

NATS 2045 INTRODUCTION TO PHARMACOLOGY

Credit Points 10

Coordinator Srinivas Nammi (<https://directory.westernsydney.edu.au/search/name/Srinivas.Nammi/>)

Description This subject provides the fundamental knowledge in pharmacology required by students enrolled in the Pharmacology minor. The subject covers basic introduction to drugs, drug dosage forms and routes of drug administration, introducing students with fundamental principles and basic concepts of pharmacokinetics, pharmacodynamics, and understanding receptor theory of drug action. The subject covers the general principles of absorption, distribution, metabolism and excretion of drugs as well as the basic mechanisms of drug action at the biochemical and cellular levels on important drug targets. The subject also covers factors of individual variation to drugs, types of adverse drug reactions and types of drug interactions including common drug-drug and herb-drug interactions. The subject also introduces general concepts of neuropharmacology and neurohumoral transmission in the body.

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

Restrictions

Successful completion of 60 credit points

Learning Outcomes

After successful completion of this subject, students will be able to:

1. Explain the fundamental principles and basic concepts of pharmacokinetics and pharmacodynamics
2. Describe the various pharmacokinetic factors of absorption, distribution, metabolism and excretion that modify drug action
3. Compare and contrast the chemical mediators and processes of neurohumoral transmission in the body
4. Explain the receptor theory of drug action and derive important drug parameters from dose-response curves
5. Describe important drug targets and receptor signal transduction processes in drug action at cellular and molecular level
6. Discuss the factors of individual variation to drugs, types of adverse drug reactions and drug interactions

Subject Content

- Definitions, terminology, and major areas of pharmacology
- Drug sources and historical aspects of pharmacology
- Introduction to drug dosage forms, and routes of drug administration
- Drug nomenclature and classification of drugs
- Chemical mediators and neurohumoral transmission in the body
- General principles of drug absorption and factors affecting drug absorption

- General principles of drug distribution and factors affecting drug distribution
- General principles of drug metabolism and factors affecting drug metabolism
- General principles of drug excretion and factors affecting drug excretion
- General principles of drug action: Receptor theory and dose response relationships
- Molecular aspects of drug action: Drug targets, signal transduction and mechanism of action
- Individual variation to drugs and factors affecting individual variation
- Adverse drug reactions: Dose-related adverse reactions
- Adverse drug reactions: Non-dose related hypersensitive reactions
- Drug-drug and herb-drug interactions: Pharmacokinetic drug interactions
- Drug-drug and herb-drug interactions: Pharmacodynamic drug interactions

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 |
|---------------|--------------------------|---------|-----------|------------------------|-----------|
| Participation | 2 hours/ week | 10 | N | Individual | N |
| Report | 1000 words | 30 | N | Individual | N |
| Quiz | 10 quizzes. 30 min/ quiz | 30 | N | Individual | N |
| Case Study | 1000 words | 30 | N | Individual | N |

Prescribed Texts

Shane Bullock & Elizabeth Manias (2022). Fundamentals of Pharmacology. 9th Edition: Pearson, Australia.

Teaching Periods

Autumn (2025)

Campbelltown

Hybrid

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

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=NATS2045_25-AUT_CA_3#subjects)

Parramatta - Victoria Rd

Hybrid

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