### UNIT 3 TOPICS

#### 4.1 EXPONENTIAL AND LOGARITHMIC FUNCTIONS AND APPLICATION 4 – 4 weeks
(QuanMaths Text: 3.9, 3.10, 8.4, 8.5, 8.6, 8.7, 8.8)
- Development of algebraic models from appropriate datasets using logarithms and/or exponents
- Applications of geometric progressions to compound interest including past, present and future values
- Applications of geometric progressions to effective interest rates

#### 4.2 OPTIMISATION USING DERIVATIVES 2 – 2 WEEKS (Quan Maths Text: Ex 11.3, 11.4)
- Recognition of the problem to be optimised (maximised or minimised)
- Identification of variables and construction of the function to be optimised
- Applications of the derivative to optimisation in life-related situations eg. business profit/cost
- Interpretation of mathematical solutions and their communication in a form appropriate to the given problem

#### 4.3 INTRODUCTION TO INTEGRATION 3 - 2 weeks (Text: Ex 8D & Quan Maths Text :Ex 4.5, 4.6)
- Indefinite integrals of simple polynomial functions, simple exponential functions,
- Use of integration to find area
- Practical applications of the integral

### ASSESSMENT DUE DATE

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<tbody>
<tr>
<td>4.1</td>
<td>Assignment 4.2</td>
<td>Week 2: Handout: Mon 17th July</td>
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<td>Exam 4.1a (Topic 4.1) 90min</td>
<td>Week 4: Monitoring: Mon 31st July</td>
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<td>Exam 4.1b (Topic 4.2, 4.3) 90min</td>
<td>Week 5: Monitoring: Mon 7th August</td>
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<td>Assignment 4.2</td>
<td>Week 6: Due Date: Mon 14th August</td>
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<td>4.2</td>
<td>Exam 4.3 (Topic 4.4) 120min</td>
<td>Week 9/10 Exam Block TBC</td>
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### UNIT 4 TOPICS

#### 4.4 APPLIED STATISTICAL ANALYSIS 3 (Text: Ex 9A-9E & Ex 10A-10C)
- Use of relative frequencies to estimate probabilities; the notion of probabilities of individual values for discrete variables and intervals for continuous variables
- Probability distribution and expected value for a discrete variable
- Identification of the binomial situation and use technology for binomial probabilities
- Concept of a probability distribution for a continuous random variable
- The normal model and use of standard normal tables

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<td>4.4</td>
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<td>Week 6 Exam Block TBC</td>
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