

DEPARTMENT OF MATHEMATICS AND APPLIED MATHEMATICS

**STUDY PROGRAMME: BSc Applied Mathematics (2019)**

(code: 02133253)

Admission requirements for this study programme:

**Matric:** NSC Mathematics level 6 (70% - 79%) and an APS of 32.

<b>First year, first semester:</b>			
Code	Name	Prerequisites	Credits
LST 110	Language and study skills 110		6
WST 111	Mathematical Statistics 111		16
WTW 114	Calculus 114	Maths Gr 12 at least 5(60-69%)	16
WTW 115	Discrete Structures 115	Maths Gr 12 at least 4(50-59%)	8
WTW 152	Mathematical Modelling 152	Maths Gr 12 at least 4(50-59%)	8

<b>First year, second semester:</b>			
Code	Name	Prerequisites	Credits
AIM 102	Academic Information Management 102*		6
WST 121	Mathematical Statistics 121	WST 111 GS	16
WTW 123	Numerical Analysis 123	WTW 114 GS	8
WTW 124	Mathematics 124	WTW 114	16
WTW 162	Dynamical Processes 162	WTW 114 GS	8

\* Students who do not qualify for AIM 102 must register for AIM 111 and AIM 121

Choose electives according to the following combinations with a view to pursuing specialisation in the relevant field:

Physics	PHY 114 and PHY 124	32
Chemistry	CMY 117 and CMH 127	32
Economics	EKN 110, EKN 120 and one of FRK 111 or OBS 114 or FBS 112	30
<b>1st year:</b>	Compulsory credits: 108	Elective credits: 30

<b>Second year, first semester:</b>			
Code	Name	Prerequisites	Credits
WTW 211	Linear Algebra 211	WTW 124	12
WTW 218	Calculus 218	WTW 114 and WTW 124	12
WTW 286	Differential Equations 286	WTW 114, WTW 124 and WTW 162	12

<b>Second year, second semester:</b>			
Code	Name	Prerequisites	Credits
WTW 220	Analysis 220	WTW 114, WTW 124, WTW 211 and WTW 218	12
WTW 221	Linear Algebra 221	WTW 211 and WTW 218	12
WTW 248	Vector Analysis 248	WTW 218	12
WTW 285	Discrete Structures 285	WTW 115	12

Choose electives according to the following combinations with a view to pursuing specialisation in the relevant field:

Physics	PHY 255 and PHY 263	48
Chemistry	CMY 282, CMY 283, CMY 284 and CMY 285	48
Economics	EKN 214, EKN 224 and EKN 234	48
Statistics	WST 211 and WST 221	48
<b>2nd year:</b>	Compulsory credits: 84	Elective credits: 48

<b>Third year, first semester:</b>			
Code	Name	Prerequisites	Credits
WTW 310	Analysis 310	WTW 220	18
WTW 382	Dynamical Systems 382	WTW 218 and WTW 286 / WTW 264	18
WTW 386	Partial Differential Equations 386	WTW 248 and WTW 286 / WTW 264	18

<b>Third year, second semester:</b>			
Code	Name	Prerequisites	Credits
WTW 383	Numerical Analysis 383	WTW 114, WTW 123, WTW 124 and WTW 211	18
WTW 387	Continuum Mechanics 387	WTW 248 and WTW 286 / WTW 264	18

Students may choose modules from Physics, Chemistry, Economics, Mathematical Statistics, Mathematics and Financial Mathematics. The following elective modules are suggested to pursue an honours degree:

Physics	PHY 356 and PHY 364
Chemistry	CMY 382, CMY 383, CMY 384 and CMY 385
Economics	EKN 310, EKN 320 and EKN 325
Mathematical Statistics	WST 311, WST 312, WST 321, WST 322 and STK 353
Mathematics	WTW 320, WTW 381 and WTW 389
Financial Mathematics	WTW 354 and WTW 364 as well as one module from WST 311, WST 312, WST 321 and WST 322

<b>3rd year:</b>	Compulsory credits: 90	Elective credits: 54
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A minimum of **414 credits** is required to obtain the degree

**Abbreviation:** GS (used at prerequisites): means final mark at least 40%