



UNIVERSITEIT  
STELLENBOSCH  
UNIVERSITY

## **Department of Forest and Wood Science**

### **Academic Programmes for 2017**

### **Postgraduate Diploma**

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## 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), 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.

### Postgraduate Diploma

#### *Programme Description*

The postgraduate diploma programme in Forestry and Wood Sciences extends over one year and leads to the qualification PgDip in Forestry and Wood Sciences.

#### *Specific Admission Requirements*

- Appropriate three-year BSc degrees, BTech degrees as well as other qualifications that Senate has approved for this purpose.
- A minimum final mark of 60% in all modules or in the major module that is applicable to the postgraduate field of study. The Department can decide to deviate from this requirement.

#### *Closing Date for Applications*

Apply by 14 September of the previous year.

#### *Duration of Programme*

This programme extends over one year.

#### *Programme Content*

The programme consists of an approved curriculum, which lays the foundation for specialisation in forestry and wood sciences disciplines. The postgraduate diploma may allow access to the MScFor programme.

#### *Compulsory Modules*

Choose one of the compulsory modules.



### **780 (24) Forest science project**

Research in the context of the forestry value chain; research design and methods; data capture and analysis; formulation of results and conclusions.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **784 (24) Wood products science project**

Wood Products Science research project with a focus on any aspect of materials science, product development or manufacturing; research design and methods, data capture and analysis, formulation of results and conclusions.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

## **Plus**

### *Elective Modules*

Choose elective modules to the value of 96 credits of which 32 credits must be from the field Wood Product Science or Forest Science.

### **724 (32) Tree propagation**

Plant propagation of forestry species, principles and practices of tree propagation and nursery management; principles of sexual and asexual tree propagation; seed management principles.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **766 (16) Geo-information science for resource managers**

The use of GIS in the context of natural resource research and management (agriculture, forestry, conservation); the nature of geographical data, data models, co-ordinate systems and map projections; sources of spatial data in Southern Africa; GPS and Remote Sensing technology use in GIS; GIS processes: data capture, ordering, storage and manipulation; specific emphasis on analysis of spatial patterns for natural resources; visual output for research publication.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **772 (32) Silviculture**

Basic forest eco-physiology; silvicultural systems; characteristics of commercially important species and hybrids; site-species-market matching; stand regeneration; site, vegetation and



nutrient management; pruning; thinning; risk management and sustainability.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **773 (32) Timber harvesting and transport logistics**

Timber-harvesting techniques and nomenclature/ terminology, harvesting methods and systems selection; tactical and operational harvest planning; forest biomass; work/time study; machine and system costing and ergonomics; forest road and timber transport management and logistics.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **774 (32) Forest inventory and yield prediction**

Coverage of forest mensuration techniques to determine tree diameter, tree height, stem form and volume, stem weight, biomass and carbon content; quantitative characterisation methods of forest structure; layout and implementation of forest inventories in natural and plantation forests; consideration of spatial aspects as well as aspects of accuracy and efficiency of inventories; theories of tree growth; tree growth and its relation to wood quality; simulation of tree and stand growth with empirical models.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **775 (32) Forest management**

Forestry planning and planning systems, forestry business environment and levels of planning; forest finance and economic analysis, forest investments, trade in forest products, forestry markets, valuation of forests, land and services; international resource policies, REDD, carbon trade, renewable energy policies, forest certification.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **776 (32) Tree improvement**

Genetic tree improvement of forestry species; principles and practices of tree improvement; management breeding and research programmes; population genetics, quantitative traits and continuous variation within forestry species; selective processes and testing.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

### **785 (32) Forestry development**

Agroforestry systems; community-based natural resource management; non-timber forest



products; integrated land-use systems and green landscapes; land resources and productivity in forest systems, socioeconomic aspects of forest systems, planning for agroforestry diagnosis and design, management and sustainability of forest ecosystems.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

#### **414 (16) Wood products manufacturing I (3L, 3P)**

Basic wood products manufacturing with a focus on the primary manufacturing sector. Background to and economics of wood products manufacturing. Production of solid wood (industrial or furniture wood) in sawmills and further processing in secondary industries. Processing equipment; introduction to computer-based equipment.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

#### **781 (32) Wood properties and quality**

Tree growth; bulk, macroscopic, cellular, cell wall, ultra-structural and molecular properties of wood; variability between trees and within a tree of the most important anatomical, physical and chemical properties; wood quality. Testing and analysis to evaluate wood quality.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

#### **782 (32) Primary wood processing**

Theory of wood drying; drying technology: drying methods, kiln types and schedules; drying defects. Adhesion; structure, types, properties and application of adhesives; manufacture and properties of composite products: particleboard, plywood, fibreboard, wood cement, wood plastic, laminated wood and paper; analytical methods.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

#### **783 (32) Bio-energy**

Conversion of wood into energy, processing methods, determination of calorific values and other properties, comparison of different biofuels, harvesting and storage problems, different conversion methods, processing problems, environmental aspects, emissions. Consolidation of theoretical knowledge in a realistic case study based on South African biofuels.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

#### **784 (24) Wood products science project**



Wood Products Science research project with a focus on any aspect of materials science, product development or manufacturing; research design and methods, data capture and analysis, formulation of results and conclusions.

*Method of assessment: Flexible assessment.*

*Home department: Forest and Wood Science*

*Enquiries*

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## **Application process:**

To apply please identify a study leader and finalise the research project and first proposal.

Then apply online at:

- <http://www0.sun.ac.za/pgstudies/>

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

- Calendar 2016: <http://www.sun.ac.za/university/jaarboek/>
- Website of department: <http://www.sun.ac.za/forestry>