

# Universiteit van Pretoria Jaarboek 2018

## BScHons Bioinformatika (02240702)

**Minimum duur van studie** 1 jaar

**Totale krediete** 135

### Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

#### Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. 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 and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the 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.

### Toelatingsvereistes

Studente moet in besit van 'n baccalaureusgraad in bioinformatika, biologiese wetenskappe, rekenaarwetenskap, Informatika, wiskunde, wiskundige statistiek of rekenaaringenieurswese wees. Studente met 'n graad in óf fisika, wiskunde, wiskundige statistiek of elektroniese ingenieurswese sal vereis word om 'n spesiale nagraadse oorbruggingsjaar te doen voordat toelating tot die honneursgraad in Bioinformatika toegestaan kan word. Toegang is addisioneel afhanklik van die beskikbaarheid van studieleier/s en/of projekte in die departement.

### Ander programspesifieke inligting

Students with degrees in biological sciences should choose BME 780 as an elective. Students from computer science and other related backgrounds should choose BIF 704. Other additional modules may be prescribed for non-degree purposes to address shortcomings in a candidate's undergraduate training.

### Slaag met lof

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.



## Kurrikulum: Finale jaar

Minimum krediete: 135

### Kernmodules

#### Bioinformatika teorie en toepassings 701 (BIF 701)

**Modulekrediete** 30.00

**Voorvereistes** Geen voorvereistes.

**Kontaktyd** 2 lesings per week, 2 praktiese sessies per week

**Onderrigtaal** Module word in Engels aangebied

**Departement** Biochemie

**Aanbiedingstydperk** Jaar

#### Module-inhoud

\*Hierdie inligting is slegs in Engels beskikbaar.

General concepts in bioinformatics; sequence motifs and features; sequence databases; common bioinformatics tools; programming in Python; the bioinformatics toolkit for Python; pairwise and multiple sequence alignments; genome analysis; data visualisation; specialised statistics for bioinformatics; specialised algorithms for bioinformatics; nucleic acid modelling; transcription analysis; microarray data analysis; genome annotation; phylogenetics; mapping and markers; structural modelling.

#### Tendense in bioinformatika en literatuurseminaar 702 (BIF 702)

**Modulekrediete** 15.00

**Voorvereistes** Geen voorvereistes.

**Kontaktyd** 1 lesing per week

**Onderrigtaal** Module word in Engels aangebied

**Departement** Biochemie

**Aanbiedingstydperk** Jaar

#### Module-inhoud

\*Hierdie inligting is slegs in Engels beskikbaar.

Study and discussion of topical research results from recent scientific publications.

#### Navorsingsprojek en -verslag 703 (BIF 703)

**Modulekrediete** 60.00

**Voorvereistes** Geen voorvereistes.

**Kontaktyd** 1 ander kontak per week

**Onderrigtaal** Module word in Engels aangebied



**Departement** Biochemie

**Aanbiedingstydperk** Jaar

### **Molekulêre en selbiologie 721 (MLB 721)**

**Modulekrediete** 15.00

**Voorvereistes** Geen voorvereistes.

**Kontaktyd** 2 besprekingsklasse per week

**Onderrigtaal** Module word in Engels aangebied

**Departement** Mikrobiologie en Plantpatologie

**Aanbiedingstydperk** Semester 2

#### **Module-inhoud**

\*Hierdie inligting is slegs in Engels beskikbaar.

Principles and applications of recombinant DNA, and other novel molecular and genomics technologies, to address questions in the biological sciences and/or biotechnology. Strong emphasis is placed on the principles of research planning, including identifying suitable research objectives, formulating a research strategy and understanding the relevance and feasibility of research. The module is assessed by means of a research project proposal, conceived and formulated by each student. The proposal must focus on the use of molecular technologies in addressing realistic questions in biology and/or biotechnology. There is also an oral defense of the project proposal.

This module is jointly presented in the departments of Biochemistry, Genetics and Microbiology and Plant Pathology.

### **Keusemodules**

#### **Inleiding tot molekulêre biologie vir bioinformatika 704 (BIF 704)**

**Modulekrediete** 15.00

**Voorvereistes** Geen voorvereistes.

**Kontaktyd** 1 lesing per week

**Onderrigtaal** Module word in Engels aangebied

**Departement** Biochemie

**Aanbiedingstydperk** Jaar

#### **Module-inhoud**

\*Hierdie inligting is slegs in Engels beskikbaar.

Atoms and molecules; the chemistry of life, organisation of the cell; energy; chromosomes; heredity; DNA; RNA and protein synthesis; gene regulation; genetic engineering; genomes; genes and development; evolution; speciation; diversity.

#### **Biometrie 780 (BME 780)**

**Modulekrediete** 15.00



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<b>Diensmodules</b>	Fakulteit Natuur- en Landbouwetenskappe
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<b>Voorvereistes</b>	Geen voorvereistes.
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<b>Kontaktyd</b>	2 Blokweke
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<b>Onderrigtaal</b>	Module word in Engels aangebied
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<b>Departement</b>	Statistiek
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<b>Aanbiedingstydperk</b>	Semester 1
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### **Module-inhoud**

\*Hierdie inligting is slegs in Engels beskikbaar.

The principles of experimental design as required for the selection of an appropriate research design. Identification of the design limitations and the impact thereof on the research hypotheses and the statistical methods. Identification and application of the appropriate statistical methods needed. Interpreting of statistical results and translating these results to the biological context.

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Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertrouwd met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.