UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Department of Forest and Wood Science

Academic Programmes for 2013

Masters Programme

Enquiries: Head of Department
Contact details: Department of Forest and Wood Science
Stellenbosch University
Private Bag X1
Matieland
7602
Tel: +27 21 808 3323
e-mail: wood@sun.ac.za

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This document is an extract from the Faculty of AgriSciences Calendar for 2013

Postgraduate Programmes

Postgraduate programmes in Forestry and Wood Sciences may be taken after completion of the bachelor's programme. Students can, depending on their existing qualifications, enter a suitable postgraduate programme in one of their majors to obtain one of the following qualifications: Postgraduate Diploma in Forestry and Wood Sciences (PgDipFor), Bachelor of Science in Forestry and Wood Sciences with Honours (BScForHons), Master of Science in Forestry and Wood Sciences (MScFor), Doctor of Philosophy in Forestry and Wood Sciences [PhD (For)] or Doctor of Science in Forestry and Wood Sciences (DScFor) in the fields of Forestry and Natural Resource Sciences or Wood and Wood Products Sciences.

In order to pursue postgraduate studies in the Department of Forest and Wood Science, students must have achieved a minimum of 60% at the undergraduate level in all their modules or in the major module related to the intended postgraduate study direction. Deviations from this requirement are at the discretion of the chair of the Department.

Master's Programmes

Programme Description
The master's programme in Forestry and Wood Sciences leads to the qualifications MScFor in Forestry and Natural Resource Sciences or Wood and Wood Products Sciences. The programme consists of a one-year MScFor after the four-year BScFor degree. A relevant honours degree, the Postgraduate Diploma in Forestry and Wood Sciences, as well as other qualifications approved by Senate for this purpose give access to the programme.

1. Forestry and Natural Resource Sciences (MScFor)

Students must register for Biometry 711 and Forest Science 875 in combination with Forest Science 878.

Biometry 711 (6) – Postgraduate biometry
Data processing with SAS Enterprise Guide. Simple descriptive statistics; T tests for single populations, combined t tests and paired t tests for two populations; Analysis of variance: completely random design, random blocks design, Latin square design, cross classification designs; repeated-measures analysis of variance; Multiple comparison procedures, Non-parametric tests: Mann-Whitney, Wilcoxon, Kruskal-Wallis and Friedman; Linear regression and correlation; Polynomial regression, Multiple regression; selection of independent variables with stepwise regression and all-subset regression; Analysis of covariance analysis; Categorical data analyses (χ2 tests); Logistic regression. This module is presented in two blocks of five half days each during the first semester.

Subject to continuous assessment.
P Biometry 212 and 242 or 274 or any other similar module

Home department: GENETICS

Forest Science 875 (14) – Forest Science research methodology
Critical reading of scientific papers, literature searches, development of research proposals, scientific writing and presentation skills, forest science research environment, research ethics.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Forest Science 878 (120) – Master's thesis

Elective Modules: Students must choose one of the 40-credit elective modules.

Forest Science 881 (40) – Advance forest eco-physiology

Radiation interception, soil water availability, nutrient dynamics and nutritional sustainability in forest ecosystems; forest disturbance and regeneration processes; eco-physiological modelling of stand growth, carbon sequestration and the mechanisms whereby stands respond to silvicultural operations.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Forest Science 882 (40) – Advance timber harvesting logistics

Assessment and sustainable application of timber-harvesting operations and related logistics. This will include timber-harvesting techniques and nomenclature, harvesting methods and systems selection; harvest planning; optimal utilisation of forest biomass; work study and ergonomics; forest road network analysis and management and secondary transport operations and access development to satisfy sustainability principles.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Forest Science 883 (40) – Advanced forest management

Forces and trends impacting on the forestry business environment; advanced concepts in forest economics; forestry investments, trade in forest products, forestry markets; international resource policies, climate change, carbon trade; forest-management information systems, business and technical planning.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Forest Science 884 (40) – Forest growth and wood formation

A theory-driven approach to forest and tree growth and the correlations to wood quality; advanced methods for tracing and analysing changes in tree and forest growth; effects of environmental stress on growth and relevant wood properties; modelling and simulation of tree and forest growth and wood quality.
Subject to continuous assessment.
Home department: FOREST AND WOOD SCIENCE

Forest Science 885 (40) – Advance forestry developments

Community-based natural resource management (CBNRM), sustainable livelihood framework models, research methodologies in social forestry and community development, social issues in forest resource certification, non-timber forest products (NTFPs), international case studies in community forestry; agroforestry systems, practices and technologies; diagnosis and design in agroforestry; resource use in agroforestry, including competition, complementarity for water, nutrients and light; agroforestry research and development approaches, including on-farm research for technology development and dissemination.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Forest Science 886 (40) – Advanced nursery practice and tree improvement

Seed collection, seed storage and treatment, growth media, mycorrhizal inoculation, vegetative propagation and clonal hedge management, plant nutrition, water quality, disease management, transplant quality and field survival; studies in the application of genetic principles for tree improvement purposes; breeding techniques, including seed orchard technology and cloning; design, analysis and interpretation of provenance and progeny tests; genetic gain. Identify, plan and develop nursery and tree improvement projects.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

2. Wood and Wood Products Sciences (MScFor)

Students must register for Biometry 711 and Wood Product Science 875 in combination with Wood Product Science 878.

Biometry 711 (6) – Postgraduate biometry

Data processing with SAS Enterprise Guide. Simple descriptive statistics; T tests for single populations, combined t tests and paired t tests for two populations; Analysis of variance: completely random design, random blocks design, Latin square design, cross classification designs; repeated-measures analysis of variance; Multiple comparison procedures, Non-parametric tests: Mann-Whitney, Wilcoxon, Kruskal-Wallis and Friedman; Linear regression and correlation; Polynomial regression, Multiple regression; selection of independent variables with stepwise regression and all-subset regression; Analysis of covariance analysis; Categorical data analyses (χ2 tests); Logistic regression. This module is presented in two blocks of five half days each during the first semester.

Subject to continuous assessment.
P Biometry 212 and 242 or 274 or any other similar module

Home department: GENETICS

Wood Product Science 875 (14) – Wood Product Science research methodology

Critical reading of scientific papers, literature searches, development of research proposals, scientific writing and presentation skills, wood product science research environment, research ethics.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Wood Product Science 878 (120) – Master's thesis

Elective Modules: Students must choose one of the 40-credit elective modules.

Wood Product Science 880 (40) – Wood mechanics and wood-based constructions

Focus on structural timber and the design, manufacture, and properties of wood-based structures. It includes the influence that processes like grading, drying, chemical treatment and surface treatments have on the material. Joints and joining methods; durability and performance testing.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Wood Product Science 881 (40) – Wood quality factors

Tree growth; bulk, macroscopic, cellular, cell wall, ultrastructural and molecular properties of wood; tree-to-tree and within-tree variability of the most important anatomical, physical and chemical properties; wood quality.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Wood Product Science 882 (40) – Physical wood properties

In this module advanced physical properties are determined in wood and wood-based products; advanced analytical techniques are introduced. The effect of these properties on the final product will be evaluated.

Subject to continuous assessment.

Home department: FOREST AND WOOD SCIENCE

Application process:

Prospective students can visit the following links for applications:

- Undergraduate studies: http://www.maties.com/
- Postgraduate studies: http://www0.sun.ac.za/pgstudies/

For more information on the programmes offered at the Department of Forest and Wood Science, please visit the following links:

- Calendar 2013: http://www.sun.ac.za/university/jaarboek/
- Website of department: http://www.sun.ac.za/forestry