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ADVALUE

Advancing Sustainable Agricultural Value Chains through Strengthening Transdisciplinary Skills and Cooperation in East African Doctoral Education

Erasmus+ project conducted by:

Nürtingen Geislingen University

Czech University of Life Sciences Prague

Makerere University

Pwani University

DITSL where science meets people

SLU

Uganda Christian University
A Centre of Excellence in the Heart of Africa

University of Nairobi

RUFORUM Capacity Building in Agriculture

and supported by:

European Alliance in Agricultural Knowledge for Development, Belgium; National Agricultural Research Organization, Uganda; National Council of Higher Education Uganda, Uganda, Kenya Agricultural and Livestock Research Organisation, Kenya; Ministry of Education Science and Technology, Kenya

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Pwani University

University of Nairobi

Makerere University

SLU

Uganda Christian University
A Centre of Excellence in the Heart of Africa

Overview and introduction to the ADVALUE Module 1:

Essential skills in scientific research

Prof. Dr. John Tabuti

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Kampala, Uganda

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Project name: Advancing Sustainable Agricultural Value Chains through Strengthening Transdisciplinary Skills and Cooperation in East African Doctoral Education

Erasmus+ programme

ERASMUS-EDU-2023-CBHE-STRAND-2
Project number 101128508 (ADVALUE)

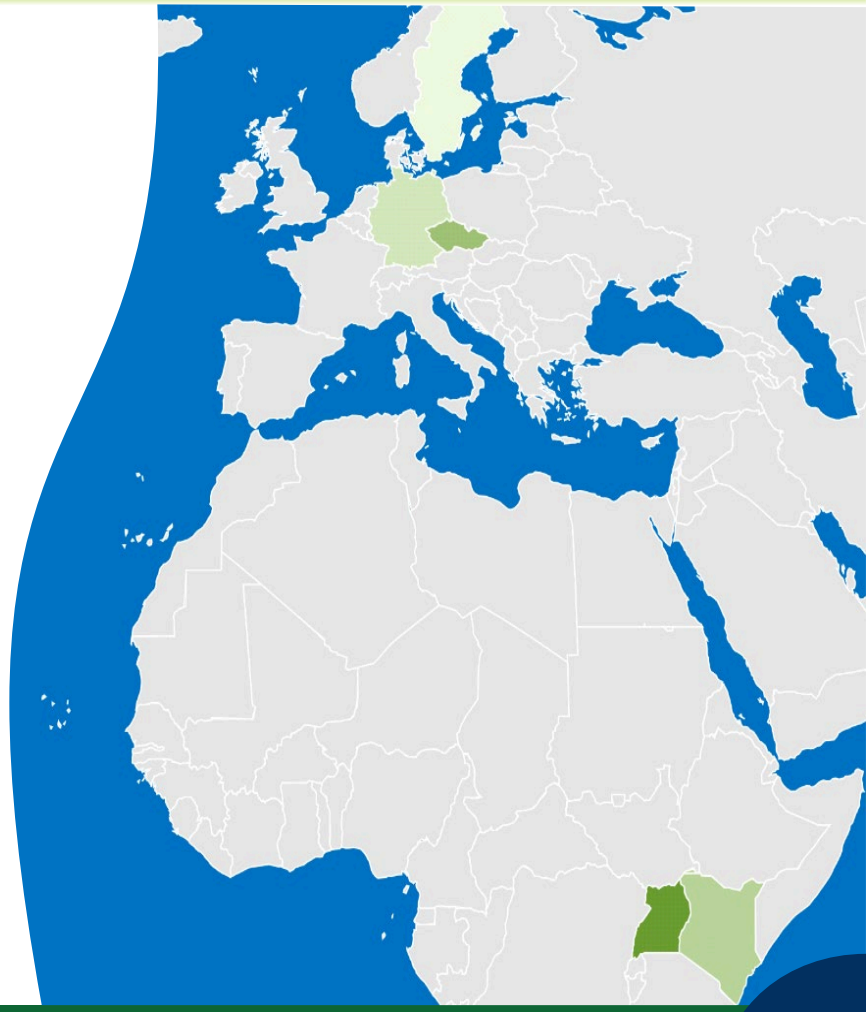
https://erasmus-advalue.org

ADVALUE interim conference in Kampala 2025, Amanya Dorothy

ADVALUE

International Partnership

1. Nuertingen-Geislingen University, NGU, Germany
2. German Institute for Tropical and Subtropical Agriculture, DITSL, Germany
3. Czech University of Life Sciences Prague, CZU, Czech Republic
4. Swedish University of Agricultural Sciences , SLU, Sweden
5. Makerere University Kampala, MAK, Uganda
6. Uganda Christian University, UCU, Uganda
7. University of Nairobi, UoN, Kenya
8. Pwani University Kilifi, PU, Kenya
9. Regional Universities Forum for Capacity Building in Agriculture, Uganda
10. European Alliance in Agricultural Knowledge for Development, AGRINATURA, Be
11. National Agricultural Research Organization, NARO, Uganda
12. National Council of Higher Education Uganda, NCHE, Uganda
13. Kenya Agricultural and Livestock Research Organisation, KALRO, Kenya
14. Kenya Ministry of Education Science and Technology, MoEST, Kenya



About

ADVALUE aims to modernise doctoral programs in agricultural and environmental-related sciences by introducing innovative courses in transdisciplinary research methods and value chain approaches.

The international module working groups are developing, testing and implementing four post-graduate modules at the partner universities in Kenya and Uganda.

Module 1
Essential skills in scientific research

SLU, MAK

Module 2
Transdisciplinary research

DITSL, PU

Module 3
Sustainable rangeland resource management

NGU, UoN

Module 4
Sustainable agricultural value chain development

CZU, UCU

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Questions?

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Module 1 overview

Essential skills in scientific research

Photo: https://de.freepik.com

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Who are we?

Lecturers:

SLU: Hanna Östholm, Katarina Böhme Evengård, Jonas Petersson, Isabelle Nesterud, Jenny Casey Eriksson, Camilla Söderquist (SLU library), Per Sandin, Charles van de Kerkhof, Anna Maňourová

MAK: John Tabuti, Ellen Kayendeke

PU: Rose Kigathi, Nicholas Odongo, Selah Lusweti, Moses Isutsa

UCU: Martin Mutambuka

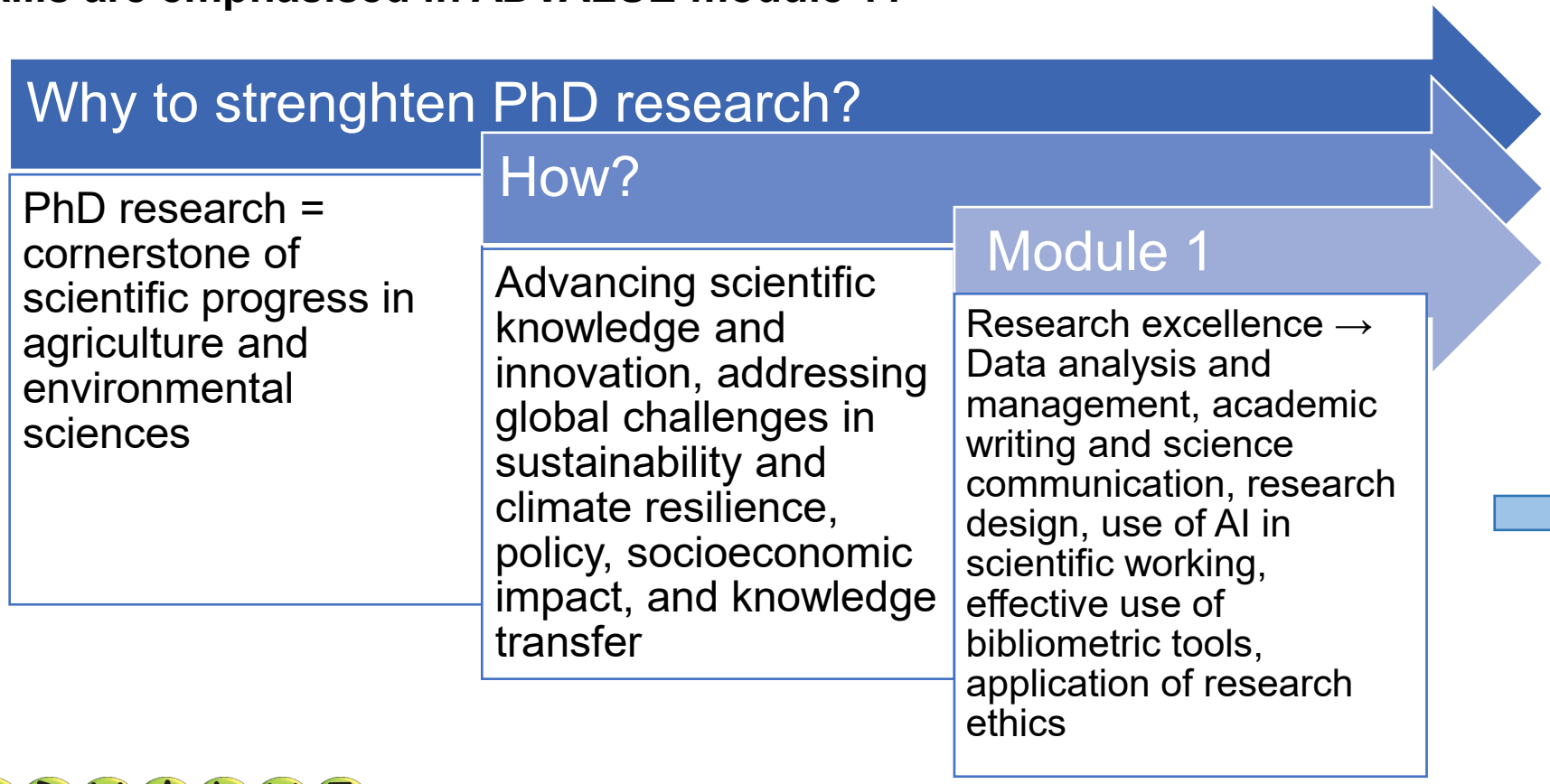
UoN: John Oredo

+ MWG1:
Petra Chaloupková (CZU), Vincent Mwanika and MAK team, Rosemary Bulyaba (UCU), Cecilia Onyango (UoN)

John Tabuti (MAK), Anna Maňourová (SLU), Joshua Onono (UoN), Rose Kigathi (PU), Rosemary Bulyaba (UCU)

Module rationale

How can PhD research work contribute to agricultural and environmental-related sciences, and which skills are emphasised in ADVALUE module 1?



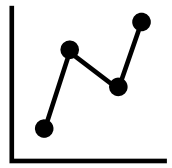
Essential skills for research and scientific work in **any field**

Module aim

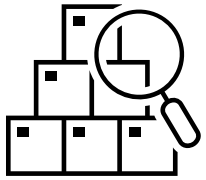
The module aim is to build a strong foundation for conducting responsible, impactful, and digitally advanced research

How → Interactive discussions, hands-on activities, case studies

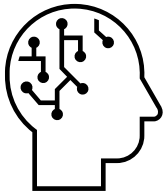
Key concepts and practices



Data management and analysis



Advanced literature search



Use of digital tools and AI-powered platforms

Ethical considerations in research

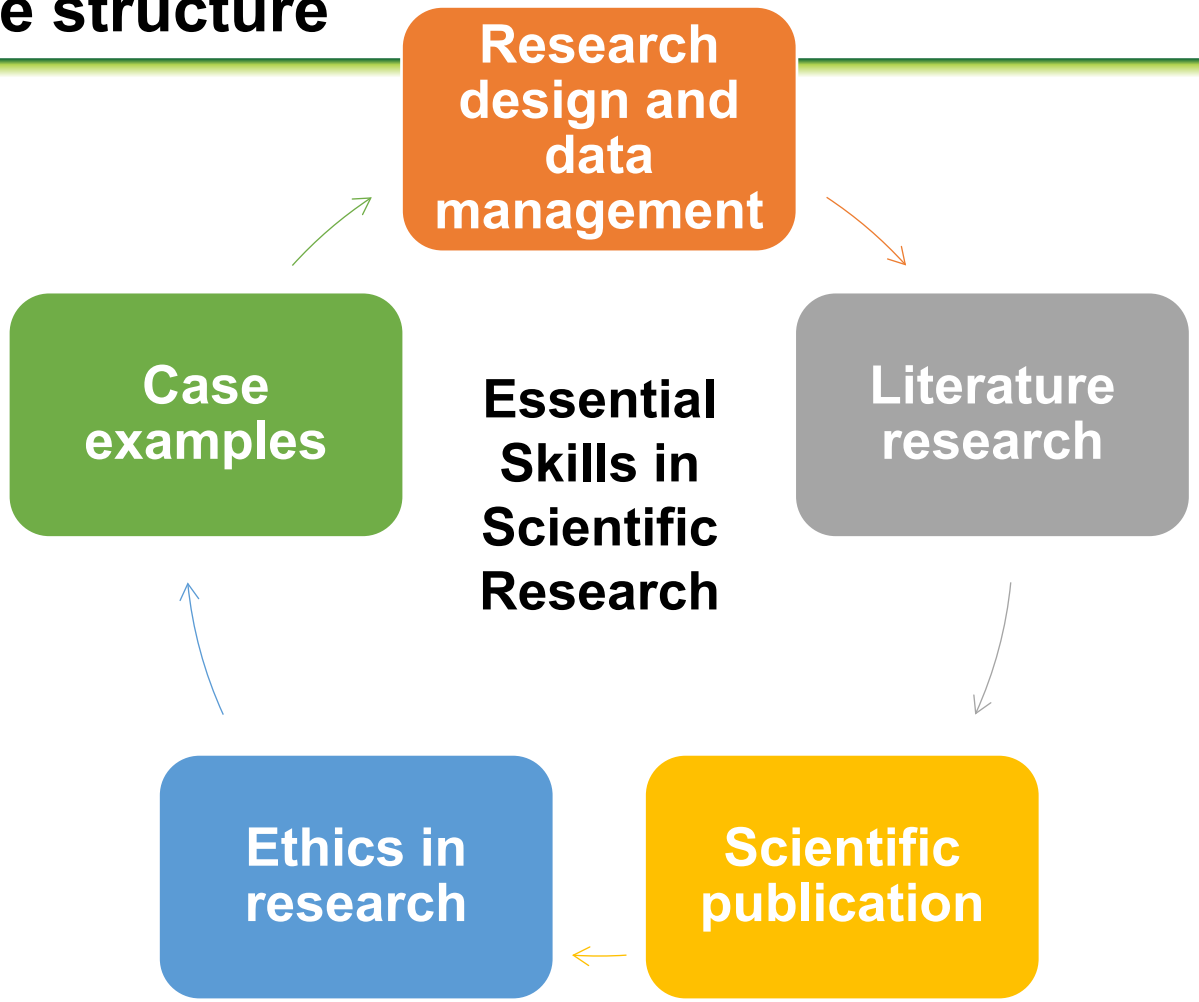
Intersection of entrepreneurship and research

Learning Outcomes

On completion of the course, the learner will be able to:

1. Effectively utilise library resources to identify, access, and evaluate relevant scientific literature, using advanced search techniques and digital tools, including AI-powered platforms.
2. Write comprehensively and scientifically, demonstrating clarity, coherence, and precision in presenting research findings and arguments.
3. Apply the principles of research ethics in all stages of the scientific process, ensuring integrity (incl. gender and intersectional approach) and responsibility throughout the work.
4. Demonstrate data management and handling proficiency by effectively organising, storing, and sharing research data following best practices.
5. Apply bibliometric tools to evaluate the impact and relevance of research publications.
6. Synthesize knowledge acquired in this module to conduct and communicate research that adheres to rigorous scientific standards.

Module structure



60 teaching hours, 4 ECTs

Pilot training

– 20 students, August 2025, MAK

Online sessions → ca 12 hours

Physical sessions → ca 25 hours

1. Research design and data management (lead: PU, CZU)
1. Articulating the research problem & purpose statement
2. Research Paradigms & Approaches (Qualitative, Quantitative & Mixed methods)
3. Research design
4. Management and preservation of research data; data lifecycle, reproducibility
5. Scales of Measurements
6. Data Analysis and case examples (Qualitative,Quantitative & Mixed methods)

2. Literature research (lead: PU, SLU)
1. Literature search strategies
2. Library resources
3. Metrics, concepts like basic bibliometrics, impact factors, altmetrics, journal evaluation
4. Databases – differences between platforms and interfaces
5. Open access, open data & publishing
6. How to handle references with reference management tools

3. Scientific and target-group oriented publication (lead: MAK, SLU)
1. Scientific writing
2. Challenges in scientific writing
3. Time management and planning
4. Source evaluation, how to improve your critical reading
5. Journal Evaluation
6. Journal Clubs
7. Visibility, making your research visible, with a particular focus on social media

4. Ethics in scientific research (lead: MAK, SLU)
1. Philosophy of Science
2. Ethics in research involving humans, compliance and ethical review
3. Fairness and good research practice, authorship and credit
4. Copyright and ethics in writing

5. Case examples of scientific working methods in emerging areas (lead: UoN, MAK, PU, UCU)
1. Optical sensing and AI tailored for African agriculture
2. Using AI for screening - Conduct a articles screening using an AI tool such as as Review and Elicit
3. Strategic Foresight Systems Thinking
4. Entrepreneurship and innovation
5. Utility of Systematic Review Outputs
6. How to create graphical abstract
7. Case examples of use of AI in scientific working

Pilot training agenda

Online week - 11-15 August		
	Topic	*Lecturer*
Day 1		
14:00-14:30	Introduction and welcome	Anna Maňourová, SLU
Break		
14:45-16:15	Management and preservation of research data; data lifecycle, reproducibility	Hanna Östholm, SLU; Rose Kigathi, PU
Day 2		
14:00-15:00	Scales of measurements	Nicholas Odongo, Selah Lusweti, PU
Break		
15:00-16:45	Ethics in research involving humans, compliance and ethical review	Per Sandin, SLU
Day 3		
14:00-15:00	Source evaluation, how to improve your critical reading	Katarina Böhme Evengård, Jonas Petersson, SLU
Break		
15:15-16:15	Databases – differences between platforms and interfaces	Isabelle Nesterud , SLU
Break		
16:30-17:30	Visibility, making your research visible, with a particular focus on social media	Jenny Casey Eriksson, SLU
Day 4		
14:00-15:00	Time management and planning	Camilla Söderquist, SLU - pre-recorded
Break		
15:15-17:00	Fairness and good research practice, authorship and credit	Per Sandin, SLU
Day 5		
14:00-16:00	Entrepreneurship and innovation	Charles van de Kerkhof, SLU

Pilot training agenda

Physical week - 18-22 August		
	Topic	*Lecturer*
Day 1	**Theme: Research design and data management**	
8:30-9:30		
9:30-10:30	Research paradigms & approaches (Qualitative, Quantitative & Mixed methods)	Nicholas Odongo, PU
Break		
11-12:00	Research design	Nicholas Odongo+Rose, PU
Lunch		
13-14:00		
14-15:00	Data Analysis and case examples (Qualitative,Quantitative & Mixed methods)	Nicholas Odongo, Selah Lusweti, PU; John Tabuti, MAK
Break		
15:30-16:30	Data Analysis and case examples (Qualitative,Quantitative & Mixed methods)	Nicholas Odongo, Selah Lusweti, PU; John Tabuti, MAK
Day 2	**Theme: Research design and data management and scientific publication**	
8:30-9:30		
9:30-10:30	Data Analysis and case examples (Qualitative,Quantitative & Mixed methods)	Nicholas Odongo, Selah Lusweti, PU; John Tabuti, MAK
Break		
11-12:00	Data Analysis and case examples (Qualitative,Quantitative & Mixed methods)	Nicholas Odongo, Selah Lusweti, PU; John Tabuti, MAK
Lunch		
13-14:00		
14-15:00	Scientific writting	Rose Kigathi, Nicholas Odongo, PU; John Tabuti, MAK
Break		
15:30-16:30	Scientific writting	Rose Kigathi, Nicholas Odongo, PU; John Tabuti, MAK

Pilot training agenda

Day 3	**Theme: Literature research and ethics in research**	
8:30-9:30		
9:30-10:30	Metrics, concepts like basic bibliometrics, impact factors, altmetrics, journal evaluation ar	John Oredo, UoN, Rose Kigathi, PU
Break		
11-12:00	The use of AI in scientific working, with focus on literature research	John Oredo, UoN
Lunch		
13-14:00		
14-15:00	How to handle references with reference management tools	Camilla Söderquist, SLU; John Oredo UoN
Break		
15:30-16:30	Literature search strategies	Rose Kigathi, PU
Day 4	**Theme: Case examples of scientific working**	
8:30-9:30		
9:30-10:30	Using AI for screening - Conduct articles screening using an AI tool such as Review and Elici	John Oredo, UoN
Break		
11-12:00	Strategic Foresight Systems Thinking	Martin Mutambuka, UCU; Ellen Kayendeke, MAK
Lunch		
13-14:00	Utility of Systematic Review Outputs	John Oredo, UoN
14-15:00	Philosophy of Science	Rose Kigathi, PU
Break		
15:15-16:00	Wrap up, final reflections and evaluation	Anna Maňourová, SLU + everyone present
	Goodbye dinner	
Day 5	**Stakeholders round table discussion**	MAK team, Martin Mutambuka, UCU
	Completed by lunchtime	

Updates and what not to miss!

- Webinars in preparation: Data Management and Handling (PU, SLU); The Use of AI in Scientific Working (UoN, PU)

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Project funding

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- Any other persons interested in the use of the material shall address:

Dr. Anna Maňourová, SLU
anna.manourova@slu.se

Thank you very much for your attention!

Asante sana!