Western Cape Government

Agriculture

Prospectus: B.Agric

Elsenburg Agricultural Training Institute

CONTACT DETAILS

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Applications

Applications on the prescribed application form must reach the Institute by or on 30 June of the preceding year of study. Application forms are available from the Registrar, or on the Elsenburg website. All applicants must, if required, complete the standardised tests of the Stellenbosch University.

Student number

On receipt of new applications the Institute office assigns a unique number to each applicant that serves as identification of the individual concerned so as to simplify future communication. The student number must be used in all future correspondence with the Institute.

Other contact details

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Other training centres

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PLEASE NOTE

1. The Cape Institute for Agricultural Training reserves the right to amend the Prospectus at any time.
2. Management of the Cape Institute for Agricultural Training accept no liability for any inaccuracies there may be in the Prospectus. Every reasonable care has, however, been taken to ensure that the relevant information to hand as at June 2011, the time of going to press, is given fully and accurately in the Prospectus.

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Vision and Mission of the Elsenburg Agricultural Training Institute

Vision

The leader in quality agricultural training and development in Africa

Mission

Empowering our clients by representing market driven training programmes that stimulate sustainable economic growth

Elsenburg: a proud tradition

Elsenburg's history dates back to 1698, when the land was allocated to Samuel Elsevier by Willem Adriaan van der Stel, at that time the governor of the Cape colony. The farm's successive owners, among whom Martin Melck is probably the best known, built it up to one of the prime farms in the Cape. Martin Melck built the beautiful old manor house in 1761. The farm was sold to the government by the Myburgh family in 1898.

On 1 September 1898 the Agricultural College, the first of its kind in South Africa, opened its doors. Five students received their diplomas at the end of the first academic year (June 1899). During the first fourteen years of its existence the average number of students was 44. During the First World War, however, there was a drastic reduction in applications, with only 8 students studying there in 1915.

In 1926 Elsenburg College of Agriculture and the University of Stellenbosch amalgamated and a two-year diploma course was offered at Elsenburg, with the primary aim of training prospective farmers. In 1927 this course was replaced with a one-year course, which was replaced by practical courses in 1931. In 1939 the two-year diploma course was reinstated. Elsenburg's relationship of 47 years with the University was severed in 1973 and the Department of Agriculture accepted responsibility for agricultural training at Elsenburg.

An important milestone in 1976 was the establishment of the Diploma in Cellar Technology. Many of South Africa's winemakers today, received their agricultural training at Elsenburg.

In 1994, with the transformation to a democratic political order in South Africa, the Department of Agriculture: Western Cape was created. The Elsenburg and Kromme Rhee colleges of agriculture amalgamated. The amalgamation placed a great responsibility on the Department of Agriculture to continue and to expand the training offered. A Centre for Further Education and Training was consequently created to address the need for short, practical courses.

The relationship with the University of Stellenbosch was again initiated and since 2004 Elsenburg has been offering a B. Agric programme in association with the University of Stellenbosch's Agriscience Faculty.

This development is in line with the government's new academic policy to give tertiary students more mobility between educational institutions. Duplication of programmes is also eliminated. Elsenburg College of Agriculture was renamed on 1 April 2004 to the Cape Institute for Agricultural Training: Elsenburg.

South Africa: an agricultural gem!

The creation of employment opportunities and the provision of sufficient and safe food and fibre of high quality at affordable prices are some of the demands faced by the agricultural sector. The opportunities and challenges in agriculture lie in the diversity of our topography, the variation in our soil, the divergent nature of our climatic regions, and in the expectations of demanding buyers of our agricultural products. Agriculture has to maintain a balance with nature without exploiting natural resources. Our country has an astonishing diversity of fauna and flora that has to be respected, protected and conserved. The agriculturalist is dealing with living and life-giving organisms in such a way that the goal to improve the quality of life of all, will be furthered.

Agriculture in South Africa contributes almost 5% to the gross national product, assists significantly in earning foreign exchange, is an important provider of employment and supplies basic human requirements in food and fibre. Agritourism is becoming increasingly important as an industry and provides an escape for many city dwellers. For each R1 million increase in the final demand for agricultural products, 83 new employment opportunities are created, in comparison with a corresponding figure of only 29 employment opportunities in the rest of the economy. It is generally acknowledged that agriculture has an important role to play in poverty alleviation.

Soil is an important production factor in agriculture. The Republic of South Africa extends over 122,3 million hectares of which 16 million hectares are used for crop production. Around 1,5 million hectares have established trees and 83 million hectares are covered by natural grazing. Soils with optimum physical and chemical conditions are scarce and localized, but there are various unique soil/climate interactions that allow for the cultivation of products for niche markets.

South Africa is a water scarce country. Around 30% of the country receives less than 250 mm rain per year, around 34% receives between 250 and 500 mm, 25% between 500 and 750 mm per year and only 1% of the country receives more than 750 mm of rain per year. In most regions rainfall is uncertain and periodic droughts occur. As a result of these and other factors, South Africa is dependent mainly on catch-dams and subterranean water sources. Just over 1,2 million hectares are irrigated. At present, agriculture is one of the largest users of water, almost 50%, but the farming sector faces increasing pressure for more water for industrial and residential users. Only 10% of agricultural soil is viable without irrigation. Water and irrigation management in South Africa consequently demands thorough knowledge of the subject.

South Africa is an agricultural gem. Due to the varying climatic conditions and topography, practically any crop can be cultivated. The country is currently self-sufficient in most primary food and fibre requirements for its rapidly growing population. Food crops in which there are not yet self-sufficiency, but which grow in large quantities are oil seeds, rice, tea and coffee. More than 33% of our horticultural production is exported, deciduous fruit comprising the largest volume. Further examples of South African exports are subtropical fruit, maize, sugar, vegetables, wine, cut flowers, flower bulbs, mohair and karakul pelts. 81% of agricultural land is natural grazing used mainly for extensive stock farming. This is almost 70% of South Africa's total area.

A variety of animals are reared: large and small stock, pigs and poultry. Aquaculture and game farming are rapidly growing industries with great potential. After-harvest handling, processing, storing and preserving of products and foods are different ways in which value is added to fresh produce. The ultimate quality of the product enjoyed by the consumer is dependent on the quality of the soil or the animal from which it is derived. Sustainable and responsible pest and disease control is therefore required.

From the above, it is clear that specialised knowledge, expertise, production and management skills are required for sustainable agricultural production. Graduates can enter various careers in agriculture and related sectors. Careers in farming management, cellar technology, research, education and training, consultation, as well as installation management (e.g. cellars) and service delivery (e.g. suppliers), offer challenging options.
(Information obtained from University of Stellenbosch Year Book)

The profile of an agriculturalist

The graduate agriculturalist has the necessary knowledge, skills and attitude to function independently, or in a team, in an agricultural environment. This includes the judicious application of science to the management of the value chain of a variety of food and fibre products in an economical, environmentally friendly and sustainable way for the benefit, betterment and welfare of humanity. To make this contribution, the agriculturalist displays the following professional characteristics:

Knowledge

The knowledge of the applicable scientific concepts, the interaction between the biological and abiotic factors in the environment and the basic principles of research methods and methodology. The ability to create new knowledge, generate ideas and act innovatively. The ability to function effectively in an interdisciplinary environment. An understanding of sustainable development and sustainable resource management. Management of information and making informed decisions. A systems approach to the analysis of environmental problems.

Attitudes

Respect for the environment and its users.
Acknowledgement of own limitations in terms of knowledge and skills. A positive approach to continuous professional development. Involvement in and service to the wider community. A positive example in terms of social responsibility and obligations. Acceptance of and a striving towards the highest academic standards.

Skills

The ability to collect, integrate, interpret and apply knowledge and to use this information in problem-solving.
Effective communication with role players from various environments and backgrounds. Sufficient skills to function as an agricultural scientist, either independently or as a member of a team. The ability to interpret and apply relevant subject literature. The ability to utilize relevant resources in the work environment effectively.
(Information obtained from the University of Stellenbosch Year Book)

General stipulations for the undergraduate B.Agric programme

Admission requirements

The minimum requirements for admission according to the new school curriculum are as follows:

- Students must be in possession of a National Senior Certificate (NSC) as certified by Umalusi.
- Students must have a 4 (50% - 59%) in each of FOUR school subjects from the list of recommended university admission subjects.
- Students must conduct the Stellenbosch University's access tests (AT's)
- Students must obtain an aggregate of at least 50% in the ratio of 40:60, for the access tests and National Senior Certificate jointly. The access test average will be made known to students who will be admitted.

LIST of admission subjects

- Afrikaans OR English (Home Language OR First additional language) – 4 **AND**
- Mathematics or Mathematical Literacy - 4 **AND**
- Physical Science - 4 **OR**
- Life Science - 4 **OR**
- Agricultural Science - 4 **PLUS**
- One of the following subjects as recommended for admission by the University, also on at least a 4
  - Business Studies
  - Dramatic Arts
  - Economics
  - Geography
  - History
  - Religious Studies
  - Information Technology
  - Engineering Graphics and Design
  - Music
  - Accountancy
  - Consumer Studies
  - Visual Arts
  - Languages (1 language of learning and teaching at an higher education institution and 2 other recognized language subjects)

Life orientation does not count as a subject for admission to the B.Agric degree programme.

OR

The minimum requirements for admission according to the old school curriculum are as follows:

- A Senior Certificate with full matriculation endorsement or Certificate of exemption from the matriculation board
- With a minimum of 50% (D-symbol) aggregrate and
- With a minimum of 40% (E symbol) on SG for Biology or Science or Mathematics;

OR

- The Senate of the University of Stellenbosch, however, may grant discretionary approval for admission with a Senior Certificate
- Passed with a minimum of 50% (D symbol) aggregate and a minimum of 40% (E symbol) on SG for Biology or Science or Mathematics. An application has to be submitted for such approval (administration will be done by the Institute).

General stipulations

Students are expected to familiarise themselves with the prerequisite pass (PP), prerequisite (P) and corequisite (C) requirements for each module. Particulars are provided with the descriptions of modules (see Content of modules). Students should also be conversant with the Academic Rules as well as the requirements for readmission as a student.

ACADEMIC RULES: B.AGRIC

This set of Academic rules was compiled specifically for the B.Agric program offering of the Cape Institute for Agricultural Training: Elsenburg. In case of any contradiction with the general rules of the University of Stellenbosch, these will apply.

1. ATTENDANCE OF CLASS AND ABSENTEEISM FROM CLASSES, PRACTICALS, TESTS AND EXAMINATIONS

Students are expected to attend all classes, practicals, tests and examinations. Lecturers keep attendance records, copies of which are submitted every semester to the Director for record purposes. The following rules apply:

1.1 Absence from lectures

If lecturers are of the opinion that the class attendance of a student during the academic year is unsatisfactory, they may report this to the Director. This happens after the student has been called in and warned, but has not reacted. The Director will then deal with the matter as he/she deems fit.

1.2 Absence from practicals

1.2.1 Permission for absence is granted only as an exception (see 1.3). The onus then rests with the students to arrange with the lecturer concerned to do the relevant practical component and/or be evaluated.

1.2.2 In a case of absence without authorisation from a practical, students are given a zero mark for any evaluation and also forfeit the right to a later evaluation.

1.3 Authorised absence

1.3.1 Authorised absence is granted only as an exception and the student must make all relevant arrangements.

1.3.2 Any request for authorised absence must be submitted to the Faculty Management in writing and must include the necessary motivation and/or proof.

1.3.3 Requests for compassionate leave must be arranged with the Director or an authorised person from Student Affairs.

2. DETERMINATION OF THE EXAMINATION ADMISSION MARKS (PREDICATE MARKS)

2.1 Predicate marks are earned through scheduled and non-scheduled tests, assignments, practical tasks and library work.

2.2 In all modules two tests per semester are written during normal class time as a means of continuous evaluation. These tests are the only scheduled opportunities for earning a predicate mark.

2.2.1 Students must write at least two of the tests per module to earn a predicate mark.

2.2.2 If students are absent from such an evaluation opportunity (due to illness or other valid reasons), they forfeit that opportunity. They then have only one opportunity (sick test) in that module presentation left to earn a predicate mark.

2.2.3 If students do not write a test, they are given a zero mark.

2.3 Medical certificates or other documentation will be accepted as excuse for absence during any evaluation **provided** it is presented within 2 work days after the evaluation. Students then have to write the sick test and no additional test opportunities will be scheduled.

2.4 Exceptional cases will be considered by Faculty Management on receipt of written, **well motivated** representations by the student.

2.5 Composition of predicate mark:
The scheduled tests: at least 70% of the predicate
Other prescribed forms of evaluation: a maximum of 30%
Non-scheduled forms of evaluation: a maximum of 10%
The specific composition is determined by each module.

2.6. A sub-minimum of 50% is required for the practical component. If the sub-minimum of 50% for the practical component is not achieved, students do not earn a predicate.

2.7 A predicate mark of 40% is required for examination admission in **ALL** modules.

2.8 It is the responsibility of students to ascertain whether they earned a predicate in the various modules, without which they will be denied admission to the examination. **Enquiries must be made from the Faculty manager immediately (within 1 work day) after the predicate marks have been made known.**

3. EXAMINATION

3.1 Students are examined or evaluated in all the modules for which they register. A valid photo identification should be presented at all test and examinations.

3.2 Examination/evaluation covers the entire field of study of a module. Students are expected to keep themselves informed of the content of required modules. **(Refer to Content of modules.)**

3.3 Only two 1 - 3 hour equivalent examinations are conducted at the close of each module. The two examinations for a module are known as the main examination and the supplementary examination.

3.4 Examinations are written only during officially scheduled times. Students with examination admission **must** take advantage of the main examination opportunity.

3.4.1 There are two main examination opportunities during the academic year:
(i) The mid-year examination, during which the main examination on the modules of the first semester is conducted.
(ii) The end of year examination, during which the main examination on the modules of the second semester is conducted.

3.4.2 Supplementary examinations take place immediately after the main examination has been completed:
(i) The supplementary mid-year examination, during which a supplementary examination on the modules of the first semester is conducted.
(ii) The supplementary end of year examination, during which a supplementary examination on the modules of the second semester is conducted.

3.5 If students are absent from the main examination opportunity (due to illness or any other reason), they forfeit that opportunity. The supplementary examination is then the only other and final opportunity to write an examination on that module, **and only if approval is granted by the Faculty Management.** (Refer to par. 3.7.)

3.6 If students do not write any examination, they are given a zero mark and the module must be repeated.

3.7 Authorised absence of the main examination will rarely be granted.

3.7.1 Students who cannot attend the main examination opportunity must apply **in writing** for admission to the supplementary examination. Valid medical certificates and/or other motivating documentation must accompany the application and be submitted to Student Affairs **within 2 work days** after the main examination opportunity. The decision of the Faculty Management is final.

3.7.2 Students forfeit admission to the supplementary examination if no written applications are received and/or applications are received too late.

3.8 Exceptional cases will be considered by the Faculty Management on receipt of a written request/motivation from students.

4. PASS REQUIREMENTS

4.1 Semester Instruction

4.1.1 A weighted average of at least 50% (predicate mark plus examination mark) must be attained, in addition to which the following requirements must also be met:

4.1.1.1 The examination mark must comprise 60% of the final mark.

4.1.1.2 A minimum of 40% must be attained in the examination.

4.1.2 The final mark is calculated as follows:
Final mark (100%) = Predicate mark (40%) + examination mark (60%)

4.1.3 A mark of at least 50% must be attained in practical as set out in the description

of the module-content.

4.1.4 A mark of at least 50% is required in supplementary examinations, irrespective of predicate and main examination marks.

4.1.5 If the supplementary examination is the candidate's first examination opportunity (see 3.5 and 3.7), the final mark is calculated as described in 4.1.2.

4.1.6 A mark of at least 50% must be attained in special examinations (as described in 3.7).

4.2 Instructional programme

4.2.1 Refer to 4.1.

4.2.2 All modules required by the teaching programme must be passed. (Refer to Study Options.)

4.3 Pass with distinction

4.3.1 Instructional programme (course) distinction
Students pass a module with distinction if their average mark for all the modules in the programme is 75% or more.

4.3.2 Module distinction
Students pass an instructional presentation with distinction if a final mark for the module is 75% or more.

4.4 Application for re-examination of an examination paper

4.4.1 A student who wishes to have an examination paper re-examined, must apply in writing at Student Affairs, and pay the required amount at the cashier, within 1 work day of the final results of a module having been made known. No re-examination will be considered without the necessary receipt.

4.4.2 All examination papers of students who fail or who qualify for a supplementary examination are moderated before the results are announced.

4.4.3 The re-examination of an examination paper is done by external moderators and the results could be made known only shortly before the supplementary examination takes place. A student must therefore prepare him or her for the supplementary examination in case the re-examination indicates that there were changes.

5. *ADMISSION TO THE SUPPLEMENTARY EXAMINATION*

5.1 Students are admitted to the supplementary examination if their examination marks are ≥40% and/or their final marks are less than 50%.

5.2 Students who do not write the main examination, forfeit that opportunity. The supplementary examination is then the only opportunity to write that examination (Refer to 3.7 and 4.1.5.).

5.3 If students write the main examination they must attain at least 40% in that examination.

5.4 If students earn a predicate mark of ≥ 60% but do not meet the requirement of 5.3, they qualify for a supplementary examination.

5.5 If students do not write an examination, they are given a zero mark. Unauthorised absence will not be accepted.

5.6 If students cannot or do not wish to write a supplementary examination, a zero mark is allocated and the module must be repeated.

5.7 Exceptional cases will be considered by the Faculty Management at their discretion on the timely receipt of a written request/motivation from the student.

5.8 Only one supplementary examination opportunity per module is allowed.

5.9 There is no limit to the number of modules for which supplementary examinations may be written, provided that rule 5.3 is met.

5.10 If students lack only two more modules before they can obtain a qualification or a passing-out level, the Director may grant a Director's examination.

6. *CONDONATION*

NO condonation will be applied.

7. *REPETITION OF MODULES AND CONTINUATION OF THE MODULES*

Students who fail (a) module(s) may repeat the module(s) on the conditions set out in 7.1 and 7.2.

7.1 Repetition of modules

7.1.1 Re-registration for modules is done during registration for the specific year. Applications for re-admission of students who had to leave the Institute must be submitted before or on 02 January of the re-registration year. Registration can only occur if written proof of re-admission is submitted at registration.

7.1.2 If there are clashes in the test or examination timetable, students may follow only one of the modules. The onus rests on the students to inform them in this regard.

7.1.3 Modules that are prerequisites for subsequent modules must first be repeated and passed in full before subsequent modules may be followed. (Refer to Content of modules.)

7.1.4 Students must repeat, in full, any module for which they did not earn a predicate mark, as well as any practical instructional presentation where continuous evaluation is done for which they attained less than 40% (Refer to paragraph 1). This includes attending all classes and practicals, the completion of all exercises, tasks and practicals, as well as writing the tests and examinations. Where exercises, tasks and seminars have to be done, students must do new exercises, tasks and seminars (with new subjects or themes).

7.1.5 Students who earned a predicate mark in a module but did not pass, may be exempted from class attendance in the module concerned (at a student's own risk), with the proviso that 7.1.2 and 7.1.3 apply and that 7.1.7 is also applicable.

All scheduled tests must be written, scheduled assignments and seminars must be completed and scheduled examinations written. It stays the student's responsibility to ensure that he/she is up to date with any rules/ changes/ announcements of the module for which he/she is registered, but not attending classes.

7.1.6 The onus rests on students to keep them informed of the content of modules, changes in the content of modules and of return dates, arrangements and requirements for assignments, exercises, tests and examinations.

7.1.7 When a module is repeated, the student must apply in writing within the first two weeks of the academic year for the exemption of attendance for the practical component. The Faculty Management must give approval in writing. In the case of absence without written approval, a zero mark will be given.

7.1.8 Students may register twice at the most per module (this includes discontinued modules), after which they must pass to be able to continue with their studies. (Refer also to par.7.2.)

7.1.9 Full registration and class fees, as prescribed, are payable for each module(s) that is repeated.

7.2 Continuation of instructionl programme

For the B. Agric instructional programme to be continued, the following requirements must be met:

7.2.1 At the end of the first semester of the first year of study, students must pass the modules with a total of at least 30 credits before they are able to register for the second semester. They will receive a written request to discontinue their studies if this requirement is not met.

7.2.2 Students who at the end of their first or third year of study did not obtain the number of HEMIS credits required for the programme in terms of the sliding scale below, will no longer be admitted as student. (1 HEMIS credit is equal to the total number of credits required in a specific study year of a programme.)

Sliding scale for HEMIS credits

Historical years	1	2	3	4	5
HEMIS-credits	0.48	1.23	2.03	2.78	3.53

(HEMIS is the acronym for Higher Education Management Information System)

7.2.3 Students who at the end of the second or fourth year did not obtain 1.23 and 2.78 HEMIS credits respectively, receive a letter of warning that their achievements are not satisfactory and that if their achievements do not improve, they are at risk of not being re-admitted for further study at the end of the following year.

7.2.4 Notwithstanding any other stipulations, students must obtain in their first year of study at least 0,48 HEMIS credits and in their third and fifth year of study at least 0,33 HEMIS credits in order to continue their studies in the following year.

7.2.5 In all study years the requirements in par.7.1.2, 7.1.3 and 7.1.7 must be met.

7.2.6 Students who for the first time in their period of study discontinue their studies before or on 31st of March of a given year, or who, on grounds of academic considerations, are not allowed to continue their studies, will not be debited with such

academic year in respect of rules of re-admission. Any further discontinuations by the same students will automatically bring the relevant rules into play in applications for re-admission. This stipulation does not apply in cases of extraordinary circumstances, e.g. justifiable medical reasons. (See par.8.)

8. READMISSION AFTER UNSUCCESSFUL STUDY

8.1 Students who do not meet the requirements for re-admission to the Institute for the following semester and consequently must leave the Institute, are given the opportunity, at least two weeks before the start of the semester in which the failed module(s) may be repeated, to appeal and show why the Faculty Management should consider their re-admission to their studies. A fully motivated re-application must be drawn up personally by the students and submitted to the Faculty Management. "Fully motivated" means that all relevant information as to the reasons why the students were not successful and why they expect to be successful in their future studies should be included. Such information may be sensitive and personal but students have to take the Faculty Management into their confidence. Where available, documents confirming reasons for their poor performance must be attached. All information will be regarded as strictly confidential. The Faculty Management requires all the information to be able to make a fair decision in the interests of the students. Information for further motivation cannot be provided after an application has been rejected.
The decision of the Faculty Management will be final and a second appeal will not be considered.

8.2 Students who are refused re-admission may, after two years, re-apply in writing to be re-admitted as students. The Faculty Management will only consider fully motivated applications.

8.3 Application for admission to the Institute closes on 30 June of the preceding year of study. If students voluntarily interrupt their studies for a year or longer, they must apply in writing for re-admission by or before the above-mentioned date. The Faculty Management will only consider fully motivated applications.

9. HOSTEL RESIDENCE

9.1 Admission to hostel residence is subject to the availability of rooms.

9.2 Students must apply for hostel residence each year.

9.3 Admission to hostel residence for students who will be repeating is subject to the availability of rooms and screening. Preference is given to academically successful students.

9.4 Re-admission to hostel residence is subject to the HEMIS credits obtained/ years of study.

10. GENERAL COMMENTS

10.1 Abbreviation and numbering system for subjects and modules

All subjects are identified by a subject number. Modules are distinguished by a code, in which the year and the semester of the presentation can be read (except stated otherwise). (Refer to Content of modules)

Example:

Agronomy 55565
AGR 314 (20) Agronomical production techniques (3l + 3p)
55565 is the subject number referring to the subject Agronomy. 314 (20) is the module code with a credit value of 20, and (3l, 3p) indicates the weekly lectures and practicals of the module. The module code 314 refers in the first place to the year (e.g. 3 for the third year of study) in which the module is offered; the second figure (1) refers to different modules of the same teaching presentation (subject) in a specific year of study and the length of the module (a semester or a year), where 1, 2, and 3 refers to modules that are offered in the first semester, 4, 5, and 6 refers to modules that stretch over a year. The third figure (4) refers to the relative weighting of the module. The lecture load (lectures l and practicals p) per week for each module is indicated in brackets. Lectures and practical periods are 40 minutes long; practical periods are normally combined to form a unit, but may also consist of tutorials and semester presentations.

10.2 Prerequisite pass, prerequisite and corequisite requirements for modules

Underneath the content of each module the prerequisite pass (PP), prerequisite (P) and corequisite (C) modules will be indicated. A prerequisite pass module is a module that the student must pass in order to follow the module for which it prescribed. A prerequisite module is a module in which a satisfactory standard (predicate of at least 40%) must be obtained before study in the module for which it is prescribed, may be continued. It has to be passed before the degree can be obtained. A corequisite module is a module which has to be studied before or in the same semester as the module for which it is prescribed. It has to be passed in an official examination before the degree can be awarded.

PROGRAMME FOR B.AGRIC

(Also see accommodating Study options and Contents of Modules)

FIRST YEAR

		FIRST SEMESTER				SECOND SEMESTER			
MODULE		**CODE**	**C R E D I T VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**	**CODE**	**CREDIT VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**
AGRIBUSINESS MANAGEMENT	ABM	112	10	5	Introduction to agro-economic concepts	142	10	5	Planning principles for an agribusiness
AGRICULTURAL ENGINEERING	ING					142	10	5	Building science, workshop practice
BIOLOGY	BIO	113	15	5	Basic and cell biology	143	15	5	Biological processes
COMMUNICATION	KOM	111	5	5	Introduction to communication principles				
COMPUTER LITERACY	REK	112	10	5	Basic computer literacy				
CROP PROTECTION	GWB					141	5	5	Safe handling of toxic substancces (AVCASA)
NATURAL RESOURCE MANAGEMENT	NHB					142	10	5	Principles of dynamics of ecosystems
PRINCIPLES OF AGRICULTURAL SCIENCE	BLW	111	10	5	Basic principles of chemistry	141	5	5	Laboratory use and techniques
PRINCIPLES OF AGRICULTURAL SCIENCE	BLW	121	5	5	Applied mathematical calculations				
SOIL SCIENCE	GRK	112	10	5	Introduction to soil science	142	10	5	Principles of soil science

SECOND YEAR

		FIRST SEMESTER				SECOND SEMESTER			
MODULE		**CODE**	**C R E D I T VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**	**CODE**	**CREDIT VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**
AGRIBUSINESS MANAGEMENT	ABM	212	10	5	Management information and financing	242	10	5	Risk and business planning
AGRICULTURAL ENGINEERING	ING	213	15	5	Irrigation and drainage	243	15	5	Spraying machines and calibration techniques, Electricity
AGRITOURISM	AGT	212	10	5	Introduction to agritourism: spectrum and mechanisms	242	10	5	Technology and skill in agritourism
AGRONOMY AGR		212	10	5	Introduction to the cultivation of grains in RSA	242	10	5	Adaptation and cultivation of small grains
AGRONOMY AGR		222	10	5	Introduction to the vegetable industry in South Africa and seedling production	252	10	5	Greenhouse management and the cultivation of crops under protection
ANIMAL HEALTH	DGS	222	10	5	General animal helath principles				
ANIMAL PRODUCTION	DPR					262	10	5	Small-stock breeding: Managemnt principles
ANIMAL PRODUCTION	DPR	212	10	5	Principles of animal nutrition	242	10	5	Large-stock breeding: Managament principles
COMMUNICATION	KOM	211	5	5	Public appearance				
CROP PROTECTION	GWB					242	10	5	Principles of crop protection
ENTREPRENEURSHIP	ENT	221	5	5	Principles of added value				
EXTENSION	VOL	212	10	5	Introduction to extension concepts	242	10	5	Diffusions and acceptance of innovations
NATURAL RESOURCE MANAGEMENT	NHB					242	10	5	Introduction to sustainable resource utilisation
OENOLOGY	WYN	212	10	5	Oenological chemistry and microbiology	242	10	5	Principls of wine preparation
POMOLOGY	POM	212	10	5	Introduction to fruit cultivation	242	10	5	Orchard establishment and propogation biology of fruit trees
SOIL SCIENCE	GRK	212	10	5	Applications of soil science				
VITICULTURE	WIB	212	10	5	Introduction to viticulture and propagation of the grapevine	242	10	5	Establishment and development of the grapevine

THIRD YEAR

		FIRST SEMESTER				SECOND SEMESTER			
MODULE		**CODE**	**CREDIT VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**	**CODE**	**CREDIT VALUE**	**NQF LEVEL**	**MODULE DESCRIPTION**
AGRIBUSINESS MANAGEMENT	ABM	313	15	6	Labour legislation and labour relations	343	15	6	Marketing management
AGRICULTURAL ENGINEERING	ING	311	5	6	Scheduling of irrigation 9plant production)	341	5	6	Tractor mechanics (plant production)
AGRICULTURAL ENGINEERING	ING	321	5	6	Cellar mechanics and Cellar engineering	351	5	6	Cellar planning and layout of site
AGRITOURISM	AGT	314	20	6	Specialising in agritourism components	344	20	6	Management aspects and legislation
AGRONOMY AGR		313	15	6	Applied small-grain cultivation and crop rotation	343	15	6	Harvesting and grading of cereals
AGRONOMY AGR		321	5	6	Pasture management principles	351	5	6	Establishements pasture: management practices
AGRONOMY AGR		322	10	6	Cultivation of root-crop, legumes and runner crops				
AGRONOMY AGR		331	5	6	Cultivation of cut flowers and foliage	361	5	6	Cultivation of fynbos crops for medicine, beverages and essential oils
AGRONOMY AGR		332	10	6	Cultivation of cabbage, lettuce and strawberries	342	10	6	Cultivation of potatoes and onions
AGRONOMY DGS		332	10	6	Small-stock animal health				
ANIMAL HELATH	DGS	322	10	6	Large-stock animal health				
ANIMAL PRODUCTION	DPR					351	5	6	Poultry production
ANIMAL PRODUCTION	DPR					353	10	6	Meat science
ANIMAL PRODUCTION	DPR					361	5	6	Aqualculture production systems
ANIMAL PRODUCTION	DPR	312	10	6	Dairy cattle production management	342	10	6	Beef cattle production management
ANIMAL PRODUCTION	DPR	321	5	6	Pork production systems	352	10	6	Dairy science
ANIMAL PRODUCTION	DPR	332	10	6	Sheep management systems	362	10	6	Wool science
CELLAR MANAGEMENT	KBS					343	15	6	Human management
CELLAR MANAGEMENT	KBS	314	20	6	Operational management	341	5	6	Quality assusrance (ISO systems)
EXTENSION	VOL	312	10	6	Group dynamics and leadership	344	20	6	Programme planning
EXTENSION	VOL	322	10	6	Applied communication				
NATURAL RESOURCE MANAGEMENT	NHB	311	5	6	Conservation management and legislation	341	5	6	Environmental assessment and -legislation
OENOLOGY	WYN	311	5	6	Applied wine microbiology and analysis	342	10	6	Wine stabilisation and quality management techniques
OENOLOGY	WYN	313	15	6	Grape quality, harvesting method & practical wine preparation	351	5	6	Applied wine chemistry
OENOLOGY	WYN	321	5	6	Applied wine chemistry and analysis	361	5	6	Applied wine microbiology
POMOLOGY	POM					353	10	6	Cultivation of subtropical fruit
POMOLOGY	POM	312	10	6	Cultivars, ripening and post harvest physiology	342	10	6	Disease and pest management of deciduous fruit
POMOLOGY	POM	322	10	6	Fruit production practices	351	5	6	Cultivation of alternative fruit types
POMOLOGY	POM	332	10	6	Postharvest management of and value adding to fresh products	352	10	6	Citrus cultivation
VITICULTURE	WIB	313	15	6	Cultivar studies and foliage management	344	20	6	Phenology, irrigation, disease and pest management, IPW, soil health and environmentally friendly agricultural practices
VITICULTURE	WIB	321	5	6	Fertilisation, cultivation and weed control	352	10	6	Table and raisin grape cultivation

FIRST YEAR

FIRST YEAR – STUDY OPTIONS								
PLANT PRODUCTION	**ANIMAL PRODUCTION**	**PLANT & ANIMAL PRODUCTION**	**CELLAR TECHNOLOGY**	**CELLAR MANAGEMENT**	**AGRITOURISM & PLANT PRODUCTION**	**AGRITOURISM & ANIMAL PRODUCTION**	**EXTENSION & PLANT PRODUCTION**	**EXTENSION & ANIMAL PRODUCTION**
ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112	ABM 112, 142 BIO 113, 143 BLW111, 121, 141 GRK 112, 142 GWB 141 ING 142 KOM 111 NHB 142 REK 112
k = 125	k = 125	k = 125	k = 125	k = 125	k = 125	k = 125	k = 125	k = 125

SECOND YEAR

SECOND YEAR – STUDY OPTIONS								
PLANT PRODUCTION	**ANIMAL PRODUCTION**	**PLANT & ANIMAL PRODUCTION**	**CELLAR TECHNOLOGY**	**CELLAR MANAGEMENT**	**AGRITOURISM & PLANT PRODUCTION**	**AGRITOURISM & ANIMAL PRODUCTION**	**EXTENSION & PLANT PRODUCTION**	**EXTENSION & ANIMAL PRODUCTION**
ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 and choose **TWO** from the following groups **GROUP 1 (Agronomy)** AGR 212, 242 **GROUP 2 (Vegetables)** AGR 222, 252 **GROUP 3 (Pomology)** POM 212, 242 **GROUP 4 (Viticulture)** WIB 212, 242	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 DGS 222 DPR 212, 242, 262	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 DGS 222 AGR 212, 242 and choose **ONE** from the following groups **GROUP 1 (Large stock)** DPR 212, 242 **GROEP 2 (Small stock)** DPR 212, 262	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 WIB 212, 242 WYN 212, 242	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 WIB 212, 242 WYN 212, 242	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 AGT 212, 242 and choose **ONE** from the following groups **GROUP 1 (Vegetables)** AGR 222, 252 **GROUP 2 (Pomology)** POM 212, 242 **GROUP 3 (Viticulture)** WIB 212, 242	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 DGS 222 AGT 212, 242 and choose **ONE** from the following groups **GROUP 1 (Large stock)** DPR 212, 242 **GROEP 2 (Small stock)** DPR 212, 262	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 VOL 212, 242 and choose **ONE** from the following groups **GROUP 1 (Vegetables)** AGR 222, 252 **GROUP 2 (Pomology)** POM 212, 242 **GROUP 3 (Viticulture)** WIB 212, 242	ABM 212, 242 ENT 221 GRK 212 GWB 242 ING 213, 243 KOM 211 NHB 242 DGS 222 VOL 212, 242 and choose **ONE** from the following groups **GROUP 1 (Large stock)** DPR 212, 242 **GROEP 2 (Small stock)** DPR 212, 262
k = 130	k = 130	k = 140	k = 130	k = 130	k = 130	k = 140	k = 130	k = 140

THIRD YEAR

THIRD YEAR – STUDY OPTIONS

PLANT PRODUCTION	ANIMAL PRODUCTION	PLANT & ANIMAL PRODUCTION	CELLAR TECHNOLOGY	CELLAR MANAGEMENT	AGRITOURISM & PLANT PRODUCTION	AGRITOURISM & ANIMAL PRODUCTION	EXTENSION & PLANT PRODUCTION	EXTENSION & ANIMAL PRODUCTION
ABM 313,343 NHB 311, 341 ING 311, 341 and **TWO** of the following groups **GROUP 1 (Agronomy)** AGR 313, 321, 343, 351 **GROUP 2 (Vegetables)** AGR 332, 322, 342 and POM 332 **GROUP 3 (Pomology)** POM 312, 322, 342, 352 and only ONE of POM 351 of 353 of 332 **GROUP 4 (Viticulture)** WIB 313, 321, 344, 352	ABM 313,343 NHB 311, 341 AGR 321, 351 and **BOTH** of the following groups **GROUP 1 (Large stock)** DPR 312, 342, 352 DGS 322 **GROUP 2 (Small stock)** DPR 332, 362, 353 DGS 332 ***and ONE*** of the following DPR321, 351, 361	ABM 313,343 NHB 311, 341 AGR 313, 321, 343, 351 ING 341 and **ONE** of the following groups **GROUP 1 (Large stock)** DPR 312, 342 DGS 322 AND DPR 352, 353 OR **ONE** of the following DPR 352, 353 and **ONE** of the following DPR 321, 351, 361 **GROUP 2 (Small stock)** DPR 332, 362, 353 DGS 332 and **ONE** of the following DPR 321, 351, 361	ABM 313,343 NHB 311, 341 ING 311, 321, 351 WIB 313, 321, 344, 352 WYN 311, 313, 321, 342, 351, 361	ABM 313,343 NHB 311, 341 ING 311, 321, 351 WIB 313, 321, 342, 352 KBS 314, 341, 343	**GROUP 1 (Vegetables)** AGR 332, 322, 342 and POM 332 **GROUP 2 (Pomology)** POM 312, 322, 342, 352 and only ONE of POM 351 of 353 of 332 **GROUP 3 (Viticulture)** WIB 313, 321, 344, 352	and **ONE** of the following groups **GROUP 1 (Large stock)** DPR 312, 342, 352 DGS 322 **GROUP 2 (Small stock)** DPR 332, 362, 353 DGS 332 ***and ONE*** of the following DPR321, 351, 361	ABM 313,343 NHB 311, 341 ING 311, 341 VOL 312, 322, 344	and **ONE** of the following groups **GROUP 1 (Large stock)** DPR 312, 342, 352 DGS 322 **GROUP 2 (Small stock)** DPR 332, 362, 353 DGS 332 ***and ONE*** of the following DPR321, 351, 361
Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice	Note the subject prerequisite when making a choice
k = 125-145	k = 135	k = 125-130	k = 150	k = 135	k = 130-140	k = 130-135	k = 130-140	k = 130-135

Content of modules

AGRIBUSINESS MANAGEMENT (ABM)

112 (10) Introduction to local and international agriculture (4l + 3p)

Introduction to agriculture – worldwide expectations from agriculture and how well these expectations are met. Trends, the main products produced in South Africa (S.A), current status and future prospects and where does S.A feature in the world. An introduction to South African agriculture. The effect of a decreasing/increasing contribution to the GDP. An introduction to AgriBEE and land reform and other initiatives such as LRAD, CASP, ASGISA, etc. The meaning and process of farming decision-making, farming management responsibilities and an introduction to enterprise structures.

142 (10) Agri-economic concepts and planning principles of an agribusiness (4l + 3p)

Some agro-economic concepts such as output and input terms. Production-economic planning principles for agribusinesses. Cost principles with specific reference to cost concepts and the application of it. The compilation of a management information system and a farm-record system for agribusinesses. Analysis of management information, financial analysis, diagnostic analysis and financial sustainability analysis.
Practical: Compiling a computerised financial management information system for a given agribusiness; case studies to illustrate the production economic planning principles and the various financial statements.
C Agribusiness Management 112

212 (10) Planning principles for agribusinesses (4l + 3p)

Risk management and planning in agribusiness: Types of risks, such as business risks and financial risks. Risk management techniques with regard to financial risks, diversification, flexibility, marketing strategy and the management of a cash or credit reserve. Risk calculation: a choice between alternatives under conditions of insufficient information. Planning techniques for agribusiness managers – Farming planning: budgets. Mechanisation management in the agribusiness: Nature and estimation of the cost of machinery, the purchase and replacement of machinery. Logistical management and occupational safety.
Practical: Calculations with regard to risk management, enterprise budgets and other relevant budgets will be dealt with practically. The costs involved in mechanisation will be illustrated by means of practical examples.
P Agribusiness Management 112, 142

242 (10) Project planning and financing (4l + 3p)

Project planning and investment decisions in agribusiness. Evaluation of investment alternatives, budgets and various investment instruments/approaches. Agribusiness financing and financing sources: Description of financing policy, capital needs, maintaining liquidity and reabsorption ability and beneficial financing. Introduction to obtaining credit, credit assessment, repaymentability, security, risk and rules when obtaining credit and providing credit. Finance and credit analysis plan, the cost of capital and financing sources. Tax aspects relevant to agribusinesses.
Practical: Project planning, investment decisions and financing. Analysis of management information and tax aspects.
C Agribusiness Management 212

313 (15) Labour relations and -legislation (6l + 2p)

Synthesis of labour legislation, the essential elements and what it entails. Labour management: Administration and motivation. Trade unions: Strikes and lockouts, disciplinary actions, grievance procedures, dismissal and discharge.
Practical: The aspects involved in staff maintenance, recruitment and the disciplinary processes.

P Agribusiness Management 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

343 (15) Marketing management (6l + 2t)
Basic principles of marketing management and the marketing-mix. Consumer behaviour, marketing information and research, market segmentation, elements of a marketing plan, international trade and marketing alternatives. Micro and macro environment: Analysis of South African agriculture: interaction between the two environments in the agricultural value chain.
Tutorial: The development of a marketing plan for an agribusiness.
P Agribusiness Management 242; Entrepreneurship 221
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

AGRICULTURAL ENGINEERING (ING)

142 (10) Building Science and workshop practice (4l + 3p)
Basic building science (base courses, walls, floors, doors and windows, roof coverings, finish, sewerage, drawing up a list of materials).
Practical: Level 1 First Aid. Practising of basic techniques of welding (arc welding and gas welding). Interpretation of plans, uses of topographical maps, drawing of contour maps. In order to pass the module, students must demonstrate his/her skills in power-driven farm machinery and obtain a minimum of 80%.
PP Principles of Agricultural Science 121

213 (15) Irrigation and drainage (6l)
Types of irrigation systems, definitions and units, soil characteristics, crops and climate, earth dams and water quality, pumps, irrigation fittings, sprinkler irrigation and maintenance. Drainage, types of systems, types of material, layout, installation and maintenance.
Practical: Demonstrative (visit irrigation firms to look at the manufacturing and distribution of irrigation equipment).
PP Principles of Agricultural Science 121

243 (15) Spraying machines, calibration techniques and electricity (6l)
Types of spraying machines, operation and use of spraying machines, advantages and disadvantages of types of atomising mechanisms, fans, pumps and hydraulic systems, calibration techniques and examples. General concepts of electricity (generation, distribution, tariffs, cable sizes, voltage, resistance and current, safe user-practices of electric motors, driving systems, motor sizes and maintenance).
Practical: Adjusting (calibration) of different types of spraying machines for vineyard and orchard spraying.
PP Principles of Agricultural Science 121

311 (5) Schedulling of irrigation (plant production) (2l)
Micro-irrigation; moving systems; flood irrigation; scheduling of irrigation, scheduling aids, chemical spraying.
Practical: Scheduling of vineyard and orchard irrigation with capacitance measuring, tension meters and A pan.
C Pomology 212 or Viticulture 212 or Agronomy 222
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

321 (5) Cellar mechanics and Cellar engineering (2l + 2p)
The operation, use and maintenance of equipment required during the winemaking process: Separators, presses, filters, pipes, pumps, tanks and bottling apparatus. Cooling and cooling systems; electricity, including terminology, the operation of motors, generators, transformers, switch boards, fork lifts and packaging apparatus; essential workshop equipment; basic fault-detection and preventative maintenance; waste water systems; residual product handling.
Practical: Practical demonstration of machinery and problem solving, industry visits, group discussions.
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242

341 (5) Tractor mechanics (Plant production) (2l)
Operation of diesel engines, driving systems, load of tractors, tensile force and choice of tractor, maintenance of tractors.
Practical: Demonstration of tractor models at firms or by firms.
P Pomology 212 or Viticulture 212 or Agronomy 212 or Agronomy 222
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

351 (5) Cellar planning and layout of site (2l)
Planning and layout of a cellar according to specific needs: Latest equipment and designs, relevant legal and administrative determinations, site planning with due consideration for the aesthetic and practical needs, the location of the cellar with regard to vineyards, access routes, availability and extent of needs from resources (water, electricity), marketing strategies and financing.
Practical: Visiting the industry, assignments
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242

AGRITOURISM (AGT)

212 (10) Introduction into agritourism (4l)
Concepts of tourism and tourists defined. The history of the concept of tourism. The science of tourism. Role players in national and international tourism. The economic, ecological and social impact of tourism. Tourism dynamics. Major South African attractions. Agritourism in relation to tourism in South Africa. Role of museums, Cape Vernacular Architecture and rock art in South African heritage. Other South African heritage. Importance of heritage and culture to tourism. UNESCO World Heritage Sites in South Africa. Future of tourism.
Practical: Case studies: research on attractions, visiting of attractions, architecture
P Communication 111, Computer Literacy 112; Natural Resource Management 142

242 (10) Skills in agritourism (4l)
Study of foreign exchange and methods of payment. Map work and route planning. Practical guidelines on the handling of tourism administration: the obtaining of visas and the necessary customs practice. Tourism communication skills, codes of conduct and etiquette. A framework for the compilation of tour packages, brochures and portfolios. Tourism statistics and the interpretation of data.
Practical: Methods of payment, map work, route planning, visas, etiquette, tour packages and portfolios.
P Natural Resource Management 142; Communication 111; Agritourism 212

314 (20) Specialising in agritourism components (8l + 2p)

Management and control: guest houses and overnight accommodation. Game farm management: planning, utilization, diseases, habitat management and hunting. Nature conservation and park management: mutual dependency between conservation and park management. 4x4 handling. Sustainable development in tourism. Event management.
Practical: Organising of an event, visiting various accommodation establishments, case studies
P Agritourism 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

344 (20) Management aspects and legislation (8l)

National and international legal aspects. Legislation- nature conservation and conservation aspects. Basic legal aspects regarding: use and sale of liquor, advertising rights and copy rights, right of ownership, land reform, hunting legislation. Management and development: an exposition of existing government structures with regard to the support and promotion of agritourism and related undertakings. Agritourism as engine for community development.
Practical: Presentation and critical evaluation of case studies in group context.
P Agritourism 212, 242, 314
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

AGRONOMY (AGR)

212 (10) Introduction to the cultivation of cool weather crops in RSA (4l + 3p)

Introductory overview regarding the grain industry in RSA and more specifically the small-grain industry in the Western Cape; relationships between soil, climate, environment and production capacity; problem areas, marketing and market tendencies in the grain industry.
Practical: Self-study with regard to marketing options and class presentation of results.
P Biology 113, 143; Soil Science 112, 142

222 (10) Introduction to the vegetable industry in South Africa and seedling production (4l + 3p)

Synoptic course with emphasis on the origin and development of the vegetable industry in South Africa, the classification and production areas of vegetables as well as its economic impact. The influence of the different environmental factors, general soil preparation and choice of implements, broad fertilisation principles, irrigation methods, as well as pest control principles on the vegetable industry. Seed, germination and general care of seedlings. Growth and general care of cuttings
Practical: Independent research with regard to marketing and market tendencies as seminar and research project. Seedling production and collecting of data in terms of tunnel production. Collected information to be handed in. General growth and care of cuttings.
P Biology 113, 143; Soil Science 112, 142

242 (10) Morphology, development, adaptation and physiological aspects of cool weather crop yields (4l + 3p)

Growth and development, adaptation and physiological aspects of cool-weather crop yields.
Practical: Growth point analyses and development stage determinations, growth stage determinations, morphological differences between various types of cool weather crops, description of different agronomic production areas of the Western Cape with regard to grain production.
C Agronomy 212
P Biology 113, 143; Soil Science 112, 142;

252 (10) Greenhouse Management and the cultivation of crops under protection (4l + 3p)

Biology and technology of vegetable cultivation under a controlled environment. Origin and economic importance and uses of controlled environment cultivation. Production of vegetable seedlings in controlled environments, as well as the economically justifiable cultivation of vegetables in tunnels. . Choice of different types of tunnels, their location, sanitation, fertilisation programmes, integrated pest and disease control. Practical: Responsible for seedling production and the care of vegetable plants in different tunnels.
P Biology 113, 143; Soil Science 112, 142

313 (15) Applied small-grain cultivation and crop rotation (6l + 2p)

Farm planning, crop rotation principles and crop planning, soil preparation and fertilisation, cultivation techniques for sustainable utilisation, planning of sowing-season.
Practical: Farm planning with the aid of orthographic photos and soil classification maps, crop rotation planning based on soil types, calculation of fertilisation recommendations on the basis of soil analysis results, calibration of sowing and fertilisation equipment, farm visits, visits to farm implement manufacturers and/or marketers, demonstration and discussion of minimum tillage planters.
P Agronomy 212, 242; Soil Science 212
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

321 (5) Pasture management principles (2l + 3p)

Plant succession, growth processes in plants, production systems for utilisation of pastures, pasture quality, influence of defoliation on plants, grazing animals, selective grazing, division of farm into homogenous camps, principles of field rest, factors influencing the value of a farm in extensive grazing regions, drought-resistant forage crops and radical field improvement.
Practical: Three-day study visit to a Karoo farm, Karoo plant identification, applied grazing management principles on the basis of real examples and demonstration of farm planning principles.
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

322 (10) Cultivation of root-crop, legumes and runner crops (4l + 2p)

Introduction and origin of crops, nutritional value, economic importance in the industry, climatic and soil requirements for successful cultivation, establishment and care of crops with respect to fertilisation, irrigation, pest control, harvesting, marketing and storage.
Practical: Conventional cultivation of crops.
P Soil Science 212
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

331 (5) Cultivation of cut flowers and foliage (2l + 2p)

Introduction to the cut flower and foliage industry in the Western Cape and South Africa. Morphology, anatomy, climate and other cultivation requirements. Cultivation practices: planting widths, irrigation, fertilisation, pruning; flower initiation; scheduling of flowering; colour development, harvesting and post-harvest handling.
Practical: Visits to commercial nursery and cut flower farms.
P Soil Science 212
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

332 (10) Cultivation of cabbage, lettuce and strawberries (4l + 2p)

Introduction and origin of the crops, nutritional value, economic importance in the industry, climatic and soil requirements for successful cultivation, establishment and care of the crop in respect of fertilisation, irrigation, pest control, harvesting, marketing and storage.
Practical: Conventional cultivation of crops.
P Agronomy 222; Soil Science 212; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

342 (10) Cultivation of potatoes and onions (4l + 2p)

Introduction and origin of crops, nutritional value, economic importance in the industry, climatic and soil requirements for successful cultivation, establishment and care of the crop in respect of fertilisation, irrigation, pest control, harvesting, marketing and storage.
Practical: Comparative cultivation of different cultivars of crops.
P Agronomy 222; Soil Science 212; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

343 (15) Weeds, insects and diseases and harvesting and quality aspects of cool weather crops (6l + 2p)

Crop and harvest protection practices, harvesting practices and harvesting machinery, uses, storage, grading principles and grading standards of different small grains, oilseed and legume crops. .
Practical: Demonstrative lectures by experts with regard to weed , disease and insect control, weed collection assignment, identification test of weeds, demonstration of grading techniques, farm visits, visits to mechanisation farmers' days, experiments on experimental farms.
P Agronomy 313; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

351 (5) Established pasture: Management practices (2l + 2p)

Planning before establishment, fertilisation, seed treatments, establishment practices, choice of type of pasture, management of pastures, quality and nutritional value, fodder storage, plant protection.
Practical: Seed and plant identification of different types of pastures, farm visits and fodder storage demonstration, lectures by experts in respect of pasture management and choice of cultivars.
P Soil Science 212; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

361 (5) Cultivation of fynbos crops for medicine, beverages and essential oils (2l + 2p)

Introduction to the buchu and rooibos industry of the Western Cape and South Africa. Morphology, anatomy, climate and other cultivation requirements. Cultivation practices: planting widths, irrigation, fertilisation, pruning; flower initiation; scheduling of flowering; colour development; harvesting and post-harvest handling; processing of crops.
Practical: Visit to fynbos nursery and commercial fynbos farm .
P Soil Science 212; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

ANIMAL HEALTH (DGS)

222 (10) General animal health principles (4l + 3p)

Introduction to the anatomy of ruminants and single-stomach animals and basic principles of animal physiology; the content and functioning of the locomotory system, muscle tissue, nervous system, blood and lymphatic system, heart and blood circulatory system, respiration system, digestive system, urinary system, endocrine system and the reproductive system. Handling of animals; classification of causes of diseases; body protection, resistance, immunity and vaccinations; prevention of diseases on a flock/ herd basis; veterinary hygiene; meat hygiene; milk-shed hygiene; clinical examination of animals; first aid on farms; treatment techniques; elementary farm operations and the value of autopsies.
Practical: Handling of animals; clinical examination of animals; treatment techniques; first aid for the sick animal; taking of samples from the living animal and demonstration of post-mortem examination technique for taking samples for certain diseases.
P Biology 113, 143

322 (10) Large-stock animal health (4l + 2p)

Metabolic diseases of dairy and beef cattle; the causes, treatment and particularly its prevention, as well as digestive disturbances as a result of feeding, physical problems or diseases; deficiency diseases and imbalances with reference to minerals and vitamins; toxicology of general toxic substances and plant poisoning; external parasites such as insects, ticks and mites; internal parasites such as worms and protozoa; cattle diseases caused by bacteria, viruses, rickettsiosis, chlamydias and fungi; calf diseases that affect the digestive system and respiratory system; reproductive disturbances and perinatal losses in the cow and the bull; state-controlled diseases: the duty of the State and the duty of the farmer in specific cases.
Practical: Artificial insemination in respect of theory, practical demonstrations and training on insemination methods, evaluation to register as an inseminator, and registration (linked to large-stock animal production); dosing and injections with regard to methods and routes for the administering of different remedies.
P General Animal Health 222; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

332 (10) Small-stock animal health (4l + 2p)

Metabolic diseases of sheep and goats; the causes, treatment and particularly its prevention, as well as digestive disturbances as a result of feeding, physical problems or diseases; deficiency diseases and imbalances with regard to minerals and vitamins; toxicology of general toxic substances and plant poisoning; external parasites such as insects, ticks and mites; internal parasites such as worms and protozoa; sheep diseases caused by bacteria, viruses, rickettsiosis, chlamydias and fungi; lamb diseases that affect the digestive system and respiratory system; reproductive disturbances and perinatal losses in the ewe and the ram; state-controlled diseases: the duty of the State and the duty of the farmer in specific cases.
Practical: Dosing and injections given with regard to methods and routes for the administering of various remedies for vaccination or treatment purposes linked to small-stock animal production.
P General Animal Health 222; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

ANIMAL PRODUCTION (DPR)

212 (10) Principles of animal feeding (4l)

Chemical composition of feeds, digestion of feeds, energy and protein standards of feeds, nutritional value of important feeds, practical feeding of different farm animals, formulation of

rations.
P Principles of Agricultural Science 111

242 (10) Large-stock breeding: Management principles (4l + 3p)
The most important dairy and beef cattle breeds in South Africa, qualitative and quantitative inheritance, responses to selection, methods of selection, selection systems with dairy and beef cattle.
Practical: Assessment of two dairy breeds; visit to beef cattle farm.
P Biology 113,143

262 (10) Small-stock breeding: Management priciples (4l + 3p)
The most important small-stock breeds in South Africa, namely, Merino, Dorper, SA Mutton Merino, Dohne Merino, Dormer, Boer goat and Angora goat. The breed characteristics and breeding standards of animals, basic breeding principles, selection systems, performance testing and "BLUP". Practical: The judging of breeds handled in theory according to their individual breed standards. Attending courses for judging.
P Biology 113,143

312 (10) Dairy cattle production management (4l + 2p)
Principles with regard to the caring and feeding of calves, feeding and management of replacement heifers, principles with regard to the management of dry cows, feeding and management of the lactating cow, feeding standards of dairy cows, formulation of rations, feeding and care of the bull, management of a dairy herd for maximum profitability.
Practical: Feeding systems, milk systems, machine milking, condition score for dairy cattle, artificial insemination, care of hoofs.
P Animal Production 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

321 (5) Pork production systems (2l + 2p)
Planning a piggery, pig housing, care of the pig in its different life stages, pig feeding, breeding and selection of pigs, pig diseases.
P Animal Production 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

332 (10) Sheep management (4l + 2p)
The latest management guidelines in sheep farming with regard to different breeding seasons as well as lambing seasons. Different lambing systems. Artificial insemination and controlled breeding. Factors that influence lamb mortality. The feeding needs of ewes and rams at different ages and during different stages of production and reproduction. Practical: Visits to sheep farms in the Western Cape to look at different management systems in practice. Students have to work on a sheep farm for one week during a holiday (preferably during the lambing season).
P Animal Production 262
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

342 (10) Beef cattle production management (4l + 2p)
The adaptation of beef breeds in a specific environment, feeding of beef cattle during different stages in life, management of a beef herd, production systems, marketing of beef cattle.
Practical: Rearing of calves (dehorning, castration, removal of supefluous teats, feeding and weaning practices); vaccination, dosing and weighing of cattle; identification systems (branding

mark, freeze branding, ear tags); handling of cattle.
P Animal Production 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

351 (5) Poultry production (2l + 2p)
Poultry industry in South Africa, behaviour and biology of poultry, poultry housing, production of broilers, egg production, hatching of eggs and rearing of young hens, disease control.
Practical: Visit to broiler unit in production and a poultry abattoir.
P Entrepreneurship 221; Animal Health 222
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

352 (10) Dairy Science (4l + 2p)
Anatomy and physiology of the udder and the milk procedure, the composition of milk, factors that influence the composition of milk, the milk machine, milk hygiene, undesirable flavours in milk and dairy products.
Practical: Handling of and fault detection in the milk machine, mastitis testing and preventative measures to avoid mastitis, the cheese-making process.
P Animal Production 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

353 (10) Meat Science (4l + 2p)
Growth, development and tissue composition and distribution in small stock. Meat quality and meat processing. The treatment of slaughter animals before slaughtering. The classification of carcasses and by-products at the abattoir. Practical: Visits to commercial abattoirs and meat processing plants to see how the different animals are slaughtered and how the meat of different animals is processed. Learning which cuts are used for which products.
P Animal Production 312 or Animal Production 332
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

361 (5) Aquaculture production systems (2l + 2p)
Water quality and environment, choice of premises, species and their biology, development of production systems, marketing and processing of products, feeding, working method and design (management plan).
Practical: Visits to experimental units with breeding units, introduction of different freshwater fish species, planning of a production unit.
P Entrepreneurship 221
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

362 (10) Wool Science (4l + 2p)
The biology of the wool follicle and physical characteristics of wool. Shearing and shearing-pen organisation (management). The classing and class standards of wool. Wool processing and wool products as well as by-products of wool. The marketing of wool. Other natural fibres and synthetic fibres. Practical: The classification of wool. Merino-type wool according to class standards. Students receive a Springbok-head Certificate provided that they obtain above 60% for all sections of the practical. Management of a shearingshed. Visit to a wool processing plant.

P Animal Production 262, 332
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

BIOLOGY (BIO)

113 (15) Basic and cell biology (6l + 3p)
Introduction to Biology, biologically important organic compounds, cell study, introductory morphology and anatomy of plants and animals. Taxonomy of the plant and animal kingdom.
Practical: Demonstrations with regard to processes that are studied.

143 (15) Biological processes (6l + 3p)
Introductory plant and animal physiology, including physiological processes such as photosynthesis, transpiration, respiration, growth regulation, digestion, gas exchange and excretion, basic genetic studies.
Practical: Demonstrations with regard to processes that are dealt with.
P Biology 113

CELLAR MANAGEMENT (KBS)

314 (20) Opreational Management (8l + 2p)
Operational management and the managing of the wine value chain: Determining and managing of product demands, capacity planning, managing resources. Compilation of the wine value chain, coordinating of orders, cost management. Overview of SAWB (South African Wine and Brandy Company), Legislation of liquor products and the wine industry. Practical: Demonstration of the wine value chain, visits to industry. Solving practical problem situations, group discussions, submit assignments (Wine online). Managing a wine value chain. Developing a wine operational business strategy.
P Oenology 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142;

341 (5) Total Quality Management (2l + 2p)
Acceptable systems with international status: Proof of continuous quality production methods, products and service delivery. This includes ISO 9002 (quality control and management), ISO17025 (accreditation), ISO (environmental control, laboratory layout and maintenance).
P Oenology 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

343 (15) Human Management (6l + 2p)
Introduction to the basic aspects of human management in a changing environment: Basic human management issues, leadership and leadership development, change models and the management of change. Negotiation skills.
Practical: Group work and simulation. Submit assignments regarding personal leadership profile and leadership developing plan as well as the applying of this in practical situations.
P Oenology 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

COMMUNICATION (KOM)

111 (5) Introduction to communication for innovation (2l + 1p)
Communication and the construction of meaning: Definitions, concepts and principles of communication. Models of communication. Factors affecting communication.
Basic communication forms, media and functional qualities and skills needed:
- Interpersonal communication.
- Group communication.
- Mass communication. The role of the media in mass communication. The use of advertisements.
Verbal communication: Purpose, content, planning and preparations.
Communication, the 4 R's (literacy), and visualization techniques: opportunities and constraints.
Meetings.
Negotiation within interactive processes.
Introduction to research methodology, academic writing and referencing.
Practical: Suitable assignments are given in each section and applied in group context.
Continuous assessment

211 (5) Knowledge, perception and empathy (2l + 1p)
Principles for preparation of a message: Methodology of public appearances. Utilisation and functioning of a variety of aids. Persuasion techniques.
Underlying factors affecting communication: The concepts of knowledge, perception, information and wisdom. Principles of perception: relativity, selectivity, frame of reference, organisation, direction, cognitive style, knowledge of self. Life-worlds: the locus of discursive and practical knowledge. Multiple realities and knowledge construction: Culture, group interests and identity, self-presentational interests. Knowledge and ignorance. Epistemic cultures: scientists' versus non-scientists' knowledge. Knowledge, power, agency and structure.
Negotiation within interactive processes. Facilitating interactive processes.
Research methodology, academic writing and referencing.
Practical: Suitable assignments are given in each section and applied in group context.
Continuous assessment.
P Communication 111; Computer Literacy 112

COMPUTER LITERACY (REK)

112 (10) Basic computer literacy (4p)
The course is offered with the aid of practical, relevant assignments in each section where the theoretical concepts are applied and practised. Hardware components: Identification and functions of each, compilation of a basic system and basic maintenance. Windows: Basic concepts and skills of the Windows Operating System, file management, basic Windows program. MS Office: Identification of the components of Microsoft Office applications and its uses, data/information input, format of a document and its implementation. Internet: Connecting to the Internet and navigation on the Internet, components of an e-mail application and navigation. View page: Navigation in view page application, data input, changing data, formatting, data processing and formulae, data output. PowerPoint: Drawing up of a presentation with the aid of PowerPoint, basic navigation, special effects.
(Class mark serves as performance mark with 70% as minimum pass requirement.)

CROP PROTECTION (GWB)

141 (5) Safe handling of toxic substances (AVCASA) (2l + 3p)
Introduction with regard to the chemical pest-control industry; registration and grouping of agents; toxicity of agents; storage, handling and transport of agents; application methods and equipment; climatic and environmental influences on control strategies.
Practical: Efficiency in using plant protection product manuals ("Bot se boek"), determination

of LD 50 value; MRLs and periods during which different toxic groups and kinds of toxins are withheld; visits to toxin stores and planning of its layout; demonstration of specific kinds of apparatus; basic calibration calculations.
P Principles of Agricultural Science 111

242 (10) Principles of crop protection (4l + 3p)
Overview and origin of plant protection practices; grouping of problems and control components; classification, harmfulness and basic control strategy of plant pests; classification, harmfulness and basic control strategy of plant diseases; classification, harmfulness and basic control strategy of weeds; choice of control methods and control agents.
Practical: Aids for the identification of different pest groups, identification of correct control agents with the aid of technical publications.
C Crop Protection 141
P Biology 113, 143;

ENTREPRENEURSHIP (ENT)

221 (5) Principles of added value (2l + 3p)
The entrepreneur: Why entrepreneurs start business undertakings. Problems: Main reasons for failure, characteristics (general, positive and negative). Functions: Availability, influences, economic significance, personal sources. The management and steps of innovation: Planning and methods of added value.
Practical: Applied practical examples. Developing a business strategy with production, manpower, financial and marketing plan.
P Agribusiness Management 112, 142

EXTENSION (VOL)

212 (10) Farming systems and sustainable livelihoods (4l)
Social and cultural factors in extension. Social structure and social divisions based on: age, gender, kinship, religion, residence, common economic interest.
The social and cultural context, customs, traditions, ceremonies, festivals, social expectations, groups, communities and leadership.
The institutional environment: income generation, customs, rules & regulations, communication and technology, political and economic institutions, justice, law enforcement.
Poverty alleviation, rural development and farm production. Innovation, conditions for sustainable change, progress and social acceptability. Agricultural practice and change. Farming systems, land use, tenure, inheritance, ownership and Land Reform.
Farming Systems Approach, system characteristics, Farming Systems Research and Extension/ Development. Farmers first. Farming Systems in South-Africa.
Sustainable Livelihoods: Introduction to the SLA framework, livelihood assets, Vulnerability context, livelihood strategies, livelihood outcomes.
Observation & interviews: Theory and practice of techniques for observation, interviewing and reporting. Rapid rural Appraisal, Participatory Rural Appraisal, Participatory Technology Development and Participatory Learning Actions.
Practical: Suitable assignments are given and applied in group context.
Continuous assessment.
P Communication 111; Computer Literacy 112; Agribusiness Management 112, 142; Natural Resource Management 142

242 (10) Behavioural change and decision-making (4l + 3p)
Innovation, adoption & diffusion: Innovations, origin, spontaneous spread and promotion mechanisms, processes of adoption and diffusion, categories, opinion leaders. Implications for needs identification, research, pre-tests and verification, extension and impact assessment. Limitations and constraints of adoption and diffusion theories (the work of Rogers, Shoemaker and Leeuwis).

Farmers' decision-making, intention & behaviour. The field theory of Lewin, the theories of Tolman, Fishbein & Ajzen, the Theory of Reasoned Action. Models of decision-making: the normative and the empirical model, Bos' model, collective decision making, integration of models and feedback. The thoughts of Kolbe (1984) on experiential learning.
Decision-making and risk management, concerns of equity, conformity and excellence, personality features and interconnectedness to other spheres of life
Behaviour in search of improvements: Force field analysis of Lewin; problem solving and alternative solutions.
Understanding human practices, the example of farming. Understanding the social nature of technical practices: evaluation frame of reference, effectiveness of the social environment, self-efficacy, social relations and social pressure.
Extension campaigns. Importance of a systems approach to people's participation, staff training and preparation, guidance/monitoring and evaluation of the performance of extension services.
Implementation strategies for behaviour change and innovation. Facilitation of behavioural change and innovation in extension.
Practical: Suitable assignments are given and applied in group context.
Continuous assessment.
P Communication 211; Agribusiness Management 142, 212; Natural Resource Management 142; Entrepreneurship 221, Extension 212
PP Communication 111; Computer Literacy 112; Agribusiness Management 112

312 (10) Group dynamics and leadership (4l + 2p)
Definition: Groups and group dynamics. Reasons for working in groups Definition: Groups and group dynamics. Reasons for working in groups within communities. Phases of group formation: Tuning, intervention strategies within the development stage of the group. Composition and function: Team roles, effective team work, 7-S model. Organization, management and performance: rules and regulations. Leadership functions, tasks, duties, accountability and delegation. Purpose & function. Commitment and motivation. Internal and external dynamic forces, motivation, trust, leadership, conflict-causes, management, resolutions. Prominent factors affecting group functioning. Leadership styles. Group work facilitation: Group technique and procedures.
Development and the use of a constitution by group members.
Principles of African leadership and styles.
Practical: Suitable assignments are given and applied in group context.
Continuous assessment.
C Extension 322
P Agribusiness Management 212, 242; Entrepreneurship 221; Extension 212, 242; Natural Resource Management 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111, 211; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

322 (10) Extension management and profession (4l + 2p)
Changes in extension's environment. Job profile, recruitment and performance criteria versus actual practices, activities and time allocation patterns. Government's policy framework and guidelines. The extension mandate to assist people to help themselves from technology advice to autonomous decision-making. Need appraisals, performance assessment, monitoring achievements and impact assessment under field conditions.
The manifold demands on a professional extension agent: facilitator, information broker, advisor, coach, role model, mentor. Mediation skills in conflict management as extra tools for extension agents.
Challenges in extension management: Improving the organization. Extension policy formulation and problem highlighting. The issue of extension policy. Networking. Information policy guidelines, networking, facilitating communication, transparency and institutional strengthen-

ing, Intellectual Property. Planning needs assessment, situation analysis, setting priorities, project planning, strategy designs, budgeting. Organizing HRM, mobilizing resources. HRD, capacity building, learning, empowerment. Design implementation and supervision of M&E, quality assurance, accountability, sustainability.
Networks and linkage strategies. Development, growth and performance of dynamic networks. Linking role players – clients. Linking clients - support structures. Training and professional development of extension staff. Criteria for extension supervision.
Extension office. The Rural Development Knowledge Information System, its ramifications and information flows among the parties involved: (groups within) rural communities, producer organizations, private sector enterprises, GO/NGO entities, research and education agencies.
Extension manager. An insight in the day to day job reality of extension managers setting priorities, interpreting guidelines, distributing tasks, supervising implementation, measuring progress, reporting and inquiring, path-finding and stock-taking, preparing tomorrow and pioneering.
Practical: Suitable assignments are given and applied in group context.
Continuous assessment.
C Extension 312
P Agribusiness Management 212, 242; Entrepreneurship 221; Extension 212, 242; Natural Resource Management 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111, 211; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

344 (20) Programme planning (8l + 2p)
Difference between an extension programme and an extension or development project. Definition and importance of a programmed and purposeful approach. Institutional framework for community participation. Participative and need appraisal. Problem identification and delimitation, Participatory Rural Appraisal (PRA) methods and techniques. Design of an extension programme: problem definition/conceptualization and development of survey instrument, situation survey and analyses, formulation of objectives, identification and scheduling of methods and activities, work plan construction and budgeting. Execution of an extension programme: information management (AKIS). Evaluation and monitoring of extension programme: methods.
Practical: Each student develops a persuasion programme aimed at a specific target audience as an assignment, which will then be discussed in a class context during a practical session.
Continuous assessment.
P Agribusiness Management 242, 313; Extension 242, 312, 322; Natural Resource Management 242
PP Agribusiness Management 112, 142, 212; Agricultural Engineering 142; Biology 113, 143; Communication 111, 211; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Entrepreneurship 221; Extension 212

NATURAL RESOURCE MANAGEMENT (NHB)

142 (10) Principles and dynamics of ecosystems (4l + 3p)
Basic geography, development of the earth as part of the solar system, life processes in nature, the conservation concept and threats to the earth. Geomorphology and topography of RSA and location of regions; link between soil, climate and vegetation, with specific reference to RSA biomes. Climatology, seasonal nature of temperature and rainfall, regional variation in climate. Ecological geography, system approach, principles and dynamics of ecosystem structure, composition and functioning.
Practical: To study how weather stations function.

242 (10) Introduction to sustainable resource utilisation (4l + 3p)
The environment as resource, management of ecosystems; human-environment interaction; biodiversity; geographical information systems.

Practical: Exposure to GI-systems, presentations by specialists from industry
P Soil Science 112; Natural Resource Management 142

311 (5) Nature conservation and legislation (2l + 2p)
Environmental degradation, environmental conservation, environmental legislation.
Practical: Visit various conservation actions in the Western Cape, presentations by specialists from industry
P Soil Science 112; Natural Resource Management 142
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

341 (5) Environmental assessment and legislation (2l + 2p)
Study various important topics concerned with the concept of 'Sustainable Development', for example, environmental policies, environmental economics and environmental assessment. Discuss prominent South African environmental legislation which protects water, soil and air as natural resources.
Practical: Presentations by specialists from the industry, case studies
P Natural Resource Management 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

OENOLOGY (WYN)

212 (10) Oenological chemistry and microbiology (4l + 3p)
Important organic components of wine such as carbohydrates, proteins and lipids. The functioning as well as the inhibition of enzymes. Feeding and important metabolic paths for the survival of yeasts and bacteria. Overview of microbiology; different groups of micro-organisms; growth and development of micro-organisms; manipulation of micro-organisms; yeasts and fungi of the grape and wine; the evolution of micro-organisms during alcoholic fermentation.
Practical: Making up of culture media; isolation and identification of cultures; colouring tests on micro-organisms. Metabolic processes are demonstrated in hand with practical examples. Microvinification.
PP Principles of Agricultural Science 111, 121, 141

242 (10) Principles of wine preparation (4l + 3p)
Overview of wine cultivation in South Africa and in other countries; types of wines and wine styles. Composition of juice, must and wine. Micro-organisms, enzymes, metabolic paths during alcoholic fermentation, malolactic fermentation.
Practical: Production methods and techniques of wine preparation, as well as wine types and brandy, are explained in broad details and applied on a small scale in practice. Wine evaluation is explained by means of practical examples. A variety of oenological analysis, such as pH, titratable acid, alcohol, sulphur dioxide, volatile acidity etc.
PP Oenology 212

311 (5) Applied wine microbiology and wine analysis (2l + 2p)
Micro-organisms involved in the winemaking process; the identification, selection and cultivation of wine related yeasts and bacteria; interaction of yeasts and bacteria during fermentation; yeast metabolism during fermentation, sugar metabolism, nitrogen metabolism, metabolism of organic acids, production of sulphur compounds.
Practical: Advanced wine analyses are dealt with, applied in practice or demonstrated.
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242

313 (15) Grape quality, harvesting methods, and practical wine preparation (6l + 2p)

Sampling, criteria for pressing ripeness, grape grading systems, harvesting techniques, transport systems, separators, presses, clarification techniques, juice balancing. Factors of importance during fermentation, temperature control, sulphur dioxide utilisation, malolactic fermentation. Practical: Preparation and care of wines on a commercial scale by each student.
Practical research project, reporting. Wine analyses. Visits to cellars. Wine evaluation. All theoretical aspects are explained demonstratively and then applied in practice by each student individually or in group context.
C Viticulture 313
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242.

321 (5) Applied wine chemistry and wine analysis (2l + 2p)

Chemical composition of acids, sugars, fenols, colourants, aroma, flavouring agents and other natural compounds in grapes and wine. Characteristics of aqueous solutions (must and wine), pH, acidity and buffer action, the effect of potassium. Phenolic composition of grapes and wine. Oxidation of must and wine.
Practical: Advanced wine analyses are dealt with, applied in practice or demonstrated.
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

342 (10) Wine stabilisation and quality management techniques (4l + 2p)

Colour extraction methods, phenolic chemistry and fining, tartrate stabilisation, oxidative stability. Filtration and bottling systems. Quality assurance and quality control. Assignments and reporting.
Practical: Practical care of wines. Preparation of different types of wine and related products. Wine evaluation. All facets of wine care are dealt with theoretically and applied in practice or demonstrated.
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242

351 (5) Applied wine chemistry (2l + 2p)

The formation of aromatic compounds and their role in wine, wine aging aromas and strange aromas. Wine ageing with emphasis on oak. Brandy and distillation. Wine and health.
Practical: Advanced wine analyses are dealt with, applied in practice or demonstrated.
C Oenology 342
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242;

361 (5) Applied wine microbiology (2l + 2p)

Yeast autolysis; killer yeasts; malolactic fermentation; botrytised wines; wine spoilage by microorganisms; microbiology of cork spoilage; enzymes involved in the wine-making process.
Practical: Advanced wine analyses are dealt with, applied in practice or demonstrated.
C Oenology 342
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142; Oenology 212, 242;

POMOLOGY (POM)

212 (10) Introduction to fruit cultivation (4l + 3p)

The fruit industry in SA and internationally; the morphology, physiology and seasonal growth cycle of a deciduous fruit tree; climate and other determining factors with regard to fruit type and cultivar choice; influence of climate on fruit production quality.
Practical: Morphology of pome and stonefruit; recordkeeping of phonological stages; visit commercial farms in different production areas; lectures by experts on the South African fruit industry and marketing of South African fruit on the export market.
P Biology 113, 143; Soil Science 112, 142

242 (10) Orchard establishment and propogation biology of fruit trees (4l + 3p)

Propagation and top-working of fruit trees, orchard planning and establishment, young tree development, pollination and fruit set, fruit development and thinning. Practical: Orchard planning and establishment; budding of fruit trees, visit a fruit-tree nursery, training and pruning of trees; thinning of flowers and fruit.
P Biology 113, 143; Soil Science 112, 142

312 (10) Cultivars, ripening and post-harvest physiology (4l + 2p)

Commercially important pome and stone fruit cultivars: characteristics and cultivation requirements; commercially important rootstocks for pome and stone fruit: characteristics and cultivation requirements; ripening, maturity indexing, harvest and post-harvest handling of fruit, post-harvest physiological disorders.
Practical: Cultivar identification; maturity indexing of pome and stone fruit; harvesting, grading and packing fruit; visit to packing facilities and cold stores, municipal market and harbour.
P Pomology 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

322 (10) Fruit production practices (4l + 2p)

Soil preparation and fertilising of deciduous fruit trees; pruning; irrigation; weed control and cover crops. Critical cultivation requirements for olives, kiwi fruit and guavas. Practical: Making recommendations regarding soil preparation; fertilisation calculations and recommendations; pruning of bearing pome and stone fruit trees; irrigation scheduling calculations and recommendations; morphology, growing and bearing habit, pruning of olives, kiwi fruit and guavas. Holiday work (2-3 weeks) on a fruit farm.
P Pomology 212, 242; Soil Science 212
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

332 (10) Post harvest management of and value-adding to fresh products (4l + 2p)

Sorting, grading, packaging, cold storage, processing of fruit and/or vegetables (for example juicing, drying, canning, making jam), marketing options.
Practical: Visits to different processing plants and packing facilities, completion of independent projects.
P at least one of Agronomy 322, 332, Pomology 312, or Viticulture 313
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

342 (10) Disease and pest management of deciduous fruit (4l + 2p)

Diseases and pests: identification, monitoring and management; principles of integrated fruit production; Globalgap.

Practical: Doing an orchard monitoring course. Doing a Globalgap evaluation of a commercial fruit farm.
P Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

351 (5) Cultivation of alternative crops (2l + 2p)
Fruit types that will be covered include olives, figs, pomegranates, kiwis and other berries. Morphology, growing habit and bearing habit. Phenology. Climatic and other cultivation requirements. Major production areas in the world and in South Africa. Important cultivars. Pollination requirements, planting widths, training systems, pruning, fertilisation and irrigation. Disease and pest control. Harvest and post-harvest handling.
Practical: Morphology of different kinds of fruit and cultivars. Tree development and pruning. Visit to commercial units and processing units. Maturity indexing.
P Pomology 212, 242; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

352 (10) Citrus cultivation (4l + 2p)
Origin, characteristics and economic importance; seasonal growth-cycle of the citrus tree; climatic requirements, important citrus production areas in the world and South Africa; citrus types, cultivars and rootstocks; citrus cultivation practices: fertilisation, irrigation, weed control, pruning, manipulations to improve fruit size and quality; pests and diseases of citrus; ripening, maturity indexing, harvest and post-harvesting handling.
Practical: Morphology of citrus types and cultivars. Tree development and pruning. Visit a commercial citrus farm, packing facility and juice plant. Maturity indexing of citrus.
P Pomology 212, 242; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

353 (10) Cultivation of subtropical fruit (4l + 2p)
Fruit types under discussion include avocados, mangoes, litchis, macadamias, gauvas. Morphology, growth habit and bearing habit. Phenology. Climate and other cultivation requirements, major production regions in the world and in South Africa. Important cultivars. Pollination requirements, planting widths, training systems, pruning, fertilising and irrigation. Manipulations to improve set, fruit size and quality. Disease and pest management. Harvesting and post-harvest handling.
Practicals: Morphology and phenology of different fruit types and cultivars. Tree development and pruning. Visits to commercial units and processing plants. Maturity indexing.
P Pomology 212, 242; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

PRINCIPLES OF AGRICULTURAL SCIENCE (BLW)

111 (10) Basic principles of chemistry (4l + 3p)
Atoms and atom structures are discussed here and include various concepts such as electrons, protons, atom mass as well as the electron structure of atoms and the periodic system of elements. Ions and ion formation and its importance in chemical equations. Concentration expressions, normality, molarity and chemical formulae are also dealt with. Chemical compounds as well as the characteristics of these compounds, solutions and acid base are placed in perspective. The physical behaviour of liquids and gasses, the characteristics of temperature, phase changes and the transmission of heat. Introductory organic chemistry is discussed including alkanes, alkenes, alkynes, alcohols, ethers, esters, aldehydes and ketones, carbocylic acids, amines and amides.
Practical: Tutorials, demonstrations and compilation of modules.

121 (5) Applied mathematical calculations (2l + 3p)
Units and conversions. Calculations by means of ratios. Calculation of the unknown by means of an equation. Changing the subject of an equation. Geometrical calculations (areas, volumes, angles, gradients and spacing). Compilation and use of tables and graphs.
Practical: Computerised mathematics modules available according to need for independent development of skills.

141 (5) Laboratory use and techniques (2l + 3p)
Safety of laboratories and the uses of chemicals. Important chemicals used during agricultural analytical determinations. Different kinds of glassware that are available and the correct uses of these during analytical determinations. Concentration expressions and the practical mixing of different chemicals expressed in different concentrations. Volumetric and quantitative determinations (carried out in practice). Practicing the correct use of laboratory apparatus. The practical use and standardisation of pH meters. The practical use of microscopes as well as the making up of microscopic plates.
C Principles of Agricultural Science 111

SOIL SCIENCE (GRK)

112 (10) Introduction to soil science (4l + 3p)
The origin of soils and its formation: Origin and composition of soil and soil-forming factors. Discussion of the most important physical characteristics of soil: Texture, structure, colour, consistency, overall density; soil air, soil temperature and soil water. Physical characteristics of soil and tillage: Problems arising as a result of tillage, soil compaction and crust formation. Organic and biological fraction of soil: Plant life in the soil, members of the animal kingdom, factors influencing soil microbe numbers, organic material, carbon and nitrogen in soil, sulphur as essential nutritional element in crop production, the phosphorus cycle.
Practical: Identification of rock formations, field procedure for the determination of texture, determination of soil colour according to Munsell colour charts, infiltration rate determinations for different textured soils.

142 (10) Principles of soil science (4l + 3p)
Introductory chemistry: Chemical and physical changes, chemical elements and the periodic table, chemical compounds, ions and formulae, chemical equations, types of chemical reactions, the pH scale, oxidation and reduction. The colloidal and chemical characteristics of soil: The clay minerals in soil, charges and ion exchange in soil colloids, dispersion and flocculation, the swelling and shrinkage phenomenon in soil, soil acidity, brackish soils. Principles of plant nutrition: Study of individual plant nutrients. Fertilisers: Characteristics and uses. Determination of fertilising need: interpretation of soil analysis report. Soil and water for irrigation purposes: Brackish; drainage.
Practical: Oxidation figure determinations, pH determination in the laboratory, soil sample-taking methods, fertilisation recommendations according to soil analyses.
P Soil Science 112

212 (10) Applications of soil science (4l + 3p)
Geological concepts and mineralogical characteristics of soil, description of the soil profile, development and classification of South African soils, the taxonomical soil classification system, identification of soil families, utilisation potential of soils, soil mapping and whole farm planning, profile modification through tillage.

Practical: Identification of rock formations as well as minerals, profile identification, soil mapping.
PP Soil Science 112, 142

VITICULTURE (WIB)

212 (10) Introduction to viticulture and propagation of the grapevine (4l + 3p)
Die bekendstelling, geskiedenis en omvang van die wingerdstok; die klassifikasie en morfologie van wingerdstok; die invloed van die klimaat en die grond op die prestasie van die wingerdstok; die verskillende wingerdgebiede in Suid-Afrika; die verskillende vermeerderings-, voortplantings- en kwekerytegnieke van die wingerdstok; die gebruik van onderstokke in die wingerdbedryf.
Praktika: Identifisering van onderstokkultivars; oesinsamelingspraktyke; naoesbemestings- en -bespuitingspraktyke; dekgewasse; insameling van entmateriaal; ent van stokkies; uitplant van geënte stokkies.
P Biologie 113, 143; Beginsels van Landbouwetenskap 111, 121; Grondkunde 112, 142

242 (10) Establishment and development of the grapevine (4l + 3p)
Planning the planting of a vineyard. Planting of vines, establishment methods, plant widths. The different types of trellis systems. Development of vines with trellis systems and as bush-trained vines. Pruning systems. Summer foliage treatments; sucker, top and leaf removal.
Practical: Soil preparation practices; measuring of vineyard blocks; planting of vineyard; winter pruning; training of young vines; application of summer foliage treatments such as sucker, tip, top and leaf removal.
P Biology 113, 143; Principles of Agricultural Science 111, 121; Soil Science 112, 142, 212

313 (15) Cultivar studies, optimal ripeness and management of growth vigour and canopy density (6l + 2p)
Study of the characteristics of the most important wine-grape cultivars. Cultivar planning for a farm. Grape berry development and maturity indexing. Different harvesting methods for wine-grapes. light management of the grapevine and its influence on vine performance.
Practical: Identification of wine-grape cultivars; block evaluation; maturity indexing; harvest collection and Seminar. (Farm planning)
P Viticulture 212, 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

321 (5) Fertilisation, cultivation and weed control (2l + 2p)
Identification of deficiency symptoms of the grapevine; supply, maintenance and corrective fertilisation; cover crops and types of cultivation; the most important vineyard weeds, control measures and chemical agents against these weeds.
Practical: Students are responsible for block management of individual blocks with regard to the following: fertilisation of vineyard; vineyard cultivation; application of control measures against weeds; identification of weeds.
P Viticulture 212, 242; Soil Science 212; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

344 (20) Phenology, irrigation, disease and pest management, IPW, soil health and environmentally friendly agricultural practices (6l + 2p)
Phenology of the vine, including dormancy and rest breaking; water requirement of the grapevine and irrigation management; development, identification and managing of the most important vineyard diseases; development, identification, monitoring and control managing of

the most important economic vineyard pests; IPW. Managing soil health, Alternative farming methods. The anatomy and functions of the vine root.
Practical: Students are responsible for block management of their individual blocks with regard to winter pruning of mature and young vineyards, managing of cover crops monitoring and managing of diseases and pests; suckering, shoot positioning and tip actions in the vineyards.. Determining irrigation scheduling under various different circumstances. Seminar – environmentally friendly farming methods and biodiversity.
P Viticulture 212, 242; Crop Protection 242
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

352 (10) Table and raisin grape cultivation (4l + 2p)
Table and raisin grape production in South Africa and in the world; characteristics and cultivation requirements of the most important table and raisin grape cultivars and rootstock cultivars; plant widths and trellis systems; vine development and pruning; dormancy and rest breaking; spring and summer treatments for table grapes (canopy management, crop control, bunch preparation, girdling); use of growth regulators for table grapes; physiological and other problems that have a detrimental effect on table and raisin grapes; ripening and maturity indexing; harvesting, handling and packing of table grapes; drying techniques and grading of raisins.
Practical: Identification of table grape cultivars; vine development, pruning, canopy management, crop control, bunch preparation, girdling, use of growth regulators, maturity indexing, harvesting, classing and packaging of table grapes. Visit to a commercial table grape farm, packing-shed and cold storage facilities. Holiday work on a table grape or raisin grape farm during pruning period and harvest season.
C Viticulture 321; 342
P Viticulture 212, 242; Crop Protection 242; Entrepreneurship 221
PP Agribusiness Management 112, 142; Agricultural Engineering 142; Biology 113, 143; Communication 111; Computer Literacy 112; Crop Protection 141; Natural Resource Management 142; Principles of Agricultural Science 111, 121, 141; Soil Science 112, 142

NOTE:
Prerequisites - abreviations

C	-	corequisite
P	-	prequisite – minimum predicate of 40% achieved
PP	-	prerequisite pass – minimum pass mark of 50% achieved (calculated as: predicate × 40% + examanination × 60%)

Other programmes offered at the Cape Institute for Agricultural Training

Higher Education

Higher Certificate in Agriculture (two years)

Specialise in:

Animal production & Vegetable production / Agronomy; Pomology & Viticulture; Extension & Animal Production / Agronomy; Vegetables / Viticulture / Pomology

Admission requirements:
- Students must be in possession of a National Senior Certificate as certified by Umalusi
- Students must have a 3 (40% - 49%) in each of FOUR school subjects from the list of recommended university admission subjects
- Students must obtain an aggregate of at least 50% for the NSC.

LIST of admission subjects

- Afrikaans OR English (Home Language OR First Additional Language) - 3 **AND**
- Mathematics or Mathematical Literacy - 3 **AND**
- Physical Sciences - 3 **OR**
- Life Sciences - 3 **OR**
- Agricultural Sciences - 3 **PLUS**
- one of the subjects recommended for admission by the Institute, also on at least a 3

Diploma in Agriculture (one year)

Modular experience teaching programme regarding Production, Agribusiness Management and Natural Resource Management
Admission requirements: Higher Certificate in Agriculture

Diploma in Extension (one year)

Modular experience teaching programme dealing with various aspects of Extension Science, supplemented by assignments.
Admission requirements: Higher Certificate in Agriculture or an equivalent qualification. Also suitable for extension officers in disciplines other than agriculture, e.g. nature conservation, health, social services, etc.

Diploma in Cellar technology (one year)

Modular programme aimed at training candidates as winemakers.
Admission requirements: Higher Certificate with Oenology as a major subject.
B.Agric. with Oenology up to second year level.

Equine studies (two years)

National Instructor's Course for Riders (full-time students).
Part-time training in general handling of horses, as well as riding lessons for riders.
Admission requirements: Senior Certificate. Possession of own horse not essential.

Further Education and Training

Various short courses

Areas of study:
General Agriculture
Vegetable Production
Fruit Production Viticulture
Animal Husbandry
Agricultural Engineering
Agricultural Management and Economics Human and Social Sciences

Learnerships

National Certificate in Plant Production NQF level 1 and/or level 4 in the following study fields:
- Viticulture
- Vegetable Production
- Fruit production

As an institution the Cape Institute for Agricultural training is accredited with SAQA (South African Qualification Authority) and AgriSeta.

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