



Advanced skill course (hybrid) From Field to Lab – Research and Strategies in Aquatic and Plant Systems

Organizers: University of Basilicata, Department of Health Sciences and Department for Humanistic, Scientific and Social Innovation

Co-organizers: Faculty of Science University of Johannesburg

Schedule:

3th -7th May Day 1: 9:00–16:00 | Day 2: 8:30–16:00 | Day 3: 8:30–15:00

Target audience:

- Holders of a Honours's degree and/or Master's degree at the deadline of the call;
- PhD students enrolled at the deadline of the call;
- Must be enrolled in a postgraduate degree with a research focus in plant/aquatic science.

Objectives:

- **Interdisciplinary Skill Development:** Participants gain hands-on experience across the full spectrum of bioscience research, from field sampling to computational analysis, broadening their technical repertoire and adaptability.
- **International Collaboration:** The exchange fosters connections between South African and Italian researchers, promoting cross-cultural understanding and laying the groundwork for future joint projects.
- **Exposure to Diverse Expertise:** Access to facilitators with varied backgrounds enables participants to learn techniques and perspectives that may not be available in their home institutions.
- **Enhanced Research Capacity:** By mastering both laboratory and bioinformatics workflows, attendees are better equipped to design and execute multidisciplinary research projects relevant to global challenges in health, agriculture, and the environment.
- **Networking and Career Growth:** The collaborative environment encourages the formation of professional networks, mentorship relationships, and potential research partnerships that can advance participants' academic and professional trajectories.
- **Real-World Relevance:** The focus on DNA and RNA workflows, applicable to aquatic, plant, and microbial systems, ensures that the skills acquired are directly transferable to pressing research areas in both countries.

PROGRAMME

Sunday 3rd May 2026

Welcome and Briefing between partners

Aperitif and social meeting

Ice breaking activities, presentation and brief introduction

Monday 4th May 2026 Integrated Introduction & Sample Preparation

09.00 – 09.30: Welcome and registration tea

09.30 – 10.30: Welcome and presentation of UnitAfrica Project - Introduction to the exchange, objectives, and facilitators' expertise.

10.30 – 11.00: Territorial Ecosystem Development: Implementing regional networking and scientific exchange platforms to foster technology transfer and collaboration between institutions and professionals

11.30 – 12.00:

Aquatic ecology: fish health, water quality assessment/monitoring

11.30 – 12.00: Hands-On: Sample Collection and Preparation

13.00 – 14.00: Lunch break

14.00 – 15.00: Principles of DNA/RNA Extraction and Quality Control (lecture)

15.00 – 16.00: Hands-On: Extraction and QC

18:00 - 20:00 Dinner at Chief Boma (Indaba Hotel, Forways)

Tuesday 5th May 2026 – Molecular Techniques and Sequencing Preparation

08.30 – 08.50: BioFarmLab - Investigating phytochemicals and their biological activities

08.50 - 09.50: Keynote speaker Prof Ben Eric

09.50 – 10.15: Specialized metabolites: introduction and biological significance

10.15 – 10.40: Biosynthetic pathways of plant specialized metabolites

10.40 – 11.05: Optimizing extraction and chemical profiling of plant metabolites

11.05 – 11.30: Sustainable approaches for the extraction of target plant metabolites and upgrading into high-value applications

11.30 – 12.30: Molecular Detection and Sequencing Approaches (lecture)

12.30 – 13.30: Lunch break

13.30 – 15.30: Hands-On: PCR/qPCR and Library Prep

15.30 – 17.30 “Introduction to Sequencing Platforms and Data Generation”

Wednesday 6th May 2026 – Computational Analysis and Interpretation

08.30 – 09.00: - Assessing biological activity of specialized metabolites

09.00 – 9.30: - *In silico* approaches for bioactivity prediction

10:00-10:45: Bioinformatics for Environmental and Health Applications

10:45-11:30: Hands-On: Data Analysis Workshop

11:30-13:00 Group Work: Mini-Projects

13.00 – 14.00: Lunch break

14.00- 15:00 : Wrap-Up/Presentations

Thursday 7th May 2026 @JU

Presentation of the UNITAFRICA Project Dissemination event

09:00 – 9.30 – Institutional Greetings

09:30 – 11:00 – Impact of UnItAfrica project on South-African and Italian HEIs

11:00 – *Coffee break*

11:30 – 13:30 – **Closing ceremony and awarding of certificates**
