

# University of Pretoria Yearbook 2021

## BScHons Applied Mathematics (02240172)

**Department** Mathematics and Applied Mathematics

**Minimum duration of study** 1 year

**Total credits** 135

**NQF level** 08

### Programme information

#### Renewal of registration

- i. Subject to exceptions approved by the Dean, on the recommendation of the relevant head of department, a student may not sit for an examination for the honours degree more than twice in the same module.
- ii. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree. Under special circumstances, the Dean, on the recommendation of the relevant head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

### Admission requirements

1. BSc (Mathematics) degree **or** BSc (Applied Mathematics) degree **or** relevant bachelor's degree
2. At least 60% in all mathematics and applied mathematics modules at final-year level
3. At least four (4) of the following modules/subjects (or equivalent) with at least 60% at final-year level:
  - Partial differential equations
  - Dynamical systems (ordinary differential equations)
  - Real analysis
  - Complex analysis
  - Numerical analysis
  - Continuum mechanics

### Promotion to next study year

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

## Pass with distinction

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.



## Curriculum: Final year

**Minimum credits: 135**

### Additional information:

- The programme compilation consists of seven honours modules of 15 credits each as well as the mandatory project (WTW 795 – 30 credits).
- It is required that students select the stream and modules according to the prerequisites of the modules.
- WTW 795 is a compulsory module for both streams.
- The modules to be selected for each stream, are set out below.

### Stream 1: Applied analysis

Core credits: 75 credits

Elective credits: 60 credits

Core modules: WTW 795, WTW 710, WTW 734 and WTW 776

Elective modules: Four (4) electives must be chosen from the list below. The selection must contain at least one of WTW 782 or WTW 764 and at least one of WTW 733 or WTW 763.

### Stream 2: Differential equations and modelling

Core credits: 135 credits

Core modules: WTW 795, WTW 733, WTW 735, WTW 750, WTW 763, WTW 772, WTW 776 and WTW 782.

## Core modules

Functional analysis 710 (WTW 710) - Credits: 15.00

Numerical analysis 733 (WTW 733) - Credits: 15.00

Measure theory and probability 734 (WTW 734) - Credits: 15.00

Main principles of analysis in application 735 (WTW 735) - Credits: 15.00

Mathematical optimisation 750 (WTW 750) - Credits: 15.00

Finite element method 763 (WTW 763) - Credits: 15.00

Mathematical methods and models 772 (WTW 772) - Credits: 15.00

Partial differential equations of mathematical physics 776 (WTW 776) - Credits: 15.00

Dynamical systems 782 (WTW 782) - Credits: 15.00

Project 795 (WTW 795) - Credits: 30.00

## Elective modules

Special topics 727 (WTW 727) - Credits: 15.00

Numerical analysis 733 (WTW 733) - Credits: 15.00

Mathematical optimisation 750 (WTW 750) - Credits: 15.00

Finite element method 763 (WTW 763) - Credits: 15.00

Stochastic calculus 764 (WTW 764) - Credits: 15.00

Mathematical methods and models 772 (WTW 772) - Credits: 15.00

Dynamical systems 782 (WTW 782) - Credits: 15.00

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section.



Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.