

# FACT SHEET

## Masters In Research Methods

### Rationale

Research methods, including statistics and biometry underlie effective applied science. Yet there is a decline in the number of professionals in these areas. Indeed studies done by the Forum for Agricultural Research in Africa (FARA) in 2005 and the Technical Centre for Agricultural and Rural Cooperation (CTA) in 2004 pointed out that this was a major gap area in most African National Agricultural Research System, with the majority including universities, not having any Biometrician/Research methodology specialist in place to guide research, leading to poor quality of research outputs in Africa.

The lack of biometrician support was repeatedly mentioned by graduate students under FORUM (RUFORUM predecessor programme managed by the Rockefeller Foundation) as a major weakness in their training. Other recent evaluations also point to rapid changes in research and approaches. Biometricians and statisticians often fail to keep up, and may be seen as irrelevant by scientists. Thus, following regional consultations involving over 300 participants across the Eastern, Central and Southern Africa (ECSA) region, RUFORUM decided in 2006 to launch a regional programme to train a pool of research methods specialists that would be piloted initially in two Universities namely Jomo Kenyatta University of Agriculture and Technology in Kenya and the then Bunda College of Agriculture now Lilongwe University of Agriculture and Natural Resources Malawi. It was recognised at the onset that a regional approach was needed to draw in experts from various universities to provide quality training of students drawn from different

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### Programme Objectives

- To mount a regional graduate training programme in Research Methodology built on a strong foundation of theoretical and practical norms and standards geared towards meeting the current international concerns including the Millennium Development Goals, the dynamic trends and changing roles in research agenda, and current demand for impact and increased accountability.
- To produce graduates with a solid foundation in research methods concentrating on professional and soft skills and equipped with current tools for today's research.
- To promote collaborative network amongst regional institutions to enable them share and exploit existing research potential within the region to inform relevant policy.
- To produce at least 150 graduates within five years, with knowledge and skills essential for carrying out and supporting quality research for development, well versed or able to identify research priorities or regional problems and subsequently offer relevant research approach focused on their resolutions.

### Host Institution

Jomo Kenyatta University of Agriculture and Technology (JKUAT),  
Nairobi, Kenya  
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countries and different professional backgrounds. The graduates would provide a pool of mid level practical professionals to guide research in the region and Africa at large.

The MSc. Research Methods programme includes innovative training for research managers, scientists and postgraduate students. The programme's objective is to produce a new cohort of professionals able to support current multi-disciplinary research. Two main innovative features are that it is a professional training and it links methods to the context of research. The quality and reach of this initiative is enhanced through linkage to research systems in the region and use of experts from across the region.

### **Graduate Profile**

The programme aims to develop a new cadre of professionals who are able to:

- 1) Support scientists in the planning, implementation and reporting of effective research for development.
- 2) Train scientists in the research methods needed to work in emerging areas,

### **Programme duration**

This is a two-year programme.

### **Curriculum structure and content**

The programme focuses on development of skills and attitudes required to support research, orient students to think creatively, value teamwork and partnerships and prepare them for the leadership roles that will be expected of them on completion of their studies. The coursework is structured into six bridging courses for those requiring up-grading, eight core courses and electives. All candidates will be required to take and pass all core courses and at least 2 electives to proceed to their internship/ research work.

### **Mode of delivery**

The programme has one year of modular taught course work and one year of attachment /research and thesis. The attachment / research Phase is oriented towards practical and problem-solving training and experience. The attachment is described as follows:

It is a period of attachment to an established, on-going research team, with which the student works as a trainee 'research method professional' and providing research methods support.

It may be in a university or research organization.

It will provide research support for one or more research projects. The student may give support to more than one project, to ensure they gain experience of support for all stages (planning, data collection and organization, analysis and reporting) of the project cycle.

Each student is attached to an ongoing research project within the region over a period of three semesters. During the attachment the student undertakes a structured set of tasks including work on research design, data collection and management and data analysis. The student produces a report on each task, giving the background, actions and an assessment of the outcome. The reports are compiled into a dissertation, which is submitted to the University for Assessment according to the

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university regulations. The host supervisor monitors and supervises the student in the day-to-day activities the student. JKUAT (and partners) monitor and follow up the students on attachment to ensure that they undertake the requisite tasks of the attachment. A preparatory course manual is sent to students in advance to help them prepare for the course.

**The following are the bridging, core and elective courses:**

**Bridging courses (each 2 credit hours)**

- RM 501 Statistical Mathematics (targeting people with limited mathematics/statistics)
- RM 502 Matrices (targeting people with limited mathematics/statistics)
- RM 503 Descriptive statistics (targeting people with limited mathematics/statistics)
- RM 504 Statistical modeling (targeting people with limited mathematics/statistics)
- RM 505 Principles of Agriculture (targeting people with limited biosciences)
- RM 506 Socioeconomics and Development (targeting people with limited social science background)

**Core Courses (8 + Thesis)- 3 credit hours for each core course except Research**

- RM 601 Research Methods 1
- RM 602 Research Methods 2
- RM 603 Data and Information Management
- RM 604 Research Implementation Skills and Seminars
- RM 605 Statistical Methods 1
- RM 606 Statistical Methods 2
- RM 607 Research Methodology Consultancy
- RM 608 Statistical Computing
- RM 609 Thesis/Research/Internship Project

**Electives (students take at least 2), each course 3 credit hours**

- RM 610 Environmental and Spatial Statistics and GIS
- RM 611 Epidemiology and Public Health

**Method (s) of assessment**

**Coursework**

Students sit coursework examinations on semester basis, and are expected to pass all end of semester examinations in core courses and respective elective courses, to qualify to proceed to do their attachment and research (year 2). The university uses External Examiners as part of quality assurance. A sample External Examiner's report is attached as Annex 1. At the end of each course / module, students get a chance to evaluate the course online. The course evaluation template is available / can be viewed at: <http://elearn.jkuat.ac.ke/limesurvey/index.php?sid=54792>

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## Thesis

Each student conducts a research project, during the internship/attachment period, with a strong component of applied statistics and team work, as partial fulfillment of the requirements for the award of a Masters in Research Methods. The examination of the thesis project is done according to Senate-approved regulations of the hosting university, and has two components:

Thesis / project evaluation, by both internal and external, and

### An Oral examination (viva voce).

Implementation progress and achievements

The MSc. Research Methods programme was launched in 2009. Subsequent cohorts of students reported in 2010, 2012, 2013, 2014 and 2015

## Student numbers

Table 1 below gives a summary of student statistics, including the numbers that applied for the programme per intake

**Table 1: Student numbers in the MSc. Research Methods Programme (2009-2015)**

Year of Intake	Numbers (% females in brackets)	Status of Students	Countries of origin of the students
Cohort 1 (2009)	29 (34%)	28 graduated by end of 2012; 1 abandoned course	Kenya, Uganda, Tanzania, Zambia, Ethiopia, Burundi, Malawi, Zimbabwe
Cohort 2 (2010)	33 (24%)	All Graduated	Kenya, Tanzania, Uganda, Rwanda, Burundi
Cohort 3 (2012)	4 (25%)	All graduated	Uganda, Kenya, Tanzania
Cohort 4 (2013)	7 (14%)	The students are concluding their research work and will be graduating before end of December 2015	Benin, Burundi, Ethiopia, Kenya, Mozambique, Uganda, Zambia
Cohort 5 (2014)	20 (43%)	The students have just completed their research work	Sudan, Kenya, Tanzania, Rwanda, Zambia,
Cohort 6 (2015)	5 (0%)	The students have just began their coursework	Zambia and Kenya

## Staff exchange / visiting lecturers

A summary of statistics on visiting lecturers / external resource people is given below:

- In country / nationals: 8
- Regional (ECSA): 5
- International staff: 3

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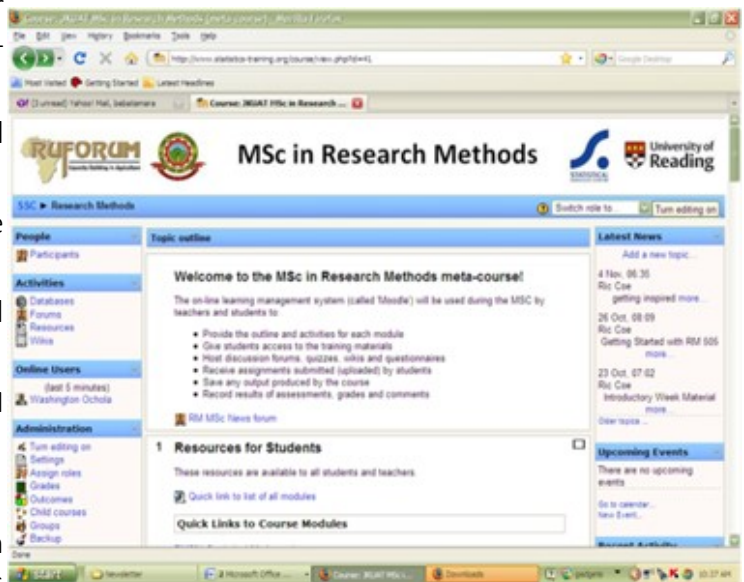
## Where the graduates are going / what they are doing

The graduates from the programme have immediately been absorbed into the job market especially research and M&E. Examples include;

- ◆ Frank Chege Mwangi – M&E Assistant, International Fertilizer Development Centre, Nairobi
- ◆ Collins Abuga Marita – M&E Officer, International Fertilizer Development Centre, Nairobi
- ◆ Chimwemwe Salima – Project Assistant, NEPAD Fish node Project, Malawi
- ◆ Charles Harvey Jiya – Research Technician, ICRISAT, Malawi
- ◆ Silas Ochieng – Research Manager, Financial Sector Deepening, Kenya
- ◆ Cosmas Mugambi – Dentist in Kenya
- ◆ Enock Kangogo – Loans Disbursement Officer – Equity Bank, Kenya
- ◆ Maxwell Mkondiwa – Lecturer, LUANR, Malawi
- ◆ Rumbidzae Matembe – Lecturer, Africa University, Zimbabwe
- ◆ Mulugeta Birhanu – Research Assistant, ILRI, Ethiopia

## Programme Outputs

- ◆ Moodle platform for students and lecturers for course delivery, discussions and communication (screen shot on the right)
- ◆ Publications and manuscripts: 35 theses and 35 Abstracts
  - Statistics Made Simple (SMS) Guide Book
  - GEAR (Graduate Environment and Agricultural Research) book
  - Guide to developing and teaching RM modules
  - Field Attachment Guide
  - Journalistic article titled: Research Methods: Breaking Down the Silos within Academe through interdisciplinary research (Annex 3).
- ◆ Capacity building in Monitoring and Evaluation
  - α. Short duration course modules:



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The following short-term modules have been developed:

1. Trainer of Trainers M&E course: This is an intensive 2-3 months training targeting those lecturers who have taught elements of M&E at their respective universities.
2. Short-term Certificate in M&E: The module targets those already working as M&E specialists but require certification and more in-depth M&E training. The specialist could be researchers, programme Managers, trainers, policymakers, students and other agricultural and natural resource management professionals.
  - b. Masters Programme in Monitoring and Evaluation:

The target is BSc. Graduates who want to specialize in M&E. The students will be attached to the Short-Term Certificate team.

#### Positive Outcomes

**Capacity to engage and network:** Students at JKUAT organized an internal conference in May 2011 in which they prepared and presented papers, and critiqued each other's papers. Students have also attended other regional and international conferences to present their research findings and training experiences.

**Partnerships:** The programme has stimulated partnerships with international research organizations for the host university, e.g. with World AgroForestry Centre, Statistical Services Centre of the University of Reading, Universities in South and West Africa.

**University staff capacity building:** Trickle down and across effect on increased staff competency including capacity and skills for content digitization and online course facilitation.

**Profile of graduates:** Graduates from the programme are appreciated as being competent and hands-on professionals.

**Statement by Vice Chancellor, JKUAT during a donor round table meeting in 2011 in London:** Because of hosting the MSc. Research Methods course and all the activities that are involved, the Ranking of JKUAT has moved from position 100 in 2009 to position 47 in 2012. Further, the Research Methods Programme was a key bidding document that enabled JKUAT to be selected as a Pan African University for Science and Technology in 2012.

**Replication:** Maseno University (non-member of RUFORUM) has adopted the web-based Learning Management System (LMS), and is currently offering Master of Science in Research Methods and Statistics Made Simple: [http://iaseb.org/documents/papers/rt2012/IASE2012\\_Stern\\_Coe\\_mcDermott.pdf](http://iaseb.org/documents/papers/rt2012/IASE2012_Stern_Coe_mcDermott.pdf)

**Statement from RM course Lecturer:** It is a pleasure to work with students who are so open in discussion, thoughtful about their work and keen to learn.

**Statement by Frank Chege – graduate from 2008 class:** I will always cherish the experiences and opportunities that I have accrued as a result of participating in this programme. From the start, it was a highly interactive and enriching process. The facilitators and lectures were very exciting and unique, especially the modular form of learning/teaching. The variety of professionals engaged to guide and mentor us was wide-coupled by the regional nature of the students themselves-meaning that we were availed with an opportunity to broaden our interactions, networks and understanding of research concepts and scenarios.

**Statement by Richard Jones, Agribusiness Programme Leader, IFDC:** IFDC employed Mr Collins Marita Abuga as an monitoring and evaluation assistant for the east and southern Africa Division in 2011 and in 2012 he was promoted to the post of M&E officer with responsibility for the Dutch-funded 2SCALE project operating in five countries of this division. On his promotion IFDC recruited Mr Frank Chege Mwangi as the M&E assistant. Both staff have proved dedicated and professionally competent. The exposure of both staff to cutting edge training has equipped them well to undertake what are challenging assignments within IFDC. Both staff have traveled extensively in the region and interacted widely with IFDC staff who have appreciated the technical advice related to all aspects of M&E.

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## Way forward and value proposition

The MSc. Research Methods programme is a flagship regional programme for RUFORUM. Looking back at the objectives of the programme put forth at the start, it is still far from meeting these objectives. There still exists major weakness in research methods capacity in almost all training, research and consultancy institutions in the ECSA region, and Africa in general. The demand for the graduates from this programme is evident. All graduates get employed in various sectors and institutions in the region immediately they graduate. The programme continues to attract strong positive anecdotal evidence of approval from the teachers and employers of the graduates.

### **In terms of moving forward, the key areas of focus will include the following:**

On-line delivery of the course for the programme has been launched by May 2015: a total of 22 Modules for e-learning were developed and captured customers with diverse needs and schedules.

Engaging teams of Research Methods Specialists using a caravan approach: In addition to the Research Methods programme, which is based on a regional facility (JKUAT and possibly one more to be established), there is need to provide short term training to other graduate students and faculty staff in research methods. During the current support from BMGF, a total of 104 graduate students and academic staff have benefited from the training and feedback indicates this as an important mechanism to provide research methods support across RUFORUM Universities and ECSA at large. Thus, emphasis should be made to mobilize resources for this skill enhancement.

**Quality Assurance:** it is critical to maintain high standards and assure quality of the graduates coming out of this programme. Thus, RUFORUM Secretariat, supported by a team of regional experts, closely monitors implementation of the training programme. In addition the Secretariat has supported facilitating skill enhancement for staff and students, facilitating shared lesson learning and communication, tracer studies, and indirectly by providing a regional platform for JKUAT and other partners to mobilize resources for the programme.

**Funding to support the programme:** The level of funding has implications on regionality of the programme, number of students coming to the programme, staff exchange, and even rigour and effectiveness of implementation e.g. field supervision and student exposure. In moving forward, and drawing from the lessons learnt from implementing the programme for four years, and also learning from other similar programmes such as the Collaborative Masters in Applied Agricultural Economics (CMAAE), there is need to strengthen the engagement with stakeholders for buy-in, in order to attract funding for the programme in terms of scholarships, infrastructural support and mainstreaming in the national and regional agenda. Consequently, there are ongoing discussions with national governments in the COMESA region to invest in RUFORUM regional programmes. The other key point of discussion involves a strategy to consolidate efforts by universities in order to benefit from regional capacity development efforts, including through the African Union.

**Alternative sustainability models:** In view of the large capacity gaps that still persist, there is a need to place special emphasis on mobilizing funds for the Regional Research Methods MSc. training and for targeted

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short duration skill enhancement training for postgraduate students and research scientists in the region. This is vital for enhancing quality and relevance of research in the region.

Research Methods is at the core of RUFORUM business: RUFORUM has responsibility for improving agricultural research for development in its 55 Universities in Eastern, Central, Western and Southern Africa. It is appreciated that better biometric skills and awareness are needed to support this improved research, and that four groups need targeting. They are:

- MSc, PhD and other research students, who are beginning their research career,
- University and research institute staff who supervise these students, or manage / conduct research,
- The managers of research organizations, that determine support available to scientists, and
- Biometricians or statisticians, who provide the research methods support and training.

All these groups have capacity deficiencies, despite their crucial role in contributing to Africa's development. The Research Methods MSc. Programme will thus remain one of RUFORUM's flagship programmes and a key area of investment in order to achieve real impact.