

# University of Pretoria Yearbook 2025

## BCom specialising in Investment Management (07130205)

**Department** Financial Management

**Minimum duration of study** 3 years

**Total credits** 418

**NQF level** 07

### Programme information

The purpose of this degree programme is to expose students, specialising in Investment management, to the theoretical principles and practical application of investment decision-making at a high level. A multidisciplinary approach is followed and financial, economic and statistical principles are incorporated with the aim of improving the investment decision-making process. This well-structured degree has an analytic and scientific basis and is aimed at enabling students to cope with the demands of a rapidly changing local and international investment environment.

Students who achieved 70% and above in English Home Language (an A or a B), and 80% and above in English First Additional Language (only an A) in the NSC (or equivalent) will be exempted from ALL 124 and therefore do not have to register and pass this module to complete their degrees. Students who achieved 69% and below in English Home Language (a C and below), and 79% and below in English First Additional Language (a B and below) have to register for ALL 124 and pass this module in order to be awarded their degrees.

### Admission requirements

#### Important information for all prospective students for 2026

The admission requirements below apply to all who apply for admission to the University of Pretoria with a **National Senior Certificate (NSC) and Independent Examination Board (IEB) qualifications**. [Click here for this Faculty Brochure](#).

Minimum requirements		
Achievement level		
English Home Language or English First Additional Language	Mathematics	APS
NSC/IEB	NSC/IEB	34
5	6	

Life Orientation is excluded when calculating the APS.

Applicants currently in Grade 12 must apply with their final Grade 11 (or equivalent) results.

Applicants who have completed Grade 12 must apply with their final NSC or equivalent qualification results.

Please note that meeting the minimum academic requirements does not guarantee admission.

Successful candidates will be notified once admitted or conditionally admitted.

Unsuccessful candidates will be notified after 30 June.

Applicants should check their application status regularly on the UP Student Portal at [click here](#).

**Applicants with qualifications other than the abovementioned** should refer to the International undergraduate prospectus 2026: Applicants with a school leaving certificate not issued by Umalusi (South Africa), available at [click here](#).

**International students:** [Click here](#).

### Transferring students

A transferring student is a student who, at the time of applying at the University of Pretoria (UP) is/was a registered student at another tertiary institution. A transferring student will be considered for admission based on NSC or equivalent qualification and previous academic performance. Students who have been dismissed from other institutions due to poor academic performance will not be considered for admission to UP.

**Closing dates:** Same as above.

### Returning students

A returning student is a student who, at the time of application for a degree programme is/was a registered student at UP, and wants to transfer to another degree at UP. A returning student will be considered for admission based on NSC or equivalent qualification and previous academic performance.

#### Note:

- Students who have been excluded/dismissed from a faculty due to poor academic performance may be considered for admission to another programme at UP, as per faculty-specific requirements.
- Only ONE transfer between UP faculties and TWO transfers within a faculty will be allowed.
- Admission of returning students will always depend on the faculty concerned and the availability of space in the programmes for which they apply.

### Closing date for applications from returning students

Unless capacity allows for an extension of the closing date, applications from returning students must be submitted before the end of August via your UP Student Centre.

## Additional requirements

General Academic Regulations G1 to G15 apply to a bachelor's degree.

1. A student may not take more than the prescribed number of modules per semester unless permission has been obtained from the Dean.
2. A module that has already been passed may only be repeated with the approval of the Dean.
3. 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.
4. 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 of all modules and for the full duration of all programmes is therefore compulsory for all students.
5. The Dean has the right of authorisation regarding matters not provided for in the General Academic Regulations or the Faculty regulations.

## Other programme-specific information

**Note: See the alphabetical list of modules for prerequisites of all modules.**

- To continue with IVM 200, a student must pass Financial accounting 111, 121, Statistics 110, 122 and Economics 110, 120.

**Specialisation modules:** IVM 300.

"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 (OBS 359); 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 Academic Regulation G3 students have to comply with certain requirements as set by the Faculty Board.*

1. In order to register for the next year of study a student must pass at least 60% of the official credits listed for a year level of study for a three-year programme.
2. A student will be deemed to be in the second, third or a more senior year once he or she enrolls for any module in any of these levels of study.
3. If a student has passed less than the required minimum of at least 60% of the official credits listed for a year level, he/she will not be readmitted to the Faculty of Economic and Management Sciences. Such a student may apply in writing to the EMS Appeals Committee to be readmitted conditionally – with the proviso that the Appeals Committee may set further conditions with regard to the student's academic progress. The Committee may deny a student's application for readmission.
4. 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 EMS Appeals Committee. If not, his/her studies will be suspended.
5. A student whose studies have been suspended because of his/her poor academic performance has the right to appeal against the decision of the EMS Faculty Appeals Committee.
6. 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

### **Application of amended programme regulations**

Refer to General Academic Regulation G5.

## Curriculum: Year 1

**Minimum credits: 125**

Students can choose either STK 120 or STC 122 provided they meet the prerequisites.

### Fundamental modules

#### Academic information management 111 (AIM 111)

<b>Module credits</b>	4.00
<b>NQF Level</b>	05
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology and Religion
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Information Science
<b>Period of presentation</b>	Semester 1

#### Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology.

#### Academic information management 121 (AIM 121)

<b>Module credits</b>	4.00
<b>NQF Level</b>	05
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology and Religion Faculty of Veterinary Science
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week



**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Semester 2

### Module content

Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

## Academic literacy for Economic and Management Sciences 124 (ALL 124)

**Module credits** 6.00

**NQF Level** 05

**Service modules** Faculty of Economic and Management Sciences

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Unit for Academic Literacy

**Period of presentation** Semester 1 and Semester 2

### Module content

This module is intended to equip students with the competence in reading and writing required in the four high impact modules: Business Management, Financial Accounting, Statistics and Economics. Students will also be equipped to interpret and draw figures and graphs and to do computations and manage relevant formulas. Students attend two lectures per week during semester two.

*This module is offered by the Faculty of Humanities.*

## Academic orientation 107 (UPO 107)

**Module credits** 0.00

**NQF Level** 00

**Language of tuition** Module is presented in English

**Department** Economic and Management Sciences Dean's Office

**Period of presentation** Year

## Core modules

### Economics 110 (EKN 110)

**Module credits** 10.00

**NQF Level** 05

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week, 1 discussion class per week

**Language of tuition** Module is presented in English

**Department** Economics

**Period of presentation** Semester 1

### Module content

This module deals with the core principles of economics. A distinction between macroeconomics and microeconomics is made. A discussion of the market system and circular flow of goods, services and money is followed by a section dealing with microeconomic principles, including demand and supply analysis, consumer behaviour and utility maximisation, production and the costs thereof, and the different market models and firm behaviour. Labour market institutions and issues, wage determination, as well as income inequality and poverty are also addressed. A section of money, banking, interest rates and monetary policy concludes the course.

## Economics 120 (EKN 120)

**Module credits** 10.00

**NQF Level** 05

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** EKN 110 GS or EKN 113 GS and at least 4 (50-59%) in Mathematics in the Grade 12 examination or 60% in STK 113 and concurrently registered for STK 123

**Contact time** 2 lectures per week, 1 discussion class per week

**Language of tuition** Module is presented in English

**Department** Economics

**Period of presentation** Semester 2

### Module content

This module deals with the core principles of economics, especially macroeconomic measurement the private and public sectors of the South African economy receive attention, while basic macroeconomic relationships and the measurement of domestic output and national income are discussed. Aggregate demand and supply analysis stands core to this course which is also used to introduce students to the analysis of economic growth, unemployment and inflation. The microeconomics of government is addressed in a separate section, followed by a section on international economics, focusing on international trade, exchange rates and the balance of payments. The economics of developing countries and South Africa in the global economy conclude the course.

## Financial management 121 (FBS 121)

<b>Module credits</b>	10.00
<b>NQF Level</b>	05
<b>Prerequisites</b>	Only for BCom (Financial Sciences) and BCom (Investment Management).
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Financial Management
<b>Period of presentation</b>	Semester 2

### Module content

Introduction to finance and investment, critical reasoning skills and problem solving techniques for finance and investment, cost concepts, simple linear regression analysis for the purpose of forecasting future sales volumes and costs, time series analysis for the purpose of forecasting future sales volumes, indexing for the purposes of inflating and deflating a set of financial data, the functioning of the financial markets including interest rate and foreign exchange mechanisms, mathematics for business including time value of money calculations. Where appropriate, spread sheet applications (Excel) will be addressed as part of the respective topics being covered. Contemporary issues in finance and investment.

## Financial accounting 111 (FRK 111)

<b>Module credits</b>	10.00
<b>NQF Level</b>	05
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Law Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Accounting
<b>Period of presentation</b>	Semester 1

### Module content

The nature and function of accounting; the development of accounting; financial position; financial result; the recording process; processing of accounting data; treatment of VAT; elementary income statement and balance sheet; flow of documents; accounting systems; introduction to internal control and internal control measures; bank reconciliations; control accounts; adjustments; financial statements of a sole proprietorship; the accounting framework.

## Financial accounting 121 (FRK 121)

<b>Module credits</b>	12.00
<b>NQF Level</b>	05



**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Natural and Agricultural Sciences

**Prerequisites** FRK 111

**Contact time** 4 lectures per week

**Language of tuition** Module is presented in English

**Department** Accounting

**Period of presentation** Semester 2

#### Module content

Property, plant and equipment; intangible assets; inventories; liabilities; presentation of financial statements; enterprises without profit motive; partnerships; companies; close corporations; cash flow statements; analysis and interpretation of financial statements.

### Informatics 112 (INF 112)

**Module credits** 10.00

**NQF Level** 05

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Natural and Agricultural Sciences

**Prerequisites** A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination; or STK 113 60%, STK 123 60% or STK 110

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Semester 2

#### Module content

Introduction to information systems, information systems in organisations, hardware: input, processing, output, software: systems and application software, organisation of data and information, telecommunications and networks, the Internet and Intranet. Transaction processing systems, management information systems, decision support systems, information systems in business and society, systems analysis, systems design, implementation, maintenance and revision.

### Informatics 183 (INF 183)

**Module credits** 3.00

**NQF Level** 05

**Prerequisites** No prerequisites.

**Contact time** 1 practical per week

**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Year

**Module content**

Computer processing of accounting information.

**Commercial law 110 (KRG 110)**

**Module credits** 10.00

**NQF Level** 05

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Economic and Management Sciences

**Contact time** 1 tutorial per week, 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Mercantile Law

**Period of presentation** Semester 1

**Module content**

General introduction.

General principles of the law of contract: introduction to the law of contract; consensus; contractual capacity; legality and physical possibility of performance; formalities; parties to the contract; conditions and related legal concepts; special terms and the interpretation of contracts; breach of contract and the termination of the contractual relationship.

**Business management 114 (OBS 114)**

**Module credits** 10.00

**NQF Level** 05

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** May not be included in the same curriculum as OBS 155

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Business Management

**Period of presentation** Semester 1

**Module content**

The entrepreneurial mind-set; managers and managing; values, attitudes, emotions, and culture: the manager as a person; ethics and social responsibility; decision making; leadership and responsible leadership; effective groups and teams; managing organizational structure and culture inclusive of the different functions of a generic organisation and how they interact (marketing; finance; operations; human resources and general management); contextualising Sustainable Development Goals (SDG) in each of the topics.

## Statistics 122 (STC 122)

<b>Module credits</b>	13.00
<b>NQF Level</b>	05
<b>Prerequisites</b>	Minimum final mark of 60% in STK110/STK120/STK121/STC121. Average of modules equivalent to STK110 may not be a prerequisite. If minimum final mark of 60% not obtained in STK110, minimum final mark of 60% should be obtained in STK120/STK121/STC121.
<b>Contact time</b>	1 tutorial per week, 1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Statistics
<b>Period of presentation</b>	Semester 2

### Module content

Introduction to data and exploratory data analysis: Graphical representations and descriptive measures for numerical and categorical data; relationships between explanatory and response variables; data transformations. Foundations of inference: Simulation; sampling with and without replacement; confidence intervals with bootstrapping; hypothesis testing with randomization; inference with mathematical models (normal distribution and central limit theorem). Statistical inference: Inference for a single proportion, for comparing two proportions, for two-way tables, for a single mean, for comparing two independent means, for comparing paired means, and for comparing many means. Regression and inferential modelling: Correlation; simple linear regression models with numerical or categorical predictors; least squares regression; residual analysis; goodness-of-fit; outliers; prediction and extrapolation; inference. All module content is demonstrated and interpreted through practical coding and simulation within a data science framework.

This module is also presented as a summer school for students who initially elected and passed STK 120 or STK 121 or STC 121 with a final mark of at least 60% and then decide to further their studies in Statistics as well as for students who failed STC 122 during semester 2.

## Statistics 110 (STK 110)

<b>Module credits</b>	13.00
<b>NQF Level</b>	05
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	At least 5 (60-69%) in Mathematics in the Grade 12 examination. Candidates who do not qualify for STK 110 must register for STK 113 and STK 123
<b>Contact time</b>	3 lectures per week, 1 practical per week, 1 tutorial per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Statistics
<b>Period of presentation</b>	Semester 1

## Module content

PART A: Mathematical concepts for the business student: Statistical applications of quantitative techniques. Systems of linear equations: solving and application. Differentiation: Rules and application using the rules. Optimisation, linear functions, non-linear functions, Integration: Rules and application using the rules, Marginal and total functions, Stochastic and deterministic variables in a statistical and practical context: producers' and consumers' surplus. Linear programming. Matrix algebra. Limits and continuity.

PART B: Descriptive statistics: Sampling and the collection of data; frequency distributions and graphical representations. Descriptive measures of location and dispersion. Probability. Introductory probability theory and theoretical distributions. Statistical and mathematical concepts are demonstrated and interpreted through Excel (practical coding) and simulation within a data science framework.

Exam entrance requires a subminimum of 40% in both Part A and Part B. To pass the module a student has to pass both Part A and Part B.

## Statistics 121 (STK 121)

**Module credits** 13.00

**NQF Level** 05

**Service modules** Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** STK 110 or both STK 133 and STK 143 or both WST 133 and WST 143 or both STK 113 and STK 123

**Language of tuition** Module is presented in English

**Department** Statistics

**Period of presentation** Semester 1

## Module content

Students can only get credit for one of the following two modules: STK 120 or STK 121.

Analysis of variance, categorical data analysis, distribution-free methods, curve fitting, regression and correlation, the analysis of time series and indices. Statistical and economic applications of quantitative techniques: Systems of linear equations: solving and application. Optimisation, linear functions, non-linear functions. Marginal and total functions. Stochastic and deterministic variables in statistical and economic context: producers' and consumers' surplus. Supporting mathematical concepts. Statistical concepts are illustrated using simulation within a data science framework.

This is a terminating module.

## Curriculum: Year 2

**Minimum credits: 157**

### Core modules

#### Business accounting 200 (BAC 200)

<b>Module credits</b>	32.00
<b>NQF Level</b>	06
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Law Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	FRK 121
<b>Contact time</b>	4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Accounting
<b>Period of presentation</b>	Year

#### Module content

To use a conceptual understanding of intermediate foundational knowledge of International Financial Reporting Standards (IFRS) in order to prepare, present and interpret company and basic group company financial statements in a familiar business context and to propose clear solutions with adequate justification to solve financial problems in an ethical manner.

#### Economics 214 (EKN 214)

<b>Module credits</b>	16.00
<b>NQF Level</b>	06
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	EKN 110 GS & EKN 120 OR EKN 113 GS & EKN 123; & STK 110 GS OR STK 113 & STK 123 & STK 120/121 or concurrently registered for STK 120/121 OR WST 111 & WST121 are prerequisites instead of STK 120/121 or WST 111 and concurrently registered for WST 121.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Economics
<b>Period of presentation</b>	Semester 1

## Module content

### Macroeconomics

From Wall and Bay Street to Diagonal Street: a thorough understanding of the mechanisms and theories explaining the workings of the economy is essential. Macroeconomic insight is provided on the real market, the money market, two market equilibrium, monetarism, growth theory, cyclical analysis, inflation, Keynesian general equilibrium analysis and fiscal and monetary policy issues.

## Economics 234 (EKN 234)

**Module credits** 16.00

**NQF Level** 06

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** EKN 110, EKN 120 and STK 120/121 and STC 122 or WST 121 OR concurrently registered for STK 120/121 or WST 121.

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Economics

**Period of presentation** Semester 2

## Module content

### Macroeconomics

Application of the principles learned in EKN 214 on the world we live in. We look at international markets and dynamic macroeconomic models, and familiarise the students with the current macroeconomic policy debates. We also take a look at the latest macroeconomic research in the world. The course includes topics of the mathematical and econometric analysis of macroeconomic issues.

## Informatics 264 (INF 264)

**Module credits** 8.00

**NQF Level** 06

**Prerequisites** INF 112, AIM 101 or AIM 102 or AIM 111 and AIM 121

**Contact time** 2 practicals per week

**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Semester 1

## Module content

Foundation of databases and query languages which are relevant to the application of information systems within a business environment.



## Investment management 210 (IVM 210)

<b>Module credits</b>	16.00
<b>NQF Level</b>	06
<b>Prerequisites</b>	FRK 111, FRK 121 or FRK 100 or FRK 101; STK 110, STC 122, EKN 110, EKN 120, FBS 121 and only available to BCom Investment Management and BCom Statistics and Data Science students.
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Financial Management
<b>Period of presentation</b>	Semester 1

### Module content

The South African financial system, mathematical principles for investments and finance, time value of money, risk and return, security markets and instruments, market indices, equity valuation principles and practices, practical application where appropriate.

## Investment management 220 (IVM 220)

<b>Module credits</b>	16.00
<b>NQF Level</b>	06
<b>Prerequisites</b>	IVM 210 GS 40% and only available to BCom Investment Management and BCom Statistics and Data Science students.
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Department</b>	Financial Management
<b>Period of presentation</b>	Semester 2

### Module content

Valuation principles and practices of interest-bearing instruments, introduction to derivatives, asset allocation, financial institutions and participants, practical application where appropriate.

## Statistics 210 (STK 210)

<b>Module credits</b>	20.00
<b>NQF Level</b>	06
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	STK 110, STC 122 or WST 111, WST 121
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Statistics

**Period of presentation** Semester 1

### Module content

Statistical problem solving. Causality, experimental and observational data. Probability theory. Multivariate random variables. Discrete and continuous probability distributions. Stochastic representations. Measures of association. Expected values and conditional expectation. Simulation techniques. Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

## Statistics 220 (STK 220)

**Module credits** 20.00

**NQF Level** 06

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** STK 210

**Contact time** 3 lectures per week, 1 practical per week

**Language of tuition** Module is presented in English

**Department** Statistics

**Period of presentation** Semester 2

### Module content

Multivariate probability distributions. Sampling distributions and the central limit theorem. Frequentist and Bayesian inference. Statistical learning and decision theory. Simulation techniques enhancing statistical thinking. Supervised learning: linear regression, estimation and inference. Non-parametric modelling. Supporting mathematical concepts. Statistical algorithms. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.



## Curriculum: Final year

**Minimum credits: 157**

### Core modules

#### Business accounting 310 (BAC 310)

<b>Module credits</b>	20.00
<b>NQF Level</b>	07
<b>Prerequisites</b>	BAC 200
<b>Contact time</b>	4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Accounting
<b>Period of presentation</b>	Semester 1

##### Module content

BAC 310 primarily focuses on company financial statements and the outcome of BAC 310 is: To use a conceptual understanding of comprehensive and integrated foundational knowledge of International Financial Reporting Standards (IFRS), basic foundational knowledge of IFRS for small and medium-sized enterprises (IFRS for SMEs) and basic foundational knowledge of Generally Recognised Accounting Practice (GRAP), in order to proficiently prepare, present and interpret company financial statements in an unfamiliar business context and to propose appropriate solutions with compelling justification to solve financial problems in an ethical manner.

#### Investment management 310 (IVM 310)

<b>Module credits</b>	20.00
<b>NQF Level</b>	07
<b>Prerequisites</b>	IVM 220 and only available to BCom: Investment Management and BCom: Statistics and Data Science students.
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Financial Management
<b>Period of presentation</b>	Semester 1

##### Module content

Derivatives markets, instruments, valuation and strategies, CFA Institute Code of Ethics and Standards of Professional Conduct, practical application where appropriate.

#### Investment management 320 (IVM 320)

<b>Module credits</b>	20.00
<b>NQF Level</b>	07

<b>Prerequisites</b>	IVM 210, IVM 310 GS 40% and only available to BCom Investment Management and BCom Statistics and Data Science students.
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Financial Management
<b>Period of presentation</b>	Semester 2

#### Module content

Efficient market hypothesis, portfolio management and performance evaluation, alternative investments, CFA Institute Code of Ethics and Standards of Professional Conduct, practical application where appropriate.

### The science of data analytics 353 (STK 353)

<b>Module credits</b>	18.00
<b>NQF Level</b>	07
<b>Service modules</b>	Faculty of Natural and Agricultural Sciences
<b>Prerequisites</b>	WST 212
<b>Contact time</b>	1 practical per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Statistics
<b>Period of presentation</b>	Semester 2

#### Module content

Introduction to coding: data types, basic arithmetic, logical comparisons, functions, loops, conditional statements, packages. Data exploration and visualisation. Visualisation best practices. Data wrangling: data cleaning, missing values, duplicate data, outliers. Data transformation. Principal component analysis. Statistical coding. Algorithmic thinking. Sampling: basic techniques in probability, non-probability, and resampling methods, Monte Carlo, probability integral transformation, bootstrap method, acceptance/rejection algorithm. Machine learning: train/test split, performance metrics, classification and clustering, performance metrics, cross-validation. Supervised and unsupervised learning: linear regression, decision tree, random forest, naïve Bayes, K-nearest neighbour, hierarchical clustering. Interpretation and communication of results. Text mining and analytics: topic modelling and word embeddings. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

### Applications in data science 212 (WST 212)

<b>Module credits</b>	12.00
<b>NQF Level</b>	06
<b>Prerequisites</b>	WST 111, WST 121 or STK 110, STC 122
<b>Contact time</b>	2 lectures per week, 1 practical per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Statistics

**Period of presentation** Semester 1

### Module content

Introduction to Databases. Database design and use. Data preparation and extraction: basic SQL queries, SQL joins and subqueries. Statistical modelling using database structures. Aims of data analysis (descriptive, inferential and predictive). Stages of conducting a data analysis to solve real-world problems. Sources and types of data and characteristics of extremely large or complex data sets. Introductory machine learning concepts: bias/variance trade-off, model complexity, cross-validation, regularisation, overfitting/underfitting, precision, recall, F1 score, ROC curve and confusion matrix. Data visualisation, data wrangling, supervised learning (linear, local and logistic regression) and unsupervised learning (k-means clustering). Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

## Elective modules

### Economics 310 (EKN 310)

**Module credits** 20.00

**NQF Level** 07

#### Service modules

Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** Any two of EKN 214; EKN 234; EKN 224 or EKN 244.

**Contact time** 2 lectures per week, 1 discussion class per week

**Language of tuition** Module is presented in English

**Department** Economics

**Period of presentation** Semester 1

### Module content

Public finance

Role of government in the economy. Welfare economics and theory of optimality. Ways of correcting market failures. Government expenditure theories, models and programmes. Government revenue. Models on taxation, effects of taxation on the economy. Assessment of taxation from an optimality and efficiency point of view. South African perspective on public finance.

### Economics 320 (EKN 320)

**Module credits** 20.00

**NQF Level** 07

#### Service modules

Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** Any two of EKN 214; EKN 234; EKN 224 or EKN 244.

**Contact time** 2 lectures per week, 1 discussion class per week

**Language of tuition** Module is presented in English

**Department** Economics

**Period of presentation** Semester 2

#### Module content

Economic analyses

Identification, collection and interpretation process of relevant economic data; the national accounts (i.e. income and production accounts, the national financial account, the balance of payments and input-output tables); economic growth; inflation; employment, unemployment, wages, productivity and income distribution; business cycles; financial indicators; fiscal indicators; social indicators; international comparisons; relationships between economic time series - regression analysis; long-term future studies and scenario analysis; overall assessment of the South African economy from 1994 onwards.

### Statistics 310 (STK 310)

**Module credits** 25.00

**NQF Level** 07

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Humanities  
Faculty of Natural and Agricultural Sciences

**Prerequisites** STK 210, STK 220

**Contact time** 3 lectures per week, 1 practical per week

**Language of tuition** Module is presented in English

**Department** Statistics

**Period of presentation** Semester 1

#### Module content

Supervised learning. Linear and non-linear regression. Ordinary least squares and maximum likelihood estimation. Violations of the assumptions, residual analysis. Cross validation. Statistical inference. Bootstrap inference. Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

### Statistics 320 (STK 320)

**Module credits** 25.00

**NQF Level** 07

**Service modules** Faculty of Engineering, Built Environment and Information Technology  
Faculty of Economic and Management Sciences  
Faculty of Natural and Agricultural Sciences

**Prerequisites** STK 210, STK 220 or WST 211, WST 221

**Contact time** 1 practical per week, 3 lectures per week

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<b>Language of tuition</b>	Module is presented in English
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<b>Department</b>	Statistics
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<b>Period of presentation</b>	Semester 2
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### Module content

Note: Only one of the modules WST 321 or STK 320 may be included in any study programme.

Stationary and non-stationary univariate time series. Properties of ARIMA processes. Identification, estimation and diagnostic testing of a time series models. Forecasting. Multivariate time series. Supervised learning: introduction to generalised linear models. Modelling of binary response variables, logistic regression. Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

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### General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

### Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

### University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.