

Concept Note

Science for Development Course

Proposed by:

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Project Summary:

We strive to give our science students the best possible science skills and knowledge during their intense undergraduate studies. Sometimes, this means that they are not given much opportunity to bring their scientific training to bear in contexts other than university studies, laboratories, and exams.

We also live in a region, nation and continent that are under pressure to develop, and to do so sustainably. The role of science in that development is urgently echoed in the UN sustainable development goals, the African Union's Agenda 2063, the International Science Council's call for Science as a Public Good, the South African National Development Plan, and UWC's Institutional Operating Plan. Indeed, science and technology are often hailed as the domains where solutions to problems faced by society emerge from. Whether renewable energy technologies, big data analysis algorithms or new pharmaceuticals, the outputs of science impact our lives in every way.

We are proposing a multi-disciplinary honours level course on "Science for Development", aimed at engaging our science students in an understanding of the bigger picture of development, familiarity with development concepts and practices, and an ability to translate their science skills into a broader sustainable development context.

The course will be open to all students of the Faculty of Natural Sciences. The reason for proposing this course at honours level is to first offer it to students who have completed their BSc, have a strong foundation in their science and can work in multi-disciplinary groups. Honours level courses also open the door to honours projects where students can engage with communities and apply their scientific knowledge to real-world problems and practice both their science and the knowledge and skills acquired through the course.

Proposed course subjects:

It is important that the course remains responsive to evolving development needs, but firmly grounded in science and development principles. These principles will be complemented by case studies presented by guest lecturers.

- Sustainable Development Goals through a science lens:
 - o What they are
 - o How they are measured, indicators, etc.
 - o The science in each SDG, understanding the data.
 - o How the SDGs are in conflict with, or reinforce each other

- Principles of development, economics and social science
 - o How do you study society? (qualitative and quantitative methods)
 - o Quantitative methods in social sciences (e.g. mathematics of democracy)
 - o Logical Frameworks and Theories of Change
 - o Impact evaluation (randomized controlled trials, etc.)
- Science in a societal context
 - o Indigenous Knowledge Systems
 - o Unintended consequences
 - o Instrumentalization of science (propaganda, weapons development, etc.)
 - o Cognitive biases
 - o Ethics, incentives and influences
- The agency of science
 - o Science communication and engagement
 - o Science and Innovation Systems
 - o Science for Policy (Science advice, evidence-based policy making)
 - o Science across borders (Internationalisation, diplomacy, etc.)

Skills:

- Skills transferability
- Science communication
- Project planning
- Impact evaluation
- Lateral and inter-disciplinary thinking
- Critical and self-critical thinking

Course Development Collaboration:

The course development is led by UWC with a vast network of collaborators from several disciplines. Currently, this network includes members from the IAU OAD, ISC, the Academy of Science of South Africa, the South African Institute of Physics, the Stockholm Environment Institute, the South African Agency for Science and Technology Advancement (NRF SAASTA), as well as researchers, academics and teachers from UWC, several South African and African Universities.

Project Support:

The development of this course is supported by the International Astronomical Union's Office of Astronomy for Development (IAU OAD) and the International Science Council (ISC).

The IAU OAD has nearly a decade of experience supporting projects using astronomy for development. The projects, experiences and multidisciplinary network that the IAU OAD has developed in that time are made available for this course.

The ISC is the union resulting from the merger in 2018 of the International Council of Scientific Unions (ICSU) and the International Social Science Council (ISSC). The ISC carries out diverse activities, supports research and policy activities and publishes documents, such as the report entitled "SDGs interactions from science to implementation".