

NATS 3026 FORENSIC BIOLOGY

Credit Points 10

Legacy Code 401170

Coordinator Alicia Haines (<https://directory.westernsydney.edu.au/search/name/Alicia Haines/>)

Description This unit is designed to extend your knowledge and understanding regarding forensic biology and its relevance to forensic investigations. You will gain experience and understanding regarding the recognition and collection of biologically relevant evidence (including blood, semen and saliva), through to the application of presumptive testing, confirmatory testing, DNA profiling methods and evidence reporting. There is a focus on front-end forensic biology work (item examination, presumptive testing, DNA recovery via swabbing and isolation of biological material) coupled with a theoretical understanding of the scientific principles that underpin current DNA analysis techniques, presumptive tests and DNA profiling results.

School Science

Discipline Forensic Science

Student Contribution Band HECS Band 2 10cp

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

Level Undergraduate Level 3 subject

Pre-requisite(s) BIOS 2018

Equivalent Subjects NATS 2017 - Forensic Analysis of Physical Evidence BIOS 3017 - Invertebrate Biology

Learning Outcomes

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

1. Summarise the changes to the forensic analysis of biological evidence since the first forensic DNA profile was produced in 1985.
2. Examine a case scenario and determine which DNA marker/s should be used to analyse the biological evidence in order to maximise the useful genetic information obtained from a given sample.
3. Carry out basic experimental procedures relating to the forensic analysis of biological evidence.
4. Critically evaluate raw experimental data to identify issues commonly encountered in forensic biology laboratories and propose strategies to resolve such issues.
5. Interpret electropherogram data generated from the analysis of biological evidence and determine the STR genotype of the donor/s.
6. Calculate population genetic parameters and DNA match statistics under varying hypotheses.
7. Communicate findings and opinions in the manner required of an expert forensic witness.

Subject Content

1. The history of forensic biology and DNA analysis.
2. Search techniques, presumptive tests and confirmatory tests for detecting and identifying biological evidence

3. Issues surrounding DNA contamination and its implications for DNA evidence.
4. Requirements for DNA sampling, collection, transportation, storage and continuity.
5. New and emerging developments in forensic biology including DNA analysis technology, genealogy and phenotyping.
6. Types of DNA markers utilised in forensic DNA analysis and the circumstances where each type might be analysed.
7. DNA profile interpretation and exploration of DNA match statistics.
8. Interpretation of DNA profiles and communication of DNA profile results to the court
9. Special topics in forensic biology e.g. disaster victim identification and the analysis of non-human DNA

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.

Item	Length	Percent	Threshold	Individual/Group Task
Case Study Written (completed in practicals)	1,000 words	30	N	Group
Report: Written Court report	2,000 words	30	N	Individual
Online quizzes throughout semester	1 hour each (20 (3 quizzes questions))	40	Y	Individual

Prescribed Texts

- Butler, J.M. (2009) Fundamentals of Forensic DNA typing, Amsterdam: Academic Press/Elsevier

Teaching Periods

Spring Hawkesbury Day

Subject Contact Alicia Haines (<https://directory.westernsydney.edu.au/search/name/Alicia Haines/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=NATS3026_22-SPR_HW_D#subjects)