

# BSc Mathematical Sciences

The BSc in Mathematical Sciences allows students in choosing a focal area according to their interest, in Mathematics, Applied Mathematics, Abstract Mathematics, and Operations Research. In the first year, all focal areas have Mathematics as a compulsory subject. However, the focal area you choose will determine the compulsory major in your third year and your other subjects. These may include subjects offered by other faculties, such as Mathematical Statistics, Operations Research and Music Technology.

## Focal areas

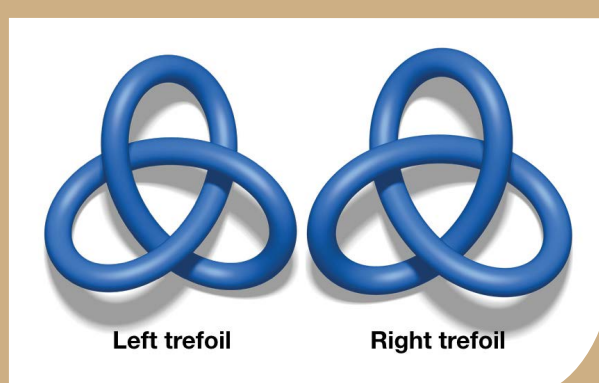
- Mathematics
- Applied Mathematics
- Abstract Mathematics
- Operations Research

Please Note: Consult the Faculty of Science Yearbook for detailed information on subjects and modules.

## Do I qualify?

### Minimum admission requirements

- Average (excluding Life Orientation): **65%**
- English OR Afrikaans (Home Language or First Additional Language): **50%**
- Maths **70%**
- Physical Sciences **50%** (if you take Physics or Chemistry)



## Focal areas explained:

### Mathematics and Abstract Mathematics

The technological advances of the last century rely heavily on mathematics discovered or created 200 years ago. However, mathematics has developed substantially since then and no doubt many applications and technological advancements in the future will arise from the pure mathematics of the current era. Mathematicians' preoccupation is thus the discovery, understanding, and communication of good, beautiful mathematics.

This focal area equips you to become a graduate with a thorough understanding of the nature, scope, and application potential of mathematics. You will be able to continue with postgraduate studies in mathematics or enter a career where sophisticated quantitative skills and insight are required.

### Applied Mathematics

Applied Mathematics is a branch of mathematics that is concerned with developing mathematical methods and applying them to science, engineering, industry, and society. In applied mathematics, the discoveries and activities are driven by applications, while in pure mathematics it is the mathematics itself that drives the activities.

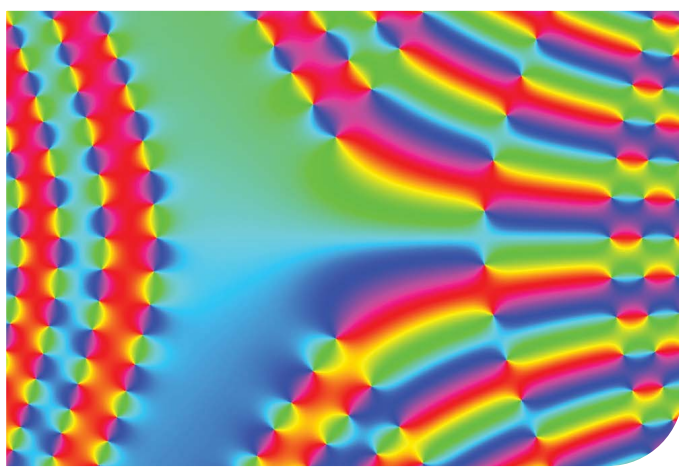
This focal area trains students to become graduates who have the necessary knowledge and skills in respect of mathematical methods and computer techniques to solve both quantitative and qualitative problems in science and technology. With this theoretical and technical background and experience in various applications, such as the modelling of dynamic processes, image processing, computer security, numerical methods, and flow modelling, you will be able to pursue a successful career in industry, including careers in banking and the computer industry.

### Operations Research

Operations research takes a multidisciplinary, scientific approach to decision-making. The aim is to find the best solutions to complicated problems by the optimal allocation of scarce resources. The goal-oriented approach of this focal area with its synergistic style delivers graduates who can find solutions to quantitative problems.

## Why study Mathematical Sciences?

- If you want to combine your interest in mathematics with biology or medicine, and if you want to make a meaningful contribution to the understanding of natural and biological processes, then this is the course for you.
- With Applied Mathematics, you can formulate and solve problems in all walks of life by developing and making use of mathematical methods in an innovative way.
- Many companies out there are focusing on finding scientific solutions to specific problems – they need mathematicians and applied mathematicians to build those models for them, especially in the case of big data.



## Why study Mathematical Sciences at Stellenbosch University?

### Did you know?

- The BSc Mathematical Sciences degree at SU allows you to choose from a variety of elective modules within your chosen focal area.
- The Mathematics Division offers a stimulating and challenging exploration of mathematical ideas for the development of critical thinking and intellectual abilities, sought after in many careers.
- The Applied Mathematics Division focuses on research in numerical analysis and scientific computing, computer vision and machine learning, fluid dynamics and modelling, and applied discrete mathematics.
- The Applied Mathematics Division has strong ties with the Faculty of Engineering.
- Our lecturers are passionate teachers and experts in their fields, actively engaged in discovering and creating new mathematics.

## What can I do with a degree in Mathematical Sciences?

|                   |                                     |                                   |
|-------------------|-------------------------------------|-----------------------------------|
| Actuarial analyst | Epidemiological modelling           | Project manager                   |
| Biomathematician  | Forecast analyst                    | Quantitative analyst              |
| Business analyst  | Game designer                       | Research and development engineer |
| Consultant        | Informatics scientist               | Risk analyst                      |
| Cryptanalyst      | Investment analytics                | Software developer                |
| Data analyst      | Model development analyst (Banking) | Statistician                      |
| Data scientist    | Operations manager                  | Supply chain analyst              |

### Major employers of mathematicians and applied mathematicians

Council for Scientific and Industrial Research; Medical Research Council; Educational sector; Agricultural sector (Fisheries; Forestry); Human Sciences Research Council; Financial, investment and banking sectors.

“We particularly advise pursuing a pure mathematics degree to those who enjoy mathematics and who love creativity and precision of thought.”

- Department of Mathematical Sciences, Stellenbosch University

### Contact details

#### Mathematics Division

Tel. (021) 808 3282 / E-mail: [lisam@sun.ac.za](mailto:lisam@sun.ac.za)

Website: <https://math.sun.ac.za>

#### Applied Mathematics Division

Tel. (021) 808 4215 / E-mail: [appliedmaths@sun.ac.za](mailto:appliedmaths@sun.ac.za)

Website: <https://appliedmaths.sun.ac.za>

### Contact our recruitment officer

at [science@sun.ac.za](mailto:science@sun.ac.za)

**Deadline:** Apply with your grade 11 marks by 31 July

### General selection and application criteria

<https://www.sun.ac.za/english/maties>



# BSc Wiskundige Wetenskappe

Die BSc in Wiskundige Wetenskappe laat studente toe om 'n fokusarea te kies volgens hul belangstelling: in Wiskunde, Toegepaste Wiskunde, Abstrakte Wiskunde, of Operasionele Navorsing. In die eerste jaar het alle fokusareas Wiskunde as verpligte vak. Die fokusarea wat jy kies, sal egter jou verpligte hoofvak in jou derde jaar, asook die keusevakke bepaal. Dit kan ook vakke insluit wat deur ander fakulteite aangebied word, soos: Wiskundige Statistiek, Operasionele Navorsing en Musiektegnologie.

## Fokusareas

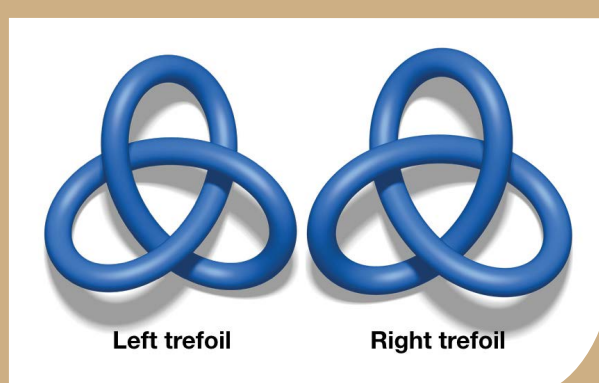
- Wiskunde
- Toegepaste Wiskunde
- Abstrakte Wiskunde
- Operasionele Navorsing

Neem kennis: Raadpleeg die nuutste Jaarboek van die Fakulteit Natuurwetenskappe (Deel 5) vir inligting oor vakke, modules, en spesifieke toelatingsvereistes.

## Voldoen ek aan die vereistes?

### Minimum toelatingsvereistes

- NSS-gemiddeld van **65%** (Lewensoriëntering uitgesluit)
- Engels OF Afrikaans (Huistaal of Eerste Addisionele Taal) **50%**
- Wiskunde: **70%**
- Fisiese Wetenskappe **50%** (indien jy Fisika of Chemie neem)



## Fokusareas uiteengesit:

### Wiskunde en Abstrakte Wiskunde

Die tegnologiese vooruitgang van die vorige eeu maak grootliks staat op wiskunde wat 200 jaar gelede ontdek of geskep is. Wiskunde het egter sedertdien aansienlik ontwikkel en ongetwyfeld sal baie toekomstige toepassings en tegnologiese vooruitgang voortspruit uit die suiwer wiskunde van die huidige era. Wiskundiges is dus gefokus op die ontdekking, verstaan, en kommunikasie van goeie wiskunde.

Hierdie fokusarea sal jou toerus met 'n deeglike begrip van die aard, omvang en toepassingspotensiaal van wiskunde. Jy sal met nagraadse studie in wiskunde kan voortgaan of 'n loopbaan volg waar gesofistikeerde kwantitatiewe vaardighede en insig vereis word.

### Toegepaste Wiskunde

Toegepaste Wiskunde is 'n vertakking van wiskunde wat gaan oor die ontwikkeling van wiskundige metodes en die toepassing daarvan in die wetenskap, ingenieurswese, industrie, en die samelewing. In toegepaste wiskunde word die ontdekkings en aktiwiteite deur toepassings gedryf, terwyl dit in suiwer wiskunde die wiskunde self is wat die aktiwiteit dryf.

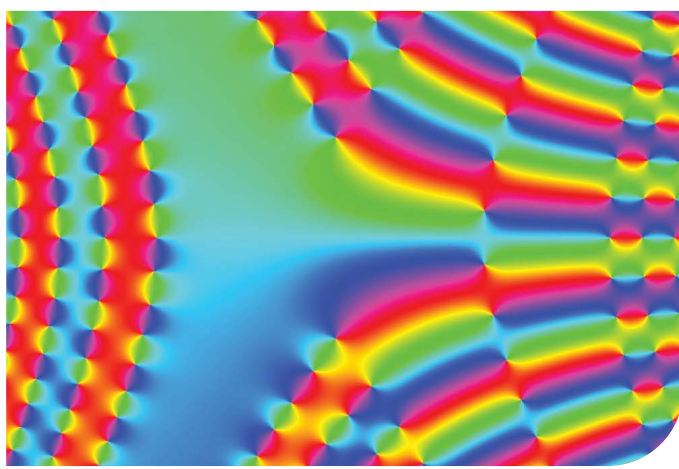
Hierdie fokusarea lei studente op met die nodige kennis en vaardighede ten opsigte van wiskundige metodes en rekenaartegniese om beide kwantitatiewe en kwalitatiewe probleme in die wetenskap en tegnologie te kan oplos. Met hierdie teoretiese en tegniese agtergrond en ondervinding in verskeie toepassings, soos die modellering van dinamiese prosesse, beeldverwerking, rekenaarsekureit, numeriese metodes en vloeimodellering, sal jy 'n suksesvolle loopbaan in die industrie kan volg, insluitend loopbane in die bankwese en rekenaarbedryf.

### Operasionele Navorsing

Operasionele navorsing volg 'n multidissiplinêre, wetenskaplike benadering tot besluitneming. Die doel is om die beste oplossing vir ingewikkelde probleme te vind deur die optimale toewysing van skaars hulpbronne. Die doelgerigte benadering van hierdie fokusarea met sy sinergistiese styl, lewer gegradueerdes wat oplossings vir kwantitatiewe probleme kan vind.

## Waarom Wiskundige Wetenskappe studeer?

- As jy jou belangstelling in wiskunde met biologie of geneeskunde wil kombineer, en jy 'n sinvolle bydrae tot die begrip van natuurlike en biologiese prosesse wil maak, is dit die kursus vir jou.
- Met Toegepaste Wiskunde kan jy probleme op alle vlakke in die daaglikse lewe formuleer en oplos, deur op 'n innoverende manier wiskundige metodes te ontwikkel en gebruik.
- Baie maatskappye fokus daarop om wetenskaplike oplossings vir spesifieke probleme te vind – hulle benodig wiskundiges en toegepaste wiskundiges om daardie modelle vir hulle te bou, veral in die geval van groot data.



## Waarom Wiskundige Wetenskappe by die Universiteit Stellenbosch studeer?

- Die BSc Wiskundige Wetenskappe-graad by die US laat jou toe om binne jou fokusareas van keuse, uit 'n verskeidenheid keusemodules te kies.
- Die Afdeling Wiskunde bied 'n stimulerende en uitdagende omgewing waarin wiskundige idees ondersoek word vir die ontwikkeling van kritiese denke en intellektuele vermoëns, wat gesog is in baie beroepe.
- Die Afdeling Toegepaste Wiskunde fokus op navorsing in numeriese analise en wetenskaplike berekening, rekenaarvisie en masjienleer, vloedindinamika en modellering, en toegepaste diskrete wiskunde.
- Die Afdeling Toegepaste Wiskunde het noue bande met die Fakulteit Ingenieurswese.
- Ons dosente is passievol oor onderrig, en is kundiges in hul onderskeie velde wat aktief betrokke is by die ontdekking en skep van nuwe wiskunde.

## Wat kan ek doen met 'n BSc Wiskundige Wetenskappe?

Aktuariële ontleder  
Biowiskundige  
Besigheidsanalisis  
Konsultant  
Kriptoloog  
Datawetenskaplike  
Epidemiologiese modellering

Voorspellingsontleder  
Spelontwerper  
Informatikus  
Beleggingsontleder  
Modelontwikkelingsanalisis (Bankwese)  
Prosesbestuurder  
Projekbestuurder

Kwantitatiewe ontleder  
Navorsing- en ontwikkelingsingenieur  
Risiko-ontleder  
Sagteware ontwikkelaar  
Statistikus  
Voorsieningskettingontleder

### Werkgewers van wiskundiges en toegepaste wiskundiges

Wetenskaplike en Nywerheidsnavorsingsraad (WNNR); Mediese Navorsingsraad (MNR); onderwyssektor; landbou-sektor (visserye, bosbou); Raad vir Geesteswetenskaplike Navorsing (RGN); finansiële, beleggings- en banksektore.

“Ons moedig veral diegene wat hou van wiskunde, kreatiwiteit en presiesheid van denke om 'n graad in suiwer wiskunde te oorweeg”.

- Departement Wiskundige Wetenskappe, Universiteit Stellenbosch

### Kontak ons

#### Afdeling Wiskunde

Tel. (021) 808 3282 / E-pos: [lisam@sun.ac.za](mailto:lisam@sun.ac.za)

Webwerf: <https://math.sun.ac.za>

#### Afdeling Toegepaste Wiskunde

Tel. (021) 808 4215 / E-pos: [appliedmaths@sun.ac.za](mailto:appliedmaths@sun.ac.za)

Webwerf: <https://appliedmaths.sun.ac.za>

### Kontak ons werwingsbeampte

by [science@sun.ac.za](mailto:science@sun.ac.za)

Sperdatum: Doen aansoek met jou graad 11-punte voor 31 Julie

### Algemene toelatings- en keuringskriteria

<https://www.sun.ac.za/english/maties>