

MAKERERE



UNIVERSITY

**BACHELOR OF SCIENCE
IN AGRICULTURE AND RURAL INNOVATION
EXTERNAL (BARI-EXT)**

**BY
COLLEGE OF
EDUCATION AND EXTERNAL STUDIES (CEES)
SCHOOL OF LIFELONG LEARNING**

IN COLLABORATION WITH

**COLLEGE OF
AGRICULTURAL AND ENVIRONMENTAL SCIENCES (CAES)
SCHOOL OF AGRICULTURAL SCIENCES**

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1.0 INTRODUCTION

Makerere University College of Education and External Studies (CEES) in collaboration with the College of Agricultural and Environmental Sciences (CAES) offers a Bachelor of Science in Agriculture and Rural Innovation (BARI-EXT) distance education mode of study. Through the Department of Open and Distance Learning, CEES is responsible for the administrative and support functions whilst CAES through its Department of Agriculture Extension and Innovation is responsible for the academic functions of the programme. BARI-EXT students are registered with CEES and are hosted by the CAES.

BARI-EXT is a four-year distance education programme with multi-disciplinary orientation to rural development. The goal of the programme is to strengthen the relevance of the curriculum by encompassing the emerging national agricultural and rural development issues such as poverty, natural resource degradation, and socio-economic inequities, among others.

The curriculum modification includes the addition of more rural development and innovations, entrepreneurial, business-oriented, and social science-related courses which will make graduates more capable of facilitating rural innovation through providing innovative, need-based, demand-driven, market-oriented services in a liberalized and competitive service delivery system that currently characterizes the agricultural sector. It will also match the human resource requirements of several stakeholder organizations at national, regional and international level.

2.0 Background

Sub-Saharan Africa is the world's poorest region, with half of its 700 million people living on less than US\$1 per day¹ and Uganda is one of the poorest countries in the world. As the mid-decade passes, it is becoming increasingly evident that the sub-Saharan region will fall seriously short of meeting many of the Millennium Development Goals (MDGs), including halving poverty by 2015. Poverty is largely a rural phenomenon² affecting the majority of the Ugandan population who largely live on subsistence farming. The Poverty Eradication Action Plan³ shows that while the national poverty level increased from 34% to 38% between 2000 and 2003; the increase in rural areas was from 37% to 41%; and among the crop farmers it increased from 39% to 50%. It is argued that agricultural development will be the major driver for poverty eradication since the majority of the African population (in Uganda, over 80% of the population) lives on agriculture.

There is a relationship between poverty, hunger, disease, natural resource degradation, gender, and many other dehumanizing situations – making the rural population even more vulnerable. For example, the food security situation in Africa is exacerbated by low purchasing power (poverty), gender inequity, and HIV/AIDS pandemic, which drastically reduces the labour force. Therefore promising strategies for addressing poverty in Africa and Uganda in particular must be

¹ USAID (2006) *Strategic framework for Africa*, USAID

² Doward, A., Kydd, A., Marrison, J., Urey, I. (2004) "A Policy agenda for pro-poor agricultural growth", *World Development*, 32(1): 73-89

³ PEAP (2004) *Poverty Eradication Action Plan 2004/5-2007/8*

able to first deal with the complexity of agricultural and rural problems. But agriculture today presents a complex of social, political, economic, ecological, aesthetic and ethical aspects⁴ which calls for innovative and integrated approaches. A technological focus alone or even focus on agriculture per se is unlikely to be successful in the fight against poverty. An integrated rural development approach is necessary.

In the past two decades, policy reforms in Uganda such as decentralization, privatization and liberalization of service delivery were partly intended to set up a policy framework for integrated rural development. Consequently, government programme for addressing poverty, such as the Plan for Modernisation of Agriculture (PMA), are designed to be multi-sectoral, integrated and participatory. Government looks for university graduates to champion these programmes, as exemplified by the government directive of 1999 that local governments recruit university graduates at the sub-county level to work directly with the community. It is however noted that the graduates posted at that level are not trained to manage the complexity of multi-dimensional rural development challenges that go beyond the technical aspects of agriculture⁵.

Dealing with complexity, uncertainty, conflicting norms, values and interests in a globalising world, requires a radical transformation of agricultural practices and thus an equally fundamental transformation in the competences required of graduates of agriculture and rural development programme. New approaches to contend with complex problems such as innovation systems, not only require a new set of competences but also reorientation of mindsets by all actors, including members of the farming community. Aware that it is impossible to train a single professional with all the necessary capabilities to bring about rural development, a new type of professional rural development practitioner is proposed. Such a person should possess integrated skills for mobilizing and coordinating different forms of expertise and resources to address the broader rural development challenges in a systemic perspective. The Department of Agricultural Extension & Innovations (DAEI) formerly the Department of Agricultural Extension/Education (DAEI) is positioning itself to address this capacity gap.

Started in 1987, the DAEI's mission and mandate is to equip agriculture students with competencies necessary to facilitate farmer learning and utilization of agricultural information and technologies in addressing agricultural and rural development issues and problems. The department offers service courses to all degree programmes in the Faculty of Agriculture in the area of agricultural extension. Some students offering the BSc Agriculture degree specialize in agricultural extension in the fourth year of study. Fully-fledged degree programmes offered by the department include a Masters degree in Agricultural Extension, and a Bachelor of Agricultural Extension Education (BAEI). The latter is a mid-career programme targeting experienced practitioners with diplomas.

Based on a proactive assessment of the changing global, regional and national environment, the DAEI embarked on a systematic staff capacity building initiative and study of emerging national agricultural extension training needs beginning from 2001. This concerted effort aimed at broadening the expertise base of the staff beyond the traditional focus on agricultural extension and education. Currently, DAEI has a total of 6 staff with PhDs and 6 MSc including specialization in new areas namely, Social sciences; sociology and rural development; social

⁴ Wals, A.E.J., Bawden, J. (2000) "Integrated Sustainability into Agricultural Education: Dealing with Complexity, Uncertainty and Diverging Worldviews", *Interuniversity Conference for Agricultural and Related Sciences in Europe (ICA)*, AFANet

⁵ Kibwika, P. (2006). *Learning to make change: developing innovation competence for recreating the African university of the 21st century*, Wageningen Academic Publishers.

change and development; sociology, food systems, agriculture and the environment; gender, HIV/AIDS; environment and agricultural development; sociology and sustainable agriculture; and community institutional development.

In offering the BARI-EXT the DAEI will link up with the Department of Open and Distance learning (DODL) whose current mandate is to support all distance education programmes of the university. With a history of 15 years of supporting collaborative distance education programmes at the university, the DODL brings considerable experience, expertise and infrastructure to the partnership. The DODL currently collaborates with the Faculty of Economics and Management (FEMA) in supporting the Bachelor of Commerce (External) programme; the School of Education in supporting the Bachelor of Education (External) programme; and the Faculty of Science in supporting the Bachelor of Science programme. The DODL also hosts the Commonwealth Diploma in Youth Development Work. The DODL also supported the Institute of Public Health in establishing the Masters in Public Health (External) programme. With a total enrolment of over 6,500 students on distance education programme, the DODL hosts the largest number of students supported by a single academic department of university.

3.0 Justification

The programme is demand-driven and has been discussed with a wide cross section of stakeholders⁶. It has firm support and endorsement from the National Agricultural Advisory Services (NAADS), the district local governments and private service providers. It responds to on-going changes in policy and approaches of agricultural research and extension under the Plan for Modernization of Agriculture.

Agricultural extension in Uganda is undergoing major transformation from a public system to a privately delivered but publicly funded system according to the NAADS Act 2001. In operational terms, this means that the private advisory service providers operate on contract basis with farmer organizations. The DAEI undertook a series of studies and organized various fora aimed at getting the perceptions of various stakeholders with regard to the knowledge and skills that the agricultural extension professionals will need for them to perform effectively under the new system.

The studies revealed that the new advisory system has created new demands on the agricultural education system not only in terms of appropriate curricula, but also in the mode of instruction. With regard to curricula, the changed functions and work environment of agricultural extension service providers have meant that while most of the skills within the public extension system are still relevant, additional ones are required to enable extension professionals perform as independent service providers. Stakeholders saw increased demand for efficient service delivery as a major challenge of the new advisory system which operates on the basis of business contracts. This calls for high levels of business skills for the service providers to operate successfully.

The analysis revealed that current programmes, including the BAEE started in 1987 in response to demand articulated by the Ministry of Agriculture, Animal Industry and Fisheries, fall short of

⁶ The programme was discussed in a well attended stakeholders' consultative workshop held at Makerere University on August 1-2, 2006

the following identified key emerging competency needs among agricultural advisory service providers:

- Disciplinary integration to fit integrated approaches to rural and agricultural development.
- Entrepreneurship for graduates to innovate and adapt to changing complex situations.
- Cross-cutting social skills for teamwork and collective action.
- Facilitative skills for change making in complex social systems.
- Experiential and problem-oriented training approaches to provide students with practical skills for problem solving.
- Knowledge management.
- Mobilization of communities and differentiating demand for effective service targeting.
- Creativity and innovation.

Current training programmes are designed to produce professionals who fit in the existing job-market, particularly the bureaucratic public employment sector. Producing graduates with the above competencies requires a different pedagogy/training approach from the current largely lecture/theory-based one. The proposed programme deviates from this, by developing capabilities for the graduates to mobilize and organize their own employment as private entrepreneurs in a competitive environment. Similarly, the graduates are fitted for employment in the performance-oriented private sector in rural and agricultural development.

It was proposed that the existing BAEE programme be transformed into the proposed BARI-EXT programme in view of the recent paradigm shift within the discipline of agricultural extension from the adoption and diffusion perspective to the innovation systems perspective, and the proposal was approved. The ‘adoption and diffusion tradition’, which is based on persuasive or instrumental model, had served as a philosophical and theoretical foundation of the conventional extension systems – mode of organization, mission, approach and methods. Nonetheless, prominent scholars⁷ in the discipline are currently uneasy about the adoption and diffusion of innovation perspective both on the theoretical and practical grounds. The major limitations of the adoption and diffusion approach are: ‘progressive farmers’ or ‘opinion leaders’ bias, pro-innovation bias, a one-dimensional view of innovation, a linear or top-down model of innovation, a linear model of farm development, a focus on rational decision making, and a mechanical view of society and social change.

Limitation of the adoption and diffusion model has led to a new perspective: innovations and processes of innovation design. The innovation systems perspective is based on the more interactive and process management-oriented models. Innovation systems refers to institutional arrangements and networks that lead to creation and application of economically useful knowledge and innovations for improving the wellbeing of society (Kibwika, *ibid*). Innovation systems therefore call for new sets of competences, or better still, it requires new professionals with integrated and cross-cutting competences for multi-dimensional response to rural development challenges. The key words are ‘linkage and network building’, ‘conflict resolution through negotiation’ and ‘social learning’.

⁷ For example see Leeuwis, C. (2004). *Communication for rural innovation. Rethinking agricultural extension*. Blackwell Science Ltd.

The innovation systems perspective implies changes in the conventional role of the so-called ‘extension agents’ from mere technology dissemination to managing complex and dynamic relationships among multiple and heterogeneous actors along the agri-food chain. The agents should acquire a different kind of knowledge, skills and attitudes to meet requirements of the new and broadened roles. Thus, the term ‘extension’ has been found too narrow to embrace these new and expanded roles of communication workers. As a consequence, prominent authors in the field preferred to use the term ‘communication for innovation’ instead. Communication for innovation can take many forms with regard to the wider intervention purposes and in terms of the methods and techniques used.

4.0 Objectives of the programme

The goal of the programme is to strengthen the relevance of the curriculum by encompassing the emerging national agricultural and rural development issues such as poverty, natural resource degradation, and socio-economic inequities, among others. The curriculum modification with addition of more rural development and innovations, entrepreneurial, business-oriented, and social science-related courses will make graduates more capable of facilitating rural innovation through providing innovative, need-based, demand-driven, market-oriented services in a liberalized and competitive service delivery system that currently characterizes the agricultural sector. It will also match the human resource requirements of several stakeholder organizations at national, regional and international levels.

Specifically, the programme aims at:

- Integration of social and technical disciplines related to agricultural and rural development to enable graduates champion development in agrarian societies;
- Developing a systemic view of development among professionals of rural and agricultural development;
- Developing multi-skilled professionals with agricultural, leadership, analytical, facilitative and reflective competences to coordinate, stimulate and guide innovations and multi-actor partnerships for improving rural livelihoods with a broader view of local, regional and global trends in development;
- Integrating professional and ethical values and mindsets for accountable agricultural and rural development professionals;
- Providing alternative training approaches for more effective professionals to confront the complex challenges of poverty, food insecurity and natural resources management in the sub-Saharan region.

5.0 Target group and employment prospects of graduates

- The programme targets applicants with diplomas in agriculture and related fields whose circumstances do not allow full-time study, as well as those directly from ‘A’ level who prefer a more flexible mode of study. The justification for opening up the programme to direct entrants from ‘A’ level lies in the high demand for well-trained rural innovation and communication experts and agricultural extension service providers that cannot be satisfied by the pool of diploma graduates, as revealed by the training needs assessments.

- Graduates will fit into existing organizations (both NGO and GO). They will also be capable of mobilizing and organizing their own employment as private entrepreneurs; able to fit and compete effectively in the private sector and various employment in agricultural and rural development as agricultural advisors, facilitators, trainers, and managers.

6.0 Profile of graduates

After completion of this course, the graduates will be able to:

- Facilitate community emancipation and empowerment to articulate and pursue their demand for agricultural and rural services with a clear development vision
- Mobilise communities and support local organisation development (including farmer groups and associations) for collective action
- Creatively engage with communities to innovate and find solutions to current and future problems through joint learning and experimentation
- Build teams comprising of different fields of expertise to address complex agricultural and rural development problems in a multi-disciplinary way
- Build and sustain institutional partnerships for coordinated and coherent service delivery that addresses the entire value chain
- Manage and resolve social and technical conflicts and mobilize social energy for collective action towards development initiatives
- Target programmes and activities to differentiated demand based on existing social categories taking into account factors for sustainability
- Manage information and knowledge on rural innovations and facilitate its exchange for continuous learning and change. Organizing and conducting relevant training is an integral part of rural innovations and knowledge management
- Design and implement participatory monitoring and evaluation of programme and activities including facilitating reflective self-evaluation
- Develop and nurture rural entrepreneurship and small business enterprise
- Initiate and manage profitable agricultural enterprises in a competitive environment
- Provide basic advice on practices for enhancing agricultural productivity and food security.

Execution of these functions requires a wide range of social and technical competences for making change in rural communities, particularly those that rely on agriculture as a major source of livelihood. These competences will be gained through an integrated curriculum that attempts to bring in convergence the social and technical aspects in the fields of agricultural and rural development.

7.0 Programme Regulations

7.1 General Regulations

Studies and examinations for the Bachelor of Agricultural and Rural Innovation (External) programme shall be governed by the general regulations of the University and in addition, by the regulations of the Faculty of Agriculture.

7.2 Admission Requirements

Admission to the course is through three avenues:

- Direct Entry
- Mature Age Scheme
- Diploma Entry Scheme
- Degree holders who wish to change professions and those who did not complete their degree programmes for non-academic reasons

7.2.1 Direct entry

Candidates seeking admission through this avenue must have obtained at least two principal passes at the Advanced Level.

The required subjects and weighted points are as follows:

- *Essential:* Two best done of Biology, Agriculture; Chemistry, Physics, and Geography
- *Relevant:* Third best done of Biology, Agriculture, Chemistry, Physics, Geography Mathematics, Economics, and Entrepreneurship.
- *Desirable:* General paper, sub-Maths
- *Others:* All others

7.2.2 Mature age entry scheme

Admission may be granted under the Mature Age Entry Scheme after passing the appropriate Mature Age Entry Examination.

7.2.3 Diploma entry scheme

A candidate may be admitted if he/she has a national diploma or its equivalent of at least a second class standing or equivalent in Agriculture, Education, Animal Husbandry, Forestry, Environment, Agricultural Engineering, Fisheries, Physical Planning, Food science, Business studies and related fields from recognised local and international institutions. Applicants with Diplomas in Education must have studied any of the following subjects: Mathematics, Economics, Biology, Agriculture, Chemistry, Physics, Entrepreneurship, and Geography.

7.2.4 Degree holders who wish to change professions or dropped out for non-academic reasons

A candidate may be admitted if he or she holds a degree in Agriculture, Education, Livestock, Forestry, Environment, Agricultural Engineering, Fisheries, Physical Planning, Food Science, Business Studies and related fields from a recognised institution. Applicants with degrees in

Education must have studied any of the following subjects: Mathematics, Economics, Biology, Agriculture, Chemistry, Physics, Entrepreneurship, and Geography.

7.2.5 Direct admission to second and third year

Admission other than to the first year shall require a recommendation of the Faculty Board and approval by Senate on the basis of studies undertaken at another recognized University or equivalent institution.

7.3 Duration of the Programme

The Bachelor of Agricultural and Rural Innovation External (BARI-EXT) programme will last for a minimum of eight semesters and a maximum of twelve semesters. Each of these semesters will last for 17 weeks.

7.4 The Semester Structure

The first semester shall comprise of:

- Orientation face-to-face and registration (2 weeks)
- Self-study and study group tutorials (12 weeks)
- Face-to-face and examinations (3 weeks)

The second semester will comprise of:

- Face-to-face (2 weeks)
- Self-study and study group tutorials (12 weeks)
- Face-to-face and examinations (3 weeks)

Examinations will be done at the end of each semester of each academic year.

8.0 Graduation requirement

To qualify for the award of the degree of Bachelor of Agricultural and Rural Innovation studies by distance mode, a candidate is required to obtain a minimum total of 126 credit units within a maximum of six years. Students will be allowed to transfer a maximum of 20% of the relevant credit units from the diploma level with the approval of the Faculty.

9.0 Curriculum

The weighting unit for each course is a Credit Unit (C.U). One Credit Unit is 1 contact hour per week. A contact hour is defined as follows:

- 1 lecture hour is equivalent to 1 contact hour
- 1 Tutorial hour is equivalent to $\frac{1}{2}$ contact hour
- 1 Practical hour is equivalent to $\frac{1}{2}$ contact hour
- 1 Independent study hour is equivalent to $\frac{1}{2}$ contact hour

10.0 Course structure

This is a four year, distance version of the existing BARI programme with multi-disciplinary orientation to rural development. Each year shall consist of two semesters of 17 weeks each. The normal semester load shall range from 15 to 21 Credit Units. The details of the course structure are shown below. CU, LH, TH, PH, CH stand for credit units, lecture hours, tutorial hours, practical hours, and contact hours respectively. Between on-campus sessions, students will be given independent study graded work related assignments to be completed with the oversight of their immediate supervisors.

YEAR 1: SEMESTER I (All courses core)

			CU	LH	TH	PH	CH
		<i>Core Courses</i>					
RIX	1101	Introduction to Agricultural and Rural Development	3	30	30	-	45
RIX	1102	Introduction to Communication for Agrarian Development	3	30	30	-	45
ANX	1101	Introduction to Animal Agriculture	3	30	30	-	45
ABX	1101	Principles of Economics	3	30	30	-	45
AEX	1102	Introduction to Computer Applications	2	10	20	20	30
		Total	16				

YEAR 1: SEMESTER II (All courses core)

			CU	LH	TH	PH	CH
		<i>Core Courses</i>					
RIX	1201	Gender and other Socio-economic Issues in Development	3	30	30	-	45
RIX	1202	Participatory Approaches to Agricultural and Rural Development	4	30	20	40	60
CRX	1201	Introduction to Agronomy and Farming Systems	3	30	30	-	45
ANX	1201	Livestock Production and Management	3	30	-	30	45

ABX	1201	Production Economics	2	20	20	-	30
		Total	15				

YEAR 2: SEMESTER I (All courses core)

			CU	LH	TH	PH	CH
		<i>Core Courses</i>					
AEX	2101	Introductory Mathematics	2	30	-	-	30
EEX	2101	Social Research Methods	3	30	20	10	45
EEX	2102	Rural Sociology	3	30	30	-	45
CRX	2101	Crop Production and Management	3	30	-	30	45
ANX	2101	Poultry Management I	3	30	-	30	45
RIX	2101	Ethics and Integrity	2	20	20	-	30
		Total	16				

YEAR 2: SEMESTER II (Core and one elective)

			CU	LH	TH	PH	CH
		<i>Core Courses</i>					
RIX	2201	Statistics and Data Analysis	3	30	30	-	45
RIX	2202	Sociology and Psychology for Rural Innovations	3	30	30	-	45
RIX	2203	Introduction to SELPs	2	30	-	-	30
EEX	2201	Extension and Training Methods	4	30	20	40	60
		<i>Electives (Choose one)</i>					
ANX	2201	Apiculture	2	15	30	-	30
ANX	2202	Animal Health and Hygiene	3	30	30	-	45
CRX	2201	Field Crop Diseases	3	30	30	-	45
		Total	14/15				

		INTERNSHIP – FIELD ATTACHMENT I					
RIX	2204	SELPs I (10 Weeks)	4	-	-	120	60

YEAR 3: SEMESTER I (Cores and one elective)

			CU	LH	TH	PH	CH
		<i>Core Courses</i>					
ANX	3101	Animal Nutrition and Feeding	3	30	-	30	45
SOX	3101	Principles of Soil Management	3	30	30	-	45
AEX	3101	Farm Engineering I	3	30	30	-	45
ABX	3102	Principles of Farm Management and Accounts	2	15	30	-	30
		<i>Electives (Choose one)</i>					
CRX	3101	Integrated Pest Management Systems	3	30	-	30	45
CRX	3102	Principles of Plant Breeding	3	30	-	30	45
HRX	3101	Vegetable Production	3	30	-	30	45
SSX	3101	Tropical Soils and their Management	3	30	30	-	45
Total			14				

YEAR 3: SEMESTER II (All courses core)

			CU	LH	TH	PH	CH
		<i>Core courses</i>					
RIX	3201	Community Mobilisation and Group Dynamics	3	30	30	-	45
RIX	3202	Documenting and Disseminating Development Information	4	40	20	20	60
SOX	3201	Integrated Soil Fertility Management	3	30	-	30	45
FSX	3201	Food Security and Nutrition	3	30	30	-	45
ABX	3201	Entrepreneurship and Small Business Management I	3	30	30	-	45

		Total	16				
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YEAR 4: SEMESTER I (All courses core)

			CU	LH	TH	PH	CH
		Core Courses					
RIX	4101	Innovation Systems Management	3	30	30	-	45
RIX	4102	Organizational Management and Leadership	3	30	30	-	45
ABX	4101	Entrepreneurship and Small Business Management II	3	30	30	-	45
ANX	4101	Poultry Management II	2	15	-	30	30
AEX	4101	Farm Engineering II	3	30	30	-	45
		Total	14				

YEAR 4: SEMESTER II (All courses core)

			CU	LH	TH	PH	CH
		<i>Core courses</i>					
RIX	4201	Developing Sustainable Rural Institutions/ Organizations	3	30	30	-	45
RIX	4202	Social Skills for Professional Performance	3	30	30	-	45
RIX	4203	Project Planning and Management	3	30	30	-	45
ABX	4201	Agricultural Marketing	3	30	30	-	45
FSX	4201	Post-harvest Technology and Small-scale Agro-processing	3	30	30	-	45
		Total	15				

NOTE

The BARI-EXT programme consists of the same courses as those which were approved for the BARI full-time programme. The only adjustment made was in the sequencing of courses to cater for the fourth extra year that distance learners cover. This change is evident in the changed codes shown in the following detailed list.

BARI Course Code	BARI-EXT Course Code	Course Name	Credit Units
ARI 1101	RIX 1101	Introduction to Agricultural and Rural Development	3
ARI 1102	RIX 1102	Introduction to Communication for Agrarian Development	3
ARI 1103	RIX 1201	Gender and Other Socio-economic Issues in Development	3
ARI 1201	RIX 2203	Introduction to SELPs	2
ARI 1201	RIX 1202	Participatory Approaches to Agriculture and Rural Development	4
ARI 1301	RIX 2204	SELPs I (10 Weeks)	4
ARI 2101	RIX 2201	Statistics and Data Analysis	3
ARI 2102	RIX 2202	Sociology and Psychology for Rural Innovation	3
ARI 2101	RIX 3201	Community Mobilisation and Group Dynamics	3
ARI 3203	RIX 4203	Project Planning and Management	3
ARI 3202	RIX 4202	Social Skills for Professional Performance	3
ARI 3301	RIX 3203	SELPs II (15 Weeks)	5
ARI 3101	RIX 4101	Innovation Systems Management	3
ARI 3102	RIX 3202	Documenting and Disseminating Development Information	4
ARI 3104	RIX 2101	Ethics and Integrity	2
ARI 3201	RIX 4102	Organizational Management	3
ARI 3201	RIX 4201	Developing Sustainable Rural Institutions/ Organizations	3
AEN 2212	AEX 3101	Farm Engineering I	3
AEN 3211	AEX 4101	Farm Engineering II	3
ABM 2206	ABX 3201	Entrepreneurship and Small Business Management I	3
ABM 3107	ABX 4101	Entrepreneurship and Small Business Management II	3
EEE 1201	EEX 2101	Social Research Methods	3
EEE 2101	EEX 2101	Rural Sociology	3

EEE 2105	EEX 2201	Extension and Training Methods	4
AEN 1101	AEX 2101	Introductory Mathematics	2
AEN 1109	AEX 1102	Introduction to Computer Applications	2
AEC 1102	ABX 1101	Principles of Economics	3
AEC 3201	ABX 4201	Agricultural Marketing	3
AEC 2201	ABX 3102	Principles of Farm Management and Accounts	2
AEC 1204	ABX 1201	Production Economics	2
CRS 1201	CRX 1201	Introduction to Agronomy and Farming Systems	3
CRS 2205	CRX 2101	Crop Production and Management	3
ANS 1204	ANX 1201	Livestock Production and Management	3
ANS 2104	ANX 3101	Animal Nutrition and Feeding	3
ANS 2105	ANX 2101	Poultry Management I	3
ANS 2106	ANX 4101	Poultry Management II	2
ANS 1101	ANX 1101	Introduction to Animal Agriculture	3
FST 2208	FSX 3201	Food Security and Nutrition	3
SOS 2202	SOX 3201	Integrated Soil Fertility Management	3
FST 3209	FSX 4201	Post-harvest Technology and Small-scale Agro-processing	3
ANS 3104	ANX 3101	Animal Nutrition and Feeding	3
HRT 3104	HRX 3101	Vegetable Production	3
SSL 3109	SSX 3101	Tropical Soils and their Management	3
ANS 2205	ANX 2201	Apiculture	2
ANS 2206	ANX 2202	Animal Health and Hygiene	3
CRS 2206	CRX 2202	Field Crop Diseases	3