

NATS 2031 TOXICOLOGY

Credit Points 10

Legacy Code 300877

Coordinator Maggie Davidson ([https://directory.westernsydney.edu.au/search/name/Maggie Davidson/](https://directory.westernsydney.edu.au/search/name/Maggie%20Davidson/))

Description Toxicology is the study of toxicants or poisonous substances: their nature, effects on the human body, and on human, animal and plant populations. Poisonous substances have been used by humans from antiquity for both beneficial and malevolent purposes and today a vast array of toxic industrial chemicals are produced. Both accidental (workplace and environmental) and intentional (forensic) exposure are covered, in terms of group properties, chronic and acute, toxicity, exposure potential, health impact and intervention are presented through forensic case studies. Students carry out a toxicology audit of an operation or premises of their choice.

School Science

Discipline Pharmacology

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Equivalent Subjects NATS 2030 - Toxicology

Restrictions

Successful completion of 60 credit points

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe groupings of toxic substances based on their chemical or physiological properties, and identify the most important substances within each group.
2. Compare and contrast the chemistry and pathophysiology of selected substances.
3. Describe the issues in workplace exposures to selected toxic substances in workplace, residential and recreational environments.
4. Describe the origin, impact and management of selected toxic substances in the environment and workplace.
5. Interpret forensic poisonings (both personal and environmental) in terms of health outcomes, motives, opportunities, means and forensic detection, using a range of relevant case histories.
6. Discuss case studies and draw conclusions with relevance to current Australian settings and circumstances.
7. Undertake a toxicology audit of a selected operation or activity of interest or importance to the student, including associated substances, identification of those presenting the greatest hazard under pertaining conditions, description of the chemistry and pathophysiology of those substances, and propose targeted recommendations for risk reduction.
8. Write a scientifically-accountable report describing findings in terms of the audit with targeted and well-reasoned recommendations for risk reduction.

Subject Content

1. General occupational toxicology considerations.
2. Absorption, distribution and excretion of toxins.
3. Biotransformation of toxicants.
4. Hazardous substances encountered in the workplace, natural and built environment.
5. Risk Assessment.
6. Toxicology of organs and systems.
7. Hazardous Chemical Auditing.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Quiz	20 Questions	10	N	Individual	N
Portfolio	8 Exercises (1 page per exercise) plus references	40	N	Individual	N
Report	2000 words (plus/ minus 20%) excluding references	50	N	Individual	N

Prescribed Texts

- Harbison, R. D., Bourgeois, M. M., & Johnson, G. T. (Eds.). (2015). *Hamilton & Hardy's industrial toxicology* (Sixth edition.). Wiley.

Teaching Periods

Spring (2025)

Online

Online

Subject Contact Maggie Davidson ([https://directory.westernsydney.edu.au/search/name/Maggie Davidson/](https://directory.westernsydney.edu.au/search/name/Maggie%20Davidson/))

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=NATS2031_25-SPR_ON_2#subjects)