

# NATS 7022 FORENSIC GENETICS

**Credit Points** 10

**Legacy Code** 301144

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

**Description** The subject is designed to introduce genetics so that even if you haven't studied it before you will develop an understanding that will inform your practice in work. The context of this subject is forensic science but rather than jump straight into forensic DNA analysis this is a foundation subject, designed to give a framework of human molecular genetics. We will also look at some of the important issues in genetics including genome mapping and the role of gene dysfunction in disease. The first module is an overview and it is very important that you use the assignment time to check out some websites that will be very useful later on. 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. Understand the basic structure of genes and chromosomes
2. Understand the basic principles of inheritance
3. Understand genotype and phenotype
4. Understand the rationale behind the human genome sequencing project
5. Understand how genes work and what happens when they don't
6. Understand polymorphism and its value in defining uniqueness
7. Understand the underlying principles behind DNA profiling
8. Explore the role of genes in diseases, including cancer

## Subject Content

Module 1 Introduction to Forensic Genetics  
 Module 2 The Basic Principles of Inheritance  
 Module 3 Linkage and Crossing Over  
 Module 4 The Molecular Structure of Chromosomes and DNA Replication  
 Module 5 Making Genes Work  
 Module 6 The Human Genome Project  
 Module 7 Human Population Genetics  
 Module 8 DNA Profiling and Forensic Investigation  
 Module 9 Interpretation and Applications of Forensic DNA Analysis

Module 10 Mutation and DNA Repair  
 Module 11 Genes in Cancer  
 Module 12 Genetic Disorders

## 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/<br>Group Task |
|------------|---------------|---------|-----------|---------------------------|
| Final Exam | Not specified | 100     | N         | Individual                |

Teaching Periods

## Uni of Florida - Term 1 (2024)

**Online**

**Online**

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=NATS7022\\_24-FT1\\_ON\\_2#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=NATS7022_24-FT1_ON_2#subjects))

## Uni of Florida - Term 2 (2024)

**Online**

**Online**

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=NATS7022\\_24-FT2\\_ON\\_2#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=NATS7022_24-FT2_ON_2#subjects))

## Uni of Florida - Term 3 (2024)

**Online**

**Online**

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=NATS7022\\_24-FT3\\_ON\\_2#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=NATS7022_24-FT3_ON_2#subjects))