range of approaches from molecular, chemical and microbiological techniques to food-web analyses, we are committed to undertaking research on food safety and health of the highest standard that will be read, cited and applied by colleagues internationally.

Study in food security is an innovative programme that entails scientific and social approach in food toxicology and management, allowing students to relate global challenges in industry, society and government levels.

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Host
School of Biological Sciences

The programme offers students the opportunity to communicate and form a network with guest lecturers who are world-class leaders in the field of Toxicology.

Transferable skills
- Communicate ideas effectively both orally and in writing
- Analyse and appraise the relevant literature in a critical manner
- Utilise appropriate numerical and statistical problem-solving skills
- Utilise information technology resources (information retrieval)
- Work independently and as part of a team
- Manage time and resources to complete all aspects of the programme

Career development
- Researcher in food toxicology and related fields
- Regulator (risk assessor/manager) in food safety authorities
- QA/QC manager in food industries
WHAT YOU WILL LEARN

FSTX7001 Principles of toxicology I
This course focuses on the basic principles, mechanisms and common methods underpinning the science of toxicology. Selected target organ systems are studied for understanding how representative chemicals damage and impair their ability to function. Students will develop a fundamental understanding of how chemicals may exert toxic effects and gain insight into the importance of organ-specific toxicity.

FSTX7002 Principles of toxicology II
This course is a continuity of Principles of toxicology I. Selected toxicants and disease processes are studied with respect to their source of exposure and mechanisms of effects, and the understanding of their basic pathways and common mechanisms respectively. Selected fields are also presented to give students insight into the applications of toxicology and its relationship with other fields.

FSTX7003 Toxicity tests and hazards evaluation methods
This course equips students to investigate the effect of chemical and microbial toxins and environmental pollutants on living systems with a state-of-the-art methodology. Topics include exposure estimate, animal tests for acute toxicity, short-term and long-term toxicity, for mutagenicity, genotoxicity and carcinogenicity, reproductive toxicity, teratogenicity, developmental toxicity and delayed neurotoxicity. Major focus is on the fundamental principles underpinning each test method including the test rationale, protocol design, limitations and data interpretation.

FSTX7004 Regulatory toxicology: risk assessment, risk management and communication
This course provides students with an intensive training to develop the necessary practical skills to measure and model the extent to which human populations come into contact with toxic agents in the environment and foods, to conduct risk assessments, to set safe levels of chemical exposure in foods, and to implement effective risk management in protecting human health and the environment.
WHAT YOU WILL LEARN

FSTX8005 Chemical and microbial hazards in food
This module will introduce the chemical and microbial hazards in food and their effects on human health. Special reference is made to heavy metals, pesticides, food additives, persistent organic pollutants and natural food contaminants of current public concern. An emphasis will also be placed on understanding the actual impact of food and waterborne pathogens, their epidemiology and factors contributing to the increase in their incidence. Determination of exposure pathways and linking food hazards to human health is the primary focus.

FSTX8006 Food safety management
Good manufacturing practice (GMP) has a significant impact on the daily operation of a food processing facility. This course will focus on issues arising from GMP and aspects of the physical design of a food processing facility which impact the safety of workers and products. In food supply chain, traceability is the ability to follow the movement of a food product through the stages of production, processing, and distribution, and is a crucial component of the food safety management system. As a core quality management tool in the food industry, the relevance, impact and use of ISO 22000 and Hazard Analysis Critical Control Point in manufacturing and catering will be discussed.

FSTX8007 Project
All students are required to undertake or to attend training (up to 6 months) in one of the following areas:
◊ Academic institutions, to carry out basic research project using the most advanced techniques in molecular biology, analytical chemistry and biomedical sciences
◊ Food, chemical and pharmaceutical industries, to overlook industry procedures on ensuring that the emerging/newly developed food and chemical products meet regulatory standards and requirements and are safe for consumers; their potential health implications
◊ Government agencies, to gain knowledge on the procedures implemented by the local/national authorities in formulating science-based policies, laws and regulations to ensure the safe production and use of food and chemicals

Each student shall make a formal presentation on the subject of his/ her training during the final semester of the programme.

YOUR PROGRAMME EXPERTS

Hardly a week goes by without hearing that a chemical or a bacteria may threaten our health—pesticides and pathogens in the food we eat, pollutants in the air we breathe, chemicals in the water we drink, or toxic dumpsites near our homes. Which chemicals/pathogen are really dangerous? How much does it take to cause harm? What are the effects of a specific chemical/pathogen? Cancer? Nervous system damage? Birth defects?. All these events continue to highlight toxicology as an important and growing discipline. We hope that you will enjoy learning the exciting skills of being a future toxicologist.

Dr El-Nezami was the recipient of the prestigious Academy of Finland Fellowship, for his research excellence in investigating human exposure and dietary approaches to counteract the health hazards associated with exposure to food toxins. He holds an adjunct Professor post at the University of Turku, Finland, and Misr University for Science and Technology, Egypt. He is the Assistant Coordinator of consortium funded by the European Union aiming at the modernisation of Traditional Chinese Medicine, an active member of the Finnish Society of Toxicology and the American Society of Microbiology, and also the consultant for several firms in Finland and Egypt.

Overseas Guest Lecturers

Professor David KITTS
University of British Columbia, Canada

Professor Risto JUVONEN
University of Eastern Finland, Finland

Professor Roger COUILLOMBE
Utah State University, USA

Professor Hannu MYKKANEN
University of Eastern Finland, Finland

Professor Janna RYSÄ
University of Eastern Finland, Finland

Professor Wolfgang KNEIFEL
University of Natural Resources and Life Sciences, Austria

Dr Peter CHAN
Health Canada, Canada

Professor Wolfgang KNEIFEL
University of Natural Resources and Life Sciences, Austria

Dr Hannu RAINIO
University of Eastern Finland, Finland

Dr Paul TURNER
University of Maryland, USA

Professor Stephen FORSYTHE
Nottingham Trent University, UK

Professor Harri ALENIUS
Institute of Environmental Medicine, Karolinska Institutet, Sweden

Dr Jenni KORHONEN
University of Eastern Finland, Finland

Professor Kenneth KORACH
National Institute of Health (NIH/NIEH), USA

Dr Chiranjeev DASH
Georgetown University, USA

More course information at:
https://www.scifac.hku.hk/prospective/tpz/FSTX
Admissions

Requirements

◊ A Bachelor’s degree with Honours in Science
◊ Preference will be given to those who possess a Bachelor’s degree in physiology, biochemistry, biotechnology, food science, chemistry, biological sciences, clinical laboratory science, environmental sciences, pharmacology or other related disciplines
◊ Fulfil the University Entrance Requirements

How to apply

Application deadline: 12:00 noon (GMT +8), April 28, 2023

Online application: admissions.hku.hk/tpg/

Expected graduation time for normal course of studies

Winter (November / December 2024)

Further Information

Programme details

bit.ly/2YuHonM

Support for students

www.cedars.hku.hk/

Enquiries

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