



UKUDLA

African German Centre

for Sustainable and Resilient Food
Systems and Applied Agricultural
and Food Data Science



UKUDLA Summer School 2025 on Sustainable Food Systems and Data Science in Africa



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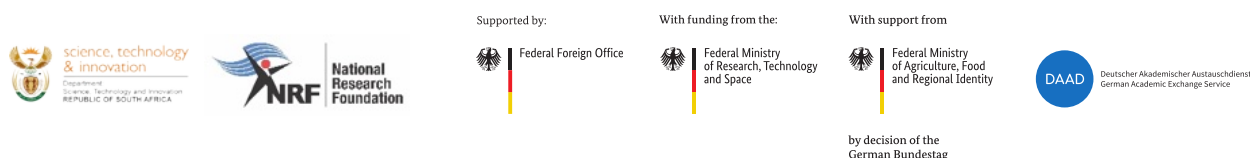
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ABOUT THE UKUDLA SUMMER SCHOOL

WHAT IS UKUDLA

The **African German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science (UKUDLA)** is a collaborative centre based in Southern Africa that drives interdisciplinary research, capacity building and transfer in food systems, grounded in applied data science. Supported by **German and African partners**, it advances evidence-based approaches to improve every stage of the food system — from production and processing to nutrition and food security. Through data-driven research, education, and stakeholder engagement, UKUDLA promotes sustainable, inclusive, and resilient food futures in Southern Africa.

The centre is funded by the [German Academic Exchange Service \(DAAD\)](#) with funds from the [Federal Foreign Office \(AA\)](#), the [Federal Ministry of Research, Technology and Space \(BMFTR\)](#) and the [Federal Ministry of Agriculture, Food and Regional Identity \(BMLEH\)](#) in Germany. On the South African side, the [Department of Science, Technology and Innovation \(DSTI\)](#) and the [National Research Foundation \(NRF\)](#) are involved.



THE UKUDLA SUMMER SCHOOL

This event marked the **first of five UKUDLA Summer Schools** to be held over the coming years as part of the centre's commitment to developing sustainable and resilient food systems in Africa. The UKUDLA Summer School 2025, held from 14 to 24 September 2025, brought together international master's students from universities across Africa and Germany for an intensive programme of training, collaboration, and engagement on food systems and data science. Hosted at the **University of the Western Cape (UWC)** in Cape Town, South Africa, in partnership with the **University of Hohenheim (UHOH)**, the **University of Pretoria (UP)**, the **University of Mpumalanga (UMP)**, and the **Lilongwe University of Agriculture and Natural Resources (LUANAR)**, the programme aimed to strengthen academic leadership and research capacity.

The Summer School featured **interactive and expert-led seminars, hands-on training, and interdisciplinary exchanges with field visits** to connect classroom learning to real-world contexts focused on the sustainable development of food systems in Africa. A key highlight was the **official launch event**, which brought together institutional leaders, partners, and stakeholders to mark the formal establishment of UKUDLA. The programme aligned with global conversations, coinciding with the **G20 Agriculture Working Group Ministerial Meeting** in South Africa, underscoring the relevance of food systems and data science within international policy discussions.

SUMMER SCHOOL PROGRAMME

Date	Event / Venue	Main Activities
Sun, 14 Sept	Joint UKUDLA–FPC Networking Event 📍 Protea Hotel	Introductions to UKUDLA & Feed, Protect, Care; Networking Dinner
Mon, 15 Sept	Welcome Session 📍 UWC	Official welcomes to the UKUDLA Summer School, Introduction to G20 & global influence
	Food Imbizo 📍 UWC	Talks & Panel on food systems
Tue, 16 Sept	Session - Unpacking Urban Food Systems 📍 UWC	Session for Master’s students: Modelling Pathways to Food and Nutrition Security
	UKUDLA Launch 📍 Homecoming Centre	Choir, Opening, Remarks (DAAD, Embassy), Panel on Data Science & Food Justice
	Celebratory Event 📍 German Residence	Reception & networking
Wed, 17 Sept	Field Visit 📍 Breede Valley	Tours, storytelling, School Cookout competition
Thu, 18 Sept	Training Day 1 📍 UWC	Data science & food systems introductions, DAAD visit, Policy panels
Fri, 19 Sept	Training Day 2 📍 Protea Hotel	Systems thinking workshop
Sat, 20 Sept	Training Day 3 📍 Protea Hotel	Stakeholder engagement, Responsible research
Sun, 21 Sept	Training Day 4 📍 Protea Hotel & Kalk Bay	Food contestations, Indigenous food, Field workshops
Mon, 22 Sept	Training Day 5 📍 UWC	Water-Energy-Food Nexus Game
Tue, 23 Sept	Training Day 6 📍 UWC	Reflections, Case study presentations, Closing

DAY-BY-DAY HIGHLIGHTS

14.09. ORIENTATION & NETWORKING

The UKUDLA Summer School opened with a **joint networking event** by UKUDLA and **Feed, Protect, Care (FPC)**, where participants were welcomed by **Prof. Dr. Christine Wieck** and **Prof. Julian May**. The event provided an opportunity for master's students to meet UKUDLA PhDs, postdocs, and staff to connect across disciplines through interactive networking activities and shared dinner conversations. This initial day provided space for cohort building and set the tone for an open, collaborative learning environment.

15.09. OFFICIAL WELCOME AND FOOD IMBIZO

Opening remarks were delivered by **Prof. Dr. José Frantz** (Deputy Vice Chancellor, UWC), **Prof. Dr. Sebastian Hess** (Vice President for Academic Affairs, UHOH), **Prof. Francis Petersen** (Vice-Chancellor and Principal, UP) and **Prof. Aldo Stroebel** (Deputy Vice-Chancellor Research, Innovation and Internationalisation, UMP), as well as **Dr. Thandi Mgwebi** (Group Executive: Business Advancement of the National Research Foundation of South Africa, NRF) and **Prof. Julian May** (DSI-NRF Centre of Excellence in Food Security (CoE-FS), director of the Institute for Social Development at UWC, UNESCO Chair in African Food Systems) .

An **introduction to the G20 and the role of academic work in global policy discussions** was provided by **Prof. Dr. Christine Wieck** (Project Leader UKUDLA & Director of the Chair of Agricultural and Food Policy, UHOH), **Maximilian Berger** (BMLEH/ Food and Agriculture Attaché at the German Embassy), and **Prof. Dr. Thais Vieira** (University of São Paulo). The Food Imbizo, facilitated by **Florian Kroll** (UWC), fostered a participatory dialogue space with diverse stakeholders. The Imbizo emphasised inclusive, problem-driven dialogue as a model for making research relevant and for connecting data-driven approaches to real-world contexts.



Welcome remarks by Prof. Dr. Sebastian Hess (left) and Prof. Francis Petersen (right). © Sharif Mosa.



Audience listening during Welcome remarks (top left) and UKUDLA Masters students (top right). Networking during tea breaks with Master students, PhD students, Postdoctoral researchers and Professors (bottom). © Sharif Mosa.

16.09. PARALLEL SESSIONS & OFFICIAL UKUDLA LAUNCH

Master's students attended the seminar about **Unpacking Urban Food Systems: Modelling Pathways to Food and Nutrition Security**, led by **Tom Xaver Hackbarth** (Vrije Universiteit Amsterdam), which explored the main drivers of nutrition insecurity and used Bayesian network modelling in urban settings (Worcester/Breede Valley). PhD students and postdoctoral fellows shared their research during a session with **Dr. Melody Mentz-Coetzee** (MelodyM Consulting).



Team working on a Bayesian Network Model during the seminar on unpacking urban food systems.

The **official launch of UKUDLA** took place in the afternoon, marking the beginning of the UKUDLA Graduate Centre activities. The event gathered institutional leaders and partners, beginning with welcome remarks by **Prof. Dr. Christine Wieck** and **Prof. Julian May**. It also featured speeches by German Ambassador **Andreas Peschke**, DAAD Vice President **Dr. Muriel Helbig**, and **Maximilian Berger**. A celebratory gathering at the German Residence in Cape Town offered excellent opportunities for networking with institutional leaders and international partners.



German Ambassador Andreas Peschke (top left) and DAAD Vice President Dr. Muriel Helbig (top middle) during their speeches. Panel discussion on the role of data science in advancing food justice (top right). Speech by Prof. Dr. Thomas Dimpfl and Prof. Ndiko Ludidi (bottom left), Iliso Youth Choir (bottom right). © Sharif Mosa.



UKUDLA group picture at the Reception at the Residence of the German Embassy in Cape Town during the UKUDLA Launch.
© Sharif Mosa.

17.09. FIELD VISIT TO THE BREEDE VALLEY

This full-day excursion blended history, heritage, and agriculture, offering participants a rich learning experience. The day began with visits to key sites such as Freedom Park, Breede Valley, and the Worcester Museum. These locations showcased how cultural history and agricultural traditions continue to influence today's food systems and local livelihoods. In the afternoon, a Primary Schools' Cookout Competition and storytelling reinforced how food systems are lived and remembered in local spaces, while also providing exciting material for a group treasure hunt. By the end of the day, everyone gained a deeper appreciation and understanding of the Breede Valley landscape and its social history.



Group at the Freedom Park (top left), Worcester Museum (top right, bottom left), MasterChef School visit with food competition (bottom middle, left).

18.09. DATA SCIENCE MEETS FOOD SYSTEMS

Day one of training centred on the intersection of data science and food systems. DAAD representatives joined a session that featured presentations from young researchers and interactive workshops. These activities helped participants define and connect the concepts of 'food systems' and 'data science'. A subsequent panel discussion explored the role of data in transforming food systems, with insights from both academics and policy experts. The discussion emphasised that data science is most effective when applied to meaningful research questions and highlights the importance of responsible handling, including considerations of ethics, bias, and interpretability.

Insights from **Prof. Patrick Caron** stressed that hunger remains despite increased food production, underlining the need for system transformation and interdisciplinary collaboration. **Dr. Lulama Ndibongo Traub** showcased the role of the Africa Network of Agricultural Policy Research Institutes (ANAPRI) in connecting African researchers and policymakers through evidence-based partnerships.



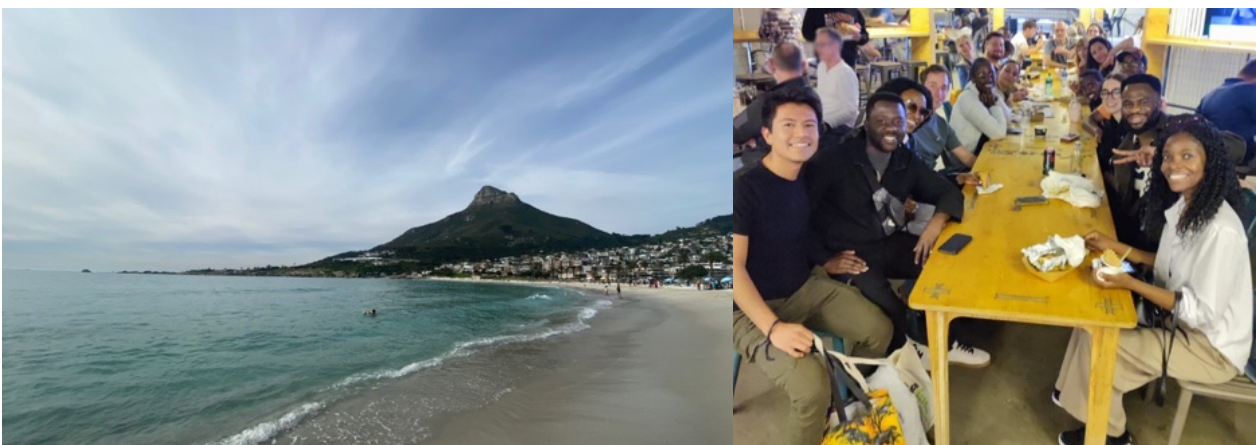
Students working on the task to visualize a food system (top left & middle), led by Dr. Melody Mentz-Coetzee (top right). Students presenting their research projects (middle). Presentations by Dr. Lulama Ndibongo Traub (bottom left) and Prof. Patrick Caron (bottom right). © Sharif Mosa.



Reveal of the official UKUDLA sign at UWC with our UKUDLA group, including Masters students, PhD students, Postdoctoral fellows, UKUDLA staff, Professors and the DAAD. © Sharif Mosa.

19.09. SYSTEMS THINKING

Facilitated by **Prof. Mary Scholes**, this day introduced **systems thinking** as an analytical framework. Participants practiced drawing **causal loop diagrams** and **stock-and-flow diagrams**, tools for visualising interconnections in complex systems. Key concepts included **feedback and feedforward loops**, **tipping points** and steady states, the importance of carefully setting system boundaries and integrated monitoring in Social-Ecological Systems (SES). The session emphasised that unintended consequences are common in complex systems and that avoiding irreversible changes may be more important than maximising efficiency. In the afternoon, some participants visited Camps Bay Beach and Mojo Market, providing informal opportunities for reflection and community building.



Camp's Bay Beach during the afternoon (left) and Dinner at Mojo Market (right).

20.09. STAKEHOLDER ENGAGEMENT AND RESPONSIBLE RESEARCH

Sessions on this day focused on **making research relevant and actionable**. **Andrea du Toit** guided a stakeholder engagement exercise, showing how to map stakeholders, prioritise them by influence and interest, and design appropriate engagement strategies. **Dr. Melody Mentz-Coetzee** introduced principles of **responsible research**, emphasising ethical decision points, data stewardship (FAIR and CARE), and accountability across the research cycle. The session highlighted that research has greater impact when stakeholders are engaged from the start, and that responsible research actively strengthens quality and societal value. In the late afternoon, some participants chose to visit Kirstenbosch Botanical Garden, while others headed to the Waterfront and Signal Hill to watch the sunset.



Kirstenbosch Botanical Garden.

21.09. HERITAGE, FOOD, AND CULTURE

The morning focused on **food contestations and indigenous foods**. **Nazeer Sondag** shared experiences from the *Philippi Horticultural Area Food and Farming Campaign*, emphasising the ecological and socio-economic value of protecting farmland. **Prof. Ndiko Ludidi** discussed **neglected and underutilised crop species (NUCS)**, such as sorghum, which offer resilience, nutritional diversity, and economic opportunities.

In the afternoon, participants travelled to **Kalk Bay**, engaging in a range of immersive, place-based activities. Four groups explored different aspects of local knowledge and coastal life: a wild foods foraging walk along the coastline with Shihaam Domingo; a Kraal workshop on “thinking with bodies of water, time, memory and space” led by Dr. Joanne Peers; a Walk of Remembrance with Traci Kwaai; and an exploration of tidal pools as containers of care with Aaniyah Omdien. The day also featured coffee and koeksisters in the local church hall, fostering informal exchange and reflection. Participants later reconvened for an engaging discussion led by Abalobi, Traci Kwaai, and Faez Poggenpoel on the organisation of fisheries within the community and their links to local livelihoods and stewardship.



Wild foods foraging (left) and the exploration of tidal pools with a swim in the ocean (right).

22.09. WATER–ENERGY–FOOD NEXUS GAME

After reflecting on the activities at Kalk Bay the previous day, participants took part in a **simulation game** exploring the **links between water, energy, and food security**. This engaging and highly interactive game added a fun element to the learning process. Each participant played different roles as policymakers and stakeholders, navigating through various seasons. Groups practised negotiating trade-offs, resolving conflicts, and developing cooperative strategies. The exercise reinforced systems thinking concepts by showing how actions in one sector influence others and highlighted the challenges of collaboration in shared-resource environments.



Figure 1: Students working on their reflections of the previous day at Kalk Bay (top left). Students during the Water-Energy-Food Nexus Game, engaging in discussions about their policies and actions.

23.09. PRESENTING AND REFLECTING

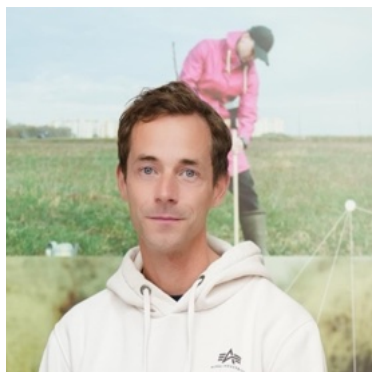
The Summer School 2025 concluded with **group presentations** based on the “treasure hunt” activity, where participants documented key lessons, interactions, and insights. Reflections and evaluations provided space for considering how the knowledge gained would shape future research.

FACILITATORS



Prof. Amiena Bayat

Session facilitator: Food contestations & indigenous food



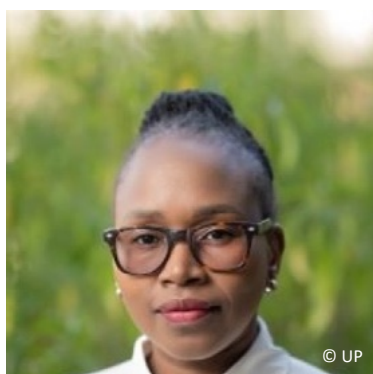
Prof. Thomas Dimpfl

Presenter: An introduction to data science



Ms. Andrea du Toit

Session facilitator: Stakeholder engagement
| WEF Nexus Game



Dr. Colleta Gandidzanwa

Session facilitator: WEF Nexus Game



Mr. Tom Xaver Hackbarth

Session facilitator: Modelling Pathways to Food and Nutrition Security



Prof. Ndiko Ludidi

Session facilitator: Food contestations & indigenous food



Prof. Julian May

Session: Intersections of data science and food systems | Harvesting a Valley of Resilience Challenges and Solutions from the Western Cape



Dr. Melody Mentz-Coetzee

Session facilitator: What is data science? | What is a food system | Responsible research | WEF Nexus Game



Ms. Sithembile Mwamakamba

The role of data in food systems: Panel discussion



Prof. Clement Nyirenda

Presenter: An introduction to data science



Mr. Nazeer Sunday

Session facilitator: Food contestations & indigenous food



Dr. Frank Tchuwa

Session presenter: An introduction to food systems



Dr. Lulama Traub

The role of data in food systems: Panel discussion



Dr. Thais Vieira

Session facilitator: From Research to Global Influence: Positioning Papers for G20 Impact



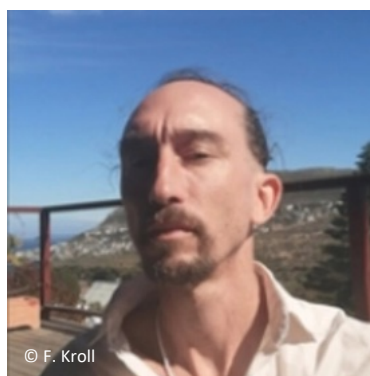
Prof. Christine Wieck

Session facilitator: DAAD Delegation engagement | Introduction to G20 and international system



Prof. Mary Scholes

Session facilitator: An introduction to systems thinking



Mr. Florian Kroll

Session facilitator: Food Imbizo

MASTER STUDENTS 2025



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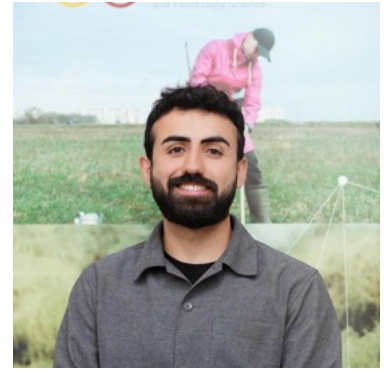
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PHD AND POSTDOC CONTRIBUTORS

PhD students and postdocs participated in a parallel workshop with some joint activities with the summer school.



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Dr. Sussy Munialo

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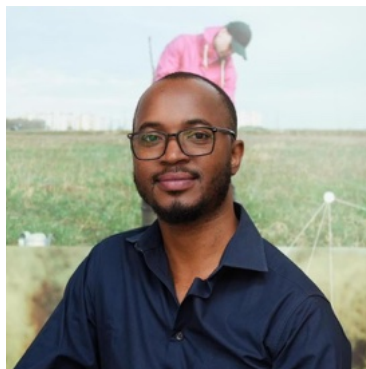
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Data Science Project Coordination



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Co-Project Leader



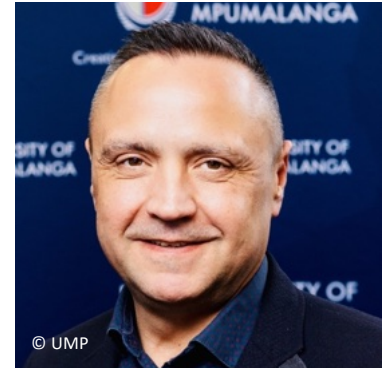
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