

NOTES

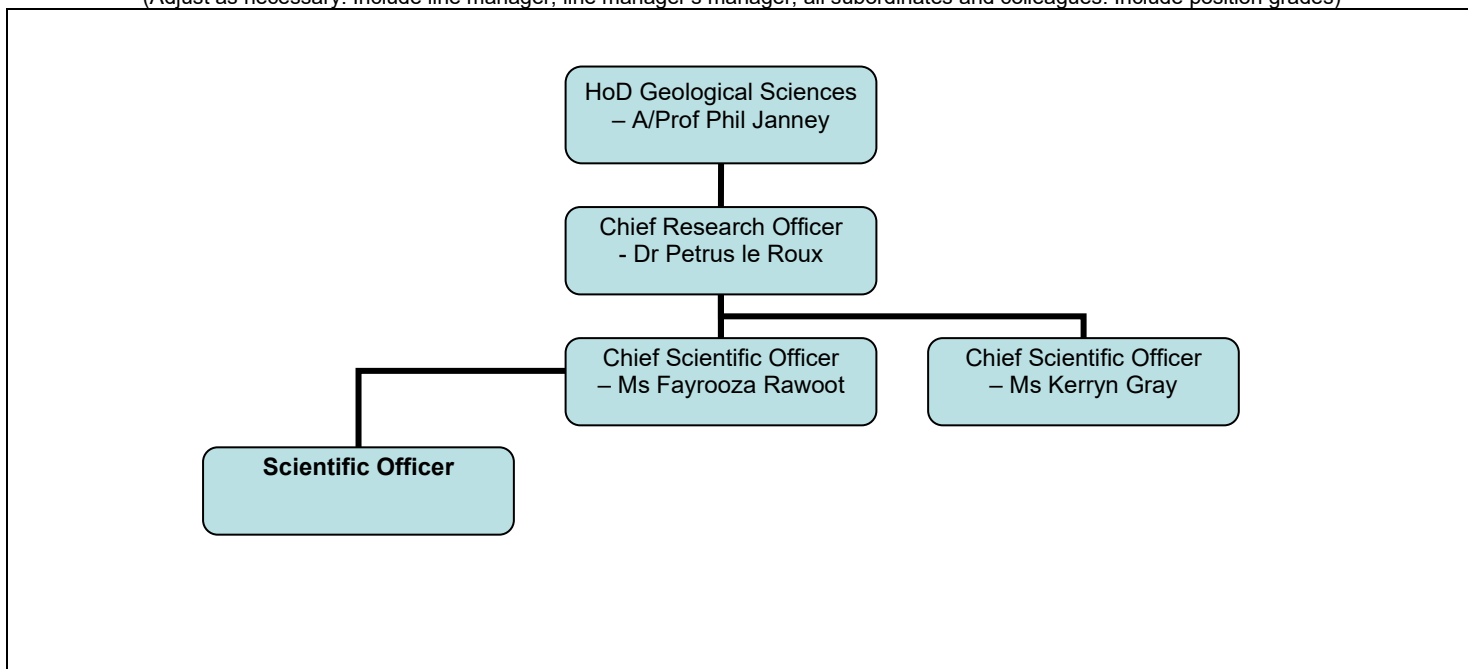
- Forms must be downloaded from the UCT website: <http://forms.uct.ac.za/forms.htm>
- This form serves as a template for the writing of position descriptions.
- A copy of this form is kept by the line manager and the position holder.

POSITION DETAILS

Position title	Scientific Officer		
Job title (HR Business Partner to provide)			
Position grade (if known)	PC08	Date last graded (if known)	May 2021
Academic faculty / PASS department	Science		
Academic department / PASS unit	Geological Sciences		
Division / section	MC-ICP-MS Facility		
Date of compilation	May 2024		

ORGANOGRAM

(Adjust as necessary. Include line manager, line manager's manager, all subordinates and colleagues. Include position grades)



PURPOSE

The main purpose of this position is to support high-level, critical day-to-day operations in the clean chemical laboratory of the MC-ICP-MS Facility, a world-class facility with a global reputation for cutting-edge analytical geochemistry. This involves highly detailed chemical processing of material preparation for isotope ratio analysis. The position is highly focused and specialized.

The position involves primarily chemical dissolution of material with highly corrosive acids (e.g., hydrofluoric acid), detailed elemental isolation by ion chromatography which require exceptional attention to detail and experience. Therefore, the requirement for a minimum qualification of MSc in Geochemistry or Chemistry with experience working in a clean chemistry environment. Some limited routine laboratory maintenance is also part of the responsibility of the position, as well as training new users as ensuring the safety of the users is paramount. To ensure no environmental contamination of sample material, the facility operates under exceptionally clean conditions which cannot be compromised by the incumbent.

The position is funded from income generated through scientific collaboration by the facility director in large, multi-year, high-profile multi-disciplinary international research projects (NSF, ERC, National Geographic). The incumbent is therefore expected to provide chemical services of an international standard to not only ensure the financial viability of the position, but critically maintaining the continued international profile of UCT in analytical, isotope geochemistry.

CONTENT

Key performance areas		% of time spent	Inputs (Responsibilities / activities / processes/ methods used)	Outputs (Expected results)
1	Routine chemical preparation of sample materials	60%	<p>Digest (using hydrofluoric acid) and perform elemental separation of samples by ion chromatography in preparation for radiogenic Sr isotope analysis. If sample material contains a biological component, ash samples using muffle furnace to convert material to mineral ash prior to digestion</p> <p>Quantitatively split digestions by weight for combined elemental concentration analysis if required, and deliver split to quad-ICP-MS facility for analysis. Liaise with quad-ICP-MS facility to ensure efficient processing of samples for analysis.</p>	<p>Safely produce isolated Sr fractions of samples suitable for MC-ICP-MS isotope ratio analysis.</p> <p>Safely produce quantitatively split fractions of digested sample solutions for elemental concentration analysis.</p>
2	Routine laboratory maintenance	20	<p>Perform general clean chemistry maintenance and cleaning of facility and equipment, including laminar flow hoods and Teflon coated hot plates. Assist with the process cleaning of Teflon beakers through the set steps of acid and water soaking, and place beakers in laminar flow drying boxes.</p>	<p>Cleaning of Teflon beakers, high purity, clean acids and the safe disposal of acid waste</p> <p>Critically clean laminar flow hoods and Teflon coated hot plates.</p>
3	Assist/train new users	10	<p>This facility is the only one of its kind in the country and a priority is to train/assist new users (visitors and students), providing a unique opportunity to gain hands-on experience. Familiarize new users with the safety procedures of the facility, and walk them through the complete routine of processing samples prior to overseeing them doing this themselves.</p>	<p>New users who are competent to process their own samples for isotope analysis by MC-ICP-MS, with full compliance and understanding of all safety protocols in the facility.</p>
4	Routine administration	10	<p>Routinely file the printed results of MC-ICP-MS analyses by isotope system, date and users in the facility filing system. Records older than 10 years to be scanned and stored in the dedicated cloud server.</p> <p>Manage the secure and organized storage of all samples after processing and analysis. Bag by date and user, and place in dedicated storage containers organized by year. Samples older than 10 years to be moved to dedicated crates in departmental rock store.</p>	<p>Organized filing of all records of analyses, filed in hardcopy, with records older than 10 years scanned for electronic storage.</p> <p>A labelled and catalogued storage of samples received for easy retrieval as required. Samples older than 10 years in dedicated crates in departmental rock store. Catalogue up-to-date in hardcopy.</p>

MINIMUM REQUIREMENTS

Minimum qualifications	NQF9 required qualification is a MSc degree or equivalent qualification in Geology, Geochemistry or Chemistry with experience working in a clean chemistry environment.			
Minimum experience (type and years)	Demonstrated 1 years' experience in a clean chemistry mass spectrometry laboratory			
Skills	Demonstrated experience of the safe handling of concentrated acids (hydrofluoric, nitric and hydrofluoric acid) and a variety of hazardous chemicals. Initiative and good interpersonal skills Experience working with ion chromatography Ability to work efficiently and independently Ability to meet deadlines			
Knowledge	Knowledge of principles of ion chromatography desirable Computer literacy (Excel, Word)			
Professional registration or license requirements	N/A			
Other requirements	None			
Competencies (Refer to UCT Competency Framework)	Competence	Level	Competence	Level
	Adaptability/Flexibility	2	Energy	2
	Analytical thinking / Problem solving	2	Planning and organizing / work management	2
	Decision-making/ Judgement	2	Professional knowledge and skill	2
	Conceptual thinking	2	Safety awareness	2

SCOPE OF RESPONSIBILITY

Functions responsible for	Chemical preparation of sample materials; laboratory safety; laboratory maintenance
Amount and kind of supervision received	Work assigned; quality assessed, and feedback provided
Amount and kind of supervision exercised	Assess own safety and that of other laboratory users; physical integrity of laboratory
Decisions which can be made	Order of assigned work; issues of safety
Decisions which must be referred	All purchases; priority of work

CONTACTS AND RELATIONSHIPS

Internal to UCT	CRO Dr Petrus le Roux; CSO's Fayrooza Rawoot & Kerryn Gray; PTO Diffy Basson
External to UCT	None