WESTERN SYDNEY
UNIVERSITY

The College

MATHEMATICS FOR HEALTH SCIENCE

900088

2020

UNIT OUTLINE

Last amended:	June 2020

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Unit name	Mathematics for Health Science
Unit number	900088
Coordinator	Michael Casey
Session	2020.2
Handbook summary	This unit has been written to prepare students for further study at university level in the areas of health science and, in particular, nursing. Undergraduate study in health science places a particular emphasis on mathematical skills in the workplace and this unit provides a basis for developing those skills. The unit places equal emphasis on both theoretical and practical application of mathematical techniques as would apply in practice in the health environment.
Credit point value	10
Prerequisite/s	N/A
Corequisite/s	N/A
Unit incompatible with and not to be counted for credit with	N/A
Assumed knowledge	Mathematics at Year 10 level or equivalent
Unit level	Level Z — Foundation unit
Attendance requirements	Students are expected to attend at least 80% of classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.
Enrolment restrictions	Only students at The College enrolled in Foundation Studies courses may enrol in this unit.
Learning outcomes	On successful completion of this unit, students should be able to: 1. solve real-life problems involving basic mathematical concepts 2. construct appropriate graphs, charts and tables and interpret them 3. identify different mathematical techniques to solve problems related to healthcare 4. identify different terminology used in health care situations relevant to mathematical calculation 5. solve mathematical problems in areas that are peculiar to health care, with and without technological assistance, and 6. interpret and communicate mathematical ideas in a clear and effective manner, using appropriate units and notation.

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Unit content

In this unit students will learn about:

- **Module 1: Basic mathematics**
  - Basic mathematical operations with whole numbers, decimals and fractions
  - Ratios and rates
  - Percentages
  - Metric system
  - Graphs and data
- **Module 2: Mathematical calculations in health care**
  - Oral medications — dosage: tablets and mixtures
  - IV fluid management — rate of flow, drop factor, burettes, pumps
  - Injections — types, mixing solutions, calculating dosage
  - Paediatrics — determine body surface area, dosage by body weight, verifying safe dosages by comparison with recommendations
  - Volumes/rates — calculating complex volumes using the metric system, oral, parenteral and intravenous medications

Mode of delivery

This unit is taught on a face-to-face basis and includes six hours of classes per week. In addition, students are required to access vUWS regularly, in order to download additional learning material, and to check for any announcements about the unit that may be posted there.

Essential requirements

Essential text

Hext, V & Mayner, L 2003, *Practical nursing calculations — getting the dose right*, Allen & Unwin, Sydney.

Further resources

Brotto, V & Rafferty, K 2012, *Clinical dosage calculations for Australia and New Zealand,* 1st edn, Cengage Learning Australia.

Essential equipment

- Approved non-programmable scientific calculator
- Computer with internet access

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ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components:

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Intra-session exam 1 (1 hour)	10%	1, 2, 5, 6	Yes
2. Intra-session exam 2 (1 hour)	25%	1–6	Yes
3. Case study (1 hour)	25%	1–6	Yes
4. End of Session exam (2 hours)	40%	1–6	Yes
Total	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College Assessment Policy.

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.

Students must achieve an overall mark of at least 50% to pass this unit.

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