

## **MASTER OF SCIENCE IN MATHEMATICAL SCIENCE (3849)**

### **B.396 ADMISSION**

Unless Senate decides otherwise and subject to Rule A.2.4, candidates will be required to meet the following criteria to be enrolled for the degree: **Master of Science - MSc (Mathematical Science)**

An applicant's academic record should demonstrate strong aptitude in mathematics. In order to enrol candidates must be in possession of:

- B.396.1** A 4 year Bachelors degree (NQF level 8) in mathematics with at least a 60% pass, or any science or engineering subject with a significant mathematics component, or
- B.396.2** An honours degree (NQF level 8) in mathematics with at least a 60% pass, or any science or engineering subject with a significant mathematics component, or
- B.396.3** A BEd degree with a 60% pass in Mathematics as a major subject for the undergraduate degree.
- B.396.4** Any degree considered to be equivalent to the above.
- B.396.5** Departmental approval is subject to the availability of a suitable supervisor.

### **B.397 SELECTION**

As only a limited number of students can be admitted to the programme, applicants will be subject to a selection procedure.

### **B.398 DURATION**

Unless Senate decides otherwise, the minimum duration of the curriculum for full-time students shall be one year and two years for part-time students.

### **B.399 CURRICULUM**

The programme is offered in the following different modes/options. Student must select only one mode of study.

#### **B.399.1 Mathematics – Full Thesis**

<b>Module Name</b>	<b>Alpha Code</b>	<b>Cred</b>
<b>Compulsory</b>		
<b>1st Enrolment Code</b>		
Mathematics MastersThesis 801	MAM801	
<b>2nd Enrolment Code</b>		
Mathematics MastersThesis 802	MAM802	180
	<b>TOTAL</b>	<b>180</b>

#### **B.399.2 Mathematics – Mini-Thesis and Coursework (Not offered in 2019)**

<b>Module Name</b>	<b>Alpha Code</b>	<b>Cred</b>
<b>Compulsory</b>		
<b>1st Enrolment Code</b>		
Mathematics Mini - thesis 803	MAM803	
<b>2nd Enrolment Code</b>		
Mathematics Mini - thesis 804	MAM804	120
	<b>Sub-total</b>	<b>120</b>

**Electives (select 4 modules)**

Algebraic Coding Theory 820	MAM820	15
Algebraic Number Theory 821	MAM821	15
Advanced Numerical Analysis 822	MAM822	15
Algebraic Topology 823	MAM823	15
Category Theory 824	MAM824	15
Design Theory 825	MAM825	15
Graph Theory 826	MAM826	15
Group Theory 827	MAM827	15
Representation Theory of Finite Groups 828	MAM828	15
	<b>Sub-total</b>	<b>60</b>
	<b>TOTAL</b>	<b>180</b>

**B.399.3 Mathematics Education - Full Thesis**

<b>Module Name</b>	<b>Alpha Code</b>	<b>Cred</b>
<b>Compulsory</b>		
<b>1st Enrolment Code</b>		
Mathematics Education MastersThesis 807	MAM807	
<b>2nd Enrolment Code</b>		180
Mathematics Education MastersThesis 808	MAM808	
	<b>TOTAL</b>	<b>180</b>

**B.399.4 Mathematics Education – Mini-Thesis and Coursework (Not offered in 2019)**

<b>Module Name</b>	<b>Alpha Code</b>	<b>Cred</b>
<b>Compulsory</b>		
<b>1st Enrolment Code</b>		
Mathematics Education Mini - thesis 805	MAM805	120
<b>2nd Enrolment Code</b>		
Mathematics Education Mini - thesis 806	MAM806	
	<b>Sub – total</b>	<b>120</b>

**Electives (select 4 modules)**

Mathematics Education 811	MAM811	15
Mathematics Education 812	MAM812	15
Mathematics Education 813	MAM813	15
Mathematics Education 814	MAM814	15
Mathematics Education 815	MAM815	15
Mathematics Education 816	MAM816	15
	<b>Sub-total</b>	<b>60</b>
	<b>TOTAL</b>	<b>180</b>

**B.399.5 AIMS Programme**

<b>Module Name</b>	<b>Alpha Code</b>	<b>Cred</b>
<b>Compulsory</b>		
Mathematics Mini – Thesis / Research Project 803	AIM803	60
Communication Skills, Computing and LaTeX 811	AIM811	7
Mathematical Problem Solving 812	AIM812	7
Problem Solving in Physics 813	AIM813	7
Scientific Software Development in Python 814	AIM814	7
Experimental Math with SAGE 815	AIM815	7
Selected Topics in Mathematical Sciences 816	AIM816	7
Professional Development Modules817	AIM817	7
<b>Electives (select one module)</b>		
Advanced Topics in Mathematics Science A 818	AIM818	77
Advanced Topics in Mathematics Science B 819	AIM819	77
Advanced Topics in Mathematics Science C 820	AIM820	77

Advanced Topics in Mathematics Science D 821  
Advanced Topics in Mathematics Science E 822

AIM821	77
AIM822	77
<b>TOTAL</b>	<b>186</b>

## **B.400 ASSESSMENT**

Assessment is governed by Rule A.5 as stipulated in the University Calendar: General Information Part 1.

### **B.401 PROGRESS RULES**

Registration for the following year of study will be recommended by the supervisor if in his/her opinion adequate progress has been made during the current year.

### **B.402 RENEWAL OF REGISTRATION**

The renewal of registration will be governed by the Rule A.4, as stipulated in the University Calendar: General Information Part 1.

### **B.403 SPECIAL REQUIREMENTS FOR THE PROGRAMME**

**B.403.1** A thesis dealing with an original research topic must be presented.

**B.403.2** Coursework may be included, as recommended by the Post-graduate Committee of the department, as a component of the programme when deemed necessary.

**B.403.3** Modules may not be repeated at Masters Level if completed at Honours level.

**B.403.4** The academic assessment of students for the AIMS Master's Degree in Mathematical Sciences is completed in three ways:

- (i) Continuous assessment through written assignments, tutorials, short tests and presentations set by the lecturers;
- (ii) A written mini-thesis which the student is required to present (orally) to a panel of examiners. This panel includes an internal examiner, and an external examiner.
- (iii) Integrated assessment - a portfolio for each student is compiled, containing the grades achieved for each of the courses attended as well as observations on their presentations, all their assignments, completed exercises and their final mini-thesis.
- (iv) External evaluation of student's performance and all aspects of the programme are conducted by six senior academics representing the different mathematical sciences disciplines (including Physics). The outcome of the integrated assessment reported to each university for those students registered in their science faculties. Coursework may be included, as recommended by the Post-graduate Committee of the department, as a component of the programme when deemed necessary.