University of Pretoria Yearbook 2016

BCom Informatics: Information Systems (07130172)

Duration of study	3 years
Total credits	422

Programme information

Informatics studies the application and use of the computer and information systems within the organisation. Our students' strength lies in their broad background of the economic and management sciences, which implies that the world of business is nothing sinister to them. The use of information technology by organisations is growing exponentially and new, more complex and challenging applications are explored and developed on a daily basis. It has the benefit that, in addition to the work of informatics specialists being extremely interesting, there will only be a very small chance that they will ever be without work.

The Informatics specialist has the knowledge to analyse the information needs of organisations, be that businesses, government departments, non-profit organisations or any other group where information is crucial. They not only analyse the needs but then address those needs by designing and implementing information systems. Information systems nowadays refer to computer-based systems (including mobile applica-tions) which store and manipulate data such that people can understand, use, interpret and make decisions based on the information.

The BCom (Informatics) programme at UP is the only degree in South Africa that is internationally accredited by the Accreditation Board for Engineering and Technology (ABET) of the USA.

Admission requirements

- To be able to register NSC candidates must comply with the minimum requirements for degree studies as well as with the minimum requirements for the relevant study programme.
- Life Orientation is excluded when calculating the APS.
- A valid National Senior Certificate (NSC) with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out below, are required.
- Provisional admission to the four-year programme in the School of Engineering is only guaranteed if a prospective student complies with ALL the requirements below.

Note

Candidates who do not comply with the minimum requirements, set out above, but who have obtained a minimum APS of 30, an achievement level of 5 for English or Afrikaans, 6 for Mathematics and 5 for Physical Science, will be considered for provisional admission to either the four-year programme or the ENGAGE programme based on the results of the compulsory NBT.

Admission to ENGAGE in the School of Engineering will be determined by the results of the NBT, NSC results, an achievementlevel of 5 in Mathematics and 4 in Physical Science, as well as an achievement level of 4 in Afrikaans or English, together with an APS of 25.

Students may apply directly to be considered for the ENGAGE programme.

Minimum requirements for 2016								
Achievement Level								APS
Afrikaans or English				Mathematics				
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	4	3	D	D	30

Other programme-specific information

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 the modules offered at 200- and 300-level only.

If Financial accounting 211 and 221 (FRK 211 and 221) are chosen, it is compulsory to take INF 281 (3 additional credits).

Students who are deemed to be at risk of their level of academic literacy are compelled to take the following two modules:

ALL 110 Academic literacy S1; ALL 121 Academic literacy for IT S2

Students who are deemed NOT to be at risk of their level of academic literacy are compelled to take the following module:

ALL 121 Academic literacy for IT S2

Note:

Specialisation modules: INF 301

Credits for ALL 110 will not form part of the minimum credit requirement for a programme.

Elective modules can only be taken if they can be accommodated in the class, test and examination timetables.

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

FRK 122 is a terminating module. If FRK 122 is selected, a candidate will not be able to continue with Accounting at the 200- and 300-level. Also note that FRK 121 may be a prerequisite for a number of other modules (eg BEL 200) and it is the responsibility of the candidate to ensure that he/she makes the appropriate choice between FRK 121 and 122.

FBS 212 and 222 are terminating modules. Candidates will not be able to continue with Financial management at 300-level.

1. Only candidates who meet the entrance requirements for the compulsory modules Informatics 154, 164, 171 and 271, 272 ie at least 4 (50-59%) in Mathematics in Grade 12, will be admitted to the BCom in Informatics. Admission to the BCom in Informatics can also be obtained by complying with the requirements as set out in Reg 1.2(f) of the section **Requirements for specific modules**, in which case the Dean, on the recommendation of the head of department, may allow a student to register simultaneously for Informatics 154, 164, 171 and 271, 272.
2. Informatics 281 (INF 281 – 3 additional credits) is compulsory at 200-level, if Financial accounting 311 and 321

(FRK 311 and 321) are chosen.

3. If the BEM modules are chosen as electives in the second and third year, the first-year modules will have to be included as extra modules.
4. Students who plan to apply for the BComHons (Internal Auditing) degree must discuss it with the relevant head of department at the beginning of the second year of study.
5. INF 301 is a module that combines INF 315, INF 324, INF 354 and INF 370. Students register for all these modules, but receive a calculated percentage for INF 301. Please refer to table below:

Module outstanding	Register for	Module in which student has to attend classes	Examination Exam paper	Write with
INF 315	INF 315	INF 315 + INF 301	INF 315	INF 315
INF 324	INF 324	INF 324 + INF 301	INF 324	INF 324
INF 354	INF 354	INF 354 + INF 301	INF 354	INF 354
INF 370	INF 370	INF 370 + INF 301	INF 370	INF 370

"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:

- the following modules which are offered at 300-level only, are also considered "major subjects": Labour law 311 (ABR 311), Labour relations 320 (ABV 320), and International business management 359 and 369 (OBS 359 and 369);
- 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.

A candidate who has

a. passed the Grade 12 examination in Mathematics with at least 5 (60-69%) obtains admission to the module COS 110 in Computer Science; or has passed COS 153 or COS 131 or COS 132 and WTW 133, obtains admission to the module COS 110 in Computer Science;
b. passed the Grade 12 examination in Mathematics with at least 4 (50-59%), will be admitted to WTW 134, WTW 115 and WTW 152 and with at least 5 (60-69%) to WTW 114, WTW 126, WTW 158 and WTW 161 in Mathematics, and to WST 111 in Mathematical statistics. (For the degree programme in Actuarial and Financial Mathematics, 80% in Mathematics is required.)
c. obtained at least 5 (60-69%) in Mathematics in the Grade 12 examination, or at least 50% in both Statistics 113, 123 will be admitted to Statistics (STK 110 and STK 120);
d. been admitted to the degree BCom (Accounting Sciences), will be admitted to Financial accounting 100 (FRK 100) ONLY on achieving a result in the compulsory accounting proficiency test written before lectures commence, that is acceptable. Candidates who did not take Grade 12 Accounting will be admitted to Financial accounting 101 (FRK 101) irrevocably. Accounting in Grade 12 is not a prerequisite for admission to any BCom degree programme;

e. obtained at least 4 (50-59%) in Mathematics in the Grade 12 examination, or at least 60% in both Statistics 113 and 123 will be admitted to Informatics 112 and Economics 120, and at least 6 (70-79%) in Mathematics or 60% in both Statistics 113 and 123 will be admitted to EKN 113 and 123;
f. obtained at least 5 (60-69%) in Mathematics or 4 (50-59%) in Mathematics, will be admitted to Informatics 154, 164 and 171.

Note: "Grade 12 examination" refers to the final National Senior Certificate (NSC) examination.

Promotion to next study year

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

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

Pass with distinction

a. A degree may be awarded with distinction provided the candidate meets the following criteria:

i. Completes the degree within three years;
ii. Obtains a Cumulative Grade Point Average CGPA) of 75%;
iii. Repeated passed modules will not be considered. The initial pass mark of module will be used when calculating the GPA.

b. Transferees from other faculties and from other universities who still complete their bachelor degrees (including credits transferred and recognised from the degrees they registered for originally) within three years will be considered as exceptional cases by the Dean.
c. The GPA will be not be rounded up to a whole number.
d. Exceptional cases will be considered by the Dean.

General information

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

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

Please note: 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.

Curriculum: Year 1

Minimum credits: 165

Fundamental modules

Academic information management 101 (AIM 101)

Module credits	6.00
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 Faculty of Veterinary Science
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Information Science
Period of presentation	Semester 1

Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology. 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
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	English
Academic organisation	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 107 (UPO 107)

Module credits	0.00
Language of tuition	Double Medium
Academic organisation	EMS Dean's Office
Period of presentation	Year

Core modules

Economics 110 (EKN 110)

Module credits	10.00
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	Both Afr and Eng
Academic organisation	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
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	Both Afr and Eng
Academic organisation	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 accounting 111 (FRK 111)

Module credits	10.00
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	Both Afr and Eng
Academic organisation	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
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	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Refer to Regulation 1.2(e): 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	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

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 154 (INF 154)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Refer to Regulation 1.2(f): A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

Module content

Introduction to programming.

Informatics 164 (INF 164)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 154; Regulation 1.2(f): A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination; AIM 101 or AIM 102 or AIM 111 and AIM 121
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 2

Module content

Advanced programming, use of a computer-aided software engineering tool.

Communication management 184 (KOB 184)

Module credits	5.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	Only one of KOB 181-184 may be taken as as a module where necessary for a programme
Language of tuition	Both Afr and Eng
Academic organisation	Div Communication Management
Period of presentation	Quarter 4

Module content

*Module content will be adapted in accordance with the appropriate degree programme. Only one of KOB 181 - 184 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 114 (OBS 114)

Module credits	10.00
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	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 1

Module content

Introduction to business management as a science; the environment in which the enterprise operates; the field of business, the mission and goals of an enterprise; management and entrepreneurship. The choice of a form of enterprise; the choice of products and/or services; profit and cost planning for different sizes of operating units; the choice of location; the nature of production processes and the layout of the plant or operating unit. Introduction to and overview of general management, especially regarding the five management tasks: strategic management; contemporary developments and management issues; financial management; marketing and public relations. Introduction to and overview of the value chain model; management of the input; management of the purchasing function; management of the transformation process with specific reference to production and operations management; human resources management and information management; corporate governance and black economic empowerment (BEE).

Business management 124 (OBS 124)

Module credits	10.00
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	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 2

Module content

Responsible leadership and the role of a business in society. The nature and development of entrepreneurship; the individual entrepreneur and characteristics of South African entrepreneurs. Looking at the window of opportunity. Getting started (business start up). Exploring different routes to entrepreneurship: entering a family business, buying a franchise, home-based business and the business buyout. This semester also covers how entrepreneurs can network and find support in their environments. Case studies of successful entrepreneurs - also South African entrepreneurs - are studied.

Statistics 110 (STK 110)

Module credits	13.00
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 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	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). Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 113 (STK 113)

Module credits	11.00
Service modules	Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	1 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 1

Module content

*On its own, STK 113 and 123 will not be recognised for degree purposes, but exemption will be granted for STK 110.
Data operations and transformations:
Introductory concepts, the role of statistic, various types of data and the number system. Concepts underlying linear, quadratic, exponential, hyperbolic, logarithmic transformations of quantitative data, graphical representations, solving of equations, interpretations. Determining linear equations in practical situations. Characteristics of logarithmic functions. The relationship between the exponential and logarithmic functions in economic and related problems. Systems of equations in equilibrium. Additional concepts relating to data processing, functions and inverse functions, sigma notation, factorial notation, sequences and series, inequalities (strong, weak, absolute, conditional, double) and absolute values.
Descriptive statistics – Univariate:
Sampling and the collection of data, frequency distributions and graphical representations. Descriptive measures of location and dispersion. Introductory probability theory. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.
The weekly one hour practical is presented during the last seven weeks of the semester.

Statistics 120 (STK 120)

Module credits	13.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 110 GS or both STK 113 GS and STK 123 GS or both WST 133 and WST 143 or STK 133 and STK 143 or STK 133 and STK 143
Contact time	1 practical per week, 3 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

Multivariate statistics:
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: drafting, matrices, solving and application. Optimisation; linear functions (two and more independent variables), non-linear functions (one and two independent variables). Marginal and total functions. Stochastic and deterministic variables in statistical and economic context: producers' and consumers' surplus, distribution functions, probability distributions, probability density functions. Identification, use, evaluation, interpretation of statistical computer packages and statistical techniques.
This module is also presented as an anti-semester bilingual module.

Statistics 123 (STK 123)

Module credits	12.00
Service modules	Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 113 GS
Contact time	1 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

*On its own, STK 113 and 123 will not be recognized for degree purposes, but exemption will be granted for STK 110.
Optimisation techniques with economic applications: Data transformations and relationships with economic applications, operations and rules, linear, quadratic, exponential, hyperbolic and logarithmic functions; systems of equations in equilibrium, system of linear inequalities, solving of linear programming problems by means of the graphical and extreme point methods. Applications of differentiation and integration in statistic and economic related problems: the limit of a function, continuity, rate of change, the derivative of a function, differentiation rules, higher order derivatives, optimisation techniques, the area under a curve and applications of definite integrals. Probability and inference: Theoretical distributions. Sampling distributions. Estimation theory and hypothesis testing of sampling averages and proportions (one-sample and two-sample cases). Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques. The weekly one hour practical is presented during the last seven weeks of the semester.

Financial accounting 122 (FRK 122)

Module credits	12.00
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	Both Afr and Eng
Academic organisation	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.

Informatics 171 (INF 171)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Regulation 1.2: A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Year

Module content

General systems theory, creative problem solving, soft systems methodology. The systems analyst, systems development building blocks, systems development, systems analysis methods, process modelling.

Information systems 113 (INF 113)

Module credits	10.00
Prerequisites	Refer to Regulation 1.2(f)
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

Module content

Introduction to quantitative methods for Information systems to students.

Curriculum: Year 2

Minimum credits: 145

Fundamental modules

Introduction to moral and political philosophy 251 (FIL 251)

Module credits	10.00
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	Double Medium
Academic organisation	Philosophy
Period of presentation	Quarter 2, 3 and 4

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 biggest 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, and MacIntyre.

Core modules

Business law 210 (BER 210)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng
Academic organisation	Mercantile Law
Period of presentation	Semester 1

Module content

Basic principles of law of contract. Law of sales, credit agreements, lease.

Business law 220 (BER 220)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	Examination entrance for BER 210
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng
Academic organisation	Mercantile Law
Period of presentation	Semester 2

Module content

Labour law. Aspects of security law. Law of insolvency. Entrepreneurial law; company law, law concerning close corporations. Law of partnerships.

Informatics 214 (INF 214)

Module credits	14.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	AIM 101 or AIM 111 and AIM 121
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 164 and INF 171; AIM 101 or AIM 102 or AIM 111 and AIM 121
Contact time	1 practical per week, 1 lecture per week, 2 discussion classes per week
Language of tuition	Both Afr and Eng

Academic organisation	Informatics
Period of presentation	Semester 2

Module content

An overview of systems infrastructure and integration.

Informatics 261 (INF 261)

Module credits	7.00
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	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Education
Prerequisites	AIM 101 or AIM 102 or AIM 111 and AIM 121, INF 163, 164
Contact time	1 practical per week, 1 lecture per week, 2 discussion classes per week
Language of tuition	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education

Prerequisites	AIM 101 or AIM 102 or AIM 111 and AIM 121, INF 163 and INF 164, Regulation IT.3(g)
Contact time	2 practicals per week, 1 discussion class per week, 5 web-based periods per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Year

Module content

Use of computer-aided development tools; advanced programming.

Community-based project 202 (JCP 202)

Module credits	8.00
Service modules	Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	1 other contact session per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Year

Module content

This project-orientated module is a form of applied learning which is directed at specific community needs and is integrated into all undergraduate academic programmes offered by the Faculty of Engineering, Built Environment and Information Technology.
The main objectives with the module are as follows:
(1) The execution of a community-related project aimed at achieving a beneficial impact on a chosen section of society, preferably but not exclusively, by engagement with a section of society which is different from the student's own background.
(2) The development of an awareness of personal, social and cultural values, an attitude to be of service, and an understanding of social issues, for the purpose of being a responsible professional.
(3) The development of important multidisciplinary and life skills, such as communication, interpersonal and leadership skills.
Assessment in this module will include all or most of the following components: evaluation and approval of the project proposal, assessment of oral and/or written progress reports, peer assessment in the event of team projects, written report-back by those at which the project was aimed at, and final assessment on grounds of the submission of a portfolio and a written report.

Elective modules

Taxation 200 (BEL 200)

Module credits	32.00
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 and Law) students.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Taxation
Period of presentation	Year

Module content

Introduction to income tax in respect of companies and individuals
In this module an introduction to the administration of deceased and insolvent estates is provided. Specific emphasis is placed on the preparation of the executor's account for deceased estates as well as the trustee's account for insolvent estates. The calculation of estate duty is also dealt with in detail. Introduction to taxation, objection and appeal, gross income, source of income, gross income (special inclusions), exempt income, general deduction formula, assessed losses, special deductions for companies, special deductions for individuals, capital allowances.

Financial accounting 211 (FRK 211)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	FRK 111 and FRK 121 or FRK 100/101
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 1

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of the Companies Act, the Framework and Statements of Generally Accepted Accounting Practice relating to the following: presentation of financial statements; revenue; investments; provisions, contingent liabilities and contingent assets; events after the balance sheet date; inventories; income taxes; leases; property, plant and equipment; impairment of assets; intangible assets; investment property, changes in accounting estimates and errors; introduction to financial instruments.

Financial accounting 221 (FRK 221)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	FRK 211 GS
Contact time	4 lectures per week

Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 2

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of Statements of Generally Accepted Accounting Practice relating to the following: employee benefits; the effects of changes in foreign exchange rates; accounting policies; earnings per share; cash flow statements; interests in joint ventures. Branch accounting. Introduction to consolidations, including basic consolidation techniques for both wholly-owned and partly-owned subsidiaries. Introduction to public sector accounting.

Internal auditing 211 (IOK 211)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and FRK 121
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Auditing
Period of presentation	Semester 1

Module content

Introduction to the audit environment. Nature, objectives, history and development of internal auditing. The internal auditing profession and the role of the Institute of Internal Auditors (IIA). Ethical code and standards of internal auditors (IPPF). An organisation’s internal control environment and internal control systems. Introduction to Information Technology (IT). General controls and application controls frameworks. The internal audit process and tools and techniques used during the audit Introduction to sampling.

Internal auditing 221 (IOK 221)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	IOK 211 GS
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Auditing
Period of presentation	Semester 2

Module content

Introduction to corporate governance. Relationship between internal auditing and other related disciplines and individuals. Background to external auditing. Internal and external audit approaches.The identification of weaknesses, risks and controls for the revenue and procurement systems in the system. The audit of internal control systems and the audit of financial statements.

Communication management 210 (KOB 210)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	No prerequisites.
Language of tuition	Double Medium
Academic organisation	Div Communication Management
Period of presentation	Semester 1

Module content

Management communication
Based on the paradigm of Integrated Communication (IC), this module covers management communication theory, leadership and supervisory communication, as well as the management of change and transformation through communication. Management communication in the global arena focuses on the dynamics and celebration of diversity and intercultural relations. Managers should take cognisance of the importance of development communication in both a business and community context. The importance of ethical considerations in managerial and leadership communication is emphasised. After explaining quantitative and qualitative research designs, appropriate communication research techniques are explored.

Communication management 220 (KOB 220)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	KOB 210 GS
Language of tuition	Double Medium
Academic organisation	Div Communication Management
Period of presentation	Semester 2

Module content

Organisational communication management
Through the utilisation of organisational communication management theories, a study is made of group and team communication, with specific emphasis on facilitation, negotiation and innovation. Knowledge management, internal communication, culture and organisational climate are core components of the complex dynamics of the sharing of meaning within the organisation. The function of strategic communication is emphasised throughout. Ethical considerations in organisational communication management are also stressed and appropriate research techniques are presented.

Business management 210 (OBS 210)

Module credits	16.00
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	Both Afr and Eng
Academic organisation	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.

Business management 220 (OBS 220)

Module credits	16.00
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	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 2

Module content

Project management: 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.

Statistics 210 (STK 210)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 110, STK 120
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Double Medium
Academic organisation	Statistics

Period of presentation	Semester 1

Module content

Counting techniques. Probability theory: Sample spaces, events, rules of probability, conditional probabilities, independent events and Bayes' theorem. Probability distributions and probability densities: cumulative distribution functions, marginal distributions, joint distributions, conditional distributions and independence. Expected values: Moments, Chebyshev's theorem, moment-generating functions, product moments, moments of linear combinations of random variables and conditional expectations. Transformation techniques of random variables. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 220 (STK 220)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 210 GS
Contact time	3 lectures per week, 1 practical per week
Language of tuition	Double Medium
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

Special probability distributions: the discrete uniform distribution, Bernoulli distribution, binomial distribution, negative binomial and geometric distribution, the hypergeometric distribution, Poisson distribution and multinomial distribution. Special probability densities: Uniform distribution, gamma, exponential and chi-square distributions, the beta distribution, the normal distribution and the bivariate normal distribution. Functions of random variables. Sampling distributions, point estimation, interval estimation and hypothesis testing. Regression Analysis. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Informatics 281 (INF 281)

Module credits	3.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111, FRK 121 or FRK 100 or FRK 101
Contact time	2 practicals per week
Language of tuition	English
Academic organisation	Informatics
Period of presentation	Semester 1 or Semester 2

Module content

Computer processing of accounting information.

Consumer behaviour 212 (BEM 212)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 110 GS
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Marketing Management
Period of presentation	Semester 1

Module content

Internal and external influencing factors of consumer behaviour, the consumer's decision process and application fields of consumer behaviour, consumerisms and social responsibility, buying behaviour of consumers in both product and service related industries, consumer psychology and the influence thereof on buying behaviour, psychology of pricing, influencing factors in consumer buying behaviour, the impact of various forms of marketing communication on buying behaviour.

Integrated brand communications 224 (BEM 224)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 110 GS
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Marketing Management
Period of presentation	Semester 2

Module content

Integrated brand communications approach, marketing communication planning, objectives and budgets for integrated marketing communications, principles and strategising of marketing communication elements, new media, the brand name communication process, marketing metrics and evaluation for marketing communication effectiveness.

Curriculum: Final year

Minimum credits: 120

Core modules

Informatics 301 (INF 301)

Module credits	80.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 214, INF 225, INF 261, INF 271 and INF 272
Contact time	6 lectures per week, 4 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Year

Module content

*INF 301 is a module that combines INF 315, INF 324, INF 354 and INF 370. Students register for all these modules, but receive a calculated percentage for INF 301.
A review of current trends that are relevant to the application of information systems within a business environment. Information systems in organisations, social and ethical responsibilities, the role of the Informatician. IT end-user relationships; IT management. Advanced programming. Application of systems analysis and design in a practical project; programming; use of computer-aided development tools.

Informatics 315 (INF 315)

Module credits	15.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education

Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 2

Module content

Information systems in organisations, social and ethical responsibilities, the role of the Informatician. IT end-user relationships; IT management.

Informatics 354 (INF 354)

Module credits	15.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

Module content

Advanced programming.

Informatics 370 (INF 370)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	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
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	BEL 200 and FRK 221 GS or FRK 201 GS
Contact time	4 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng
Academic organisation	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; and calculate provisional and employees' tax and to object against an assessment.

Marketing management 321 (BEM 321)

Module credits	20.00
Service modules	Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 212
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Marketing Management
Period of presentation	Semester 2

Module content

Strategic issues in marketing, strategic marketing, strategic analysis (market analysis, customer analysis, competitor analysis and internal analysis), market strategies (competitive strategies, strategies in the product life cycle and relationship building strategies) and strategy implementation and control.

Financial accounting 311 (FRK 311)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 211, 221 and INF 281
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 1

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of Statements of Generally Accepted Accounting Practice relating to the following: income taxes; property, plant and equipment; impairment; non-current assets held for sale; intangible assets; investment property; borrowing costs; leases; accounting policies; changes in accounting estimates and errors; segment reporting; certain aspects of financial instruments.

Financial accounting 321 (FRK 321)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 311 GS and INF 281
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 2

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of Statements of Generally Accepted Accounting Practice relating to the following: the effects of changes in foreign exchange rates; earnings per share; related party disclosure; associates. Complex consolidation issues, including intra-group transactions; dividends; preference shares; revaluations; horizontal, vertical and mixed groups; insolvent subsidiaries; change of interest; consolidated cashflow statement.

Internal auditing 311 (IOK 311)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	IOK 211 and IOK 221
Contact time	3 lectures per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Auditing
Period of presentation	Semester 1

Module content

General and application IT controls. The identification of weaknesses, risks and controls for the inventory, bank and cash systems. Statistical sampling. The audit of internal control systems and the audit of financial statements. Internal audit and external audit reports.

Internal auditing 321 (IOK 321)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology

Prerequisites	IOK 311 GS
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Auditing
Period of presentation	Semester 2

Module content

The identification of weaknesses, risks and controls for the payroll system and health and safety environment. The audit of internal control systems and the audit of financial statements. Computer Assisted Audit Techniques (CAATS). Introduction to performing an operational/performance audit. Relevant legislation and other guidelines that affect the internal audit profession. Introduction to the public sector internal audit environment.

Communication management 310 (KOB 310)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	KOB 210 or KOB 220 with a GS in the other
Language of tuition	Double Medium
Academic organisation	Div Communication Management
Period of presentation	Semester 1

Module content

Strategic communication management
Integrated Communication (IC) presupposes the alignment and subsequent implementation of the enterprise, corporate and corporate communication strategies of the organisation. The corporate positioning that results from these strategies is communicated through the organisation's unique reputation, image, identity and brand. Environmental scanning furthermore enables the organisation to identify and address issues, risks and possible crises that can influence this positioning. Current corporate governance thinking supports the principle of a symbiotic relationship between business and society by emphasising economic, environmental and social sustainability (the triple bottom line). This culminates in a new realisation of the organisation's corporate social responsibility and its role as a corporate citizen. Ethics in strategic management are highlighted and applicable research techniques are analysed.

Communication management 320 (KOB 320)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	KOB 210 or KOB 220 with a GS in the other, KOB 310 GS
Contact time	3 lectures per week
Language of tuition	Double Medium
Academic organisation	Div Communication Management
Period of presentation	Semester 2

Module content

Strategic relationship management
The strategic management of internal and external relationships is essential for the organisation's "licence to operate". Stakeholder theories provide a framework for managing relationships with stakeholders such as employees, investors, media and the government. The growing significance and potential impact of activism on organisational performance, justifies the management of such pressure groups through communication. Deontological and teleological ethical approaches are investigated in the strategic management of relationships. The complexity of ethical decision making in the modern business environment, as well as anti-ethics and African ethics amongst others, are also studied. Perception, social and stakeholder audits are examples of idiosyncratic research designs undertaken in strategic reputation management.

Business management 310 (OBS 310)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 1

Module content

Human resource management and development
The environment in which human resource management takes place; job analysis; strategic human resource planning; equal employment opportunities; planning and management of training; development and careers; functioning in a global environment.
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.

Business management 320 (OBS 320)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 2

Module content
Strategic management analysis and formulation
Basic concepts; formulation of mission; policy and objectives; external evaluation of the business environment; internal evaluation of the enterprise; including intellectual assets; the formulation and development of a strategic plan.
Strategic management implementation
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.

Statistics 310 (STK 310)

Module credits	25.00
Service modules	Faculty of Humanities
Prerequisites	STK 210, STK 220
Contact time	1 practical per week, 3 lectures per week
Language of tuition	English
Academic organisation	Statistics
Period of presentation	Semester 1

Module content

Regression analysis: simple and multiple regression; nonlinear regression; correlation and the use of dummy variables. Multivariate distributions: normal, multinomial and poisson distribution. Linear combinations of normal variables. Analysis of variance and covariance. Categorical data analysis. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 320 (STK 320)

Module credits	25.00
Service modules	Faculty of Humanities
Prerequisites	STK 310 GS
Contact time	3 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

Regression analysis extensions: heteroscedasticity, serial correlation and lag structures. Time-series analysis. Applications of matrices, differentiation and integration in the economic and management sciences. Evaluation of simple economic models. Theory and applications of time-series models: univariate time series. Stationary and non-stationary time series. ARMA and ARIMA models. Regression models. Model identification and estimation. Spectrum and periodogram. Forecasting with time-series models. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques. Student seminars.

Marketing research 314 (BEM 314)

Module credits	20.00
Service modules	Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 110; BEM 212 GS and STK 110
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Marketing Management
Period of presentation	Semester 1

Module content

The role of marketing research, the process of marketing research, interpretation of secondary research, qualitative research, survey research, observation, measurement and attitude scaling, questionnaire design, sampling design and sampling procedures, basic data analysis, descriptive statistical analysis, interpretation and reporting of results, research report writing.

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.