

Human Capital Development (HCD)

Under-pinning all the major activities of the CPGR is the mission to build a base of empowered scientists. This mission is comprised of 2 major objectives. Firstly, it aims at increasing the understanding of how to apply “omics” technologies solutions to solve biological/biomedical questions. Secondly, it seeks to increase the capacity for analysis and interpretation of results generated by “omics” technologies. Achieving these objectives is relevant in order for the CPGR to effectively support the 2 major value generating activities in the academic community: teaching and research.

The CPGR thus has created a Human Capital Development (HCD) program that aims at building a base of South African life scientists empowered in generating and interpreting data generated by genomics, proteomics and bioinformatics platforms into new knowledge, new IP and commercial value in the market place.

The program has been designed to create the following:

- Increased levels of “know-what” i.e. information about the technologies themselves;
- Increased levels of “know-how” i.e. information about possible approaches to solving scientific questions and how to use the technologies for that purpose;
- Increased “what-to” capacity i.e. support and guidance in taking an idea from concept to data;
- Enhanced “where-to” (translational) capacity i.e. support and guidance in taking ideas/data into the market place.

In line with these desirable outcomes, the CPGR aims at developing a pool of future leaders in the “omics” field who will work towards creating a knowledge-based society in South Africa. We envisage that a new cadre of empowered “omics” scientists will be able to effectively address challenges in the biomedical and agribiotech arena and therefore more fully contribute to achieving South Africa’s Grand Challenge objectives in the biotech arena.

In line with this, the CPGR is currently offering the following Human Capital Development activities:

- Internship programme: The CPGR is a host institution for the DST- NRF (National Research Foundation) internship program. The program caters for graduate and post-graduate students who are seconded to host institutions for a period of 12 months. Typically, the CPGR accepts 2-4 candidates into our internship program each year.. Successful candidates have the opportunity to gain hands-on experience in many different technology

areas. Following a 3-month initial training, candidates focus on one platform or technology, working on a project to deepen their knowledge in a particular area. ;

- Custom internship programme: This program caters for the needs and interests of PhDs and PostDocs who would like to gain a more in-depth understanding of a particular platform or of a specific application. The internship can be part of an existing project or custom-designed. Each program will be evaluated on a case-to-case basis to ensure a perfect fit of interests, resources and time. We estimate that up to 10 programs can be run per year for up to 4 weeks each;

Bioinformatics internship programme: With the need for and understanding of bioinformatics techniques, tools and applications increasing dramatically, the CPGR aims at playing an active role in adding to the development of corresponding skills and knowledge in the scientific community. Two fundamental beliefs are guiding our actions in this respect: (1) In order to play a fully effective role in modern biotechnology, and the “omics” discipline in particular, bioinformatics as a scientific discipline must form an integral and integrating role in “omics”-driven, systems-scale scientific endeavours; (2) future scientific leaders will be able to blend an understanding of fundamental biology, statistics and computer sciences (Bioinformatics) in planning, managing and interpreting “omics” projects. These role model scientists may be viewed as “in-silico” biologists who are capable of integrating scientific knowledge, new technologies and computational applications to answer complex biological questions. In keeping with this, the CPGR has a particular emphasis on educating “biologists” who aim at enhancing their understanding of and skills in Bioinformatics. Our “bioinformatics internship” offering is therefore specifically aimed at inviting scientists of all disciplines and backgrounds who have a specific interest in analysing and interpreting data in a particular project(s). Programmes are custom-designed to cater for the needs and interests of the individual candidates. Typically, the program will be run on a part-time basis for up to 6 months and based on a defined project with the opportunity for participants to spend as much time as they like at the CPGR but otherwise apply the new knowledge in their own work environment. Full access to CPGR software packages and bioinformatics expertise is part of the program in order to enhance the learning experience.

Previous and current internships

2011

Under consideration

Candidate name	Education level	Internship duration	Current position
Frederick van der Spuy	B.Sc (hons)	N/A	N/A
Ping-Yu Hsu	M.Sc	N/A	N/A

2010

Shafiek Daniels	B.Sc (hons)	12 months	Computer programming training (TBA)
Tebogo Mabunda	B.Sc (hons)	3 months	Research Assistant (UNW)
Quinsile Hlela	B.Sc (hons)	8 months	Post graduate training (UP)
Siya Genu	B.Sc (hons)	7 months	Protein Technician (Inqaba)

2009

Nicolene Pillay	B.Sc	12 months	Account Manager (Biorad)
Fatima Barmania	B.Sc (hons)	10 months	M.Sc (University of Pretoria)

2008

Moleboheng Seutloai	B.Sc	12 months	Junior Research Scientist (CPGR)
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Bioinformatics

Internships:

Name	PI	Year	Educational Level/ Institute	Internship duration
Andrew Einhorne	Prof. Frank Brombacher	2010	PhD / UCT	3 months
Kusha Kalideen	Prof. Raj Ramesar	2011	PhD / UCT	6 months
Jennifer Hsieh	Prof. Vivian Russel	2011	PhD / UCT	6 months