MATHEMATICS (Bio) 124
Lecture Programme: 2019

- **Lecturers:**

  (1)   Group 1A: (Afrikaans)   Dr D. Basson / Miss L. Wessels
           Group 1E: (English)   Dr G. Boxall (convenor of module)
  lectures on Monday 3, Tuesday 1, Wednesday 7 and Friday 4; **tutorial** on Wednesday 8 and 9.

  (2)   Group 2A: (Afrikaans)   Mr F. van Niekerk / Miss L. Wessels
           Group 2E: (English)   Dr M. Hoefnagel
  lectures on Monday 5, Tuesday 3, Wednesday 1 and Friday 2; **tutorial** on Tuesday 4 and 5.

  (3)   Group 3: (English)   Dr G. Boxall
  lectures on Monday 7, Tuesday 2, Wednesday 4 and Friday 5; **tutorial** on Monday 8 and 9.

- **Lecture halls:**   Group 1A: van der Sterr 1017   Group 1E: Schumann Annex 1027
                         Group 2A: Schumann 204   Group 2E: Merensky 0067
                                              Group 3: Natural Sciences 3004

- **Prescribed textbook:** *An Introduction to Applied CALCULUS for Social and Life Sciences (Revised 1ˢᵗ Edition with Solutions)*, F. Nyabadza, L. Wessels, Juta, 2018. (Book stores: Van Schaiks, Neelsie; Protea Books, Andringa Street.)

- **SUNLearn:** Go to learn.sun.ac.za and log in. Go to the page for Mathematics(bio)124. Many things will be posted there.

- **Tutorials** are compulsory. Details of tutorial groups and venues will be posted on SUNLearn during Week 1. Tutorials start in Week 2.

- **Important dates**:

  11 – 13 March 2019:   Early Assessment Test (50 minutes, written during the second period of the tutorial)

  15 April 2019:   Class Test

  21 May 2019:   First Opportunity Examination

  11 June 2019:   Second Opportunity Examination

The daily lecture programme is given on the next three pages. This programme is only a guide. Sometimes your lecturer may be a little ahead or a little behind.

Month / date	Sections in Textbook
Week 1	
Mon 4 Feb	1.1 Number systems (1/2 lecture)
	1.2 Exponents and surds (1 lecture)
Tue 5 Feb	1.2 (cont.)
	1.3 Logarithms (1/2 lecture)
Wed 6 Feb	2.1 Polynomials and rational functions (1 lecture)
Fri 8 Feb	2.2 Solving equations (1/2 lecture)
	2.3 Simultaneous equations (1/2 lecture)
Week 2	
Mon 11 Feb	3.1 Intervals (1/2 lecture)
	3.2 Absolute values (1/2 lecture)
Tue 12 Feb	3.3 Quadratic inequalities (1/2 lecture)
	4.1 Algebra of functions (1/2 lecture)
Wed 13 Feb	4.2 Composition of functions (1/4 lecture)
	4.3 Quadratic functions (1/4 lecture)
	4.4 Power functions (1/4 lecture)
	4.5 Rational functions (1/4 lecture)
Fri 15 Feb	4.6 Exponential functions (1 lecture)
Week 3	
Mon 18 Feb	4.7 Exponential growth and decay (1 and 1/2 lectures)
Tue 19 Feb	4.7 (cont.)
	4.8 Trigonometric functions (2 and 1/2 lectures)
Wed 20 Feb	4.8 (cont.)
Fri 22 Feb	4.8 (cont.)
Week 4	
Mon 25 Feb	4.9 Solving trigonometric equations (1 lecture)
Tue 26 Feb	4.10 Piece-wise functions (1/2 lecture)
	4.11 Graphing of basic functions (1/2 lecture)
Wed 27 Feb	4.12 Intersection of graphs (1 lecture)
Fri 1 March	4.13 Functional models (1 and 1/2 lectures)
Week 5	
Mon 4 March	4.13 (cont.)
	5.1 The limit of a function (1/2 lecture)
Tue 5 March	5.2 Limits of various types of functions (1/2 lecture)
	5.3 Limits involving infinity (1/2 lecture)
Wed 6 March	5.4 One-sided limits (1 lecture)
Fri 8 March	Revision
Week 6	**[Early assessment test in tutorial this week]**
Mon 11 March	5.5 Continuity (1 lecture)
Tue 12 March	5.6 Continuity of polynomials and rational functions (1 lecture)

Wed 13 March	5.7 The intermediate value theorem (1 lecture)
Fri 15 March	6.1 The derivative (1/2 lecture) 6.2 Differentiability and continuity (1/2 lecture)
Week 7	
Mon 18 March	6.3 Differentiation techniques (1 lecture)
Tue 19 March	6.4 Product and quotient rules (1 lecture)
Wed 20 March	6.5 Composition of functions (the chain rule) (1 lecture)
Recess: 21 March – 31 March	
Week 8	
Mon 1 April	6.6 The (general) power rule (1/2 lecture) 6.7 Higher order derivatives (1/2 lecture)
Tue 2 April	6.8 Evaluating limits using L'Hôpital's rule (1/2 lecture) 6.9 Implicit differentiation (1 lecture)
Wed 3 April	6.9 (cont.) 6.10 Related rates (1 and 1/2 lectures)
Fri 5 April	6.10 (cont.)
Week 9	
Mon 8 April	7.1 Derivatives of logarithmic functions (1/2 lecture) 7.2 Derivatives of exponential functions (1/2 lecture)
Tue 9 April	7.3 Logarithmic differentiation (1 lecture)
Wed 10 April	7.4 Derivatives of trigonometric functions (1 lecture)
Fri 12 April	7.5 Learning curves (1/2 lecture) 7.6 Logistic curves (1/2 lecture)
Week 10	
Mon 15 April	8.1 Increasing and decreasing functions (1/2 lecture) 8.2 Relative extrema (1 lecture) **[Class Test on this day]**
Tue 16 April	8.2 (cont.) 8.3 Vertical and horizontal asymptotes (1/2 lecture)
Wed 17 April	8.4 Curve sketching (1 lecture)
Fri 19 April	**No lecture (Good Friday)**
Week 11	
Mon 22 April	**No lecture (Family Day)**
Tue 23 April	8.5 Graphs involving exponential functions (1 lecture) **[Friday timetable on this day]**
Wed 24 April	8.7 Newton's method (1 lecture)
Fri 26 April	8.8 Optimisation (1/2 lecture) 8.9 Applied optimisation (1 and 1/2 lectures)
Week 12	
Mon 29 April	8.9 (cont.)
Tue 30 April	9.1 Anti-differentiation (1/2 lecture) 9.2 Rules for integration (1/2 lecture)
Wed 1 May	**No lecture (Workers Day)**

Fri 3 May	9.3 Integration by substitution (1 lecture)
Week 13	
Mon 6 May	9.4 Definite integral (1 and 1/2 lectures)
Tue 7 May	9.4 (cont.) 9.5 Integrating rational functions (1/2 lecture)
Wed 8 May	9.6 Area between curves (1 lecture)
Fri 10 May	9.8 Integration by parts (1 lecture)
Week 14	
Mon 13 May	9.9 Integration of trigonometric functions (1 lecture)
Tue 14 May	Chapter 10 Modelling with differential equations (2 lectures)
Wed 15 May	Chapter 10 (cont.)
Fri 17 May	Revision