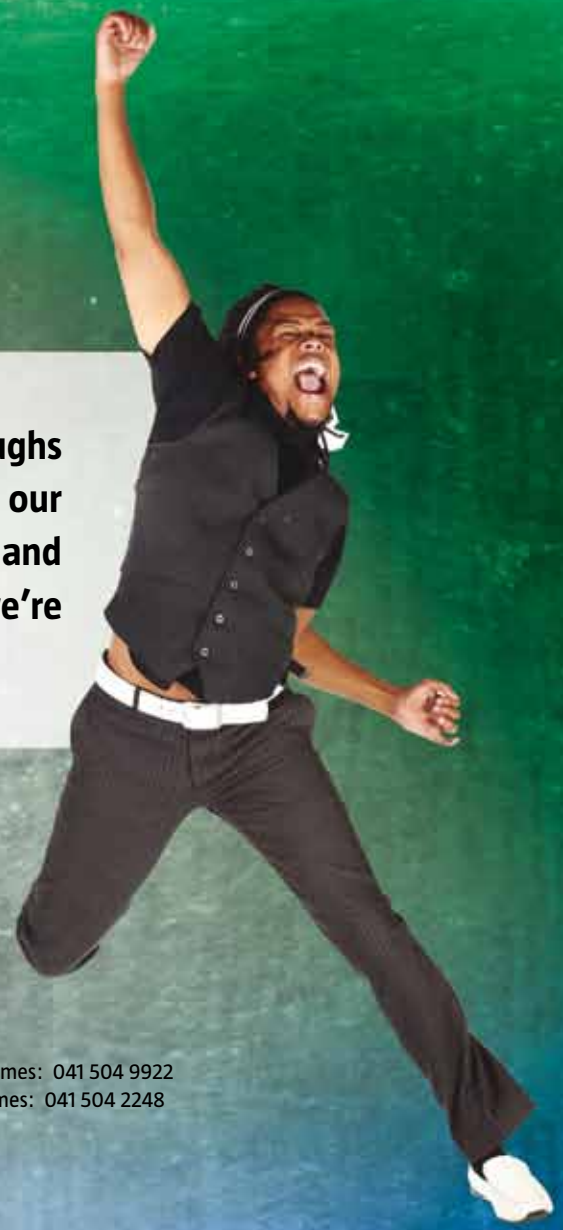
Faculty of Science

Discovering tomorrow

Think Science. Think experiments. Think NMMU. We have what it takes to make breakthroughs in improving our world for future generations. Our staff is committed and talented, our facilities top-notch and our drive to put you at the cutting edge of research, technology and innovation is undeniable. Be it conservation science, renewable energy or physics, we're offering you an opportunity to be part of the excitement in discovering tomorrow.



School of Biomolecular & Chemical Sciences

Department of Biochemistry & Microbiology
Department of Chemistry
Department of Textile Science
InnoVenton

School of Computer Science, Mathematics, Physics and Statistics

Department of Computing Sciences
Department of Mathematics & Applied Mathematics
Department of Physics
Department of Statistic
Centre for Energy Research
Telkom Centre of Excellence

School of Environmental Sciences

Department of Agriculture & Game Ranch Management
Department of Botany
Department of Geosciences (Geography & Geology)
Department of Zoology
Centre of African Conservation Ecology
Unit for Integrated Environmental & Coastal Management

Admissions offices:
Port Elizabeth campuses: 041 504 1111
George Campus: 044 801 5111

Faculty officers:
Information on diploma and BTech programmes: 041 504 9922
Information on bachelor's degree programmes: 041 504 2248

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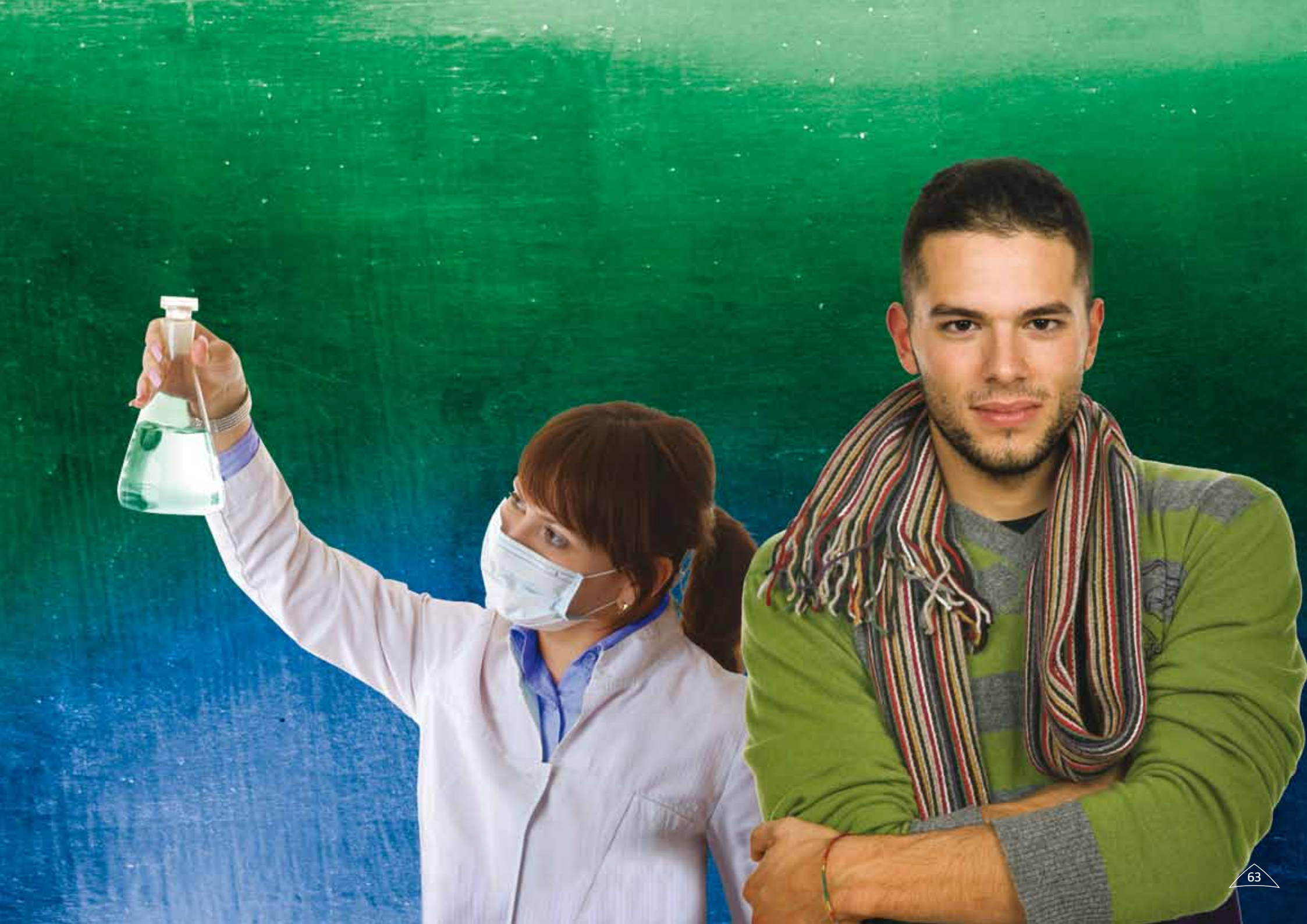
info@nmmu.ac.za



Qualification	Programme overview	Delivery mode & duration of study	APS	Admission requirements	APS testing band	Career opportunities
Higher Certificate (HCert)						
HCert (Leather Technology)	This programme is the only one of its kind offered in South Africa. It is run jointly by NMMU and the International School of Tanning Technology, based in Grahamstown. South Africa is the largest producer of automotive upholstery leather in the world.	Part-time 2 years with 6 two-week compulsory practical courses		• Minimum statutory NSC requirements for diploma entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%) or Mathematical Literacy 5 (60-69%). • Physical Sciences 2 (30-39%). If applicant presents with Mathematical Literacy instead of Mathematics, additional modules may be added to the programme, which will extend the length of the programme.		Employment in the tanning or chemical supply industries.
Diploma (Dip)						
Dip (Agricultural Management)	This diploma course teaches the problem solving and situation analysis skills needed to effectively manage an agricultural enterprise.	Full-time 3 years (including 1 year in-service training)	30	• Minimum statutory NSC requirements for diploma entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%) or Mathematical Literacy 3 (40-49%). **RECOMMENDED NSC SUBJECTS:** Economics, Agricultural Management Practices, Agricultural Sciences, Agricultural Technology, Life Sciences, Accounting.	22 - 29	Work opportunities in agricultural management are to be found with cooperatives, chemical companies, on farms (as farm managers), in the civil service and with all companies that provide agricultural products or services.
Dip (Analytical Chemistry) Extended Curriculum	This programme provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the diploma in Analytical Chemistry.	Full-time 4 years		• Minimum statutory NSC requirements for diploma entry must be met. In exceptional cases however, candidates who only meet the minimum NSC requirements for certificate entry may be considered. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Physical Sciences 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	24 - 33	See career opportunities below.
Dip (Analytical Chemistry)	This programme consists of two years full-time study at NMMU followed by a year of in-service training in a suitable laboratory. The programme includes a chemical industry practical and chemistry project.	Full-time 3 years	34	• Minimum statutory NSC requirements for diploma entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 3 (40-49%). • Physical Sciences 3 (40-49%). If an applicant has not taken the optional Mathematics topics, additional modules may be added to the programme, which might extend the length of the programme.	24 - 33	The work of an analytical chemist or chemical technician differs from one industry to another. It may range from analysing traces of pesticides in milk to determining manganese in steel or checking raw materials used in the making of chocolate. It may also involve checking the purity of solvents used for making paints or analysing pharmaceutical products. You could also be involved in research or process development or be in charge of a laboratory.

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Dip (Game Ranch Management)	This programme includes thorough training in the fields of game science, game ranch ecology, game ranch management, game health management, soil science, rangeland studies, game utilisation and computer usage. Throughout the programme, compulsory tours and excursions to some of the country's top game parks and reserves as well as to meat processors and exporters are included to ensure that students receive maximum exposure to the game industry. Two years' of study are spent at NMMU and one year is spent in practice undergoing experiential training.	Full-time 3 years (including 1 year in-service training)	30	• Minimum statutory NSC requirements for diploma entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%) or Mathematical Literacy 3 (40-49%). **RECOMMENDED NSC SUBJECTS:** Economics, Agricultural Management, Agricultural Sciences, Life Sciences, Accounting.	22 -29	Game ranchers work mainly on private game ranches, game farms and nature reserves. Opportunities are available to manage ecotourism ventures in national parks, provincial nature conservation departments, services councils and municipalities.
Dip (Polymer Technology) Extended Curriculum	This programme provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the diploma Polymer Technology. **Take note:** *Students in this programme will follow the same curriculum as students in the Diploma (Analytical Chemistry) extended curriculum.*	Full-time 4 years		• Minimum statutory NSC requirements for diploma entry must be met. In exceptional cases however, candidates who only meet the minimum NSC requirements for certificate entry may be considered. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Physical Sciences 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	22 - 31	See career opportunities below.
Dip (Polymer Technology)	Polymer technology can be described in brief as the manufacture, processing, analysis and application of long chain molecules. Materials that are typically classified as polymers include: plastics, paints, rubber, foams, adhesives, sealants, varnishes etc. The programme includes in-depth training in chemistry, and engineering and manufacturing practices related to the field.	Full-time 3 years	32	• Minimum statutory NSC requirements for diploma entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 3 (40-49%). • Physical Sciences 3 (40-49%). If an applicant has not taken the optional Mathematics topics, additional modules may be added to the programme, which might extend the length of the programme.	22 - 31	Employment opportunities exist in the motor manufacturing and related supply and service industries, such as paint, tyre and plastic-component industries.
Bachelor of Technology (BTech) (The BTech degree forms the fourth year of study after completing the diploma)						
BTech (Agricultural Management)	This programme is offered on a block release basis. This means that students attend two study schools of one week and two weeks per year. Students master the skills and knowledge needed by means of self study and project work. The method of delivery makes it possible for working persons to register for the degree. If sufficient demand exists, the degree is also offered on a full-time basis.	Full-time 1 year or block release 2 years		An applicable three-year tertiary qualification or equivalent. Academic qualifications, as well as relevant work experience, will be taken into account during selection. Students with less than two years' relevant experience will be required to write an admission test. Recognition of prior learning will be considered.		Work opportunities in agricultural management are to be found with co-operatives, chemical companies, on farms (as farm managers), in the civil service and with all companies that provide agricultural products or services.
BTech (Chemistry)	This programme forms the fourth year of study in Analytical Chemistry. The standard of this programme is high and offers a high degree of specialisation.	Full-time 1 year Part-time 2 years		Dip (Analytical Chemistry) or any other equivalent qualification.		Work as an analytical chemist or chemical technician differs from one industry to another. It may range from analysing traces of pesticides in milk to determining manganese in steel or checking raw materials used in the making of chocolate. It may also involve checking the purity of solvents used for making paints or analysing pharmaceutical products. You could also be involved in research or process development or be in charge of a laboratory.

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BTech (Polymer Technology)	This programme consists of advanced training in polymer science and focus areas of either rubber technology or paint technology.	Full-time 1 year Part-time 2 years		Dip (Rubber or Polymer Technology) or equivalent qualification.		Employment opportunities exist in the motor-manufacturing and related supply and service industries, such as paint, tyre and plastic-component industries.
BTech (Game Ranch Management)	The programme consists of advanced training in both technical and management skills. Aspects such as financial management, strategic management and game production are studied in detail.	Full-time 1 year or block release two-years		An applicable three-year tertiary qualification or equivalent. Academic qualifications, as well as relevant work experience, will be taken into account. Recognition of prior learning (RPL) will also be considered.		Game ranchers work mainly on private game ranches, game farms and nature reserves. Opportunities are available to manage ecotourism ventures in national parks, provincial nature conservation departments, services councils and municipalities.
Bachelor of Science (BSc)						
BSc: Biological Sciences Extended Curriculum • Biochemistry • Chemistry • Microbiology	This programme for BSc studies provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the BSc degree.	Full-time 4 years		• Minimum NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Physical Science 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	30 - 39	The BSc degree should be seen as a stepping-stone which provides a foundation for a career in science. Career opportunities vary depending in which field you graduate and/or obtain a postgraduate qualification.
BSc: Biological Sciences Extended Curriculum • Marine Biology • Conservation biology • Ecology • Environmental management & Coastal zone management	This programme for BSc studies provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the BSc degree.	Full-time 4 years		• Minimum NSC requirements for degree entry must. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Physical Science 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	30 - 39	The BSc degree should be seen as a stepping-stone for a career in science. Career opportunities vary depending in which field you graduate and/or obtain a postgraduate qualification.
BSc (Environmental Sciences) Extended Curriculum	This programme for BSc studies provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the BSc degree.	Full-time 4 years		• Minimum NSC requirements for degree must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	30 - 39	The BSc degree should be seen as a stepping-stone for a career in science. Career opportunities vary depending in which field you graduate and/or obtain a postgraduate qualification.
BSc: Geosciences (Geology & Geography) Extended Curriculum	This programme for BSc studies provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the BSc degree.	Full-time 4 years		• Minimum NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 2 (30-39%). • Candidates must perform satisfactorily in the NMMU access assessment test.	30 - 39	The BSc degree should be seen as a stepping-stone for a career in science. Career opportunities vary depending in which field you graduate and/or obtain a postgraduate qualification.

Qualification	Programme overview	Delivery mode & duration of study	APS	Admission requirements	APS testing band	Career opportunities
BSc (Information Systems) Extended Curriculum	This programme for BSc studies provides alternative university access to students who have the potential to succeed, but do not meet the minimum admission requirements for the mainstream programme. The purpose of the programme is to integrate additional academic support and skills development with mainstream courses in order to prepare the student for successful completion of the BSc degree.	Full-time 4 years		• Minimum NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 3 (40-49%). • Candidates must perform satisfactorily in the NMMU access assessment test.	30 - 39	The BSc degree should be seen as a stepping-stone for a career in science. Career opportunities vary depending in which field you graduate and/or obtain a postgraduate qualification.
BSc (Biochemistry, Chemistry & Microbiology)	BSc with two majors chosen from Biochemistry, Chemistry and Microbiology.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	Career opportunities exist in industry (chemical, food, and biotechnological), teaching, research (medical, agriculture, chemistry, sport, and nutrition).
BSc (Applied Mathematics, Computer Science, Mathematical Statistics & Physics)	BSc with majors in Applied Mathematics and Mathematical Statistics.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	Leads to a career in industrial Mathematics which is the problem driven blend of Mathematics and Statistics that uses mathematical technologies to solve industrial problems. Industrial mathematics is an independent field which studies all mathematical methods that are directly relevant to industry.
	BSc with majors in Applied Mathematics and Physics.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	Leads to a career in computational physics which is the study and implementation of numerical algorithms in order to solve problems in physics for which a quantitative theory already exists.
	BSc with majors in Physics and Computer Science or Computer Science & Information Systems.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	This programme provides for a combination of the problem solving skills and analytical thinking developed through physics and computer science which is an interface between science, technology, engineering, and business. Graduates can enter a variety of careers in business, banking, the government and the military.
	BSc with majors in Computer Science & Information Systems and Mathematics	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	This programme provides a powerful platform for entering a variety of employment opportunities in business.

Qualification	Programme overview	Delivery mode & duration of study	APS	Admission requirements	APS testing band	Career opportunities
BSc (Biological Sciences) • Marine Biology • Conservation biology • Ecology • Environmental management & Coastal zone management	BSc with majors in Botany and Zoology.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	Career opportunities exist in the fields of marine biology, conservation biology, ecology, environmental management, and coastal management.
BSc (Environmental Sciences)	BSc with two of the following majors: Geography, Geology, Botany, Zoology or Chemistry.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 3 (40-49%).	30 - 39	Various career opportunities exist in mining, water affairs, environmental affairs, as well as in consulting and civil engineering.
BSc: Geosciences (Geology & Geography)	BSc with majors in Geography and Geology.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 3 (40-49%).	30 - 39	Graduates can follow careers as geographers or geologists. Various career opportunities exist in mining, water affairs, environmental affairs, as well as in consulting and civil engineering.
BSc (Human Movement Science & Biochemistry)	Human Movement Science can also be combined with Physiology & Biochemistry in a BSc degree.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50 - 59%).	30 - 39	Career opportunities include teaching, school and professional sport coaching, exercise and fitness instruction, sport management lecturing and research, sport psychology, biokinetics, and sport science. The latter three occupations would require an additional postgraduate qualification.
BSc (Information Systems)	This programme provides for a combination of problem solving skills, programming design and application development. The BSc (IS) also provides a powerful platform for entering a variety of employment opportunities in business, government and the banking industry. It also leads to various postgraduate programmes.	Full-time 3 years	38	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	28 - 37	Graduates can follow careers such as web developer, systems analyst, IT project manager, programmer, Environment consultant, and IT manager.
BSc (Physical & Mathematical Sciences)	BSc with two majors chosen from Chemistry, Mathematics or Physics. This programme will also launch you into a postgraduate programme at NMMU in solid state physics, electron microscopy, crystal growth, optical fibre studies and renewable energy; all with an emphasis on materials development. In addition, the programme provides a platform from which students can enter the field of materials science and engineering. Materials scientists develop and analyze various alloys, ceramics and other novel materials. As such they play an increasingly important role in adding value to the range of minerals mined in South Africa.	Full-time 3 years	40	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%).	30 - 39	The curriculum is based on the three cornerstone subjects in science (Mathematics, Physics and Chemistry) and provides an excellent basis for postgraduate studies in these subjects. Furthermore, it offers a sensible subject combination for persons wishing to teach Physical Science and / or Mathematics up to senior secondary level.

Qualification	Programme overview	Delivery mode & duration of study	APS	Admission requirements	APS testing band	Career opportunities
Bachelor of Commerce (BCom)						
BCom (Financial Modeling)	The BCom (Financial Modeling) qualification leads to a career in statistical data analysis in finance. This is a new and innovative programme with a focus that lies in the intersection of statistics and financial modelling. Graduates will be able to deploy effectively a wide range of computational statistical techniques to model and solve problems in finance and econometrics.	Full-time 3 years	38	• Minimum statutory NSC requirements for degree entry must be met. • English, Afrikaans or isiXhosa (home language or first additional language) on at least a level 3 (40-49%). • Mathematics 4 (50-59%) or Mathematical Literacy 6 (70-79%).	28 - 37	Financial modellers are used in the: • Banking industry to analyse financial data; Insurance industry to model actuarial scenario's; • Automotive industry to forecast trends and component stocks; • Petroleum industry to forecast prices, model optimisation algorithms and evaluate operations; • Mineral processing industry to estimate and model financial scenario's and optimize operations.