



# The evolving role of science in society

Associate Professor Carolina Odman

*Inter-University Institute for Data Intensive Astronomy*

The world is experiencing a traumatic change brought about by the Covid-19 pandemic. It is traumatic because it is sudden and affects everyone around the globe at once. Nothing like this has ever happened so rapidly before, but as the world and the environment grow under pressure from an expanding global village it might also not be the last time that we experience such a dramatic transformation. The University of the Western Cape (UWC), over its 60 years of existence, has seen the world change profoundly and the university has in many ways steered our society through these changes in the past. I propose to take a look at how science at UWC is helping us navigate the brave new world being defined by the coronavirus.

In the context of a very fast-changing world, it is appropriate to ask ourselves what the role of science is in our society. Science has provided us with the medical knowledge that saves thousands of lives every day. Science has driven the development of technologies that keep our communities connected. But what can science do today? Can science contribute at the same pace as the world is changing? And can our newly and virtually graduated BScs, BSc Hons and PhD holders make a difference here and now? As I am writing these words the news has been released that researchers from the National Institute for Communicable Diseases (NICD) and UWC's South African National Bioinformatics Institute (SANBI) have just sequenced the novel coronavirus found in South Africa, which will help our understanding of the disease and contribute to the search for a vaccine.

Many of our UWC scientists use big data in their research. From genetics and bioinformatics to radio astronomy, which reveals the depths of space, our scientists develop big-data tools and the computer infrastructure to be able to analyse

information and reveal new knowledge on scales that have never before been seen.

UWC is a leader in this big-data landscape through its involvement, for example, in the Inter-University Institute for Data Intensive Astronomy and the ilifu project (a research cloud-computing facility for big data in science used by SANBI) and this benefits students as well, for example through the Data Analytics and Business Intelligence postgraduate diploma.

What is being developed by our researchers becomes the tools of the trade not only in science but also in many industries. Indeed, data analysis and big-data analysis, when available, have become the decision-making tools of choice, enabling businesses and services to be informed by evidence and even to model and predict the evolution of situations to make the best decisions possible at every point. So, when confronted with a problem like the Covid-19 pandemic, the domain expertise found at UWC is already making a significant difference.

This may be where UWC's position is unique. We have a strong, if young, tradition of science. But we are also deeply rooted in the communities we serve, as a result of our six decades of community-oriented spirit.

Our science graduates, many of whom are themselves from very humble backgrounds, have the privilege of an excellent education, and can thus help fellow South Africans navigate this unprecedented situation. The overflow of social media messages to do with the coronavirus pandemic can be overwhelming. Our science graduates can help guide communities, pointing out misinformation and reinforcing scientifically justified guidelines. Those guidelines need to be trusted and our science



## ***Work in science at UWC can help society come to grips with crises like the Covid-19 pandemic***

graduates can be those trusted members of the community with the scientific background to explain guidelines if needed. This is a very important skill today because we all rely on communities to adopt behaviours that protect themselves and others around them.

Our science graduates can also see the structural problems that militate against following those guidelines in poorer communities, such as shared resources and limited space, and they can raise those issues within the scientific community, as they keep working on the best solutions to protect everyone from Covid-19.

In fact, during the current pandemic, scientists are suddenly listened to as never before. Decades of warnings about climate change have not given scientists the ear of governments like this pandemic has. Suddenly they find themselves in front of TV cameras and microphones, trusted by the leaders of our country to help guide the public. This is a fantastic opportunity for the science community to reinforce its impact on policy at the highest levels.

Today, our scientists and science graduates are natural role models. Their attitudes towards challenges, as problem solvers and critical thinkers, are important to show to the public. Scientists are on a permanent journey to improve their understanding of the world, and that makes them constant learners. The intellectual humility it takes to be prepared to revise one's knowledge is needed in the face of this pandemic, where so many aspects are yet unknown.

The leadership demonstrated by the South African government in this crisis was and continues to be informed by scientists, and

the response to the pandemic in South Africa is hailed internationally as one of foresight and wisdom.

Bringing these two together - the cutting-edge tools of science and the community-conscious attributes of scientists - is a very powerful combination that makes UWC graduates particularly significant actors in the face of national and global developmental challenges.

We wouldn't be UWC if we weren't looking to the future too, and so we are working on helping our young scientists hone their skills and apply them to the challenges they see in society. We are in the design phase of a Science for Development course, in which our scientists will be able to learn more about sustainable development, become familiar with concepts and practices of community upliftment, and position science in a societal context. Our scientists will understand the meaning of development indicators and be exposed to concepts such as unintended consequences, ethics and indigenous knowledge systems. They will be taught about science communication and engagement and how the science and innovation systems work. Today's situation motivates us more than ever to complement our science students' skills with the ability to contribute at all levels, from communities on the ground to science advice to government.

Today, as our 2020 science graduates go into the world, we watch with pride, for we know that they are building on 60 years of UWC tradition - a tradition that uses the combination of cutting-edge knowledge and community spirit to guide change towards a better South Africa - and we at UWC keep working, researching and teaching, always learning in this brave new world.