



Society *for* Freshwater Science

Africa Chapter

Online Training courses

Supported by Long Range Planning Committee (LRPC)

Prepared by the SFS Africa Chapter Committee

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Taxonomy of major groups of benthic macroinvertebrates and their use in monitoring aquatic ecosystem

May 23-26, 2022

Course facilitators:

Laban Njoroge, National Museums of Kenya

Prof. Sylvester S. Ogbogu Obafemi Awolowo University, Ile-Ife, Nigeria

Dr. George Gatere Ndiritu, Karatina University, Kenya

Aim

Aquatic macroinvertebrates are regarded as excellent indicators of water quality in freshwater ecosystems. Accurate identification of aquatic macroinvertebrates is key to reliable results, yet in Africa taxonomic knowledge is sparse. This short course provides theoretical foundation for the use of aquatic macroinvertebrates for freshwater biomonitoring, and techniques for identifying major groups of macroinvertebrates. The short course focuses on the identification of the EPT (Ephemeroptera, Plecoptera and Trichoptera) taxa and on the application of established biomonitoring indices in Africa such as SASS5, TARISS, ETHIOS, BCG, KISS).

Course outcomes

At the end of this short course, you will be able to:

- 1) Discuss the diversity and ecology of aquatic insects
- 2) Understand basic taxonomy of aquatic insects
- 3) Discuss the classification and phylogeny of aquatic insects
- 4) Apply various techniques in macroinvertebrate sampling
- 5) Identify species belonging to the Order Ephemeroptera, Trichoptera, Plecoptera and Odonata using morphological techniques
- 6) Discuss and apply SASS5, TARISS, ETHIOS, BCG, KISS

To register click here: <https://zoom.us/meeting/register/tJYrfu2vrTwtE9C50pbBxW2HbF7cOhgVX-7B>

DNA Barcoding training on aquatic insects: its application in biomonitoring of aquatic ecosystem

September 6-8, 2022

Course facilitator:

Scott Hotaling, School of Biological Sciences, Washington State University

Aim

Molecular techniques are used increasingly in freshwater ecology. DNA barcoding is an important molecular tool that has found application in diverse fields of freshwater ecology research such as taxonomy, freshwater biomonitoring, biodiversity conservation and invasion biology. This short course is aimed at students and early career researcher interested in the emerging field of molecular ecology. The course focuses on theoretical and practical aspects of DNA barcoding, including sample collection, storage, processing, and analysis.

Course outcomes

At the end of the short course, you will be able to:

- 1) Understand the various theoretical foundation underpinning the use of DNA barcoding
- 2) Discuss and reflect on DNA barcoding in freshwater ecology
- 3) Collect and process samples for DNA barcoding
- 4) Undertake barcoding analyses: targeting specific genes, generating sequences, using bioinformatics to turn nucleotides into information to answer research taxonomy/biological questions. Cleaning sequences using BLASTING, and later uploading barcode sequences on GenBank Sequence Database or the Barcode of Life Data System.
- 5) Analyse and, interpret phylogenetic trees
- 6) Apply DNA barcoding in freshwater biomonitoring, invasion biology and conservation biology

To register click here: <https://zoom.us/meeting/register/t.J0sdO2rrzouH9CK98MQHUgRfwJlyNrcOOxi>

Numerical ecology and data analysis for aquatic biodiversity

August 29-31, 2022

Course facilitator:

Dr Wilbert T. Kadye, Department of Ichthyology and Fisheries Science, Rhodes University, South Africa

Aim

Ecological research is done within the hypothesis testing and statistical modelling framework. This is achieved by collecting and analysing both quantitative and qualitative data sets. This course aims to provide a conceptual framework on a step-by-step process on data analysis to facilitate meaningful interpretation of ecological data. The course also aims to introduce statistical analysis using R.

Outcomes

At the end of the course, candidates are expected to be able to:

1. Conduct preliminary exploratory data analysis and illustrations for data visualisation.
2. Understand parametric univariate data analysis and non-parametric alternatives.
3. Evaluate the emergent properties of community composition (i.e. α , β and γ diversity).
4. Understand Q-mode and R-mode concepts in multivariate data analysis.
5. Explore and conduct indirect and direct multivariate ordinations.
6. (Bonus: explore spatial analysis techniques.)

To register click here: <https://zoom.us/meeting/register/tJAqcOCrqqz8jHtMGVXfw-DBAIQbNCeObvdxn>

Transdisciplinarity and Translation Ecology in Freshwater Science
September 19-23, 2022

Course facilitator:

Prof Nelson Odume, Rhodes University, and Chairperson, Africa Chapter of the Society for Freshwater Science (SFS)
Dr George Gatere Ndiritu Karatina University, Kenya

Aim

Addressing the pressing freshwater sustainability challenges that confront Africa requires engaged, participatory research that brings together researchers, policy makers and community actors. This implies that freshwater scientists must learn to engage with policy and community actors in their research design, implementation, and dissemination of results to effect solutions to the complex freshwater challenges on the continent. This short course draws on transdisciplinarity and translational ecology as important research approaches that are suitable to addressing complex freshwater sustainability challenges in Africa. The course focuses on the theoretical, practical, and ethical dimensions of transdisciplinary and translational ecology research in freshwater science. The course is suitable for students, early and established career scientists interested in working with policy makers and community actors in their research projects.

Course Outcomes

At the end of the course, you should be able to

- 1) Appreciate the importance of transdisciplinary research in freshwater science
- 2) Understand and critique the design principles of transdisciplinary and translational ecology research.
- 3) Discuss the theoretical foundation of transdisciplinary and translational ecology research
- 4) Understand the practical implications of translational ecology and transdisciplinary research in freshwater science
- 5) Be able to co-design freshwater transdisciplinary research with academic and non-academic actors
- 6) Appreciate the ethical dimensions of translational ecology and transdisciplinary research
- 7) Gain skills to deal with the complexity of engaged, participatory research in freshwater science

To register click here: <https://zoom.us/meeting/register/tJMsf-usqDwsGNDbn7oY3cOdJzWyITJ9D0W1>

**Should you have any question feel free to reach out to
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