



CHRISTIAN HERITAGE COLLEGE

MT110

FOUNDATIONS OF MATHEMATICS

This sample unit outline is provided by CHC for prospective and current students to assist with unit selection.

Elements of this outline which may change with subsequent offerings of the unit include Content, Required Texts, Recommended Readings and details of the Assessment Tasks.

Students who are currently enrolled in this unit should obtain the outline for the relevant semester from the unit lecturer.

Unit code	MT110						
Unit name	Foundations of Mathematics						
Associated higher education awards	Bachelor of Education (Primary) Bachelor of Education (Secondary) Bachelor of Arts/Bachelor of Education (Secondary)						
Duration	One semester						
Level	Introductory						
Core/elective	Required for a minor in Mathematics						
Weighting	Unit credit points: 10 Course credit points: <table> <tr> <td>Bachelor of Education (Primary)</td><td>320</td></tr> <tr> <td>Bachelor of Education (Secondary)</td><td>320</td></tr> <tr> <td>Bachelor of Arts/Bachelor of Education (Secondary)</td><td>320</td></tr> </table>	Bachelor of Education (Primary)	320	Bachelor of Education (Secondary)	320	Bachelor of Arts/Bachelor of Education (Secondary)	320
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Bachelor of Education (Secondary)	320						
Bachelor of Arts/Bachelor of Education (Secondary)	320						
Delivery mode	Face-to-face on-site						
Student workload	<i>Face-to-face on site</i> Contact hours 30 hours Reading, study and assignment preparation 120 hours TOTAL 150 hours Students requiring additional English language support are expected to undertake an additional one hour per week.						
Prerequisites/ co-requisites/ restrictions	Nil						
Rationale	This unit covers important basic concepts in algebra and trigonometry that a tertiary student is expected to master to undertake advanced mathematical concepts, such as calculus. Emphasis is placed on developing strong foundation mathematical skills in the areas including: polynomial, rational, exponential, logarithmic and trigonometric functions. The unit also covers topics of analytical geometry, matrices, sequences and statistics. This course prepares future teachers by equipping them with a strong foundation of skills relating to a range of mathematical concepts that are needed in higher mathematics. Students will also investigate ways mathematics reveals the order of God's creation.						
Prescribed text(s)	Washington, A. (2013). <i>Basic technical mathematics with calculus</i> . (10th ed.). New York, NY: Pearson. Selected readings will be available via the Moodle™ site for this unit.						
Recommended readings	Abramson, J. (2014). <i>PreCalculus</i> . Houston, TX: OpenStax College. Croft, A., & Davison, R. (2010). <i>Foundation Mathematics</i> . (5th ed.). Essex, UK: Prentice-Hall. Larson, R. (2014). <i>Precalculus</i> . (9th ed.). Boston, MA: Cengage Learning. Safier, F. (2012). <i>Schaum's outline of precalculus</i> . (3rd ed.). New York, NY: McGraw-Hill. Stewart, J., Redlin, L., & Watson, S. (2015). <i>Precalculus: Mathematics for calculus</i> . (7th ed.). Boston, MA: Cengage Learning.						

	In addition to the resources above, students should have access to a Bible, preferably a modern translation such as The Holy Bible: The New International Version 2011 (NIV) or The Holy Bible: New King James Version (NKJV). These and other translations may be accessed free on-line at http://www.biblegateway.com. The Bible app from LifeChurch.tv is also available free for smart phones and tablet devices.
Specialist resource requirements	Casio fx-82AU PLUS II scientific hand-calculator or equivalent
Content	1. Algebra 2. Trigonometry 3. Functions 4. Complex numbers 5. Analytic Geometry 6. Matrices 7. Introduction to statistics 8. Sequences
Learning outcomes	On completion of this unit, students will have demonstrated that they have: 1. developed fluency in quantitative, algebraic and graphical manipulations; 2. executed simple mathematics with accuracy and clarity 3. solved problems involving elementary but key mathematical ideas in algebra, geometry, trigonometry, and statistics; 4. developed and applied recognised processes to solve mathematical problems; 5. reflect on the order of God's creation which mathematics reveals; 6. applied appropriate strategies to effectively communicate relevant mathematical concepts and arguments using either written English or mathematical notations, as appropriate; and 7. communicated at an appropriate tertiary standard: with special attention to design elements, grammars, usage, logical relations, style, referencing and presentation.
Assessment tasks	Task 1: Folio Word Length/Duration: 1 each week Weighting: 20% Learning Outcomes: 1-4, 6 Assessed: Weekly Task 2: Investigation and Modelling Word Length/Duration: 1500 words Weighting: 30% Learning Outcomes: 1-7 Assessed: Week 7 Task 3: Examination Word Length/Duration: 3 hours Weighting: 50% Learning Outcomes: 1-7 Assessed: Examination Week
Unit summary	This unit develops students' understanding and skills in foundational mathematics and its applications to prepare them for further studies in mathematics and science.