University of Pretoria Yearbook 2023

Bachelor of Information Technology (Information Systems) [BIT] (12133300)

Department	Informatics
Minimum duration of study	3 years
Total credits	371
NQF level	07

Admission requirements

Important information for all prospective students for 2023

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	
5	5	**30**

The suggested second-choice programme for BIT (Information Systems) is BIS (Information Science).

Life Orientation is excluded when calculating the APS.

You will be considered for final admission to degree studies if space allows, and if you have a National Senior Certificate (NSC) or equivalent qualification with admission to bachelor's degree studies, and comply with the minimum subject requirements as well as the APS requirements of your chosen programme.

Applicants with qualifications other than the abovementioned should refer to the Brochure: Undergraduate Programme Information 2023: Qualifications other than the NSC and IEB, 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.

Promotion to next study year

Refer also to General Academic Regulation G4.

a. A student must pass all the modules of the first year of study, before he or she is permitted to register for any module of the third year of study. Module prerequisites remain applicable. Exceptions to this rule will be considered by the relevant head of department and the Dean.
b. A new first-year student, who has failed in all the prescribed modules of the programme at the end of the first semester, will not be permitted to proceed to the second semester in the School of Information Technology.
c. A student who has not passed at least 70% of the credits of the current year of study after the November examinations will not be re-admitted to the School of Information Technology.
d. Students who fail a module for a second time, forfeit the privilege of registering for any modules of an advanced year of study.
e. Students whose academic progress is not acceptable can be suspended from further studies. Refer to the following important regulation: G4 and/or regulations as they appear for the applicable programmes.
f. A student who is excluded from further studies in terms of the stipulations of the above-mentioned regulations will be notified in writing by the Dean or admissions committee at the end of the relevant semester.
g. A student who has been excluded from further studies may apply in writing to the admissions committee of the School of Information Technology for readmission on or before 12 January.
h. Should the student be readmitted by the admissions committee, strict conditions will be set which the student must comply with in order to proceed with studies.
i. Should the student not be readmitted to further studies by the admissions committee, he/she will be informed in writing.
j. Students who are not readmitted by the admissions committee have the right to appeal to the Senate Committee for Admission, Evaluation and Academic Support.
k. Any decision taken by the Senate Committee for Admission, Evaluation and Academic Support is final.

Pass with distinction

A degree (undergraduate) in the School of IT is conferred with distinction on a student who did not repeat any

module of his/her final year, obtained a weighted average of at least 75% (not rounded) in all the prescribed modules for the final year, provided that a subminimum of 65% is obtained in each of these modules and provided that the degree is completed in the prescribed minimum period of time. Ad hoc cases will be considered by the Dean, in consultation with the relevant head of department.

General 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 (HEQF) 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.

Curriculum: Year 1

Minimum credits: 130

Additional information:
In addition to all the compulsory core modules, students choose one elective stream and register for the electives indicated per stream:

Computer Auditing: FRK 111, FRK 121, STK 110, STK 120 and INF 183
Information Science: INL 110, INL 120 and INL 140
Entrepreneurship: FRK 111, FRK 122, STK 110, STK 120 and INF 183
eBusiness: FRK 111, FRK 122, STK 110, STK 120 and INF 183
Geography: ENV 101, BME 120, GGY, 156 and GMC 110
eTaxation: FRK 111, FRK 121, STK 110, STK 120 and INF 183
Data Science Management: EKN 110, EKN 120, STK 110 and STC 122

Fundamental modules

Academic information management 111 (AIM 111)

Module credits	4.00
NQF Level	05
Service modules	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
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 1

Module content

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

Academic information management 121 (AIM 121)

Module credits	4.00
NQF Level	05

Service modules	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
Prerequisites	No prerequisites.
Contact time	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 Information Technology 121 (ALL 121)

Module credits	6.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	1 web-based period per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Unit for Academic Literacy
Period of presentation	Semester 2

Module content

By the end of this module students should be able to cope more confidently and competently with the reading, writing and critical thinking demands that are characteristic of the field of Information Technology.

Academic orientation 112 (UPO 112)

Module credits	0.00
NQF Level	00
Language of tuition	Module is presented in English
Department	EBIT Deans Office
Period of presentation	Year

Core modules

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.

Information systems 113 (INF 113)

Module credits	10.00
NQF Level	05
Prerequisites	A candidate must have passed Mathematics with at least 5 (60-69%) in the Grade 12 examination. Only available to BCom (Informatics) Information Systems (07130173) or BIT(IS) (12133300) students.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1

Module content

Introduction to quantitative methods for Information systems to students.

Informatics 154 (INF 154)

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 5 (60-69%) in the Grade 12 examination.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1

Module content

Introduction to programming.

Informatics 164 (INF 164)

Module credits	10.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	INF 154
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 2

Module content

Programming.

Informatics 171 (INF 171)

Module credits	20.00
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 5 (60-69%) in the Grade 12 examination.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Year

Module content

General systems theory, creative problem solving, the business analyst, systems development building blocks, systems analysis methods, process modelling and data modelling.

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.

Business management 124 (OBS 124)

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	Admission to the examination in OBS 114
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 2

Module content

Value chain management: functional strategies for competitive advantage; human resource management; managing diverse employees in a multicultural environment; motivation and performance; using advanced information technology to increase performance; production and operations management; financial management; corporate entrepreneurship.

Elective modules

Biometry 120 (BME 120)

Module credits	16.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences Faculty of Veterinary Science
Prerequisites	At least 4 (50-59%) in Mathematics in the Grade 12 examination, or at least 50% in both Statistics 113, 123
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

Module content

Simple statistical analysis: Data collection and analysis: Samples, tabulation, graphical representation, describing location, spread and skewness. Introductory probability and distribution theory. Sampling distributions and the central limit theorem. Statistical inference: Basic principles, estimation and testing in the one- and two-sample cases (parametric and non-parametric). Introduction to experimental design. One- and twoway designs, randomised blocks. Multiple statistical analysis: Bivariate data sets: Curve fitting (linear and non-linear), growth curves. Statistical inference in the simple regression case. Categorical analysis: Testing goodness of fit and contingency tables. Multiple regression and correlation: Fitting and testing of models. Residual analysis. Computer literacy: Use of computer packages in data analysis and report writing.

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	1 discussion class per week, 2 lectures 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	1 discussion class per week, 2 lectures 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.

Introduction to environmental sciences 101 (ENV 101)

Module credits	8.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology

Period of presentation	Quarter 1

Module content

Introducing the basic concepts and interrelationships required to understand the complexity of natural environmental problems, covering an introduction to environmental science and biogeography; including a first introduction to SDGs and Aichi targets.

Financial accounting 111 (FRK 111)

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

Module credits	12.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 GS
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.

Financial accounting 122 (FRK 122)

Module credits	12.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Law Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 GS or FRK 133, FRK 143
Contact time	4 lectures per week
Language of tuition	Module is presented in English
Department	Accounting
Period of presentation	Semester 2

Module content

Budgeting, payroll accounting, taxation – income tax and an introduction to other types of taxes, credit and the new Credit Act, insurance, accounting for inventories (focus on inventory and the accounting entries, not calculations), interpretation of financial statements.

Aspects of human geography 156 (GGY 156)

Module credits	8.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Quarter 2

Module content

This module begins by fostering an understanding of human geography. Then follows with the political ordering of space; cultural diversity as well as ethnic geography globally and locally; population geography of the world and South Africa: and four economic levels of development. The purpose is to place South Africa in a world setting and to understand the future of the country.

Cartography 110 (GMC 110)

Module credits	10.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 2

Module content

History, present and future of cartography. Introductory geodesy: shape of the earth, graticule and grids, datum definition, elementary map projection theory, spherical calculations. Representation of geographical data on maps: Cartographic design, cartographic abstraction, levels of measurement and visual variables. Semiotics for cartography: signs, sign systems, map semantics and syntactics, explicit and implicit meaning of maps (map pragmatics). Critique maps of indicators to measure United Nations Sustainable Development Goals in South Africa.

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.

Information science 110 (INL 110)

Module credits	12.00
NQF Level	05
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Information Science

Period of presentation	Semester 1

Module content

Introduction to Information Science. This module is an introduction to the study field of information science and its various professions. Key concepts that will be discussed include the following: the human as information processor and user; the life-cycle of information in terms of processes, products and role-players; as well as the communication of information. The social-ethical impact of globalisation is included as a key concern, with reference to Africa, the 4th Industrial Revolution and other revolutions to come are addressed as well as core principles such as equity, diversity and inclusion.

Information science 120 (INL 120)

Module credits	12.00
NQF Level	05
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 2

Module content

Organisation and representation of information. This module offers a brief overview of the basic principles and processes underlying the organisation, representation, and structuring of information. The process of organising information on the web (such as social networking sites), in multimedia formats, by means of document image processing and in databases is dealt with. Themes on the representation of information through the creation of metadata include various general and domain specific metadata schemas such as Dublin Core for the web, as well as the various retrieval and management tools available for metadata. Practical classes include basic HTML and the design of web pages incorporating and applying what was covered in theory.

Information science 140 (INL 140)

Module credits	12.00
NQF Level	05
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 2

Module content

Information and communication technology. This module offers a brief overview of hardware and software and telecommunications technologies. Various networks, network applications. intranets, internet, the World Wide Web, deep web and cloud computing are discussed. Computer ethics, ICTs, e-commerce, ergonomics, mobile computing technology and the influence that new trends and developments such as the 4th Industrial Revolution and virtual reality have on the creation and distribution of information are covered in this module. The practical component focuses on the introduction to the coding language, Python.

Statistics 122 (STC 122)

Module credits	13.00
NQF Level	05
Prerequisites	At least a 60% in STK 110 or an average of 60% for either (1) WST 133, WST 143, WST 153; (2) STK 113, STK 123, STK 121; (3) STK 133, STK 134, STK 121; (4) WST 133, WST 143, STK 121.
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

Module content

Inferential concepts. Experimental and observational data. Measures of association, uncertainty and goodness of fit. Sampling error and accuracy of estimation. Introduction to linear regression, reduction of variation due to regression. Conditional distributions of residuals. Simulation based inference: conditional means and prediction intervals. Bivariate data visualisation. Supporting mathematical concepts. Statistical concepts are 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 with a final mark of at least 60% and then decides to further their studies in statistics as well as for students who achieved a final mark of between 40% - 49% in STC 122 during semester 2.

Statistics 110 (STK 110)

Module credits	13.00
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	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
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics

Period of presentation	Semester 1

Module content

Descriptive statistics:
Sampling and the collection of data; frequency distributions and graphical representations. Descriptive measures of location and dispersion.
Probability and inference:
Introductory probability theory and theoretical distributions. Sampling distributions. Estimation theory and hypothesis testing of sampling averages and proportions (one and two-sample cases). Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

Statistics 120 (STK 120)

Module credits	13.00
NQF Level	05
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 110 or both STK 113 and STK 123 or both WST 133 and WST 143 or both STK 133 and STK 143
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

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 module is also presented as STK 121, an anti-semester module. This is a terminating module.

Curriculum: Year 2

Minimum credits: 121

Additional information:
In addition to all the compulsory core modules, students continue with the elective stream registered for in the first year and registers for the electives indicated per stream:

Computer Auditing: BAC 200 and IAU 200
Information Science: INL 210, INL 220 and INL 260
Entrepreneurship: OBS 210, OBS 220 and OBS 211
eBusiness: OBS 211, OBS 212, OBS 214 and KOB 283
Geography: GGY 283, GIS 220 and GMA 220
eTaxation: BAC 200 and BEL 200
Data Science Management: STK 210, STK 220 and WST 212

Fundamental modules

Community-based project 202 (JCP 202)

Module credits	8.00
NQF Level	06
Service modules	Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	1 other contact session per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Year

Module content

The Joint Community Project module is a credit-bearing educational experience where students are not only actively engaging in interpersonal skills development but also participate in service activities in collaboration with community partners. Students are given the opportunity to practice and develop their interpersonal skills formally taught in the module by engaging in teamwork with fellow students from different disciplines and also with non-technical members of the community. The module intends for the student to develop through reflection, understanding of their own experience in a team-based workspace as well as a broader understanding of the application of their discipline knowledge and its potential impact in their communities, in this way also enhancing their sense of civic responsibility. Compulsory class attendance 1 week before Semester 1 classes commence.

Core modules

Introduction to moral and political philosophy 251 (FIL 251)

Module credits	10.00
NQF Level	06

Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Philosophy
Period of presentation	Quarter 1

Module content

In this module students are equipped with an understanding of the moral issues influencing human agency in economic and political contexts. In particular philosophy equips students with analytical reasoning skills necessary to understand and solve complex moral problems related to economic and political decision making. We demonstrate to students how the most important questions concerning the socio-economic aspects of our lives can be broken down and illuminated through reasoned debate. Examples of themes which may be covered in the module include justice and the common good, a moral consideration of the nature and role of economic markets on society, issues concerning justice and equality, and dilemmas of loyalty. The works of philosophers covered may for instance include that of Aristotle, Locke, Bentham, Mill, Kant, Rawls, Friedman, Nozick, Bernstein, Dworkin, Sandel, Walzer, MacIntyre, Bujo, Wiredu, and Gyekye.

Informatics 214 (INF 214)

Module credits	14.00
NQF Level	06
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 5 (60-69%) in the Grade 12 examination; AIM 101 or AIM 111 and AIM 121.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1

Module content

Database design: the relational model, structured query language (SQL), entity relationship modelling, normalisation, database development life cycle; practical introduction to database design. Databases: advanced entity relationship modelling and normalisation, object-oriented databases, database development life cycle, advanced practical database design.

Informatics 225 (INF 225)

Module credits	14.00
NQF Level	06

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 5 (60-69%) in the Grade 12 examination, INF 112, AIM 111 and AIM 121
Contact time	1 lecture per week, 3 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 2

Module content

An overview of systems infrastructure and integration.

Informatics 261 (INF 261)

Module credits	7.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 214
Contact time	1 lecture per week, 1 practical per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 2

Module content

Database management: transaction management, concurrent processes, recovery, database administration: new developments: distributed databases, client-server databases: practical implementation of databases.

Informatics 271 (INF 271)

Module credits	14.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 164, INF 171
Contact time	1 discussion class per week, 1 lecture per week, 1 practical per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Year

Module content
Systems analysis. Systems design: construction; application architecture; input design; output design; interface design; internal controls; program design; object design; project management; system implementation; use of computer-aided development tools.

Informatics 272 (INF 272)

Module credits	14.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	INF 164, INF 171
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Year

Module content
Advanced programming.

Elective modules

Business accounting 200 (BAC 200)

Module credits	32.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Law Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 and FRK 121 or FRK 100/101
Contact time	4 lectures per week
Language of tuition	Module is presented in English
Department	Accounting
Period of presentation	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.

Taxation 200 (BEL 200)

Module credits	32.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and FRK 121 or FRK 100 or FRK 101. Only available to BCom (Option Taxation, Accounting Sciences, Financial Management Sciences, Financial Sciences, Informatics, Investment Management, Law and BIT (Information Systems) students.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Taxation
Period of presentation	Year

Module content

This module introduces students to taxation in the context of its history, its basic principles and its interdisciplinary nature as it relates to policy, legislation and governance. It also addresses the inherent demand for ethical and responsible conduct by all tax practitioners/professionals and taxpayers in pursuit of sustainable development in South Africa. The module is principles-based and will enable a student to interpret and apply the fundamental principles and concepts of taxation, specifically related to the Income Tax Act (No. 58 of 1962). In addition, the module will enable a student to interpret and apply specific sections in the Income Tax Act relating to donations and deceased estates.

Introductory geographic information systems 283 (GGY 283)

Module credits	14.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities
Prerequisites	GMC 110
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1

Module content

Introduction to Geographic Information Systems (GIS), theoretical concepts and applications of GIS. The focus will be on the GIS process of data input, data analysis, data output and associated technologies. This module provides the foundations for more advanced GIS and Geoinformatics topics. Practical assessments and a mini-project make use of South African and African examples and foster learning and application of concepts aligned to the UN Sustainable Development Goals.

Geographic data analysis 220 (GIS 220)

Module credits	14.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	GMC 110 and (STK 110 OR BME 120)
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 2

Module content

The nature of geographical data and measurement.Application of statistics in the geographical domain. Probability, probability distributions and densities, expected values and variances, Central Limit theorem. Sampling techniques. Exploratory data analysis, descriptive statistics, statistical estimation, hypothesis testing, correlation analysis and regression analysis. Examples used throughout the course are drawn from South African and African case studies and taught within the framework of the UN Sustainable Development Goals.

Remote sensing 220 (GMA 220)

Module credits	14.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	GMC 110
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1

Module content

This module aims to provide students with a working knowledge and skills to learn methods and techniques for collecting, processing and analysing remotely sensed data. Throughout the module, emphasis will be placed on image processing, image analysis, image classification, remote sensing and applications of remote sensing in geographical analysis and environmental monitoring. The module is composed of lectures, readings, practical exercises research tasks and a project or assignments of at least 64 notional hours. In particular, the practical exercises and research tasks incorporate South African examples using satellite remotely-sensed data, as well as field spectral data measurements, to promote understanding of the state of land cover and land use types (e.g. spanning agricultural resources, water resources, urbanization) and how changes over time could impact on the changing climate in accordance with the United Nation’s Sustainable Development Goals.

Internal auditing 200 (IAU 200)

Module credits	32.00
NQF Level	06
Prerequisites	FRK 111 and FRK 121 or FRK 101
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Auditing
Period of presentation	Year

Module content

Introduction to the business environment. An organisation’s internal control environment and internal control systems. The internal auditing profession and the role of the Institute of Internal Auditors (IIA). Code of Ethics and standards of internal auditors (IPPF). The internal audit process, tools and techniques used during the audit. The identification of weaknesses, risks and controls. Planning and performing limited scope assurance engagements for the revenue and procurement business processes. Relationship between internal auditing and other related stakeholders in business. Introduction to corporate governance.

Information science 210 (INL 210)

Module credits	16.00
NQF Level	06
Service modules	Faculty of Humanities
Prerequisites	AIM 111 and 121
Contact time	3 lectures per week, 3 practicals per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 1

Module content

Information seeking and retrieval. This module explores the theory and practice of effective information seeking and retrieval, including systematic reviewing. It builds on supporting research paradigms such as the systems, user-centred, cognitive and socio-cognitive paradigms. The focus is on the complexities of effective information seeking and retrieval within the context of information behaviour on a personal level, as well as in the context of professional, academic or everyday information needs.

Information science 220 (INL 220)

Module credits	16.00
NQF Level	06
Service modules	Faculty of Humanities
Prerequisites	INL 210
Contact time	3 lectures per week, 3 practicals per week

Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 2

Module content

Representation and organisation. Information needs to be represented and organised in a system for it to be effectively retrievable. This module deals with the representation and organisation of information on the level of individual entities (e.g. indexing), from the perspective of the users (user profiling), as well as within a document collection (taxonomies and ontologies). The fundamental concepts of information organisation are also covered including components of information retrieval systems (IRS), abstraction principles and user information needs. This module also deals with search engine optimisation.

Information science 260 (INL 260)

Module credits	16.00
NQF Level	06
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week, 3 practicals per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 2

Module content

Economics and politics of information. This module examines the economics and politics of information, with a special emphasis on South Africa's information sector. It aims to promote an understanding of the market and non-market qualities of information, and their consequences for the production, distribution and marketing of information goods and services. The ways in which information access and expression are regulated and the use of ICTs in crime and corruption is also addressed. The module also addresses the different types of information industries which are located within the information sector of the economy, and how their growth transforms the production and delivery of products and services across the local and global economy.

Communication management 283 (KOB 283)

Module credits	5.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Quarter 3

Module content
*Module content will be adapted in accordance with the appropriate degree programme. Only one of KOB 281–284 may be taken as a module where necessary for a programme.

Applied business communication skills

Acquiring basic business communication skills will enhance the capabilities of employees, managers and leaders in the business environment. An overview of applied skills on the intrapersonal, dyadic, interpersonal, group (team), organisational, public and mass communication contexts is provided. The practical part of the module (for example, the writing of business reports and presentation skills) concentrates on the performance dimensions of these skills as applied to particular professions.

Business management 210 (OBS 210)

Module credits	16.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 1

Module content

Logistics management
The role of logistics in an enterprise; definition and scope of customer service; electronic and other logistics information systems; inventory management; materials management with special reference to Japanese systems; management of the supply chain. Methods of transport and transport costs; types and costs of warehousing; electronic aids in materials handling; cost and price determination of purchases; organising for logistics management; methods for improving logistics performance.

Design thinking and business innovation 211 (OBS 211)

Module credits	16.00
NQF Level	06
Prerequisites	OBS 114 or 124 with admission to the examination in the other.
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 1

Module content

Creativity, innovation and identification of opportunities: the role of creativity; techniques to facilitate creativity; barriers to creativity; creative versus critical thinking within the broad business managerial context. Creative problemsolvingand identification of opportunities: identification of opportunities; development of ideas; evaluation and prioritising of ideas, ideation and design thinking. Creativity and its role in design thinking towards facilitating business innovation. Design thinking techniques are applied with an emphasis on customer empathy. Business innovation is translated from the process of design thinking into incremental or disruptive new products, services and or processes. A clear understanding is created with regards to the following elements in business innovation: types and forms; technology waves; models; processes and sources. The management of innovation is also an integral part of the module.

Business creation 212 (OBS 212)

Module credits	10.00
NQF Level	06
Prerequisites	OBS 211
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 2

Module content

Creating a new product, service or process to market. Comprehensive prototype feasibility and business modelling. Designing business models aligned with the market realm. Value-to-customer building and business efficiency development. Translation of business models into bankable business plans.

Responsible management 214 (OBS 214)

Module credits	10.00
NQF Level	06
Prerequisites	No prerequisites.
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 1

Module content

Business ethics; sustainability and the economic system; key social challenges; key environmental challenges; key economic challenges; conventional vs. progressive measure of progress; short-term vs long-term orientation; development as an outcome of growth; sustainable development as opposed to conventional development; sustainable development goals; sustainable development goals and the changing role of business in society; implications for the notion of corporate citizenship; global responses and solutions; local responses and solutions.

Business management 220 (OBS 220)

Module credits	16.00
NQF Level	06
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	OBS 114 or 124 with admission to the examination in the other. Students from other Faculties are required to have 50% for Mathematics in Grade 12.
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 2

Module content

Project management and negotiations:
Introduction Project management concepts; needs identification; the project, the project manager and the project team; types of project organisations; project communication and documentation. Planning and control: planning, scheduling and schedule control of projects; resource considerations and allocations; cost planning and performance evaluation.
Negotiation and collective bargaining: The nature of negotiation; preparation for negotiation; negotiating for purposes of climate creation; persuasive communication; handling conflict and aggression; specialised negotiation and collective bargaining in the South African context.

Statistics 210 (STK 210)

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 110, STC 122 or WST 111, WST 121
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	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	1 practical per week, 3 lectures 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.

Applications in data science 212 (WST 212)

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

Module content

Introductory machine learning concepts. Data base design and use. Data preparation and extraction. Statistical modelling using data base structures. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

Curriculum: Final year

Minimum credits: 120

Additional information:
In addition to all the compulsory core modules, students continue with the elective stream registered for in the first and second years and registers for the electives indicated per stream:

Computer Auditing: IAU 300
Information Science: INL 310 and INL 320
Entrepreneurship: OBS 310 and OBS 330
eBusiness: OBS 359 and OBS 370
Geography: GIS 310 and GIS 320
eTaxation: BEL 300
Data Science Management: STK 310 and STK 353

Core modules

Informatics 315 (INF 315)

Module credits	15.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 261 GS, INF 225 GS, INF 271 GS
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1

Module content

A review of current trends which are relevant to the application of information systems within a business environment.

Informatics 324 (INF 324)

Module credits	15.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 261 and INF 225 and INF 271 or INF 264
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 2

Module content
Information systems in organisations.

Informatics 354 (INF 354)

Module credits	15.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1

Module content
Advanced programming.

Informatics 370 (INF 370)

Module credits	35.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 261, INF 225, INF 271 and INF 272. Students who register for INF 370 must simultaneously register for INF 354.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Year

Module content
Application of systems analysis and design in a practical project; programming; use of computer-aided development tools.

Elective modules

Taxation 300 (BEL 300)

Module credits	40.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	BEL 200 and FRK 221 or FRK 201 or BAC 200
Contact time	1 discussion class per week, 4 lectures per week

Language of tuition	Module is presented in English
Department	Taxation
Period of presentation	Year

Module content

The purpose of the module is to enable the learner to calculate the value-added tax liability and to journalise transactions; calculate the normal tax liability (including the determination of taxable capital gains and assessed capital losses) of individuals, companies, estates and trusts,discuss tax principles on value-added tax and normal tax; and calculate and discuss provisional and employees' tax and to object against an assessment.

Geographic information systems 310 (GIS 310)

Module credits	22.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	GGY 283
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1

Module content

Advanced theory and practice of Geographic Information Systems; GIS applications; design and implementation of GIS applications. A project or assignments of at least 64 notional hours. Diverse South African examples will be used to expose the students to various data sources, geospatial analyses, and data representation to support the UN Sustainable Development Goals.

Spatial analysis 320 (GIS 320)

Module credits	22.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	GIS 220 and GGY 283
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 2

Module content

Construction of Raster Geovisualisations, spatial model construction and use, multi-criteria decision analysis. Factor analysis: Principle component analysis. Geostatistics: Spatial dependence modelling, ordinary kriging. Markov chains and cellular Automata, combined models. Examples using data from South Africa are implemented. A project or assignment of at least 64 notional hours.

Internal auditing 300 (IAU 300)

Module credits	40.00
NQF Level	07
Prerequisites	IAU 200 or ODT 200.
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Auditing
Period of presentation	Year

Module content

General and application information technology controls. The identification of weaknesses, risks, controls and engagement procedures for the human resources and payroll, inventory and bank and cash business processes. Assurance engagements (control, compliance and financial audit engagements). Safety, health and environmental audit engagements. Sustainability assurance engagements. Quantitative techniques, data analytics and computer assisted audit techniques. Risk-based, compliance, operational, forensic and consulting audit engagements. Introduction to the public sector internal audit environment. Corporate Governance, relevant legislation and other guidelines that affect the internal audit profession. Audit communication.

Information science 310 (INL 310)

Module credits	20.00
NQF Level	07
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week, 3 practicals per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 1

Module content

The Information Organisation. The module is concerned with the organisation of information in the digital environment focusing on the structure and use of document management and workflow systems, as well as distribution channels and virtual environments. The characteristics and application of the internet, intranets, as well as portals and applications use, are considered. The module introduces the practical component of information organisation which includes information access, storage, organisation and security using SharePoint as a web-based collaborative platform.

Information science 320 (INL 320)

Module credits	20.00
NQF Level	07
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week, 3 practicals per week
Language of tuition	Module is presented in English
Department	Information Science
Period of presentation	Semester 2

Module content

Information and Knowledge Management. This module focuses on information and knowledge management at an operational level and introduces information and knowledge management at a corporate strategic level. It deals with the management of information and knowledge, which enables the organisation to be competitive. In this module the focus is on four aspects, namely: the 21st century organisation, the external and internal stakeholders that have an interest in information products, as well as the infrastructure that should be in place in organisations to manage information products. The module concludes with a few topics relating to information management at a corporate strategic level.

Business management 310 (OBS 310)

Module credits	20.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 1

Module content

Strategy formulation: the deliberate strategy process of formulating a vision and mission statement, conducting internal and external environmental analyses and selecting appropriate strategies. It will enhance an understanding of the level of strategy formulation, gaining competitive advantage in your market place and thinking strategically.

Business management 330 (OBS 330)

Module credits	20.00
NQF Level	07
Prerequisites	No prerequisites.

Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 2

Module content

Strategy execution: The role of management in strategy implementation; budgets as instrument in the implementation process; leading processes of change within enterprises; supporting policies, procedures and information systems for implementation in the various functional areas; evaluation and control of implementation. South African case studies to create contextual relevance.

International business management 359 (OBS 359)

Module credits	20.00
NQF Level	07
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	OBS 114 or OBS 124 with admission to the examination in the other
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 1

Module content

Introduction to international management
International business management; the process of internationalisation; growth in international trade and investment; the evolution of multinational enterprises; management perspectives on international trade and international trade theories; international trade regulation; economic integration; the formation of trading blocks, and free-trade areas.
The international business environment
The cultural environment of international business; the political and legal environments as well as the economic environment of international business; the international monetary system; the foreign exchange market; and international capital markets.

Business analytics 370 (OBS 370)

Module credits	20.00
NQF Level	07
Prerequisites	Admission to exam in OBS 359.
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Business Management
Period of presentation	Semester 2

Module content

Evaluates how to strategically align, plan for and direct investments in, and governance of, processes for continuous renewal of analytic deployments in business. An overview of analytics in the business context will be provided that will cover: concepts of strategic and operational analytics; overview of concepts like dimensional modeling, the Model Life cycle, data mining, big data, KPIs and metrics, ERP and analytics, in-database/memory analytics; real-time analytics and data stream analysis. The applied decision making aspect will focus on mastering quantitative modeling tools and techniques for business decision-making and deterministic optimisation techniques.

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	1 practical per week, 3 lectures 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.

The science of data analytics 353 (STK 353)

Module credits	25.00
NQF Level	07
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	WST 212
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

Module content

Data exploration. Data wrangling. Statistical coding. Algorithmic thinking. Sampling: basic techniques in probability, non-probability, and resampling methods. Text mining and analytics. Machine learning: classification and clustering. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.

Regulations and rules

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

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.

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 (HEQF) 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.