



FACULTY OF HEALTH SCIENCES

DEPARTMENT OF PSYCHIATRY AND MENTAL HEALTH

Doctoral Scholarship

Supervisors: Dr. Emile R. Chimusa, Prof. Raj Ramesar and Prof. Dan Stein

Duration: Funded for 1 year (renewable), full-time at the Division of Human Genetics

Project description: This studentship offers the opportunity to join the Brain Behaviour Unit (BBU) in UCT's Dept of Psychiatry & Mental Health as well as the Division of Human Genetics. The BBU focuses on psychiatric neuroscience including identifying genes that influence susceptibility to neuropsychiatric genetic disorders (psychiatric neurogenetics), psychiatric neuroimaging and translational neuroscience relevant to mental disorders. Ongoing projects include Enhancing Neuroimaging Genetics Through Meta-Analysis (ENIGMA) (see <http://enigma.ini.usc.edu/>), Neuropsychiatric Genetics in African Populations (Neuro-GAP) (see <https://www.researchgate.net/publication/283236683>) and the Drakenstein Child Health Study (see <http://www.paediatrics.uct.ac.za/scah/dclhs>).

This project entitled "***SigSignatures of polygenic adaptation in psychiatric disorders***" focuses on the understanding of the population level response to environmental pressures in psychiatric disorders. This project aims to develop a framework that leverages linkage disequilibrium information from reference ancestral haplotypes in integrating summary statistics from genome-wide association studies (GWAS), functional elements and cell types information to detect local adaptation and the evidence of polygenic adaptation on polygenic psychiatric disorders. This framework will account for the confounding effects of drift, shared population history, and dating the age of polygenic adaptation.

The student will have the opportunity to: (i) Learn about psychiatric disorders. (ii) Analyze Genome-Wide Association Studies (GWAS) datasets using novel statistical methods. (iii) Utilize functional genomics datasets to interrogate GWAS results and design new computational genomic methods pertinent to psychiatric disorders. To achieve these objectives, the student will receive training in genomics, bioinformatics and biostatistics.

The following conditions apply: Scholarships are awarded for 1 year (renewable). There are no fringe benefits, thus, the successful candidate is responsible for his or her own medical aid and insurance arrangements. Tax-free status will be arranged with the South African Revenue Services. The scholarship call will close once suitable candidates have been identified. Part-time employment is permitted, but successful candidates may not hold scholarships and salaried/full-time employment concurrently. The value of the scholarship is R70 000 per year, but can vary according to training. The successful incumbent will be required to register for full-time study in the Dept. of Psychiatry and Mental Health comply with the University's approved policies, procedures and practices for the postgraduate sector.

Essential Skills:

- A background in probability and (bio-)statistics with a demonstrated interest in the analysis of genomics data.
- Experience programming in R and one other scripting language (e.g. Python/PERL).
- Familiarity with the Unix/Linux environment.
- Excellent writing, communication, and interpersonal skills.

Desirable Skills:

- Experience in the use of a High-Performance Compute cluster (SGE/PBS).
- Experience in the analysis of GWAS datasets..
- Experience in the management and analysis of next-generation sequencing data.

To apply, please e-mail the below documents in a single PDF file to Dr Emile R. Chimusa at emile.chimusa@uct.ac.za and Prof. Dan Stein at dan.stein@uct.ac.za.

Cover letter

Application form – attached below

Curriculum Vitae

Copies of academic transcripts

The University of Cape Town reserves the right to: disqualify ineligible, incomplete and/or inappropriate applications; change the conditions of award or to make no awards at all.

DEPARTMENT OF PSYCHIATRY MASTER'S, DOCTORAL AND POSTDOCTORAL FELLOWSHIP APPLICATION

PSYCHIATRIC NEUROGENETICS (TICK)	
PSYCHIATRIC NEURO-IMAGING (TICK)	
NEURO-DEVELOPMENT (TICK)	
OTHER RESEARCH AREA (PROVIDE BRIEF DESCRIPTION)	

Where applicable mark with **X**
 Incomplete applications will not be considered.

PARTICULARS OF APPLICANT

Surname								Title					
First names								Male			Female		
Place of birth				Date of birth		y	y	y	y	m	m	d	d
Identity number													
African*		Coloured*		Indian*		White*		other* (please specify)					
Citizenship													
Telephone number & code						Fax (if applicable)							
E-mail address													
Home address including postal code						Postal address including postal code							
Degree for which you are currently registered if applicable										Year & month degree obtained/to be obtained			

QUALIFCATIONS OBTAINED

Degree/Qualification	Institution	Year

Title of project for Master's/Doctoral degree

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RESEARCH OUTPUTS

Please provide the names and contact details (e-mail and telephone number) of three referees.

DECLARATION BY APPLICANT

I certify that the information supplied in this application is correct and true

Signature of applicant		Date	
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