

# University of Pretoria Yearbook 2020

## BCom Statistics and Data Science (07130263)

|                                  |                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Minimum duration of study</b> | 3 years                                                                                                |
| <b>Total credits</b>             | 398                                                                                                    |
| <b>NQF level</b>                 | 07                                                                                                     |
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### Programme information

Statistics is an independent discipline with interdisciplinary applications. The aim of this qualification is to prepare the candidates in totality with methods that can be applied for the gathering and interpretation of data and empirical information. Statistics lay the foundation for scientific accountable conclusions, planning and estimation. Candidates are equipped detailed computer and communication skills throughout the course. Statistics is commissioned by all disciplines where it can contribute towards scientific and technological progress, most notably in data science. This qualification trains a statistician to work in a data science environment.

### Additional requirements

- General Regulations G.1 to G.15 (with the exception of Regulation G.11.2(c)) apply to a bachelor's degree.
- A student may not take more than the prescribed number of modules per semester unless the Dean decides otherwise.
- A student may take a module not listed as an elective module only if the prior approval of the Dean has been obtained.
- A student who is in possession of a bachelor's degree may not present any modules passed for that degree for another field of specialisation or degree in this Faculty. (See General Regulations G.8 and G.9)
- A module already passed may only be repeated with the approval of the Dean.
- A module passed may not be taken into account for more than one degree or field of specialisation.
- It remains the student's responsibility to ascertain, prior to registration, whether all the modules he/she intends taking can be accommodated in the class, test and examination timetables.
- The Faculty of Economic and Management Sciences supports an outcomes-based education system and places a high premium on the development of specific academic competences. Class attendance in all modules and for the full duration of all programmes is therefore compulsory for all students.
- The Dean has the right of authorisation regarding matters not provided for in the General Regulations or the Faculty Regulations.

### Other programme-specific information

- Total credits refer to minimum as required by the programme, but can be more, depending on the elective modules.
- The only WST module that students are allowed to take along with the STK modules is WST212. The only STK

modules that students are allowed to take along with the WST modules are STK320 and STK353.

- Alternative credits as indicated in brackets are based on choosing WST as a specialisation module instead of STK, while all elective modules are selected within the Faculty of Economic and Management Sciences.
- Only two 14-week modules on the 300-level, or the equivalent thereof, that are not preceded by the 100- and 200-level modules, may be taken for degree purposes. In other words, at least four 14-week modules must be taken at 300-level that are preceded by the 100- and 200-level apart from the modules offered only at 200- and 300-level.
- The number of elective modules is influenced by the inclusion of modules from other faculties and their respective credit values.

### **With regard to choosing elective modules:**

It is recommended that COS 132 be taken as an elective by all students in this programme. Students can then follow one of the following elective options depending on their specific career requirements. Other options are possible subject to consultation with and approval by the programme coordinator.

1. Mathematical Statistics option with major WST111, WST121, WST211, WST221, WST212, WST311, WST312, (WST321 or STK320), STK 353:

Year 1: WTW 114 (16), WTW 124 (16)

Year 2: WTW 211 (12), WTW 218 (12) and WTW 220 (12), WTW 221 (12), WTW 264 (12), WTW 248 (12) or three from EKN 214 (16), EKN 234 (16), EKN 224 (16), EKN 244 (16)

Year 3: Choose three from WTW 310 (18), WTW 382 (18), WTW 354 (18), WTW 364 (18), WTW 381 (18), WTW 389 (18), WTW 320 (18), WST322 (18), EKN 310 (20), EKN 314 (20), EKN 320 (20), EKN 325 (20).

2. Mathematics option with major STK 110, STC 122, STK 210, STK 220, WST212, STK 310, STK 320, STK 353:

Year 1: WTW 114 (16), WTW 124 (16)

Year 2: WTW 218 (12), WTW 211 (12), WTW 220 (12), WTW 221 (12), WTW 264 (12), WTW 248 (12)

Year 3: Choose four from WTW 310 (18), WTW 382 (18), WTW 381 (18), WTW 389 (18), WTW 320 (18)

3. Economics option with major STK 110, STC 122, STK 210, STK 220, WST212, STK 310, STK 320, STK 353:

Year 1: COS 132 (16), COS 122 (16) or INF 154 (10), INF 164 (10), INF 171 (20)

Year 2: EKN 214 (16), EKN 234 (16), EKN 224 (16), EKN 244 (16), INF 261 (7), INF 264 (8)

Year 3: Choose three from EKN 310 (20), EKN 314 (20), EKN 320 (20), EKN 325 (20)

4. Informatics option with major STK 110, STC 122, STK 210, STK 220, WST212, STK 310, STK 320, STK 353:

Year 1: INF 154 (10), INF 164 (10), INF 171 (20)

Year 2: INF 272 (16), INF 225 (14), INF 261 (14), INF 214 (14), INF 271 (14)

Year 3: Choose 65 credits from INF 315 (15), INF 324 (15), INF 354 (15), INF 370 (35)

**Note:** Please refer to the individual modules for prerequisites.

At least one of the two elective modules in which a candidate graduate must be selected from the available modules within the Economics and Management Sciences Faculty.

FRK 122 is a terminating module. Candidates will not be able to continue with financial accounting in the second or third year. A student cannot get credits for both FRK 121 and FRK 122.

**Specialisation modules:** WST 212, STK 310, 320, 353 or WST 212, 311, 312, 321, STK 353.

"Major subject"

To be considered a "major subject" the equivalent of four 14-week modules, including two at 300-level, must be passed provided that:

- a module passed at 300-level shall only be recognised for degree purposes if the corresponding prescribed module(s) at 200-level has/have been passed, unless the Dean decides otherwise;

- the following modules which are offered at 300-level only, are also considered "major subjects": Labour law 311 (ABR 311), Labour relations 320 (ABV 320), and International business management 359 and 369 (OBS 359 and 369); and
- only two 14-week modules, or the equivalent thereof, that are not preceded by the 100- and 200-level modules, may be taken for degree purposes. In other words, at least four 14-week modules must be taken at 300-level that are preceded by the 100- and 200-level, except for modules offered on 200- and 300-level only.

It is thus the responsibility of students to ensure before registration, that their curricula comply with all the requirements of the applicable regulations.

## Promotion to next study year

*According to General Regulation G.3 students have to comply with certain requirements as set by the Faculty Board.*

- a. A student must pass at least 4 core semester or 2 core year modules to be admitted to the subsequent year of study.
- b. If a student has passed less than the required minimum of 4 core semester or 2 core year modules, he/she will not be readmitted to the Faculty of Economic and Management Sciences. Such a student may apply in writing to the Faculty's Admissions Committee to be readmitted conditionally – with the proviso that the Admissions Committee may set further conditions with regards to the student's academic progress. The Faculty's Admissions Committee may deny a student's application for readmission.
- c. If a student has been readmitted conditionally, his/her academic progress will be monitored after the first semester examinations to determine whether he/she has complied with the requirements set by the Admissions Committee. If not, his/her studies will be suspended.
- d. A student whose studies have been suspended because of his/her poor academic performance has the right to appeal against the decision of the Faculty's Admissions Committee.
- e. A student may be refused promotion to a subsequent year of study if the prescribed tuition fees are not paid.
- f. A student may be refused admission to the examination, or promotion to a subsequent year of study or promotion in a module (if applicable) if he/ she fails to fulfil the attendance requirements. Class attendance in all modules and for the full duration of all programmes is compulsory for all students.

## Pass with distinction

- a. A degree may be awarded with distinction provided the candidate meets the following criteria:
  - i. Completes the degree within three years;
  - ii. Obtains a Cumulative Grade Point Average (CGPA) of 75%;
  - iii. Repeated passed modules will not be considered. The initial pass mark of module will be used when calculating the GPA.
- b. A degree will only be awarded with distinction to transferees from other degrees in the Faculty of Economic and Management Sciences, other faculties and from other universities who still complete their bachelor degrees within three years (including the years registered for the other degree and credits transferred and recognised).
- c. The GPA will be not be rounded up to a whole number.
- d. Exceptional cases will be considered by the Dean.

## General information

### **Minimum requirements for bachelor's degrees; semester and year modules; new regulations**

1. Students who commenced their studies before 2015 must complete the programme in terms of the curriculum of the year in which they commenced their studies, or in terms of the curriculum of the year in which they switched to their current field of specialisation. Students who prefer to do so may, however, apply to change over to the latest curriculum, but then they should comply with all the requirements thereof and they may not revert to the regulations of an earlier year.
2. Students who are registering for a degree programme for the first time from 2015 onward must take the modules indicated under the particular field of specialisation.



# Curriculum: Year 1

**Minimum credits: 134**

## Fundamental modules

Academic information management 111 (AIM 111) - Credits: 4.00

Academic information management 121 (AIM 121) - Credits: 4.00

Academic literacy for Economic and Management Sciences 124 (ALL 124) - Credits: 6.00

Academic orientation 107 (UPO 107) - Credits: 0.00

## Core modules

Economics 110 (EKN 110) - Credits: 10.00

Economics 120 (EKN 120) - Credits: 10.00

Financial accounting 111 (FRK 111) - Credits: 10.00

Financial accounting 121 (FRK 121) - Credits: 12.00

Financial accounting 122 (FRK 122) - Credits: 12.00

Informatics 183 (INF 183) - Credits: 3.00

Business management 114 (OBS 114) - Credits: 10.00

Business management 124 (OBS 124) - Credits: 10.00

Statistics 122 (STC 122) - Credits: 13.00

Statistics 110 (STK 110) - Credits: 13.00

Mathematical statistics 111 (WST 111) - Credits: 16.00

Mathematical statistics 121 (WST 121) - Credits: 16.00

## Elective modules

Operating systems 122 (COS 122) - Credits: 16.00

Imperative programming 132 (COS 132) - Credits: 16.00

Financial management 112 (FBS 112) - Credits: 10.00

Financial management 122 (FBS 122) - Credits: 10.00

Informatics 112 (INF 112) - Credits: 10.00

Informatics 154 (INF 154) - Credits: 10.00

Informatics 164 (INF 164) - Credits: 10.00

Informatics 171 (INF 171) - Credits: 20.00

Calculus 114 (WTW 114) - Credits: 16.00

Mathematics 124 (WTW 124) - Credits: 16.00



## Curriculum: Year 2

**Minimum credits: 129**

### Core modules

Communication management 282 (KOB 282) - Credits: 5.00  
Statistics 210 (STK 210) - Credits: 20.00  
Statistics 220 (STK 220) - Credits: 20.00  
Mathematical statistics 211 (WST 211) - Credits: 24.00  
Applications in data science 212 (WST 212) - Credits: 12.00  
Mathematical statistics 221 (WST 221) - Credits: 24.00

### Elective modules

Economics 214 (EKN 214) - Credits: 16.00  
Economics 224 (EKN 224) - Credits: 16.00  
Economics 234 (EKN 234) - Credits: 16.00  
Economics 244 (EKN 244) - Credits: 16.00  
Introduction to moral and political philosophy 251 (FIL 251) - Credits: 10.00  
Financial accounting 211 (FRK 211) - Credits: 16.00  
Financial accounting 221 (FRK 221) - Credits: 16.00  
Financial mathematics 211 (IAS 211) - Credits: 12.00  
Financial mathematics 282 (IAS 282) - Credits: 12.00  
Informatics 214 (INF 214) - Credits: 14.00  
Informatics 225 (INF 225) - Credits: 14.00  
Informatics 261 (INF 261) - Credits: 7.00  
Informatics 264 (INF 264) - Credits: 8.00  
Informatics 271 (INF 271) - Credits: 14.00  
Informatics 272 (INF 272) - Credits: 14.00  
Introduction to agricultural economics 210 (LEK 210) - Credits: 12.00  
Agricultural economics 220 (LEK 220) - Credits: 12.00  
Linear algebra 211 (WTW 211) - Credits: 12.00  
Calculus 218 (WTW 218) - Credits: 12.00  
Analysis 220 (WTW 220) - Credits: 12.00  
Linear algebra 221 (WTW 221) - Credits: 12.00  
Vector analysis 248 (WTW 248) - Credits: 12.00  
Differential equations 264 (WTW 264) - Credits: 12.00

## Curriculum: Final year

**Minimum credits: 132**

### Core modules

Statistics 310 (STK 310) - Credits: 25.00

Statistics 320 (STK 320) - Credits: 25.00

The science of data analytics 353 (STK 353) - Credits: 25.00

Multivariate analysis 311 (WST 311) - Credits: 18.00

Stochastic processes 312 (WST 312) - Credits: 18.00

Time-series analysis 321 (WST 321) - Credits: 18.00

### Elective modules

Economics 310 (EKN 310) - Credits: 20.00

Economics 314 (EKN 314) - Credits: 20.00

Economics 320 (EKN 320) - Credits: 20.00

Economics 325 (EKN 325) - Credits: 20.00

Financial accounting 311 (FRK 311) - Credits: 20.00

Financial accounting 321 (FRK 321) - Credits: 20.00

Survival models 382 (IAS 382) - Credits: 18.00

Agricultural economics 310 (LEK 310) - Credits: 12.00

Agricultural economics 320 (LEK 320) - Credits: 16.00

Actuarial statistics 322 (WST 322) - Credits: 18.00

Analysis 310 (WTW 310) - Credits: 18.00

Complex analysis 320 (WTW 320) - Credits: 18.00

Financial engineering 354 (WTW 354) - Credits: 18.00

Algebra 381 (WTW 381) - Credits: 18.00

Dynamical systems 382 (WTW 382) - Credits: 18.00

Numerical analysis 383 (WTW 383) - Credits: 18.00

Geometry 389 (WTW 389) - Credits: 18.00

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.