

# NATS 7049 TOXICOLOGY OF CHEMICAL WEAPONS

**Credit Points** 10

**Legacy Code** 301150

**Coordinator** Ricky Spencer ([https://directory.westernsydney.edu.au/search/name/Ricky Spencer/](https://directory.westernsydney.edu.au/search/name/Ricky%20Spencer/))

**Description** This subject is structured to comprehensively provide the student with the fundamental toxicologically relevant concepts of weapons that can be used to create mass casualties. These weapons are often called weapons of mass destruction, a term that is closely related to but not synonymous with mass-casualty weapons (a technically more appropriate term). This subject will focus on chemical agents and toxins as the toxicologically relevant mass-casualty weapons. Each of the eight modules in the subject will consist of specific objectives, one or more illustrative cases, a list of the primary references that the student will be expected to acquaint himself or herself with, a brief introduction, a section of teaching material and study tips, and assignments designed to stimulate critical thinking. The general objectives of this subject are to familiarize the student with the toxicological concepts applicable to chemical and toxin weapons of mass destruction; to provide useful references for study, discussion, and reference; and to provide experience in critical thinking about the clinical toxicology of these agents. This subject is taught by the University of Florida as part of a collaborative venture between the University of Florida and Western Sydney University. Note: Further information on this subject is available from the University of Florida.

**School** Science

**Discipline** Forensic Science

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Postgraduate Coursework Level 7 subject

## Restrictions

Students must be enrolled in 3741 Master of Forensic Science, 3742 Graduate Diploma in Forensic Science or 3743 Graduate Certificate in Forensic Science.

## Learning Outcomes

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

1. List several definitions of weapons of mass destruction (WMD)
2. Explain how WMD relates to mass-casualty weapons (MCW), NBC, and CBRNE
3. Be able to define toxin, toxicant, toxic industrial chemical (TIC), LD<sub>50</sub>, and LC<sub>50</sub>
4. Explain what subsets of WMD are relevant to clinical toxicology
5. Discuss the risks of chemical and radiological/nuclear terrorism
6. Review the applicability to chemical, radiation, and nuclear mass casualties of ASBESTOS, POISON, TOXICANT, or a similar version of the agent-environment-host approach to a systematic clinical assessment of mass-casualty event from these kinds of agents
7. Explain what is meant by the ABCDDs of mass-casualty care
8. Explain what NATO codes are

9. Differentiate between WMDs with local effects on the respiratory tract and those with systemic effects
10. Understand the differences and similarities of the pharmacokinetics and pharmacodynamics of WMDs with local and systemic effects
11. Summarize the management of central- and peripheral-compartment damage to the respiratory tract
12. Summarize the pathophysiology, clinical presentation, and management of WMDs
13. List the three major vesicants used as chemical-warfare agents
14. List the differential diagnosis of miosis (pinpoint pupils) in a poisoned patient
15. Define incapacitating, incapacitating agents, disability, and nonlethal
16. List the features of the anticholinergic toxidrome
17. Define 'riot-control agent' and be able to list the important riot-control agents
18. Define opioid, opiate, and opioid toxidrome
19. List three separate ways (in addition to the CDC categories) of classifying toxins
20. Explain the differences between a chemical and a biological warfare agent

## Subject Content

Module 1 Introduction

Module 2 Chem I: Inhaled Toxicants with Local Effects on the Respiratory Tract

Module 3 Chem II: Blood Agents

Module 4 Chem III: Vesicants

Module 5 Chem IV: Anticholinesterases

Module 6 Chem V: Incapacitating Agents I: Anticholinergic Agents

Module 7 Chem VI: Anticholinergic Agents II: Riot-control Agents and Opioids

Module 8 Toxins

## 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
Final Exam	Not specified	100	N	Individual	N

## Teaching Periods

## Uni of Florida - Term 3 (2025)

### Online

**Subject Contact** Ricky Spencer ([https://directory.westernsydney.edu.au/search/name/Ricky Spencer/](https://directory.westernsydney.edu.au/search/name/Ricky%20Spencer/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=NATS7049\\_25-FT3\\_ON\\_2#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=NATS7049_25-FT3_ON_2#subjects))