

Microbiology Honours

The course consists of lectures, tutorials and seminars on advanced aspects of Microbiology including virology, serology, molecular biology, microbial biochemistry and microbial genetics. Each candidate is required to submit two copies (one to be returned) of a report on practical work done on a specific project during the course, and these together with all seminars, essays and practical reports will be considered part of the final examination.

Biotechnology Honours

Candidates may have either Microbiology or Biochemistry as major BSc subjects. Candidates with other majors will be considered.

The course consists of lectures, seminars and essays covering a series of topics in Biotechnology such as fermentation technology, genetic manipulation, applied immunology, enzyme engineering, food technology, process technology, and selection and control of industrial microorganisms. Practical work will consist of an 18 week course concentrating on small projects offering exposure to methods and techniques essential to the subject. This will be followed

by an 18 week project of original investigation.

All seminars, essays and practical reports will be considered part of the final examination.

Leather Science Honours

Candidates must have either Chemistry, Biochemistry or Microbiology as major BSc subjects.

The course consists of lectures, seminars and essays covering topics Leather Science, Leather Technology, Protein Chemistry, Biotechnology, Environmental Science, Statistics, Business Management and Economics.

Practical work will consist of modules in selected aspects of leather manufacture and short projects will be undertaken in the industrial sector. A research project covering an original investigation will be submitted at the end of the year.

All seminars, essays and practical reports will be considered a part of the final examination.

Further Studies

Suitably qualified students are encouraged to proceed to the research degrees of MSc and PhD under the direction of the staff of the Department.

BOTANY**Botany at Rhodes:**

Botany is a three year major subject which may be studied for degree curricula in the Faculty of Science. Candidates majoring in Botany must include Chemistry IP or IS in their curriculum. See Regulations S. 1(2), S.4 and S.9. One, or in some cases two, Botany courses are allowed as credits for other degree/diploma curricula in the Faculties of Arts, Education and Social Science.

The Botany courses offered at Rhodes University are as follows:

Basic Botany - 1st year of study

Intermediate Botany - 2nd and 3rd year of study - leading to a BSc degree together with another major subject.

Advanced Botany - 4th year of study usually specialising in some aspect of botany but may be studied in combination with another major. Results in a BSc(Hons) degree.

Research Botany - Research degrees in specialised subjects usually in specific areas of interest of the staff of the department lead to an MSc or PhD degree.

General Information - The First Year

Commencing in 1997, the first year course at Rhodes will be taught as two equal units. In the first semester, the Plant Biology 101 (*Plant Form and Function*) course will be offered and in the second, the Plant Biology 102 (*Plant Diversity*) course will be on offer. Each semester unit comprises a short introductory module and three modules of four weeks, each with 5 lectures and 1 practical per week. The first semester course, *Plant Form and Function*, is taught to students who are planning careers as pharmacists, biologists, or potential botanists. Those students who are reading for a degree in Pharmacy can only take Plant Biology 101.

Whilst students may elect to enrol for Plant Biology 102 without Plant Biology 101, students will need to pass both Plant Biology modules to obtain a full credit in Plant Biology 1.

Additional tutorial sessions will be given in some modules, and the modules are assessed by means of written-up practical work, and one compulsory course essay or test. Theory and practical examinations will be held in June and November. There is a compulsory field trip.

Intermediate Botany

The Botany 200 level course is divided into two equal semester courses and will in total, comprise six core courses, a plant collection, two field trips and no less than two option courses of four weeks duration, comprising 16 lecture periods, 4 practicals and 1 course essay or equivalent. Practical tests will be conducted and will cover the relevant course

modules. These marks will comprise the examination practical component of the course.

The two semester modules are: *Field Botany* (Botany 201) and *Functional Botany* (Botany 202). Students reading Botany II will also undertake a plant collection project, and will participate in two field trips. Students who wish to major in botany are reminded that a prerequisite for credit in Botany at the 200 level, is credits in both Plant Biology 101 and 102.

Botany 201: Field Botany

Core courses.

Plant Collection and
Biology of Marine and Estuarine Plants
Statistics

Field Trip

Options:

Students reading Botany 201 will be able to choose between the Option Courses described below. (Note: the option courses are dependant on the availability of staff, in any particular year some courses may not be offered. Please enquire from the secretary, to find out which members of staff will be away during the semester.)

Biodiversity, Succession and Restoration

Ecology

Applied Ecology

Biogeographical and Environmental Issues

Ethnobotany

Botany 202: Functional Botany

Core Courses:

Plant Anatomy - Leaves - Cells, Systems and Functions

Plant Physiology - Carbon And Nitrogen In Plants

Ecosystem Ecology

The Botany 300 courses will comprise no less than 5 core courses, one option course and a mini project. Modules will be of 4 weeks duration, comprising 16 lectures, 4 practicals

and 1 course essay or the equivalent. Practical examinations will cover the relevant core modules, which will comprise the examination practical component of the course. The course is divided into two equal semester units, Botany 301 (*Plant Communities and Populations*) and Botany 302 (*Plants and Stress*). Students will be required to undertake a mini project. A prerequisite for entry into Botany 300, is a pass in both Botany 201 and Botany 202 semester courses. A further prerequisite, is that students must have passed Chemistry 1P or 1S.

Botany 301- Plant Communities And Populations

Core courses
Biosystematics
Field and Quantitative Ecology
Taxonomic Data

Botany 302: Plants And Stress

Core Courses.
Ecological Plant Physiology
Plant Physiology: Stress in Plants

Option Courses

Students reading Botany 301 will be able to choose between the Option Courses described below. (Note: the option courses are dependant on the availability of staff, in any particular year some courses may not be offered. Please enquire from the secretary, to find out which members of staff will be away during the semester).

Phloem Loading in Relation to Plant Evolution

Elevated Atmospheric CO₂

Advanced Botany - Botany Honours

The honours degree course allows for specialisation in a chosen direction within the

field of botany. It involves seminars, tutorials and project work (See separate honours course outline). The course is intended to provide the student with the opportunity for in-depth study in particular aspect of the subject, which may be seen as a relevant training for subsequent employment or as a step between an undergraduate degree and a research degree. Joint Honours courses may be followed where aspects of the Botany Honours course may be taken in combination with courses in some other Departments (see Regulations S.15).

Biology I and IP

Biology I is a one-year course which may be studied for degree/diploma curricula in the Faculties of Science, Arts, Education and Social Science. This course, offered jointly by the Departments of Botany, Zoology and Entomology, and Microbiology is a compulsory prerequisite for some courses.

Biology IP is a compulsory first year credit in the BPharm degree, differing from *Biology I* in that there are approximately 30 additional lectures in Microbiology.

Detailed information on the curricula is available from the Head of the Department.

Part I Plant Biology See the Plant Biology 101 curriculum for details of this course.

Part II Animal Biology Intro to tissue and organ histology. Nutrition, digestion and excretion. Circulation and respiration. Nervous systems. Parasitology and microbiology.

MSc and PhD degrees

The degrees of MSc and PhD are offered in the Department. The MSc and PhD are taken as prescribed in the General Regulations.

CHEMISTRY

Chemistry may be taken as a major subject in combination with the subjects listed in regulation S.9.

CHEMISTRY COURSES

Chemistry is a three-year major subject in the Faculty of Science. Chemistry I may be included in curricula in the Faculties of Arts, Education, Pharmacy and Social Science.

Chemistry IS and IP

4 lectures, 1 tutorial and 3 hours of practical weekly.

Note It will be assumed that students in the class have a knowledge of chemistry at the standard of physical science at Matriculation level or its equivalent.

Chemistry IR

The Chemistry IS and IP theory examinations in June are write-off examinations of the topics covered in the first half of the year (Part A). Students obtaining less than 40% but not less than 20% in the Part A theory examination are not permitted to continue in Chemistry IS or IP but join the remedial course **Chemistry IR**, to revise Part A topics for re-examination in November. In the first half of the following year, Chemistry IR students preview Part B topics prior to rejoining the Chemistry IS or IP streams in July. Such students will thus take at least two years to complete Chemistry IS or IP.

Students obtaining less than 20% in the Part A theory examination are not permitted to continue with any Chemistry course in that year.

Chemistry II 5 lectures and 5 hours of practical weekly.

Chemistry III 5 lectures and 5 hours of practical weekly.

Chemistry Honours See below.

CONTENTS OF COURSES

Chemistry IS

This course is a general introduction to chemistry for students registered for BSc, or degrees other than BPharm. The course covers quantum ideas, atomic structure and bonding, the periodic table, states of matter, electrochemistry, radiochemistry, rates and energies of chemical processes, chemical equilibrium and systematic inorganic and organic chemistry. The practicals are an introduction to the techniques of chemistry.

Chemistry IP

This course is for students registered for the BPharm degree. The content and standard are similar to those of Chemistry IS. Students who pass either Chemistry IS or Chemistry IP may continue to Chemistry II or Biochemistry II.

Chemistry II Chemistry of the main block (s and p) elements; analytical chemistry; principles of thermodynamics and kinetics. Organic stereochemistry; alicyclic hydrocarbons; advanced aspects of substitution and elimination reactions and the chemistry of alkenes and alkynes; benzenoid aromatic compounds; introduction to spectroscopic methods in structure elucidation, electrochemistry; instrumental analysis; polymer chemistry and surface chemistry. Entrepreneurial Project.

Chemistry III

Advanced aspects of the chemistry of organic carbonyl compounds; heterocyclic chemistry; carbohydrates; retrosynthetic analysis; spectroscopic analysis of organic compounds. Kinetics; thermodynamics; heterogeneous catalysis; quantum mechanics; atomic

DESIGN

All practical courses in the Department have a Design component and Design is thus an accredited subject in all the practical courses.

MASTER OF FINE ART

This course is divided equally into theoretical and practical Sections and is marked as such.

MASTER'S DEGREE BY COURSEWORK:**FRENCH AND ITALIAN**

French is a three-year major subject which can be studied for degree curricula in the Faculty of Arts. Italian is a one-year non-continuing course not offered at present.

FRENCH**French Preliminary**

This course is designed to enable students who have not taken French as a matriculation subject to acquire the essential elements of the language and civilisation.

Students who obtain a satisfactory pass in French IP may go directly to French I. In exceptional cases, students may proceed directly to French II with the permission of the Head of Department.

French I

This course is taken by students who have matriculated in French. The syllabus includes: Language and culture, unseen translation (version) and prose composition (thème); and study of French authors: French Literature from the 17th to the 20th centuries, literary criticism and essay writing.

French II

Language and culture; translation work, prose composition (thème). French literature and

Students who obtain 70 %, or more, in their final practical examination may enrol for the degree by course work of which 70 % of the mark is for coursework and 30 % of the mark for an extended essay. All students must submit a portfolio for approval by the department.

MASTER'S DEGREE

This entails the submission of a thesis on an approved subject in the fields of Art History or Art Theory.

civilisation from the 17th to the 20th centuries. Literary criticism (explication de textes) and essay writing (dissertation littéraire).

French III

Language and culture; translation work, advanced prose composition (thème). French literature and civilization from the 16th to the 20th centuries. Literary criticism (explication de textes) and essay writing (dissertation littéraire).

Licence ès Lettres (Honours Course)

L'examen se compose de quatre épreuves écrites et d'une épreuve orale d'une heure.

Epreuve I Thème et version (Le candidat doit obtenir un minimum de 50% dans cette épreuve).

Epreuves 2 à 4

Le candidat choisira trois sujets d'étude parmi les auteurs ou les genres datant du moyen âge au vingtième siècle. Le candidat a également la possibilité de choisir une épreuve de français commercial. Ce choix se fera suivant ses intérêts et les spécialités des membres du Département.

Une dissertation de recherche, dont la longueur ne dépassera pas 10 000 mots, peut

se substituer à l'une des épreuves, dans la série 2 à 4.

Epreuve Orale Analyse textuelle d'un texte littéraire, classique ou moderne. Exposé critique.

Maîtrise ès Lettres (MA Course)

Les candidats pourvus de la Licence ès Lettres (BA Honours) sont admis à se présenter en Linguistique et en Littérature Françaises (MA) sur la recommandation du Directeur de l'Institut d'Etudes Françaises, avec agrément de la Faculté des Lettres, soit

(a) en subissant quatre épreuves écrites et une épreuve orale d'une heure: soit

(b) en soutenant une thèse dont le sujet aura été choisi par le candidat et agréé par la Faculté des Lettres.

GEOGRAPHY

Geography is a three-year major subject which may be studied for degree curricula in the Faculties of Science, Arts and Social Science, and is frequently read by students in the Faculty of Education. Geography IH (Commerce) may also be read in the Faculty of Commerce.

NOTES:

1. Geography I provides a sound foundation for the student majoring in Geography as well as a general course for the student studying Geography for one year. Students who have not studied Geography at school level are welcome to read Geography.

2. Geography has no compulsory ancillary subject but has recently been combined, as a major, with: African Languages, Afrikaans, Anthropology, Botany, Chemistry, Classics, Economics, Education, English, Fine Art, Geology, History, Human Movement Studies, Industrial Psychology, Industrial Sociology, Journalism, Linguistics and English

ITALIAN

***Italian IB** This course is designed to enable students who have not taken Italian as a matriculation subject to acquire the essential elements of the language, literature and civilization. The course includes translation from Italian into English and English into Italian, reading, conversation and a general outline of literature and civilisation.

* Not offered at present

MODERN FICTION

For a description of this course, see the section on Interdepartmental Studies.

Language, Mathematics, Modern European Languages, Music, Philosophy, Physics, Political Studies, Psychology, Zoology and Entomology.

3. Students are expected to participate in Departmental excursions. Costs are kept as low as possible. Fieldwork, to be carried out during one of the vacations, is compulsory in Geography III and Honours. Students are encouraged to attend the South African Student Geographical Conference, which is held at a different university each year.

Geography IP and IH

Geography I consists of two semester courses: Geography IP and Geography IH, each of which is a half-credit.

Geography IP provides an introduction to physical geography.

Geography IH provides an introduction to human geography.

Practical and field work are integral parts of both courses.

Students may not normally proceed to Geography II until they have passed both Geography IP and Geography IH or have passed in the combined aggregate. Students may obtain a non-continuing pass on aggregate of Geography IP and Geography IH and may proceed to Geography II if granted permission by the Head of Department.

Geography IH (Commerce)

This is the same course as Geography IH (Human Geography) but does not include practicals. Tutorials will focus on economic and developmental issues in geography.

Geography I

The following courses are offered: ecology, climatology, economic geography, geomorphology and hydrology, population geography, urban geography. Practical work is an integral part of the course.

Geography II

Course work emphasises the principles of human and physical geography. Practical work is related to the lecture courses and to the development of research techniques.

Geography III

Subject to timetable constraints three courses may be selected from such options as ecology, economic geography, hydrology, political geography, Quaternary studies, soils and soil erosion, urban geography. In addition there is a core course on geographical methods. Practical work includes advanced quantitative methods and data processing, including an introduction to Geographic Information Systems. Projects enable students to pursue their own research interests.

Geography Honours Course

Each student is required to take four courses (depending on staff interests, a choice of

courses will be offered): to submit a research project; and to present two seminars during the year.

Representative courses which may be offered include: African urban development; applied hydrology; biogeography; economic geography; fluvial geomorphology; geohydrology, Quaternary studies; water resources management. Arts students are reminded of the alternative route to Honours. See Regulation A.16(3) and A.16(4).

NB: Parts of the Geography degree may be taken in conjunction with courses in other departments. For example, a student could write one paper in Botany or Economics. Where approximately 50 % of a student's courses are examined in another department, a joint degree is awarded e.g. Honours in Geography/Geology. Any combined degree must be agreed to by both Heads of Department concerned and in the Faculty of Arts by the Faculty through the Humanities Higher Degree Committee.

BSc Honours in Environmental Water Management

Each student is required to read four courses write a dissertation; and present two seminars during the year. At least three of the courses must be chosen from those offered by the Department and that are directly related to Water Resources or Hydrology e.g. Applied Hydrology, Water Resources Management, Fluvial Geomorphology, Geohydrology. The fourth course must be relevant to the needs of Environmental Water Managers and must be approved by the Head of Department. Suitable fourth courses include: Geographic Information Systems, Quaternary Studies, Environmental Ecology. The dissertation must be water related and the topic must be approved by the Head of Department.

Interdisciplinary Honours Degrees:

BA Honours in Development Studies (in the Department of Geography). Each student is required to read four courses; write a dissertation; and present two seminars during the year. At least two of the courses must be chosen from those offered by the Department for the Interdisciplinary Degree in Development Studies: Economic Geography, Geographic Information Systems and/or Population, Resources and Development. The remaining courses must be chosen from those offered by the other participating departments after consultation with the Head of the Department of Economics and the Dean of the Faculty.

BA Honours in Industrial Society (in the Department of Geography).

Each student is required to read four courses; write a dissertation; and present two seminars during the year. At least two of the courses

must be chosen from those offered by the Department for the Interdisciplinary Degree in Industrial Society: Economic Geography, Geographic Information Systems. The remaining courses must be chosen from those offered by the other participating departments after consultation with the Head of the Department of Sociology and Industrial Sociology and the Dean of the Faculty.

Masters' and Doctoral degrees

Suitably qualified students are encouraged to proceed to the research degrees of MSc, MA, MSocSc and PhD under the direction of the staff of the Department. The degree of MSc in Hydrology or Geohydrology in the Department of Geography may also be awarded.

GEOLOGY

Geology is a three-year major subject which may be studied for degree curricula in the Faculties of Science and Commerce. One or two courses in Geology are allowed as credits for degree/diploma curricula in the Faculties of Arts and Social Science. Fieldwork is a necessary part of Geology courses and a field-course fee is payable annually. Students taking Geology as a major subject must include one course in Chemistry in their first year of study, and are strongly advised to include additional courses in Chemistry Physics, Mathematics or Computer Science in their curriculum.

Geology IF

This is a half-course offered to students taking Science Foundation curricula. Successful completion will allow students to proceed to

Geology I. This course provides an introduction to the major concepts and subdisciplines of Geology and emphasises the importance of Geology to environmental studies.

Geology I

This course is an introduction to geological aspects of the Earth Sciences and assumes no prior background in geology. Lectures cover the main fields of geology and applied geology and are supported by relevant practical work. Attendance at scheduled field courses over at least two weekends is compulsory. Apart from being a prerequisite for the entry into Geology II, the course provides a useful background in Earth science for students majoring in other science subjects.