SA GRAPE AND WINE RESEARCH INSTITUTE
Programme/Project Info for
Prospective MSc and PhD Students

PROGRAMME: SPECTROSCOPIC APPLICATIONS IN GRAPE AND WINE SCIENCES

Towards non-destructive analytical methods for process monitoring and quality control in viticulture, oenology and wine biotechnology	The analytical technologies used are near- and mid-infrared spectroscopy coupled with multivariate data analysis tools. Applications, mostly in the form of classification and regression models, using multivariate classification and calibration algorithms, are developed and transferred to industry. Infrared spectra are coupled to flavour chemistry (using mass spectrometry and chromatography) and sensory data on same samples for multi-block analysis. An important application area of infrared spectroscopy is multi-scale quality monitoring of table grapes – in the vineyard, at the packhouse and during cold storage. In another application the combination of spectroscopy, chemometrics and process control strategies can be used to implement process engineering solutions during wine fermentations.

OPPORTUNITIES FOR 2020

1. Assessment of table grape bunch and berry quality and ripening parameters using machine vision	• Helene Nieuwoudt, Eunice Avenant, Emile Lochner (electronics engineer, external), Carlos Poblete • Two MSc bursaries for agriculture and **Electronics Engineering** students, respectively • To discuss project: Helene Nieuwoudt hhn@sun.ac.za; tel 021 808 2748
2. Implementation of an online system for the monitoring and optimization of red wine fermentations	• Jose Luis Aleixandre, Wessel du Toit, Helene Nieuwoudt, • A PhD or MSc bursary for agriculture and **engineering** students • To discuss project: Jose Luis Aleixandre joaltu@sun.ac.za ; tel 021 808 9238

GENERAL CONTACT INFORMATION

To apply:	Lorette de Villiers ; lorette@sun.ac.za; tel 021 808 3770
Bursary:	Postgradfunding@sun.ac.za;tel 021-808 4208
Website	http://www.sun.ac.za/english/faculty/agri/viticulture-oenology