Bioinformatics approaches for Next Generation Sequencing analysis
Nairobi, Kenya
November 24th - 29th, 2014

Organizers: Dr Jelena Aleksic, University of Cambridge, UK and Dr Daniel Masiga, *icipe*, Kenya
School Website: **http://trendinafrica.org/activities/education/bioinformatics-schools/**

Aims and Scope of the School
To introduce a range of bioinformatics analysis techniques for dealing with Next Generation Sequencing (NGS) data, including an introduction to programming and analysis best practices. The course will start with an introduction to programming, mainly focusing on the R statistical programming language. It will then build on this foundation to introduce tools for data visualisation and analysis. It will introduce software development concepts such as databases and version control. It will then cover NGS analysis topics including de novo genome and transcriptome assembly, ChIP-seq and RNA-seq, rare variant calling and population genetics. There will be a focus on using freely available data and open source technologies, and encouraging open reproducible research.

School Description
The course will be running over the course of six days. The morning lectures will cover the theory of experimental design, different sequencing datasets and how to deal with them, and a range of applications of NGS technology including RNA-seq, methylome analysis, GWAS and rare variant calling. The afternoon programming practicals will focus on building up the students skills in using R and Unix to undertake bioinformatics analysis, including data processing and visualisation, as well as programming best practices such as testing and version control. The students will also work in small groups with each of the instructors to undertake a specialised project and get hands on analysis time, and the course will also include a scientific communication component. Throughout the course there will be a strong emphasis on the usage of open source technologies and an active "Do it yourself" spirit will be encouraged.

Instructors
Jelena Aleksic (University of Cambridge, UK)
Richard Smith-Unna (University of Cambridge, UK)
Simon Martin (University of Cambridge, UK)
Nicola Whiffin (Imperial College, London, UK)
Anne Fischer (*icipe*, Nairobi, Kenya)
Benard Kulohoma (*icipe*, Nairobi, Kenya)

Who should apply to this School?

African scientists who already hold a Master's degree or are currently enrolled for a Master's degree or equivalent programme. Therefore this includes Master students, PhD students, Postdocs and Professors.
Course requirements: basic familiarity with using computers, some programming experience in any language (for example with R, Matlab or SPSS), and a basic familiarity with genetics and genomics techniques. The course will then build on these to introduce participants to more advanced programming and analysis techniques.

The course is very intensive and a strong motivation and drive is required. Students will be selected on the basis of their academic record and written statements concerning their interest in neuroscience and how they expect to benefit from participating in the course. There will be no attendance fee, but the students will be selected based on merit (there are a total of 24 spaces available for the course).

We also have a small number of scholarships available for international students. The students will be selected based on merit, and the selected students will receive economy round-trip airfare from a major international airport in their country to Nairobi. Full Board accommodation will be provided for international students, and meals to local students.

Application deadline: September 22nd, 2014 (11:59 p.m. CET)

Apply [here](#)**.**

If you have further questions, please contact Jelena Aleksic (j.aleksic@gen.cam.ac.uk) or Benard Kulohoma (bkulohoma@icipe.org).