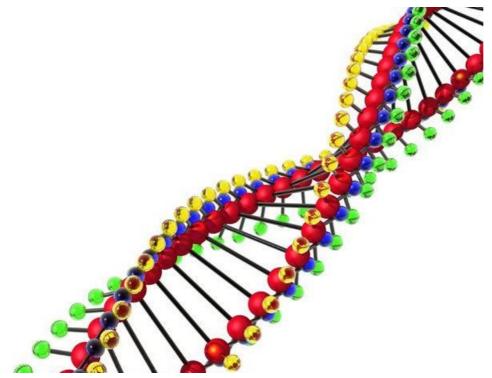# Remote training in bioinformatics to upskill scientists across Africa

A new collaboration between Wellcome Connecting Science and H3ABioNet, the Pan African Bioinformatics Network for the Human Heredity and Health in Africa (H3Africa), is helping deliver bioinformatics training throughout Africa, helping scientists tackle some of the continent's most urgent health challenges.

© Ivan Proskuryakov - Fotolia.com

The training, which is being delivered across 16 countries in person and online, will equip the participants with the skills required to analyse genetic sequencing data. This data is becoming increasingly important to tackle heritable conditions and infectious diseases such as malaria and Covid-19.

Over recent years, next generation sequencing (NGS) has revolutionised research into human health and disease. The volume of genetic sequence data generated is rising rapidly each year, making it increasingly important for scientists to gain the bioinformatics skills needed to organise and analyse these data.

Targeted at researchers and healthcare professionals, the course aims to equip participants with the essential informatics skills required to begin analysing NGS data and to apply some of the most commonly used tools and resources for sequence data analysis.

Professor Nicky Mulder, H3ABioNet principal investigator and head of the Computational Biology Division at the University of Cape Town, said the collaboration uses a distributed classroom model and a blended learning format, consisting of individual work, virtual contact sessions, online educational resources and technology platforms for delivery of training materials and practical exercises.

Remote learning

Expert bioinformatics trainers based in Africa, Europe and the USA deliver the lectures and develop course materials remotely. Locally, teaching assistants and system administrators support and assist participants in person or virtually. Over

2000 applications were received for the course, of which a record 415 participants were accepted. Learning is taking place in 31 classrooms across 16 countries, supported by over 100 locally based classroom staff.

"The skills acquired during the course will be applied to a wide range of health problems and research areas in Africa, from Covid-19 to rare genetic diseases," she said.

Mulder commented: "The demand for training on NGS data analysis is extremely high, with over 2000 applications for this course alone. The H3ABioNet remote classroom model was an obvious choice to start to address this demand. Attendees should leave with hands-on experience on NGS applied to humans and pathogens, and with access to all the required software to do this at their home institution. The course will also build communities around this topic in regions that are hosting classrooms, which we hope will persist after the course for longer term support and networking."

This innovative model was developed by H3ABioNet to address logistical challenges in Africa when delivering large-scale bioinformatics training. Leveraging the long-standing collaboration with H3AbioNet, Wellcome Connecting Science saw an opportunity to address the increasing demand for bioinformatics training via regional training networks.

It is hoped that the course will provide lasting benefits not only to the participants, but also local institutions and the wider research community in Africa. This approach to capacity building and training provides an effective and sustainable model for strengthening genomic research, and promotes regional networks and communities which are critically in need of genomics skills.

Dr Alice Matimba, overseas courses manager at Wellcome Connecting Science, said: "This pilot project demonstrates the growing opportunities to strengthen collaborations with our regional partners. Using virtual technologies, we can offer tailored courses to more people, at low cost and with minimal travel, while amplifying the impact and capacity for genomics in Africa. We've delivered this course to 20 times more people than we usually could, emphasising the need to invest in agile training approaches that have allowed us to continue providing training during the Covid-19 pandemic."

For more, visit: https://www.bizcommunity.com