JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

DEPARTMENT OF PLANT, ANIMAL AND FOOD SCIENCES

REGULATIONS AND SYLLABUS FOR THE MASTER OF SCIENCE IN FOOD SECURITY AND SUSTAINABLE AGRICULTURE

P.O. BOX 210-40601

BONDO, KENYA

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Contents

1.0 GENERAL INFORMATION

1.1 Vision and Mission of the Institution

a) Vision

A beacon of excellence and global leader in University education for sustainable Development.

b) Mission

To provide quality University Education that nurtures creativity and innovation through integrated training, research and community outreach for the advancement of humanity

c) Core Values

Fairness, Professionalism, Integrity, Meritocracy, Equity, Transparency and Accountability

1.2 Philosophy of the Institution

The University is anchored on the philosophy of holistic approach to the service of humanity and other related areas of scholarship mediated through wisdom, science and technology.

1.3 Minimum University entrance requirements

(a) JOOUST criteria for a Doctoral Degree Programme shall apply:

Candidates wishing to pursue a Doctor of Philosophy (PhD) programme at Jaramogi Oginga Odinga University of Science and Technology must meet the following requirements:

(a) Have appropriate preparatory academic training as evidenced by at least one of the following:

(i) Be a holder of a Master's Degree of Jaramogi Oginga Odinga University of Science and Technology

(ii) Be a holder of a Master's Degree or an equivalent academic qualification from any other recognized institution.

(b) JOOUST criteria for a Master Degree Programme shall apply:

(i) Holders of at least Upper Second Class Honours Bachelor's degree or equivalent qualification from recognized Universities.

(ii) Holders of a Lower Second Class Honours degree or postgraduate Diploma in from any recognized universities and evidence of two years' of relevant work experience.

(iii) In addition to the above, applicants must meet the specific requirements of the Masters Programme as provided by the University Senate.

(c) JOOUST criteria for a Bachelor Degree Programme shall apply:

(i) Candidates must satisfy the minimum University requirements of mean grade of C+ in Kenya Certificate of Secondary Education.

Or

(ii) Have two principal passes in biology and chemistry in KACE and at least a credit in Mathematics at Ordinary level.

Or

(iii) Holders of a KNEC equivalent diploma from a recognized college.

Or

(iv) Holders of a related degree from a recognized University.

1.3.1 Procedure of application for admission to the University

(a) Enquiries for all Doctorate Degree programmes offered shall be made to the Registrar (Academic Affairs), Jaramogi Oginga Odinga University of Science and Technology, P. O. Box 210-40601, Bondo, Kenya.

(b) The closing date for receiving applications for the Doctorate degree programmes shall be as determined by the Senate from time to time.

The application forms may be obtained from the JOOUST website:

(http://www.jooust.ac.ke/).

1.4 Academic Resources

1.4.1 Facilities and Equipment

The facilities within the campus are shared among the different departments and include;

a) Lecture Rooms

The University has adequate lecture rooms, lecture theatres and conference halls in the Main Campus and all its Campuses.

b) Library

The University libraries have various sources of information, research, reading and instructional materials**.**

(i) Main Campus

The Main campus library is a three-floor building accommodating 300,000 volumes. The library is equipped with books, journals (both Hardcover, paperback, and online), for various programmes offered at the University and has on-going plans to strengthen the teaching and learning resources by providing more books, *e-books, journals, e-journals, CDs and DVDs,* as well as linkages with other institutions for access to other libraries worldwide. The university has acquired integrated library service software which enhances access to library resources.

(ii) Campuses

At each Campus, library resources are purchased and stocked on the basis of the programmes that are offered with recommendations and support from the Schools that houses the programme at the Main Campus.

c) Information and Communication Technology (ICT)

The University has a well-established ICT Department and support sections that provide IT services to the Main Campus and other Campuses for teaching and learning. The University website (www.jooust.ac.ke) is operational. The local Area Network (LAN) link enables easy sharing of information and data across the University. In addition, the University has provisions for multi-media facilities for teaching and learning.

d) Laboratories

The University has a Science Complex Building at the Main Campus that houses 26 laboratories for pure and applied sciences.

e) Tuition Farms/Fields:

The University has a 50 Acre farm that support Teaching and Research in Agricultural Sciences and Food Security.

1.4.2 Reference materials

Core-texts in terms of numbers:

The University library is well stocked with at least three core texts per each unit course being offered.

1 E-books in terms of subscriptions;

2 Print journals in terms of subscriptions; and

3 E-journals in terms of subscriptions and accessible databases.

The University has subscribed to different E-resources which can be used to access both text books and journals. The materials can be accessed through (***lib.jooust.ac.ke)***

1.4.3 Academic Staff

a) Academic Staff

The School has established a pool of qualified staff in diverse disciplines both for full and part-time mode of teaching. The academic faculty in the School have diverse expertise in Food security and Sustainable Agriculture (Appendix IV). In addition the school utilises relevant expertise from other schools and regional and international institutions. Where necessary, the permanent academic faculty is supported by qualified part-time staff.

b). Technical and Support Staff

The School has employed qualified technical support staff including lab technicians, food technologist and farm manager and demonstrators

1.5 Programmes Offered by the Institution

1.5.1 List of all academic programmes offered in the institution.

1. Bachelor of Arts in Spatial Planning
2. Bachelor of Business Administration with IT
3. Bachelor of Education (Arts) with IT
4. Bachelor of Education (Early Childhood Development)
5. Bachelor of Education (Science) with IT
6. Bachelor of Education (Special Needs) Education) with IT
7. Bachelor of International Tourism Management
8. Bachelor of Logistics and Supply Chain Management
9. Bachelor of Science (Business Information Systems)
10. Bachelor of Science (Information Communication Technology)
11. Bachelor of Science in Actuarial Science with IT
12. Bachelor of Science in Agribusiness Management
13. Bachelor of Science in Agricultural Education and Extensions
14. Bachelor of Science in Animal Science
15. Bachelor of Science in Biological Sciences
16. Bachelor of Science in Community Health and Development

17. Bachelor of Science in Computer Security and Forensics
18. Bachelor of Science in Construction Management
19. Bachelor of Science in Food Security
20. Bachelor of Science in Horticulture
21. Bachelor of Science in Public Health
22. Bachelor of Science in Renewable Energy Technology and Management
23. Bachelor of Science in Soil Science
24. Bachelor of Science in Water Resources and Environment Management
25. Master of Education in Educational Administration
26. Master of Science (Epidemiology and Biostatistics
27. Master of Science in Health Informatics
28. Master of Science in Information Systems
29. Master of Science in Information Technology Management
30. Master of Science in Information Technology Security and Audit
31. Masters in Project Planning and Management
32. Masters in Public Health
33. Masters of Education in Counselling
34. Masters of Education in Curriculum Development
35. Masters of Education in Special Needs Education
36. Masters of Business Administration
37. Masters of Logistics and Supply Chain Management

1.5.2 Duration **of each programme indicating total lecture/instructional hours required for graduation.**

List of courses	**Lecture Hours**
1. Bachelor of Arts in Spatial Planning	2352
2. Bachelor of Business Administration with IT	2352
3. Bachelor of Education (Arts) with IT	2352
4. Bachelor of Education (Early Childhood Development)	2352
5. Bachelor of Education (Science) with IT	2352
6. Bachelor of Education (Special Needs) Education) with IT	2352

7. Bachelor of International Tourism Management	2352
8. Bachelor of Logistics and Supply Chain Management	2352
9. Bachelor of Science (Business Information Systems)	2352
10. Bachelor of Science (Information Communication Technology)	2352
11. Bachelor of Science in Actuarial Science with IT	2352
12. Bachelor of Science in Agribusiness Management	2352
13. Bachelor of Science in Agricultural Education and Extensions	2352
14. Bachelor of Science in Animal Science	2352
15. Bachelor of Science in Biological Sciences	2352
16. Bachelor of Science in Community Health and Development	2352
17. Bachelor of Science in Computer Security and Forensics	2352
18. Bachelor of Science in Construction Management	2352
19. Bachelor of Science in Food Security	2352
20. Bachelor of Science in Horticulture	2352
21. Bachelor of Science in Public Health	2352
22. Bachelor of Science in Renewable Energy Technology and Management	2352
23. Bachelor of Science in Soil Science	2352
24. Bachelor of Science in Water Resources and Environment Management	2352
25. Master of Education in Educational Administration	270
26. Master of Science (Epidemiology and Biostatistics	270
27. Master of Science in Health Informatics	270
28. Master of Science in Information Systems	270
29. Master of Science in Information Technology Management	270
30. Master of Science in Information Technology Security and Audit	270
31. Masters in project Planning and Management	270
32. Masters in Public Health	270
33. Masters of Education in Counselling	270
34. Masters of Education in Curriculum Development	270

35. Masters of Education in Special Needs Education	270
36. Masters of in Business Administration	270
37. Masters of Logistics and Supply Chain Management	270

1.5.3 Definitions

a) Credit Hours

This is a minimum of three hours of work per week for sixteen weeks in a semester.

b) Lecture/Instructional hours

Three hours per week for fourteen weeks under which the students meet with the course instructor

c) Contact hours

One hour lecture per week per semester or two hour of tutorials/seminars per week per semester which the instructor meets with the students

d) Course units.

A course unit is defined as that part of a semester subject described by coherent syllabus and taught normally over a period of a semester.

1.4.4. Academic organization of the programmes reflecting academic quarters/ trimesters/semesters.

The Programme will be undertaken by Coursework, Examination, and Thesis work. The programme shall normally take two years of study. Year one of study will comprise of two semester course work while year two of study will comprise of research and thesis writing. The students shall take five compulsory course units in year one semester one. In year one semester two, the students shall take three compulsory course units and any two other units among the two options provided. The second year of study will be dedicated for proposal, research and thesis writing.

2.0 THE CURRICULUM

2.1 Title of the Proposed Programme

Masters of Science in Food Security and Sustainable Agriculture

2.2 Philosophy of the Programme

This programme is designed for the development of Innovative approaches to food security and Sustainble Agriculture for improved livelihoods

2.3 Rationale of the Programme

Global human population is projected to reach nine (9) billion by 2050. The highest increase is expected to occur in African countries whose current average population growth is 2.5 % per annum. The largest number of food insecure persons are in Sub Saharan Africa. At the same time, environmental degradation has been on the increase in Africa. Due to a number of factors such as unsustainable food production practices, a reduction to production and provision of proteins, climate change, and inadequate skilled personnel, food insecurity situation has worsened in the last few decades creating uncertainties and pressures on current food and economic systems. . Several strategies have been developed to combat food insecurity: including SDGs, MTPs, Vision 2030 and Constitution of Kenya 2010. However, there is a dire need to train skilled professionals in food security and sustainable agriculture. The program is therefore designed to develop capacity for innovative research and technology development in food security and suitable agriculture with a particular emphasis in insect value chain as an emerging food resource. Insects reproduce quickly and have high growth and feed conversion rates and low environmental impact.. Insects have high protein content and this provides an alternative from the conventional sources such as beef which require high investments. In the development of this program, various stakeholders were involved including community, government agencies, industry, research institutions and institutions of higher learning.

2.4 Goal of the Programme

The programme will develop human and infrastructural capacity for innovative research, training, technology development and transfer in Insect value chain as a contribution to Food Security and sustainable Agriculture for use as a food resource.

2.5 Expected Learning Outcomes of the programme

On successful completion of the program the students should be able to;

a Examine national, regional and global policy options for food security in ensuring food safety, availability and nutritional quality of alternative food sources.

b Illustrate an understanding of strategies used in food security interventions for sustainable agriculture.

c Exhibit capacity to design and implement innovative contextual agricultural interventions for food security and sustainable agriculture in developing strategies for alternative food sources

d Conduct applied and strategic research underpinning the development of technologies and innovations to improve the sustainability of agricultural food production systems.

e Demonstrate skills for networking and establishing partnerships with industry, NGOs and other academic and research institutions relevant to food security and sustainable agriculture.

2.6 Mode of Delivery of the Programme

The programme will be delivered in English at Jaramogi Oginga Odinga University of Science and Technology. Course units will be conducted in the teaching and laboratory facilities through face to face lectures, seminars and group discussions at the main campus. In addition students will undertake industrial attachments, practicals, field experiments and inquiry learning. Case studies will also be undertaken by students as well as guest lectures for selected course units. Brainstorming by students will be encouraged to facilitate intellectual ability to generate ideas.

2.7 Academic Regulations for the Proposed Programme

2.7.1 Admission Requirements for the Proposed Programme

(a) JOOUST criteria for a Master Degree Programme shall apply:

Candidates wishing to pursue a Master Degree in Food Security and Sustainable Agriculture programme at Jaramogi Oginga Odinga University of Science and Technology must meet the following requirements;

(i) Holders of at least Upper Second Class Honours Bachelor's degree in Food Security, and other Agricultural and Food Sciences or equivalent qualification from recognized Universities.

(ii) Holders of a Lower Second Class Honours degree in Agricultural and Food Sciences related field or postgraduate Diploma in Agriculture, or Agricultural and Food science

related fields from any recognized universities and evidence of two years' of relevant work experience.

(iii) In addition to the above, applicants must meet the specific requirements of the Masters Programme as provided by the University Senate.

2.7.2 Regulations on Credit Transfer in a programme

This does not apply according to university policy.

2.7.3 Course Requirements

This should include all requirements of the course such as:

a) Student class attendance, attachment/practicum/internship, community service.

i. The students will be required to attend at least two thirds of lectures and practicals in all the recommended course units to qualify to sit for the final University examinations.

ii. Students will be required to undertake field practicum as planned by the course lecturer.

b) Obligations of the lecturer should entail aspects of course delivery and facilitation.

i. The Lecturer will develop the course outline to be used in delivery of the course.

ii. The Lecture will deliver the course according the prescribed mode

iii. The Lecture will evaluate the students.

2.7.4 Student Assessment Policy/Criteria

a) Continuous Assessment Tests (CATs);

The ordinary examination shall be graded on the basis of percentage marks consisting of 40% as continuous assessment tests (CATs).

b) End-Semester;

The student will undertake university examinations

Examinations shall be held at the end of the semester in which the courses are taught. The ordinary examinations shall be graded on the basis of percentage marks consisting of forty per cent (40%) as continuous assessment and and 60% as final examinations. Continuous assessment on research shall be reflected in the candidates' progress reports submitted by the supervisors.

c) Practicals

Where practicals are offered, students will be assessed as part of the continuous assessment Tests, and will contribute 10% of the totals CAT marks.

d) Other Assessments

Where case studies are undertaken, students will be expected to submit a report which will be graded as part of the Continuous assessment Test. This will contribute 10% of the total CAT marks.

2.7.5 Grading System

The grading shall be done as follows:

Grade	**Score**
75- 100%	A (Excellent)
65 – 74%	B (Credit)
50 – 64%	C (Pass)
Below 50%	Fail

Designations related to examinations shall be as follows:

P: Pass

I: Incomplete

K: Course in Progress

Au: Audit

a) The passing grade shall be **C = 50%** in each course taken and examined.

b) A candidate who fails a semester examination shall re-sit the same when next offered. If the candidate fails the re-sit examination, he/she shall be discontinued.

c) Marking and grading of the examinations are done by the course instructor who also enters the grade in the Instructors Grade Sheet. The results are then moderated by the Departmental Examination Board (DEB).

d) The scripts are then forwarded to the external examiner who reviews them and returns them to the Dean of the School.

2.7.6 Examination Regulations

(a) Written Examinations

(i) Examinations for the MSc. Degree shall be conducted under the authority of the University Senate as specified under various rules and regulations.

(ii) Examinations shall consist of:

a. Continuous assessment based on assignments, laboratory practicals and such other tests as the regulations of the department may prescribe, which shall constitute forty per cent (40%) of the total marks for each course.
b. The final examinations shall constitute sixty per cent (60%) of the total marks for each course.

(iii) Courses which are purely of a practical nature and/or seminars may be assessed entirely by continuous assessment.

(iv) Marks obtained in examinations shall be converted into letter grades as follows:

75 %and above	A (Distinction)
65-74%	B (Credit)
50-64%	C (Pass)
Below 50 %	F (Fail)

(v) Re-sit Examinations

a. A candidate who fails in twenty five per cent (25%) or less of the total courses taken in an academic year shall be required to re-sit examination once only.
b. Candidates shall be awarded grade "C" (50%) in all courses passed in re-sit examination.

(vi) Discontinuation

A student shall be discontinued for:

a. Failing more than twenty five percent (25%) of the total courses taken in an academic year.
b. Failing a re-sit examination
c. Committing serious examination malpractice as defined under Section 6.1 of these regulations
d. Failing to register for and attend scheduled lectures for two (2) weeks or longer without the consent of the University Senate.

(vii) Special Examinations

a. Special examinations will be offered to candidates who, due to circumstances acceptable to the University Senate, were unable to sit for the ordinary examinations.
b. Special examinations shall be graded on the same guidelines as those for the ordinary examinations

c. No student shall be permitted to proceed to the next year of study without having satisfied all examination requirements.

d. Examination results shall be processed and approved by the School Board of Examiners and submitted to the Board of Postgraduate Studies for ratification before being presented to University Senate by the relevant School/ Dean.

(b) Thesis

(i) A candidate will proceed to conduct thesis research upon successful completion of the coursework.

(ii) A candidate will be required to identify a research area and write a thesis on original work.

(iii) A candidate shall prepare and write the thesis according to regulations governing postgraduate studies.

(iv) A candidate must defend the thesis according to supervision and examination guidelines as stipulated in the Board of Postgraduate Studies Rules and Regulations.

(c) Supervision

(i) A candidate shall choose a supervisor(s) in consultation with the Dean of the School or coordinator of postgraduate studies in the school or the Dean and the School of Postgraduate Studies Committee. The candidate shall have a minimum of two supervisors – one of whom shall be the major supervisor.

(ii) One of the supervisors may be from outside the School or University. However, one of the supervisors must be a member of staff of the School of Agricultural and Food Sciences.

(iii) The appointment of the supervisors shall be done within six months from the time of registration.

(iv) The appointment shall be done by the Chairman of the University Senate on recommendation by the Chairman of the Postgraduate Studies Committee.

(d) Consultation and Progress on Thesis

(i) A candidate is required to consult with supervisors regularly. The major supervisor shall submit to the Board of Postgraduate Studies and the School, a progress report on the candidate each trimester.

(ii) A candidate is required to exhibit steady progress in the coursework and thesis/project work. If the progress is not satisfactory, the Board of Postgraduate Studies through recommendations by the School will warn the student in writing. If a candidate does not show improvement within one trimester after a warning, he/she shall be recommended to Senate for deregistration.

(iii) If a candidate does not receive adequate supervision, the candidate shall write to the Board of Post Graduate Studies explaining inadequacies in supervision, in which case the Board may change the supervisor(s) upon recommendation by the department.

(e) Defense of Thesis or Project Report

(i) The candidate after successful completion of coursework will be expected to write a thesis.

(ii) The final examination of the thesis will be administered as an oral defense. Successful defense qualifies the candidate for graduation.

(iii) The defense will take place only after the candidate has satisfied all other requirements of the programme.

(iv) The Board of Postgraduate Committee shall constitute a Board of Examiners for the thesis. The Board of Examiners shall include:

1. The Dean of the School – Chair
2. The Director or representative – Secretary, Board of Postgraduate Studies
3. The Dean of the School or representative
4. The supervisor(s) as internal supervisors
5. The External Examiner or his/her written report
6. A Senate representative
7. Administrative Officer, Board of Postgraduate Studies, Secretary
8. Other members may attend to listen to the defense but cannot vote on any matter relating to the defense.

(v) The outcome of the defense shall be communicated to the candidate immediately.

(vi) All members of the Board of Examiners shall sign a certificate to indicate whether the candidate has passed, deferred or failed. If a candidate is requested to make some corrections, a certificate of correction shall be issued.

(vii) The final grade for the thesis shall be graded on a PASS or FAIL basis.

(viii) A candidate who fails in the thesis shall be allowed to resubmit the thesis/project within a period of not more than three months, failing which the candidate will be discontinued.

(ix) On passing the final examination, the candidate will be required to submit six (6) copies of the final thesis and then proceed with preparation for graduation.

(f) Programme Evaluation and Change

The Master of Science in Food Security and Sustainable Agriculture curriculum is dynamic and requires continuous monitoring and evaluation to ensure that it remains relevant, current, competitive and responsive to the needs of the individual students, country and educational sector.

(i) The curriculum shall be evaluated every three years or when need arises.

(ii) The changes made shall be presented in the School Board meetings.

(iii) Course and teaching evaluation shall be conducted at least once a year.

(iv) Evaluation of teaching staff will be conducted through appraisals from students and Senate. The evaluation of lecturers will be conducted in line with the University Quality Assurance guidelines.

(v) Evaluation of students will be conducted through students' examinations.

For quality assurance students shall evaluate their lecturers based on:

a. Degree of preparedness.
b. Presentation of course content (skills) communication.
c. Punctuality in starting and ending classes.
d. Promptness in returning marked assignments.

2.7.7 Moderation of Examinations

The examinations shall be set by internal examiners and moderated by external examiners. Marking of examinations shall also be done by internal examiners and moderated by external examiners before the final moderated result is taken to Senate for approval. After the results are approved by Senate, they will become the official examination results of the university.

2.7.8 Graduation Requirements

a. Successful completion of 10 units of course work.

b. Publish at least one article in a referred journal.

c. Successful defense of the thesis.

2.7.9 Classification of Degrees

The degree is non-classified.

2.7.10 Description of Thesis

a) Institutional definition of thesis

An essay or dissertation involving personal research, written by a candidate for a college degree.

b) Rationale of the thesis

Thesis will demonstrate scholarship through generation and analysis of data for creation of new knowledge in relevant areas and solve societal challenges. Capacity of the student to consolidate Thesis is an output of students' research, and will be demonstrated though logical presentation of ideas.

c) Facets of the thesis

The thesis will normally consist of the following key sections: Title page, abstract, introduction, literature review, materials and methods, results, conclusions, recommendations and references.

d) Regulations of the thesis/dissertation/project.

(i) A candidate will proceed to conduct thesis research upon successful completion of the coursework.

(ii) A candidate will be required to identify a research area and write a thesis on original work.

(iii) A candidate shall prepare and write the thesis according to regulations governing postgraduate studies.

(iv) A candidate must defend the thesis according to supervision and examination guidelines as stipulated in the Board of Postgraduate Studies Rules and Regulations.

2.8 Course Evaluation

Course evaluation should include the procedures of course evaluation and the evaluation of all aspects of the course including;

Course content

The course content consists of the scope, theories and main topics including emerging

issues to be covered in the course unit.

Instructional process

Student's registration for the units, class attendance, the course outline, delivery of the course (Lectures, practicals, case studies, seminars and guest lectures), CATs, setting and marking of examination and internal and external moderation of examinations.

Infrastructure and equipment

Lecture rooms, farms, LCD, laboratories, machines, furniture, and library.

Instructional and reference materials

Core text books and other books, Reference books and e resources, journals

Assessments

ISO students evaluation form in which the students are able to evaluate the course and the lecturer at the end of the semester. This is conducted by the office of Quality assurance and enhancement. Internal and external moderation of examinations and internal and external moderation of results is conducted to ensure quality.

2.9 Management and Administration of the Programme

(i) Master of Science in Food Security and Sustainable Agriculture programme is currently designed to be offered at the main campus of JOOUST by the Africa Center of Excellence in Sustainable Use of Insects as Food and Feeds (ACE-INSEFOODS) in collaboration with the SAFS.

(ii) In the management of the programme, the ACE-INSEFOODS will supervise the delivery of the proposed programme.

(iii) Lecturers from the School of Agricultural and Food Sciences as well as from other JOOUST Schools teaching full time will provide lectures and monitor class tutorials. Where such approach is inadequate, qualified part time lecturers will be recruited to support the proposed programme. In addition, lecturers from collaborating universities and research institutions both within and without Kenya, especially in Africa, will be engaged in the Programme as visiting or exchange staff.

(iv) The CoD shall be program leader.

(v) Regular Program review , relevant stakeholders reviews , departmental and regular School boards, course evaluation, external examiners and moderation during delivery, university policy on quality, CUE standards, ISO standards

2.10 Courses /Units Offered for the Programme

The courses/units offered should include:

2.10.1 A distribution table comprising of a summary of the number of courses/units/credit hours/lecture hours allocated to the Institution's common courses, core courses of the programme, specialization/option area courses and electives;

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5111	Research Methods	30	15	45	1C
AFB 5112	Climate Change Causes, Adaptation and Mitigation	45	0	45	1C
AFB 5113	Agro biodiversity Management	30	15	45	1C
AFB 5114	Sustainable Agriculture and Food Security	30	15	45	1C
AFB 5115	Food Systems and Resources	30	15	45	1C
	Total	***165***	60	225	**5**

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5121	Statistical Methods	30	15	45	1C
AFB 5122	Entrepreneurship and Value Chain Management in Agriculture	30	15	45	1C
AFB 5123	Food quality, Safety and Risk Management	30	15	45	IC
OPTION A					
AFB 5124	Agri-Food Economics and Marketing	30	15	45	IC
AFB 5125	Agricultural Policy Analysis	30	15	45	1C

OPTION B					
AFB 5126	Post-Harvest Technologies and Value Addition	30	15	45	1C
AFB 5127	Innovations for Sustainable Food Systems	30	15	45	1C

2.10.2 A matrix showing the courses that are covered by each expected learning outcomes of the programme and specialization areas. A skeleton of the matrix is hereby provided:

Learning Outcomes	**Year 1**		**Year 2**	
Programme Learning Outcomes				
	Courses	Lecture Hours	Courses	Lecture Hours
Examine national, regional and global policy options for food security in ensuring food safety, availability and nutritional quality of alternative food sources.	Agriculture Policy Analysis	45		
	Agro -biodiversity Management	45		
	Climate Change causes, Adaptation and Mitigation	45		
Illustrate an understanding of strategies used in food security interventions for sustainable agriculture.	Post-Harvest Technologies and Value Addition	45	Thesis	225
	Innovations for Sustainable Food Systems	45		
Exhibit capacity to design and implement innovative contextual agricultural interventions for food security	Research Methods	45	Thesis	225
	Statistical Methods	45		

and sustainable agriculture in developing strategies for alternative food sources	Innovations for Sustainable Food Systems	45		
Conduct applied and strategic research underpinning the development of technologies and innovations to improve the sustainability of agricultural food production systems	Research Methods	45	Thesis	225
	Statistical Methods	45		
	Food Systems and Resources	45		
	Sustainable Agriculture and Food Security	45		
	Agri-Food Economics and Marketing	45		
Demonstrate skills for networking and establishing partnerships with industry, NGOs and other academic and research institutions relevant to food security and sustainable agriculture	Entrepreneurship and Value Chain Management in Agriculture	45		
	Food quality, Safety and Risk Management	45		
	Agri-Food Economics and Marketing	45		

2.10.3 A list of the Institution's common courses, core courses of the programme, specialization/option area courses and electives. For each course include:

a) Course codes, which should reveal the programme type, specialization area, level and year of study and should be unique to every course;
b) Course titles, which should be descriptive of the content of the course; and
c) Credit hours and/or lecture hours.

Year 1 Semester 1

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5111	Research Methods	30	15	45	1C
AFB 5112	Climate Change Causes, Adaptation and Mitigation	45	0	45	1C
AFB 5113	Agro biodiversity Management	30	15	45	1C
AFB 5114	Sustainable Agriculture and Food Security	30	15	45	1C
AFB 5115	Food Systems and Resources	30	15	45	1C
	Total	***165***	60	225	**5**

Year 1 Semester 2

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5121	Statistical Methods	30	15	45	1C
AFB 5122	Entrepreneurship and Value Chain Management in Agriculture	30	15	45	1C
AFB 5123	Food quality, Safety and Risk Management	30	15	45	IC
OPTION A					
AFB 5124	Agri-Food Economics and Marketing	30	15	45	IC

AFB 5125	Agricultural Policy Analysis	30	15	45	1C
OPTION B					
AFB 5126	Post-Harvest Technologies and Value Addition	30	15	45	1C
AFB 5127	Innovations for Sustainable Food Systems	30	15	45	1C

Year 2 Semester 1

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Practical**	**Total**	
AFB 5211	Thesis I	0	225	225	1C
	Total				**1**

Year 2 Semester 2

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Practical**	**Total**	
AFB 5221	Thesis II	0	225	225	1C
	Total	**0**	**225**		**1**

2.10.4 A list of the programme's courses to be taken by the students by quarter/trimester/semester per subject /discipline including the:

a) Minimum lecturer workload for the course, which should include preparation time for teaching and practical, actual teaching time, setting, administering and marking of continuous assessments and final examinations; and

This is guided by the University procedures on teaching and examinations management which have been attached.

b) Minimum student workload for the course, which should include attending lectures, seminars, independent/private study, assignments, practicals, preparation for and sitting for continuous assessments and final examinations.

This is guided by the University procedures on teaching and examinations management which have been attached.

2.10.5 Total credit hours, lecture hours, contact hours and course units required for graduation. This should be in conformity with the Commission's document on Universities Standards and Standards, the minimum national standards (where available) and professional bodies requirements (where applicable).

The table shows the structure of the programme. Each student must successfully undertake 10 course units. The course units have been described in details on the lecture hours and practical hours requirements.

Year 1 Semester 1

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5111	Research Methods	30	15	45	1C
AFB 5112	Climate Change Causes, Adaptation and Mitigation	45	0	45	1C
AFB 5113	Agro biodiversity Management	30	15	45	1C
AFB 5114	Sustainable Agriculture and Food Security	30	15	45	1C
AFB 5115	Food Systems and Resources	30	15	45	1C
	Total	***165***	60	225	**5**

Year 1 Semester 2

Course Code	Course Title	Contact Hours			Weight (Unit)
		Lecture	Practical	Total	
AFB 5121	Statistical Methods	30	15	45	1C
AFB 5122	Entrepreneurship and Value Chain Management in Agriculture	30	15	45	1C
AFB 5123	Food quality, Safety and Risk Management	30	15	45	IC
OPTION A					

AFB 5124	Agri-Food Economics and Marketing	30	15	45	IC
AFB 5125	Agricultural Policy Analysis	30	15	45	1C
OPTION B					
AFB 5126	Post-Harvest Technologies and Value Addition	30	15	45	1C
AFB 5127	Innovations for Sustainable Food Systems	30	15	45	1C

Year 2 Semester 1

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Practical**	**Total**	
AFB 5211	Thesis I	0	225	225	1C
	Total				**1**

Year 2 Semester 2

Course Code	**Course Title**	**Contact Hours**			**Weight (Unit)**
		Lecture	**Practical**	**Total**	
AFB 5221	Thesis II	0	225	225	1C
	Total	**0**	**225**		**1**

2.11 Duration and Structure of the Programme

The Programme will be undertaken by Coursework, Examination, and Thesis work. The programme shall normally take two years of study. Year one of study will comprise of two semester course work while year two of study will comprise of research and thesis writing. The students shall take five compulsory course units in year one semester one. In year one semester two, the students shall take three compulsory course units and any two other units among the two options provided. The second year of study will be dedicated for proposal, research and thesis writing.

3.0 COURSE OUTLINES

Year 1 Semester 1

AFB 5111: Research Methods

Purpose of the course

The course shall provide students with skills to conduct innovative research in Food Security and sustainable agriculture

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Analyze and conduct research using different research techniques
2. Conduct effective quantitative, qualitative and mixed methods research;
3. Apply appropriate approaches/methods to different research problems.

Course content

Introduction to research: the role of research, overview of the research process and basic research concepts; Problems and Hypotheses: defining the research problem, formulation of the research hypotheses and/or questions; Literature review; Research design: experimental and non-experimental research design, field research, and survey research; Methods of data collection; Sampling techniques; Determination of sample size; Processing and analysis of data; Ethical issues in conducting research; Reporting: Introduction, Methodology, Results, Discussion, References, and Appendices. Role and characteristics of research in the development of scientific knowledge; research approaches, Research process; Principles of scientific writing; Quantitative qualitative and mixed methods research; Development of research proposals and thesis reports; Major areas of research in Food Security: Agricultural information user studies, Access to agricultural data, information, and knowledge, Agricultural information retrieval research; Agricultural information systems research, Agricultural communications research; Communicating Food Security/agricultural research; Collaborative research project management.

Mode of Delivery

Face to face lectures, discussions, presentations, e-learning, case studies and students field work and data collection.

Instructional Materials and/or Equipment

LCD projector, Smart Board, Text books, Journals.(Replicate)

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Mugenda, O.M. and Mugenda, A. (2003). Research Methods, Quantitative and Qualitative, ACTS Press
2. Cooper, R.D. and Schindler, S.P (2003), Business Research Methods, McGrawHill-Irwin
3. Carmichael, T. and Stacey, A. (2009). "How to Write a Research Problem', Johannesberg, Wits Business school.
4. Kothari, C.R. (2010), "Research methodology, Methods and techniques", New age Intetrnational.
5. Bell, J. (2005) "Doing your Research Project" (4th ed.), Buckingham, Open University Press
6. Kerlinger, F.N., and Howard, B.L(2000): Foundations of behavioural Research, 4th Ed. FortWorth, Harcourt College Publishers.

AFB 5112: Climate Change Causes, Mitigation and Adaptation
Course Purpose

The course will enable students to examine global challenges in climate change and options for mitigation and adaptation.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Articulate knowledge of past and present climates, the science behind anthropogenic global warming, the current state of knowledge on Climate Change scenarios, and mitigation and adaptation efforts. Long outcome
2. Demonstrate broad skills in climatology, geomorphology, soil science, landscape history and environmental science as they affect climate change issues. Is the issue of skills relevant here?
3. Evaluate the current Government policy and management systems and develop problem-solving skills as applied to Climate Change adaptation and mitigation options.
4. Assess the significance of new Climate Change research and will gain sufficient knowledge to

be able to adjudicate between conflicting evidence and theories on anthropogenic global warming.

Course Content

Introduction; the Earth's Climate System; Climate Change in the Distant Past: Palaeoclimatology; Climate Change in the Recent Past; Projections of Future Climate; Impacts of Climate Change; Adaptation to Climate Change; Climate Change Mitigation; Approaches for adaptation assessment; Application of benefit-cost analysis for adapting to climate change; Extreme event analysis (storms, flooding, drought and bushfire); Contingency planning and response and adapting to climatic variability and change and Climate Change Policy and Regulation.

Mode of Delivery

The teaching and learning approaches shall combine face to face class room lectures, tutorials and practical activities and take home assignments as well as group discussions and topical presentations

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Pittock A.B. (2009) Climate Change: the science, impacts and solutions. Earthscan.
2. Henderson-Sellers, A. & K. McGuffie (2012). The future of the world's climate. Elsevier
3. IPCC Fourth Assessment Report: Climate Change 2007 (AR4) available at www.ipcc.ch
4. IPCC Fifth Assessment Report: Climate Change 2013 and 2014 (AR5) available at www.ipcc.ch
5. Other relevant IPCC reports available at www.ipcc.ch

Course Journals

a) Some of the key journals for scientific papers on climate change are:
b) Journal of Geophysical Research
c) Nature Climate Change
d) Climatic Change

e) Global Environmental Change

f) Climate Dynamics

g) International Journal of Climatology

AFB 5113: Agro-biodiversity Management

Purpose of the course

To enable students understand role of biodiversity and agricultural genetic resources conservation and management in sustainable agriculture

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Analyze the key drivers of land use changes and its impact on agro-biodiversity.
2. Demonstrate skills in global and local management of the biodiversity.
3. Identify, develop and practice various skills for managing the agro-biodiversity resources.
4. Analyze the legal framework, and international organizations monitoring agro-biodiversity at the ecosystem, species and intra-species levels.

Course Content

Global context for agro biodiversity; Main components of agro biodiversity; Levels of genetic diversity; Global change and agro biodiversity; Impact of climate on agro biodiversity; Policies for agro biodiversity use and conservation; Institutional aspects of managing agro biodiversity;

Processes shaping agro biodiversity; Status and trends in agro biodiversity; Agro biodiversity products and services; Conservation of agro biodiversity: threats to agro biodiversity, conservation strategies: *in situ* and *ex situ*; Traditional knowledge; Environmental services; Sustainable management of agro biodiversity: Farmer's seed systems and participatory/community based breeding schemes;

Mode of Delivery

The teaching and learning approaches shall combine face to face lectures, tutorials and practical activities and take home assignments. Group discussions and presentations will also be used.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%

Total 100%

The passing grade shall be C = 50% in each course taken and examined.

Core Reading Materials for the Course

1. Polreich, S., YemaneTsehaye, Maass, B.L. and Becker, H.C. (2005). Assessing the effectiveness of the community-based seed supply system for in situ conservation of local wheat varieties. Paper presented at DeutscherTropentag, 11-13 October 2005, Stuttgart-Hohenheim, Germany. Book of Abstracts p. 80.
2. Frank, U., Tapia, M.E. and Maass, B.L. (2002). In situ conservation of native potatoes in the Peruvian highlands. Poster presented at DeutscherTropentag, 9-11 October 2002, Witzenhausen, Germany. Book of Abstracts p. 75.
3. What is Agricultural Biodiversity? (2011). Convention on Biological Diversity, Montreal. Available online (accessed 17 October 2011): www.cbd.int/agro/whatis.shtml
4. Erison E A, Cherfas J, and Hodkin T.B. (2011). Agricultural biodiversity is essential for a sustainable improvement in food and nutrition security. Sustainability 3:238-253.
5. Ortiz R. (2011). Chapter 2. Agrobiodiversity management for climate change. In Lenne JM and Wood D, editors. Agrobiodiversity for food security. CABI. Oxfordshire, UK. Pp. 189-211. Available online (accessed 16 October2011): www.cabi.org/cabdirect/FullTextPDF/2011/2113102119.pdf.

Recommended Reference Materials

1. Rao N K, Hanson J, Dulloo M E, Gosh K, Nowell D, Larinde M (2006). Manual for seed handling in genebankss. Handbooks for Genebanks No. 8. Bioversity International, Rome.
2. FAO. (2007). Global Plan of Action on Animal Genetic Resources and the Interlaken Declaration. Food and Agriculture Organization of the United Nations, Rome.
3. FAO. (2010a). Global forest resources assessment2010: main report. FAO Forestry Paper 163. Food and agriculture Organization of the United Nations, Rome. Available online (www.fao.org/forestry/fra/fra2010/en.
4. Biodiversity International Training: (2011). www.biodiversityinternational.org/training

AFB 5114: Sustainable Agriculture and Food Security

Purpose of the course

The main aim of the course is to provide students with the necessary knowledge and skills to

contribute effectively to research, decision and policymaking, and management of climate, environmental and natural resources towards a food secure and sustainable future.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Examine the inter-relationship between climate change, environment, food security and sustainability at global and regional level.
2. Analyse and appreciate the concept of food security and issues in achieving it.
3. Evaluate approaches for adapting to climate change and managing the environment for food security and sustainability.

Course Content

Food security and it's inter-relationship with the environment and climate: Its linkages with arable agricultural systems; global climate change, environmental pollution and natural resources management; influence on key components of food security. Adaptation to the changing climate and environment. Food security and sustainability though science and technological advancements, policy economic and social intervention. Global scale and regional case studies.

Mode of Delivery

The teaching and learning approaches shall combine class room lectures, tutorials and practical activities and take home assignments. Group discussions, presentations and brainstorming.

Instructional Materials and/or Equipment

LCD projector, Smart Board, Text books, Journals; e-materials

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Beddington J., Asaduzzaman M., Clark M., Fernandeź A., Guillou M., Jahn M., Erda L., Mamo T., Van Bo N., Nobre C.A., Scholes R., Sharma R. andWakhungu J. (2012)Achieving Food Security in the Face of Climate Change: Final Report from the Commission on Sustainable Agriculture and Climate Change. CGIAR Research Program on Climate Change,

Agriculture and Food Security (CCAFS). Copenhagen, Denmark, Available online at: www.ccafs.cgiar.org/commission.

2. FAO, WFP and IFAD. (2012). The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition, Rome, FAO. http://www.fao.org/docrep/016/i3027e/i3027e.pdf
3. Giovannucci D., Scherr S., Nierenberg D., Hebebrand C., Shapiro J., Milder J. and Wheeler K. (2012)Food and Agriculture: The Future of Sustainability, A Strategic Input to the Sustainable Development in the 21st Century (SD21) Project, New York: United Nations Department of Economic and Social Affairs, Division for Sustainable Development. http://www.un.org/esa/dsd/dsd_sd21st/21_pdf/agriculture_and_food_the_future_of_sustainability_web.pdf
4. National Research Council. (2012). ASustainability Challenge: Food Security for All, Report of Two Workshops. Washington, DC: The National Academies Press. http://www.nap.edu/catalog.php?record_id=13378#toc

Recommended Reference Materials

1. Reynolds M. P. (2010) Climate Change and Crop Production, CABI Series in Climate Change, Volume I. CABI Publishing, UK.
2. Wani S.P., Rockstrom J. And Oweis T. eds. (2009) Rainfed Agriculture: Unlocking the Potential.

AFB 5115: Food Systems and Resources

Purpose of the course

To enable students appreciate background in historical perspective and value and of food systems and resources

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Define the food system in the context of principles in community building, social justice an ecological sustainability.
2. Evaluate the impact of policy on agriculture, food systems, and human and ecological health.
3. Identify insects' potentials for domestication for human consumption as necessary at home or industry;

4. Articulate and appreciate the major challenges of developing insects as a new protein source for food and feed;

Course Content

A historical overview food systems, key influencing factors that have shaped the food system today including industrialization, colonialism, and corporatization. Key challenges arising from the current global food system including labour, development and aid, trade, and health. Communities' resilience to changing food systems and organizing for alternatives. Food Sources; food obtained directly from plants; Cereal (corn, wheat, and rice); animals that are used as food sources are raised by feeding them food derived from plants. Some foods not from animal or plant sources including various edible fungi, especially mushrooms. Fungi and ambient bacteria. Insect food resources, historical perspectives, Introduction to arthropods and edible insects as prospects for food and feed; Insects, biodiversity and ecological implications; Insects and human evolution; Insect consumption in the world in Africa; Rearing and farming of insects for food, feed and pharmaceutical purposes; Nutritional values of edible insects; Marketing insects as food: tackling consumer attitudes and developing marketing strategies. Hygiene, health features and food policy on edible insects. Fish Food Resources.

Mode of Delivery

The teaching and learning approaches shall combine face to face class room lectures, tutorials and practical activities and take home assignments. Discussions and brainstorming will also be used.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined.

Core Reading Materials for the Course

1. Maurizio G. Paoletti. (2005): Ecological implication of mini-livestock, Science Publishers, Inc.
2. FAO. (2013). Edible insects: Future prospects for food and feed security, FAO Forestry Paper No. 171

3. Belluco S.; Losasso C.; Maggioletti M. (2013). Edible Insects in a Food Safety and Nutritional Perspective: A Critical Review. Comprehensive Reviews in Food Science and Food Safety 12: 296-313.
4. Rumpold B. A.; Schlüter O.K. (2013). Nutritional Composition and Safety aspects of Edible Insects. Molecular Nutrition & Food Research 57: 802-823.
5. Van Huis, A.; Van Itterbeeck, J.; Klunder, H. (2013). Edible Insects: Future Prospects for Food and Feed Security. FAO Forestry Paper 171. Food and Agriculture Organization of the United Nations, Rome and Wageningen University and Research Centre, The Netherlands.
6. Van Huis, A. (2013). Potential of Insects as Food and Feed in Assuring Food Security. Annual Review of Entomology 58: 563-583.
7. Yi, L.; Lakemond, C.M.; Sagis, L.M.. (2013). Extraction and Characterization of Protein Fractions from Five Insect Species. Food Chemistry 14: 3341-3348.

Year 1 Semester 2

AFB 5121: Statistical Methods

Purpose of the course

This course will enable students to develop analytical skills in conducting and implementing experiments in food security.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Demonstrate an ability to plan simple experiments and surveys.
2. Design appropriate variety of experimental and observational studies for generation of information in food security and sustainable agriculture.
3. Apply modern statistical computing package in data analysis

Course content

Organization, description and presentation of data; Design of experiments and surveys; Random variables, probability distributions, the binomial distribution and the normal distribution; Statistical inference, tests of significance, confidence intervals; Inference for means and proportions, one-sample tests, two independent samples, paired data, t-tests, contingency tables; Analysis of variance; Linear regression, least squares estimation, residuals and transformations, Inference for regression coefficients, prediction. Computer skills and data management

Mode of Delivery

The teaching and learning approaches shall face to face combine class room lectures, tutorials and practical activities and take home assignments.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined.

Core Reading Materials for the Course

1. EunSul L and Ronald N. (2006). Analyzing Complex Survey Data, 2nd edition. Thousand Oaks, CA: Sage Publications.
2. . Menard, SW. (2002). Applied Logistic Regression Analysis, 2nd edition. Thousand Oaks, CA: Sage Publications.
3. Bartholomew D J., Steele, F., IriniMoustaki, and Jane Galbraith . (2008). Analysis of Multivariate Social Science Data, 2nd edition. Boca Raton, FL: CRC Press
4. C.Y. Joanne Peng. (2009). Data Analysis Using SAS. Los Angeles, CA: SAGE, Leonard C. Onyiah. (2009). Design and Analysis of Experiments: Classical and Regression Approaches with SAS. Boca Raton, LA: CRC

Recommended Reference Materials

1. A.T. Panter and Sonya K. Sterba. (2011). Handbook of Ethics in Quantitative Methodology. New York, NY: Routledge
2. George Henry Dunteman and Moon-Ho R. Ho. (2006). Introduction to Generalized Linear Models. Thousand Oaks, CA: Sage Publication.

AFB 5122: Entrepreneurship and Value Chain Management in Agriculture:
Purpose of the course

This course will develop and enhance students' knowledge and skills in the identification and exploitation of business opportunities in agricultural value chains.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Relate theories and concepts of entrepreneurship to agribusiness.
2. Examine and evaluate the role of entrepreneurs in society and their importance to the economy and technology transfer.
3. Demonstrate knowledge and skills of developing, organizing and managing a business venture along with any of its risks in order to make a profit.
4. Exhibit capacity to plan, start and manage new businesses in agricultural value chains.
5. Develop and articulate coherently a case to investors to back a new venture.

Course Content

Theories of entrepreneurship: Economic entrepreneurship theories, Resource based theories, Sociological/Anthropological and Sociological theories of entrepreneurship, Theory of high achievement, Opportunity based theory, Entrepreneurship innovation theory; Practice of entrepreneurship; Types of entrepreneurship; Entrepreneurship in agriculture; Agricultural value chains and analysis; Business plan development.

Mode of Delivery

1. Face to face lectures, discussions, presentations, study visits to agribusiness entities.
2. Students are expected to develop a comprehensive business plan for a new business.

Instructional Materials and/or Equipment

LCD projector, Smart Board, Text books, Journals; e-materials.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Kuratko, D. F. (2016). Entrepreneurship: Theory, Process, and Practice 10th Edition. South-Western College Publishers, pp. 465.
2. Kumar, D. (2015). Entrepreneurship in Agriculture. Satish Serial Publishing House, 1st edition, pp. 444.
3. Webber, M.J.E. (2007). Using Value Chain Approaches in Agribusiness and Agriculture in Sub-Saharan Africa. J.E. Austin Associates, Inc., pp. 315.

4. Stutely, R. (2002). The Definitive Business Plan: The fast-track to intelligent business planning for executives and entrepreneurs, 1st Edition. FT Press, Pp. 336.

Recommended Reference Materials

1. Spinelli, S. and Adams, R. (2015). New Venture Creation: Entrepreneurship for the 21st Century (Irwin Management), 10th Edition. McGraw-Hill Education, pp. 512.
2. Hisrich, R., Peters, M. and Shepherd, D. (2016). Entrepreneurship (Irwin Management Series), 10th Edition. McGraw-Hill Education, pp. 608.
3. Kornblum, R. (2015). Never Too Late to Startup: How Mid-Life Entrepreneurs Create Wealth. Freedom & Purpose Kindle Edition, pp. 365.
4. Marioti, S. (2007). Entrepreneurship: How to Start & Operate a Small Business, 10th Edition. Pearson, pp. 660.
5. Scarborough, N. (2011). Effective Small Business Management, 10th Edition. Pearson, pp. 888.
6. Berry, T. (2006). Hurdle: The Book on Business Planning, 6th Edition. Palo Alto Software, Inc., pp. 232.
7. Sutton, G. (2012). Writing Winning Business Plans: How to Prepare a Business Plan that Investors Will Want to Read and Invest In. RDA Press, LLC, pp. 210.
8. Journal of Research in Marketing and Entrepreneurship. Open Access.
9. Journal of The Handbook of Research on Entrepreneurship in Agriculture and Rural Development. Edited by GryAgnetteAlsose, Sara Carter, ElisabetLjunggren and Friederike Welter.
10. International Journal of Value Chain Management. Open Acces, Editor in Chief: Dr. Valerij Dermol.

AFB 5123: Food Quality, Safety and Risk Management

Purpose of the course

This course will enable students appreciate and understand the principles and framework of food safety and their application.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Develop skills to investigate problems of substandard food quality
2. Assess the health and safety culture of food processing industry
3. Identify and assess potential risks to health and the environment in the food industry
4. Develop skills for Inspecting different food products (imports or locally produced)

Course Content

Comprehensive information on food safety; Food contamination i.e. microbial, chemical, plant and animal adulterants and radioactive materials; Routes of contamination of major food groups, analysis and control; Fields and concepts of the quality systems of foods; Risk analysis and management of the food chain; Sensory properties of foods and statistical means of quality control; Food standards and regulations; National and international agencies related to food control.

Mode of Delivery

The teaching and learning approaches shall combine face to face class room lectures, tutorials and practical activities and take home assignments. Discussions and brainstorming will be also used.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined.

Core Reading Materials for the Course

1. Hathaway, S. C. (1993). Risk assessment procedures used by the Codex Alimentarius Commission and its subsidiary and advisory bodies. ALINORM 93/97. Codex Alimentarius Commission. Geneva, 28 June - 7 July. FAO, Rome.
2. Inteaz A. (2004) Food Quality Assurance, Principles and Practices, CRC, First Edition.
3. FAO/WHO. (1995). Application of risk analysis to food standards issues. Report of the Joint FAO/WHO Expert Consultation. Geneva, 13 - 17 March. WHO, Geneva.
4. FAO/WHO. (1995). Codex Alimentarius Commission: Procedural Manual . (Ninth Editin). FAO, Rome.

5. FAO/WHO, (1996). Report of the twelfth session of the Codex Committee on general principles. Paris, 25 - 28 November. ALINORM 97/33. Codex AlimentariusCommission. FAO, Rome.
6. FAO/WHO, (1995). Statements of principle concerning the role of science in the codex decision-making process and the extent to which other factors are taken into account.

Recommended Reference Materials

1. FAO/WHO, 1996. Proposed draft guidelines for the design, operation, assessment and accreditation of food import and export inspection and certification systems. Sydney, 19 -23 February. FAO, Rome.
2. FAO/WHO, 1996. Report of the fourth session of the Codex Committee on Food Import and Export Inspection and Certification Systems. ALINORM 97/30. Sydney, 19 – 23 February. FAO, Rome.
3. FAO/WHO, 1995. Report of the twenty-first session of the Joint FAO/WHO Codex Alimentarius Commission. ALINORM 95/37. Rome, 3 - 8 July. FAO, Rome.
4. FAO/WHO, 1995. Report of the twenty-eighth session of the Codex Committee on Food Hygiene. ALINORM 97/13. Washington, D.C., 27 November - 1 December. FAO

OPTION A

AFB 5124: Agri-Food Economics and Marketing:

Purpose of the course

To enable students appreciate knowledge in the basic principles of economics, informing consumers, business and markets.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Demonstrate an understanding of the economic foundations of consumer demand.
2. Evaluate the determinants of food supply and their contribution to food sucrity and sustainable agriculture.
3. Analyze markets and of conditions on which markets function.
4. Demonstrate ability to apply economic principles to the marketing of agricultural products.

Course Content

Economics principles of agri-food markets: Consumer demand; Food supply; Competitive markets; Economic implications for Producer Investment in Value-Added agri-business; Structural change in Cooperatives and Agribusiness. Market distortions: Monopolies; Oligopolies and their impact on food markets; Joint ventures; Strategic Alliances and Mergers. Applications: Food quality and marketing; Branding and marketing communication in food markets; Private and public food standards. Agricultural macro-economics: Macroeconomic Foundations and Statistics; Long-run Analysis and Fundamentals – Classical Macroeconomics; Business Cycles and Economic Fluctuations – Keynesian Macroeconomics. Agricultural and Food Marketing Management: Role of state in liberalized markets; Strategies for reforming Agricultural marketing Parastatals; Impediments to Private sector participation in agricultural markets

Mode of Delivery

Face to face lectures, discussions, presentations, guest speaker.

Instructional Materials and/or Equipment

LCD projector, Smart Board, Text books, Journals; e-materials

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Schrimper, Ronald A. (2000). Economics of Agricultural Markets, 1st Edition. Pearson, pp. 342.
2. Schrimper R. Economics Agricultural Markets -https://www.amazon.com/Economics-Agricultural-Markets- Ronald-/dp /013775776X
3. Cramer, GL., (1991). Agricultural Economics and Agribusiness, 5th Edition. Wiley, pp. 530.
4. Singh, C.B. and Singh, R.K., (2011). A Text Book of Agricultural Economics, 1st Edition. Laxmi Publications Ltd., pp. 331. https://www.researchgate.net/publication/216436248_A_Text_Book_Of_Agricultural_Economics

AFB 5125: Agricultural Policy Analysis

Course purpose

This course will examine policies affecting agricultural and food businesses using an economic framework and an international perspective.

Expected Learning Outcomes of the course

Upon completion of the course the students should be able to:

1. Analyze agricultural and food policy environment for food security and sustainable agriculture.
2. Demonstrate ability to formulate policies for food security and sustainable agriculture.
3. Critique food and agricultural policies in developed and developing countries.

Course content

Agricultural and food policy environment; Policy formulation process; Key policy concepts and issues (market failure: externalities, asymmetric information, public goods and common pool resources); Policy instruments and their application: advantages and disadvantages; Environmental policy and management of natural resources; Human health and nutrition policies and why do we care; Local food issues and consumers behavior; Rationale of food and agricultural policies in developed and developing countries; Concepts of social welfare, market failure, government failure, consumer and producer surplus, and deadweight loss; How to estimate economic costs and benefits (welfare) of agricultural and food-related public policies.

Mode of Delivery

The teaching and learning approaches shall combine face to face class room lectures, tutorials and practical activities and take home assignments.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined.

Core Reading Materials for the Course

1. Pinstrup-Andersen, P., & II, D. D. W. (2011). Food Policy for Developing Countries: The Role of Government in Global, National, and Local Food Systems. Cornell University Press.
2. Nestle, M. (2007). Food Politics: How the Food Industry Influences Nutrition, and Health, Revised and Expanded Edition (Revised and Expanded Edition edition). Berkeley: University of California Press.
3. Norton, G. W., Alwang, J., & Masters, W. A. (2014). Economics of Agricultural Development: World Food Systems and Resource Use (3 edition). New York: Routledge.
4. Mankiw, N. (2004). Principles of Economics. Cengage Learning.
5. Penson et al. (2014). Introduction to Agricultural Economics. Pearson/Prentice Hall.
6. Ray, D. (1998). Development Economics. Princeton University Press.

Recommended Reference material

1. Schmitz, A., C. Moss, T.G. Schmitz, H. Furtan and H.C. Schmitz, 2010, Agricultural Policy, Agribusiness and Rent-Seeking Behaviour, Second Edition. Toronto: University of Toronto Press.
2. Reed, M.R. 2016. International Trade in Agricultural Products.
3. Schmitz, A. and T. Schmitz. 2010. "Benefit-Cost Analysis - Distributional Considerations Under Producer Quota Buyouts." Journal of Benefit-Cost Analysis 1(1).

OPTION B

AFB 5126: Post Harvest Technologies and Value Addition

Purpose of the course

Provide students with an understanding of environment, growth parameters, causes of post harvest losses, management and value addition.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Analyze and appreciate post-harvest technology of different food items.
2. Develop value added agricultural products for food security and sustainable agriculture.
3. Evaluate the work space, tool and equipment design for PHT and value addition.

Course Content

Importance and present status of post-harvest technologies; Post-harvest technology: Importance of post-harvest management of, food & causes of post-harvest losses; Pre-harvest practices, maturity and harvesting indices, harvesting, methods and tools, on-farm management of harvested produce, Pre-cooling, sorting grading, packing of Agricultural produce; Extend the shelf-life and storage quality of fruits, vegetables and other products. Value Addition; Principles and methods of processing and preservation, spoilage of processed products. Post-harvest Losses and its Control; Types of losses, cause for the loss Mechanism for control; Advance technologies in PHM ripening, delayed ripening, extension of shelf life. Storage and Packaging; Storage objective; Storage practices: CA and MA, hypobaric storage, pre-cooling and cold storage, Zero energy cool chamber; On farm storage and transport of fruits, vegetables and flowers; Various methods of packing, packaging and cushioning materials and transport. Gender dynamics in post -harvest handling, processing and quality maintenance in rural households

Mode of Delivery

Face to face lectures, discussions, presentations, guest speaker.

Instructional Materials and/or Equipment

LCD projector, Smart Board, Text books, Journals; e-materials

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Hodges, R, Bernard M and Rembold F (2014). APHLIS – Postharvest cereal losses in Sub-Saharan Africa, their estimation, assessment and reduction. Technical Report by the Joint Research Centre of the European Commission
2. Florkowski, WJ., Shewfelt RL.,Brueckner B and Prussia SE. (2014). Postharvest Handling: A Systems Approach, Third Academic Press https://doi.org/10.1016/B978-0-12-408137-6.00022-
3. Kader, A. A and R. S. Rolle. (2004). The role of post-harvest management in assuring the quality and safety of horticultural produce. FAO Agric. Services Bulletin 152.

4. Parveen, S, Ishfaq,B, Kausar, H, Saeed S and Ali MA. (2014). Value Addition: A Tool to Minimize the Post-harvest. Greener Journal of Agricultural Sciences. Vol. 4 (5), pp. 195-198.
5. Dris, R and Niskanen R (2003). Crop Management and Postharvest Handling of Horticultural Products - Fruits and Vegetables.: World Food Ltd., Meri-Rastilantie, Helsinki, Finland.
6. John, P J. (2008). A Handbook on Post Harvest Management of Fruits and Vegetables., Daya Publishing House.

Recommended Reference Materials

1. Sharma, S.K. (2010). Postharvest Management and Processing of Fruits and Vegetables: Instant Notes. New India Publishers
2. Cecilia, M (2008). Color Atlas of Postharvest Quality of Fruits and Vegetables. do Nascimento Nunes.Wiley-Blackwell Publisher
3. Kumar, P.S. (2009). Post-Harvest Physiology and Quality Management of fruits and vegetables. Prashant Book Agency.

AFB 5127: Innovations for Sustainable Food Systems

Purpose of the course

The course is intended to enable students appreciate approaches of increasing efficiency of food production to address food security challenges.

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Evaluate the range of social contexts within which food production operates and the challenges of knowledge exchange within food production systems.
2. Analyze different dimensions of sustainable food production systems and the implications for innovation.
3. Demonstrate ability to identify, conceptualize and offer new and creative insights into innovation in food production systems.

Course content:

Historical background to issues of food production; complex pressures on food production, climate change, competition for land use and an increasing emphasis on diet and health. Aspects of sustainable food production. Farmer practices and Scientific knowledge. Theories of knowledge flows, knowledge exchange. Complexity of the social relationships between farm animals and humans and the implications for innovation. Policy and scientific attention in innovation. Disease

concerns, impact of outbreaks and attitudes to mitigation practices among farmers. Scientific innovation; the tension between innovation for local production and global production, role of regulation in shaping innovation, particularly biotechnology. Role of biotechnologies in agricultural production; animal genetics. A systems level perspective; features of food chains, implications on innovation pathways and transformations to more sustainable systems. A range of alternative production systems; quality, food supply chains and emerging approaches. Sustainable consumption; healthy diets, food miles and food wastage.

Mode of Delivery

The teaching and learning approaches shall combine face to face class room lectures, tutorials and practical activities and take home assignments.

Instructional Materials and/or Equipment

Notes prepared by lecturer, power point slides, text books and journal articles.

Course Assessment

CATS	40%
Final Examination	60%
Total	100%

The passing grade shall be C = 50% in each course taken and examined

Core Reading Materials for the Course

1. Eden, S., Bear, C. And Walker G. (2008) Mucky carrots and other proxies Problematising the knowledge-fix for sustainable and ethical consumption. Geoforum 39: 1044-1057.
2. Haden, can R., Niles, M.T., Lubell, M., Perlman, J., Jackson, L.E., 2012. Global and Local Concerns: What Attitudes and Beliefs Motivate Farmers to Mitigate and Adapt to Climate Change? PLOS One, December, 7(12) e52882.
3. Lang, T. and Barling, D. (2012) Food security and food sustainability: reformulating the debate. The Geography Journal 178(4): 313-326.
4. Millar, J. and Connell, J. (2009) Strategies for scaling out impacts from agricultural systems change: the case of forages and livestock production in Laos. Agriculture & Human Values DOI:10.1007/s10460-009-9194-9.
5. Oreszczyn, S., Lane, A. and Carr, S. (2010) The role of networks of practice and webs of influencers on farmers engagement with and learning about agricultural innovations. Journal of Rural Studies 26:404-417

6. Wield, D., Chataway, J. and Bolo, M. (2010) Issues in the Political Economy of Agricultural Biotechnology. Journal of Agrarian Change 10(3): 342-366
7. Mustafa, K, Sumner J., Winson A. (2012). Critical Perspectives in Food Studies. Koc, Jennifer, and Anthony (eds.).. Toronto: Oxford.
8. Roberts, W. (2013). The No-Nonsense Guide to World Food, Second Edition. Wayne. Toronto: Between the Lines.

Year 2 Semesters 1

AFB 5211: Research Thesis I

Purpose of the course

This course is designed to develop and enhance students' knowledge and skills to plan independent research and to communicate this in a research proposal and orally to the academic community.

Expected Learning Outcomes of theCourse

Upon completion of the course the students should be able to:

1. Develop a feasible and realistic research proposal.
2. Apply relevant ethical principles in research proposal development.

Course content

In preparation of the thesis, students will be guided on how to develop a research proposal outlining all aspects of the planned work. The proposals will be discussed in research seminars. The proposal must be approved by the supervisors before planned field work for the thesis can be undertaken. The first part of the course focuses on how to organize a research project, including developing the research question, reviewing and synthesizing prior research and writing, and understanding the elements of a research proposal. Develop an appropriate and feasible research design, considering the merits of alternative methods. Students will draft sections and eventually a full proposal with ongoing review by advisors and the course instructor. Students should expect to work intensively with their advisors during this period.

Mode of Delivery

The student will work with the supervisors to develop the proposal on an agreed topic, theme and title as necessary. The student will maintain at least a two weekly visit and discussion with the supervisor.

Instructional Materials and/or Equipment

The student will use the available referral material and other research materials availed on campus, internet and other sources as directed by the supervisors.

Course Assessment

No marks or grades will be awarded for thesis proposal. The proposal writing stage will be reported as satisfactory or not satisfactory. The supervisors will consult with each other before advising the student on the performance.

Core Reading Materials for the Course

1. Science and Technology Facilities Council (2009) "Research Grants Handbook", 09 October 2009. http://www.scitech.ac.uk/rgh/PDFs/rghAll.pdf
2. MLA (2008). Style Manual and Guide to Scholarly Publishing, third edition. Published: ISBN: 9780873522977 (hardcover),ISBN: 9780873522984
3. White, L. (2005). Writes of passage: Writing an empirical journal article. Journal of Marriage and Family 67: 791-798. http://www.jstor.org/stable/10.2307/360023
4. Reich, J., Tingley, D., Leder-Luis, J., Roberts, M. E., and Stewart, B. M. (2015). Computer assisted reading and discovery for student generated text in massive open online courses. Journal of Learning Analytics.

Year 2 Semester 2

AFB 5221: Research Thesis II

Purpose of the course

This course is designed to enhance students' capacity to conduct independent field research and to communicate this in a research thesis and orally to the target community

Expected Learning Outcomes of the Course

Upon completion of the course the students should be able to:

1. Apply relevant designs for the process of research in food security and sustainable agriculture
2. Conduct independent research for contribution to the body of knowledge in food security and sustainable agriculture
3. Identify appropriate skills to effectively communicate research to target audience

Course Content

This course offers a capstone experience in which students conduct a research project and produce a thesis in a field related to their area of study. With guidance from an academic mentor, the student will conduct primary and secondary research which includes an academic literature search, research design, data analysis and discussion. The course allows the student to undertake advanced level research and produce a substantial piece of writing which advances knowledge in the selected field of research.

Mode of Delivery

The student will work with the supervisors to develop the proposal on an agreed topic, theme and title as necessary. The student will maintain at least a two weekly visit and discussion with the advisor

Instructional Materials and/or Equipment

The student will use the available referral material and other research materials availed on campus, internet and other sources as directed by the supervisors.

Course Assessment

No marks or grades will be awarded for thesis proposal.

The proposal writing stage will be reported as satisfactory or not satisfactory. The supervisors will use consult with each other before advising the student on the performance observed.

Core Reading Materials for the Course

1. Committee on the Conduct of Science, National Academy of Sciences. (1995). On Being a Scientist. Washington, D.C.: National Academy Press. Also downloadable in pieces at http://books.nap.edu/books/0309051967/html/index.html
2. White, L. (2005). Rites of passage: Writing an empirical journal article. Journal of Marriage and Family 67: 791-798. http://www.jstor.org/stable/10.2307/360023
3. BBSRC (2009) “BBSRC Research Grants: The Guide”, Research, Innovation and Skills Directorate BBSRC August 2009. http://www.bbsrc.ac.uk/funding/apply/grants_guide.pdf
4. Science and Technology Facilities Council (2009) “Research Grants Handbook”, 09 October 2009. http://www.scitech.ac.uk/rgh/PDFs/rghAll.pdf

4.1 Appendix I: Facilities

Item		Number	Capacity in (sq. m) and no. of students	Usage	
				Specific to Department	Shared
Conference Halls		1	100		√
Lecture Room/Lecture Theatres		16	50	4	
Lecture Theatre	Auditorium	1	1000		√
	Assembly Hall	1	800		
Lecturer's Offices		20	20	4	
Postgraduate Research Laboratories		1	20		√
Library		1	400		√
Postgraduate Seminar room		1	15		√
Computer Lab		2	40		2
Studios		1	10		√
Examination rooms		2	5		√
Admissions Office		1	7		√
Academic leaders offices		2	4	√	
Insect repository		1	20	√	
Insect farm		1			
Board of postgraduate office		3	6		√
Internet Access points		8	800		√

4.2 Appendix II: Equipment and Teaching Materials

Item	Type	Number	Capacity	Usage	
				Specific to Department	Shared
Desk Top Computers (PCS)	HP	480	60	50	430
Laptops/Note Books	HP	22		2	20
Projectors Power Point-Projectors	Epson, Sony, Benq	22		3	19
Smart boards	Smart	1		0	√
Scanner	HP, Kyocera	10			10
Printers	HP, Kyocera	80		2	78
Computer Software	Win 7, 8, 10				√
	Jaws				√
	Ms Office				√
	ARC GIS software				√
	ERDAS				√
Others(specify)	Wireless network	8	30 bandwidth		√
	LAN	8			√

LABORATORY RESEARCH EQUIPMENTS AND APPARATUS

SN	ITEM	DESCRIPTION	CONDITION	QUANTITY
1	Fabricated insect harvester	Metallic fitted with pipes and funnel	Good	1
2	Complete-oven with 3 trays	Ramptons-MDN 6040	Good	1
3	Electronic balance	IM1400292	Good	1
4	Electronic balance	IM1500297	Good	1
5	Electronic balance	IM1400294	Good	1
6	Electronic balance	SN: FBH: O1	Good	1
7	Coffee-grinder	Tomado-1705. 118.Tm-1357	Good	1

8	Vibrator	Honda-JH 168F:GCAAH-2030493	Good	1
9	Kitchen balance	2-5kg, Nops,1 -2kg, Ashton meyer ,1-3kg,	Good	3
10	Growth measurement	Wooden	Good	1
11	Large-scale Food mixer	Caterina	Good	1
12	Digital camera	Nikon-D5200	Good	1
13	Generator	Yamaha-NA 3300	Good	1
14	Microwave	LG-MC 808WAR, Von-hotpoint-HMS-202DB	Good	2
15	Refrigerator	Samsung-SN :21224DALB00019K	Good	1
16	Deep-freezer	Ramptons-14063, Sanyo-Sn 1112000023R	Good	2
17	Afrigas-cylinder	Full-Gas	Good	1
18	Vacuum packing machine	Sevana-SN 24MGMC 035	Good	1
19	Sausage machine	Trespade:SN 14/00268	Good	1
20	Drier-SN 0409300133	Wiseven:MN WON-105	Good	1
21	Fabricated Solar drier	Box 2795-40100	Good	1
22	Incubator	Griffchem	Good, require minor repair	1
23	Impulse sealer	PFS-100,200,300,400	Good	1
24	Onset Data logger	Hobo:1-800-Loggers	Good	6
25	Electronic meat mincer	HFM 12: NW 18.5	Good	1
26	Manual meat mincer	No.32	Good	1
27	Fabricated insect grinder		Good	1
28	Light Microscopes	Lasany	Good	1-we can add others from

				Biology lab on the display
29	Food blenders	a. Ramptons	Good	1
		b. Large sinbo	Good	1
		c.Small sinbo	Good	1
30	Pressure cookers	Prestige-Deluxe,4ltrs	Good	1
31	Spring balance	50 kg -pocket size	Good	2
32	Weighing balance-manual	Round, clock-like, Dolphin	Good	1
33	Thermohygrometer	Hanna-HI 93640N:SN D0107915	Good	1
34	Extension cables	Multiguard	Good	2
	Moisture Analyzer	Wic 1600488	Good	1

4.3 Appendix III: Core-Texts and Journals

List of core-texts and journals, which should encompass subject areas, number of titles and volumes for both print and electronic materials

STATISTICAL METHODS

Core reading materials for the Course

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1	Applied regression analysis : a second course in business and economic statistics	Terry E. Dielman.	2	
2.	Stat View: the ultimate integrated data analysis and presentation system.	Abacus Concepts	2	
3.	Applied multiple regression/correlation analysis for the behavioral sciences	Jacob Cohen	1	
4.	. Basic statistical analysis	Richard C. Sprinthall.	1	
5.	Advanced and Multivariate Statistical Methods Practical Application and Interpretation	Craig .A Mertler, Rachel A. Vannatta	1	

ENTREPRENEURSHIP AND VALUE CHAIN MANAGEMENT IN AGRICULTURE:

Core Reading Materials for the Course

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1.	Entrepreneurship	Robert D Hisrich,	10	
2.	http://www.technoserve.org/files/downloads/vcguidenov12-2007.pdf			Available online

3.	Entrepreneurship Simplified	Saleemi, N.A.	3	
4.	Entrepreneurship in the new millennium	Donald F. Kuratko, Richard M. Hodgetts.	5	
5	Entrepreneurship and Communication Simplified/	Saleemi, Ahmad Nisar.	8	

Recommended Reading materials

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1.	Entrepreneurship for the 21st Century (Irwin Management (7th ed available)	Spinelli, Stephen and Adams, Rob,	1	
2.	Entrepreneurship	Hisrich, Robert, Peters, Michael and Shepherd, Dean	3	
3.	Effective Small Business Management, 10th Edition	Scarborough, Norman	6	

AGRI-FOOD ECONOMICS AND MARKETING

Core Reading Materials

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1.	Food Politics: How the Food Industry Influences Nutrition, and Health, Revised and Expanded Edition (Revised and Expanded Edition edition).	Nestle, M.	3	*https://www.barnesandnoble.com/w/food-politics-marion-nestle/1102*

				270367
2.	Early Pioneers in Natural Resource Economics	Gardner M. Brown,		https://academic.oup.com/journals/search-results?
3	Principles of Economics	Mankiw, N	1	
4.	The Impact of Freer Markets and Trade on Agri-Food Marketing Policy and Government Institutions: Discussion	Richard Kilmer		https://academic.oup.com/journals/search-results?
	Analysis of public expenditure in support of food and agriculture in Kenya, 2006-2012	Food and Agriculture Organization of the United Nations (FAO), October 2014		The Essential Electronic Agricultural Library (TEEAL)

Recommended Reading Materials

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1	Agricultural Policy, Agribusiness and Rent-Seeking Behaviour, Second Edition.	Schmitz, A., C. Moss		*https://asu.pure.elsevier.com/en/publications/agricultural-policy-agribusiness-and-rent-seeking-behaviour-secon*
2	International Trade in	Reed, M.R		*https://fsi.stanford.edu/s*

	Agricultural Products			*ites/default/files/Understanding_International_Trade.pdf*
3	Regulation of Agricultural Biotechnology in Canada: An Educator's Resource, 2007.			http://publications.gc.ca/collections/collection_2007/cfia-acia/A104-24-2007E.pdf
4	What is policy analysis? Readings: Schmitz et al., chapters 1 and 2. Worthwhile Canadian Initiative blog entry January 31, 2011.			Available online at http://worthwhile.typepad.com/worthwhile_canadian_initi/2011/01/evaluation-1.html. Knutson et al., Chapter

Core Reading Materials

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1.	Mucky carrots and other proxies Problematising the knowledge-fix for sustainable and ethical consumption. Geoforum 39: 1044-1057.	Eden, S., Bear, C. And Walker G		https://academic.oup.com/journals/search-results?
2.	Global and Local Concerns: What Attitudes and Beliefs Motivate Farmers to Mitigate and Adapt to Climate Change? PLOS One, December, 7(12) e52882.	Haden, can R., Niles, M.T., Lubell, M., Perlman, J., Jackson, L.E		https://academic.oup.com/journals/search-results?
3.	Issues in the Political Economy of Agricultural Biotechnology. Journal of Agrarian Change 10(3): 342-366	Wield, D., Chataway, J. & Bolo, M		https://academic.oup.com/journals/search-results?
4.	Critical Perspectives in Food Studies	Mustafa Koc, Jennifer Sumner, and Anthony Winson (eds.).		TEEAL
5.	The No-Nonsense Guide to World Food, Second Edition	Wayne Roberts		https://academic.oup.com/journals/search-results?

RESEARCH THESIS

Core Reading Materials

NO.	TITLE	AUTHOR	NO. OF COPIES	REMARKS
1.	*CSUS Guide For Thesis Format,* Latest Edition, Office of Research and Graduate Studies, CSUS, available free on web at			www.csus.edu/gradstudies/forms/Thesis.pdf ;
2.	Research Methodology: Methods and Techniques.	Kothari CR	4	

4.4 Appendix IV: Academic Staff

	Name (Prof., Dr.,)	**University Teaching experience**	**List of publications**	**List of Patents**	**Academic qualifications**	
					Date obtained	**Institution**

1	Prof. Adrian Wekulo Mukhebi	Lecturer, University of Nairobi 1977-1983; Associate Prof. JOOUST, 2012 - current	a) Books = 1;
			b) Book chapters = 1;
			c) Articles in reviewed books = 9;
			d) Articles if refereed journals = 30;
			e) Articles in published conference proceeding = 38
				-	Bachelors: B.Sc. Agric. Econ, 1974	Kansas State University, USA

					Masters: M.Sc. Agric. Econ, 1976	Kansas State University, USA
					Doctoral: Ph.D., Agric. Econ, 1981	Washington State University, USA
2	Prof. Monica Awuor	Assistant Lecturer Egerton University College, 1982-1987	a) Book chapters = 1; b) Articles in refereed journals = 29,	Patented product = 1	Diploma in Agriculture and Home	Egerton Agricultural College

	Ayieko	Research/Teaching Assistant University of Illinois, 1989-1995 Lecturer 1996-1998, Senior Lecturer 1998-2010, Maseno University, Associate Professor 2010-2016, Full Professor 2016 to date, JOOUST	e) Other non-referred documents in circulation =15, Conference papers in referred proceeding = 5		Economics	
					Bachelors: B.Sc. Community and Consumer Studies	University of Maryland USA
					Family and Consumer Economics	University of Illinois USA
					PhD Consumer Economics	University of Illinois, USA
3	Prof. Arnold Onyango Watako	1). 1983 – 1989. Lecturer; Teachers Service Commission, JKUAT 2). 1992 – 2008. Lecturer; JKUAT 3). 2008 – 2013. Senior Lecturer; JKUAT 4). 2013 – 2016 Senior Lecturer; Jaramogi Oginga Odinga Uniiversity of Science and Technology 5). 2016 –Date. Associate Professor, Jaramogi Oginga Odinga University of Science and Technology	1). Book Chapter = 1 2). Papers in Refereed Journals = 15 3). Papers in Conference Proceedings Journals = 16 4).Thesis =2		Doctoral BSc Agriculture 1980 MSc. In Horticulture 1992 PhD in Horticulture 2006	University of Nairobi University of Nairobi Jomo Kenyatta University of Agricultur e and Technolog y
4	Prof Christopher O. Gor	1. Assistant Lecturer (October 1988 – October 1990). 2. Lecturer (November 1990 – May 2010) 3. Senior Lecturer (June 2010 – May 2016) 4. Assoc. Prof. (June 2016 – to – Present)	1). Papers in Refereed Journals = 12 3). Papers in Conference Proceedings Journals = 7 4).Thesis =2		PhD (AgEcon) Dec. 2008	University of Nairobi
					MSc (AgEd), May 1988	University of Idaho (USA
					BSc (AgEcon), May 1986	University of Idaho (USA)

5	Dr. Darius Otiato Andika	Graduate Assistant, 2003 Maseno University.
		Tutorial fellow 2006, Maseno University
		Assistant Lecturer, 2009, Maseno University
		Lecturer, 2010, Jaramogi Oginga Odinga University of Science and Technology
		Senior Lecturer, 2013 to present, Jaramogi Oginga Odinga University of Science and Technology
			a) Books = 1;
			b) Book chapters = 1;
			c) Articles in refereed journals = 18;
			e) Articles in published conference proceeding = 27
				-	-Bachelors: B.Sc. Horticulture, 2002
					
					-Masters: Horticulture
					
					- Doctoral: Environmental Horticulture
						Maseno University
						
						Maseno University
						
						Maseno University / University of Hannover, Germany

6	Prof. Reuben Oyoo Mosi	Lecturer to Associate Professor at University of Nairobi, 1989-20110; Professor JOOUST 2011 to date.	a) Articles in reviewed books = 2; b) Articles in refereed journals = 31; c) Articles in Conferences and Workshops Proceedings = 44	None	1. BSc. (Agric.), 1975 2. MSc (Animal Breeding), 1980 3. MSc (Animal Production) 1981 4. PhD (Animal Breeding) 1984	Makerere University. University of Edinburgh, UK. University of Nairobi. University of Wales, UK.
7	Dr. Calleb Olweny Ochia	Lecturer, 2015 to date	a) Articles In refereed journals= 8 **b)** In international conference proceedings= 7	None	1. BSc. Agriculture, 1998 2. MSc. Plant Breeding and Genetics,	Egerton University of Nairobi

					2008 3. PhD Plant Breeding and Biotechnology, 2015	Makerere University

8	Prof. Stephen Gaya Agong	Lecturer, JKUAT, 1989 To date, Full professor and Vice Chancellor, JOOUST	a) Books = 5;
			b) Book chapters = 10;
			c) Articles in refereed journals = 80;
			e) Articles in published conference proceeding = 100
				-	1. Bsc, Agriculture, 1987
					2. MSc, Plant Breeding, 1989
					3. PhD, Agricultural Sciences
						University of Nairobi
						
						University of Nairobi
						
						Justus-Liebig University, Germany

9	Dr. Alice Nakhumicha Muriithi	Lecturer, 2001- 2006 Kenya Methodist University (KEMU), Lecturer, 2012 to date, Jaramogi Oginga Odinga University of Science and Technology	In refereed journals= 7 In international conference proceedings= 4	-	1. Diploma in Agriculture and Home Economics 1984 2. Bsc, Agriculture (Horticulture major) 3. MSc, Plant Physiology, 1996 4. PhD, Horticulture 2014	Egerton College University of Guelph, Ontario Canada University of Guelph, Ontario Canada Jomo Kenyatta University of Agricultur e and Technolog y
10	Dr Walter Akuno	Lecturer, 2015 to date, Jaramogi Oginga Odinga University of Science and Technology and Registrar Academic Affairs	a) Articles in refereed journals =6		1. Diploma in Dairy Science and Technology 1988 2. Bsc, Animal production	Egerton University

					3. MSc, Agricultural Extension 2006 4. PhD, Agricultural Extension 2015	

11	Prof. Beatrice Anyango	Jaramogi Oginga Odinga University of Science and Technology Associate Professor, School of Biological and Physical Sciences (July 2010 to date) University of Nairobi Senior Lecturer, Dept. of Botany (1997 - 2010) Lecturer, Dept. of Botany, (1992 - 1997) Asst. Lecturer, Dept. of Botany (1989 - 1992)	a) Book chapters = 3; b) Articles in refereed journals = 8, c) Conference papers in referred proceeding = 5		Ph.D 1989 - 1992	Soil Microbiology - Wye College, University of London, UK
					MSc. 1980 - 1982	Botany - Microbiology - University of Nairobi, Kenya
					BSc. 1977 - 1980	Botany and Zoology - University of Nairobi, Kenya
					S1. 1974-1977	Science Teacher Training at Kenya Science Teachers College

		Tutorial Fellow, Dept. of Botany (1986 - 1989)				
12	Prof. Maria Onyango	1. Lecturing in Teacher Training in Diploma College 1984-1990 2. University Lectureship 1995-2010- Maseno University 3. Senior Lecturer in the School of Business and Economics, JOOUST 2010-2014. 4. Associate Professor 2014- Date (JOOUST), School of Business and Economics since 2014	a) Articles in refereed journals = 11, b)Conference papers in referred proceeding = 5		1984 1999 2000 1995 2009	B. Ed Home Economics (University of Nairobi Post Grad Diploma Organization Management- Witzenhausen (Kassel University Germany) Advanced Post Graduate Certificate (APC)- University of Illinois [US] M Sc Entrepreneurial Studies (University of Stirling (Scotland, UK) PhD. Entrepreneurship Development- Kenyatta University)

13	Prof. Dennis Otieno Ochuodho	01.03.1997–30.06.1998 Graduate Assistant - KEFRI/Nairobi University/AAS project. 01.01.2005–30.11. 2006	a) Articles in refereed journals = 59 b) Conference papers in referred proceeding = 15		1990 -1994 1996 -1998	University of Nairobi Bachelor of Science (BSc.) in Biology University of Nairobi (Kenya) Master of Science (MSc.) in Botany – Plant Ecology

		Lecturer, Department of Botany and Horticulture, Maseno University-Kenya. 07.12. – 31.12.2006 Research Assistant, Department of Plant Ecology University of Bayreuth 01.04.07 – 30.04.07 Visiting Scientist, Kangwon National University, South Korea Since 08.08.2016 Associate professor. Jaramogi Oginga Odinga University of Sc. & Tech, Bondo, Kenya			2001- 2004	University of Bayreuth (Germany) Habilitation in Plant Ecology Doctor of Philosophy (Ph.D.) in Natural Sciences (Dr. rer. Nat.
					2007 –2012	University of Bayreuth (Germany) Habilitation in Plant Ecology
14	Prof. Fred Anangwe Amimo	*1982* Biology/Chemistry Teacher, Goibei Girls High School *1985-1994* Research Assistant, International Centre of Insect Physiology and	a) Articles in refereed journals = 15, b) Conference papers in referred proceeding = 10		**2002-2006**	PhD in Entomology, Michigan State University
					1993-1996	MSc in Zoology, Kenyatta University
					1982-1985	BSc in Biology,

		Ecology *1996-2002,* Lecturer, University of Eastern Africa, Baraton *2008-2010* Senior Lecturer, University of Eastern Africa, Baraton *2011-2012* Associate Professor of Biology, University of Eastern Africa, Baraton *2013* Associate Professor of Biology, JOOUST				Andrews University
15	Dr. George Ayodo	2002-2003 Forensic Analyst at Government Chemist Department, Kenya 2009-2014 Program Director, Indiana University and KEMRI research projects 2015 -To Date Senior Lecturer, Jaramogi Oginga Odinga	a) Articles in refereed journals = 24,		2009 - 2013	Post Doc (University of Minnesota / KEMRI)- Applied Epidemiology
					2004-2009	PhD (Kenyatta University - Kenya / Harvard - USA)- Population Genetics
					1995-1997	MSc (Guru Nanak Development University, India) – Human Genetics
					1992-1995	BSc (Mohanlal Sukhadia

		University of Science and Technology Coordinator of Postgraduate program at School of Health Sciences in JOOUST **Consultant Research projects** of KEMRI / IndIana University Research Projects				University, India) – Zoology, Chemistry and Botany
16	Dr. Stephen Amolo Asito	2012 to date: Lecturer, Jaramogi Oginga Odinga University of Science and Technology 2010 to 2012: Senior Research Officer, State University of New York, Upstate Medical School/KEMRI Projects 2005 to 2010: Research	a) Book chapters = 1; b) Articles in refereed journals = 14 c) Conference papers in referred proceeding = 14		1997-2000 2001-2005 2008-2011	BSc, Jomo Kenyatta University of Agriculture and Technology, Kenya MSc. In Immunology, Kenyatta University, Kenya Ph.D in Cell and Molecular Biology, Maseno University, Kenya

		Officer, State University of New York, Upstate Medical School/KEMRI Projects 2003 to 2005: Assistant Research Officer, State University of New York, Upstate Medical School/KEMRI Projects.				
17	Dr. Collins Kalwale Mweresa	December 2016 – To date: Full time Lecturer for entomology and parasitology at the department of Biological Sciences, JOOUST, Bondo July 2016 –: Research Consultancy at Science for Health Society, Kenya May 2016-: Part-time Lecturer for medical entomology and parasitology at the Department	a) Articles in refereed journals = 20 b) Conference papers in referred proceeding = 8		2010 - 2014	Wageningen University and Research Centre, The Netherlands and icipe PhD in Entomology
					2006 - 2008	University of Nairobi, Kenya and KEMRI, Kisumu Kenya MSc. Medical Parasitology
					1996 – 1997	Egerton University, Njoro, Kenya Post-graduate Diploma in Education (PGDE)
					1989 - 1992	Egerton University, Njoro, Kenya. BSc. in

		of Biological Science; Egerton University, Kenya. May 2013 – 31st December 2015: Scientist and SolarMal Project Manager, Human Health Division, icipe-TOC, Mbita Point, western Kenya: July 2013 – July 2014: Scientist on the Assessment of the Infectious Reservoir of Malaria (AFIRM Sept 2010 – February 2011 and August 2012 – March 2013: Lecturer (i.e. Health risks and infectious diseases in the tropics) and mentorship of undergraduate and MSc. students at Wageningen University, in the Netherlands				Zoology and Botany (2nd class upper)
18	Dr. John Maina Nyongesah	December 2013 – Current date: Lecturer: School of Biological	a) Articles in refereed journals = 17		2010 – 2013 PhD	University of Chinese Academy of Sciences, China, Natural Science

		Sciences; Jaramogi Oginga Odinga University of Science and Technology. August 2013 – November 2013: Tutorial Fellow: Jaramogi Oginga Odinga University of Science and Technology. September 2010 – March 2013. Research Assistant: Desert Ecosystem Monitoring, Xinjiang Institute of Ecology and Geography, UCAS, China. Aug 2008 –July 2010. Underwriter II (Credit): Equity Bank Ltd			2006 – 2010 MSc 2000 – 2005 BSc	(Ecology) Maseno University, Kenya, Botany (Plant Ecology) The University of Nairobi, Kenya, The University of Nairobi, Kenya
19	Prof. Harrisom Tsingalia	July 2017, Professor, Department of Biological Sciences, Jaramogi Oginga Odinga University of Science and Technology June, 2012-to-Date-Associate	a) Articles in refereed journals = 40 b) Conference papers in referred proceeding = 10		1979-1983 1983- 1988	University of Nairobi- B. Sc. Hons.in Zoology University of California at Berkeley, PhD in Ecology

		Professor, Department of Zoology, Moi University January 2013-2015 Chairperson, Department of Botany and Zoology, School of Biological and Physical Sciences, Moi University. August 2012-to-date Coordinator Curriculum Development and Review, and Outreach Activities, School of Biological and Sciences, Moi University. 2010-2012: Director, Centre for Kakamega Tropical Forest Studies, Masinde Muliro University of Science and Technology. 2008-2012: Chairperson, Faculty of Science Graduate				

		Student Committee 2009-2012: Senior Lecturer, Department of Biological Sciences, Masinde Muliro University of Science and Technology. 2007-2009: Lecturer, Department of Biological Sciences, Masinde Muliro University of Science and Technology 2005-2006: Part-time lecturer Masinde Muliro University of Science and Technology 2002-2004: Part- time Senior Lecturer, Maseno University. 1997-2001: Consultant, Science and				

		Environmental Education. 1989-1996: Lecturer university of Nairobi 1983-1988: PhD student and Teaching Assistant, University of California at Berkeley				
20	Dr. Daniel Onguru	**October 2011-to date:** School of Health Sciences, Jaramogi Oginga Odinga University of Science & Technology; Lecturer; Chair, Department of Biomedical Sciences. 2008 December-to Date: CGHR/KEMRI Schistosomiasis Laboratory:	a) Articles in refereed journals = 7		**2011-2016**	PhD (Medical Immunology); Maseno University
					2006-2010	MSc. Biomedical Science & Technology (Immunology); Maseno University
					1997-2002	BSc. Biomedical Science & Technology: 2nd Class Hons., Upper Division (Egerton University)

		Immunity to Human <u>Schistosomiasis</u> March 2003-January 2006: Nakuru Institute of Medical Sciences and Management Jan-Dec 2001: Laboratory attachment to CDC/KEMRI (Microbiology & Immunology				
21	Dr. Charles Angira	July, 2016 to March, 2017 Lecturer and Researcher Jaramogi Oginga Odinga University of Science and Technology (JOOUST) April, 2013 to June, 2016 Lecturer and Researcher part time JOOUST, MMUST, CUEA, UZIMA, GLUK, JKUAT April, 2011 to Dec., 2012 Projects	a) Articles in refereed journals = 8 referred proceeding = 5		2010 to December, 2014	Ph.D. Degree Doctor of Philosophy in Peace and Conflict Studies Masinde Muliro University of Science and Technology (MMUST) – Kakamega Kenya
					January, 2007 to May, 2009	Master in Community Health and Development Great Lakes University of Kisumu (GLUK) - KISUMU KENYA
					January, 2006 to January 2007	Higher Diploma in Community

		Director/ Country Representative (Kenya)				Health and Development Great Lakes University of Kisumu (GLUK) - KISUMU KENYA
					January, 2004 to May, 2005	Diploma in Community Health and Development Tropical Institute of Community Health and Development (TICH) in Africa
22	Dr. Brian Oduor	JUNE 2016-present Lecturer *School of Mathematics and Actuarial Science*, Jaramogi Oginga Odinga University of Science and Technology, *Full time.* APRIL 2016-JUNE 2016 Tutorial Fellow School of Mathematics and Actuarial Science, Jaramogi Oginga Odinga University of Science and Technology,	a) Book chapters = 1; b) Articles in refereed journals = 5, c) Conference papers = 3		2013-2016	Doctor of Philosophy in Applied Statistics *Jaramogi Oginga Odinga University of science and technology*
					2007-2012	Masters of Science in Applied Statistics *Maseno University*
					1999-2002	Bachelor of Education (Arts) *Kenyatta University*

23	Dr. John Oloo	7th August, 2016 to date Lecturer/ Jaramogi Oginga Odinga University of Science and Technology	a) Articles in refereed journals = 7		2011 - 2014	(PhD) in Environmental Science, Egerton University
					2007-2009	Master in Environmental Science, Egerton University
					1993 – 1995	Bachelor of Science in Natural resources management, Egerton University
					1983-1986	Diploma in Range Management, Egerton College
24	Dr. Patrick Hayombe	1st Aug 2013- to Date Senior Lecturer JOOUST 2010-2013 Lecturer JOOUST	a) Book chapters = 9; b) Articles in refereed journals = 42 c)Conference papers in referred proceeding = 10		2004-2010	Doctor Of Philosophy In Environmental Planning And Management, Moi University
					1994-1997	Master Of Philosophy In Environmental Planning And Management, Moi University
					1986-1989	Bachelor Of Arts (Geography), University Of Nairobi
25	Dr. Francis Odundo	2003-2011 TSC teacher 2011-2014 Assistant Lecturer JOOUST 2014-todate Lecturer	a) Book chapters = 9; b) Articles in refereed journals = 42 c)Conference papers in referred proceeding = 10		1997-2001	Bed (Arts) University Of Nairobi
					2006-2010	MSc(Applied Statistics) Maseno University
					2011-2014	PhD (Applied

		JOOUST				Statistics) Jaramogi Oginga Odinga University of Science and Technology

a) List of teaching staff specifying their academic ranks, listed according to departments/disciplines/ subjects and showing full-time and part-time staff and lecturer's average workload per academic year indicating the leader of each subject/discipline.

Academic Staff of the Programme

S/No.	Name	Grade	Qualification	Specialization	Years of experience	Fulltime/part time
1	Prof. Stephen Gaya Agong	Professor	PhD	Horticulture (Urban Food Security)	28	Full time
2	Prof. Reuben O. Mosi	Professor	PhD	Animal Science and Food Security	28	Full time
3	Prof. Monica A. Ayieko	Professor	PhD	Consumer Economics and Food Security	35	Full time
4	Prof. Adrian W. Mukhebi	Associate Professor	PhD	Agricultural Economics and Food Security	40	Full time
5	Prof. Arnold O. Watako	Associate Professor	PhD	Horticulture	36	Full time
6	Prof. Christopher O. Gor	Associate Professor	PhD	Agricultural Economics and Food Security	29	Full time

7	Dr. Darius O. Andika	Senior Lecturer	PhD	Horticulture and Food Security	14	Full time
8	Dr. Alice N. Muriithi	Lecturer	PhD	Horticulture	14	Full time
9	Dr. Calleb O. Olweny	Lecturer	PhD	Plant Breeding and Genetics	2	Full time
10	Dr. Walter Akuno	Lecturer	PhD	Agricultural Extension and Food Security	3	Full time
11	Prof. Beatrice Anyango	Associate Professor	PhD	Microbiology	27	Full time
12	Prof. Maria Onyango	Associate Professor	PhD	Entrepreneurship Development in Food Security	32	Full time
13	Prof. Fred Anangwe Amimo	Associate Professor	PhD	Entomology	25	Full time
14	Prof. Dennis Otieno Ochuodho	Associate Professor	PhD	Ecology	20	Full time
15	Dr. Solomon Omondi Ogara	Senior Lecturer	PhD	Computer Security	8	Full time
16	Dr. George Ayodo	Lecturer	PhD	Biomedical and Epidemiology	4	Full time
17	Dr. Stephen Amolo Asito	Lecturer	PhD	Zoology	6	Full time
19	Dr. Collins Kalwale Mweresa	Lecturer	PhD	Entomology	2	Full time
20	Dr. John Maina Nyongesah	Lecturer	PhD	Botany / Plant Ecology	4	Full time
21	Prof. Harrisom Tsingalia	Associate Professor	PhD	Ecology	15	Full time

22.	Dr. Daniel Onguru	Lecturer	PhD	Medical Immunology	8	Full time
23	Dr. Charles Angira	Lecturer	PhD	Peace and Conflict Studies	3	Full time
24	Dr. Brian Oduor	Lecturer	PhD	Applied statistics	3	Full time
25	Dr. John Oloo	Lecturer	PhD	Environmental Science	3	Full time
26	Dr. Patrick Hayombe	Lecturer	PhD	Environmental planning and management	5	Full time
27	Dr. Francis Odundo	Lecturer	PhD	Applied statistics	5	Full time
28	Prof. Peter Chalo	Professor	PhD	Food Science and Technology	30	Adjunct

SUPPORT STAFF

b) List of relevant academic support/technical staff listed according to departments/disciplines/ subjects and showing qualifications and years of working experience.

	Name	**Qualifications**	**Discipline**	**Years of experience**	**Full time/Part time**
1	Evans Nyakeri	Chief Technologies (MSC)	Biotechnology	4	**Full time**
2	Ng'ong'a Charles Adino	BSC	Agribusiness	4	**Full time**
3	William Emitaro	MSc	Microbiology	5	**Full time**
4	Dickson Owuor	MCM	ICT	10	**Full time**
5	Charles Dwasi	MSc	Project Management	5	**Full time**

4.5 Appendix V: University Procedures on Curriculum Development

JARAMOGI OGINGA ODINGA UNIVERSITY

OF SCIENCE AND TECHNOLOGY

DOCUMENT	**:**	**PROCEDURE FOR CURRICULUM DESIGN AND REVIEW**
DOC. NO	**:**	**JOOUST/AA/DVC/OP 12**
AUTHORIZED BY	**:**	**VICE-CHANCELLOR** **SIGNATURE:**
ISSUED BY	**:**	**DEPUTY VICE-CHANCELLOR ACADEMIC AFFAIRS** **SIGNATURE:**

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
(i)	Original	MR
	Copy	VC
(ii)	Copy	DVC AA
(iii)	Copy	RAA
(iv)	Copy	All Deans, Directors and Coordinators
(v)	Copy	HoDs (Academic)
(vi)	Soft Copy	JOOUST website by password

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
27/4/2012	Revised the Method to include Curriculum Review, method of views Collection and approval process	
29/4/2013	Procedure reviewed to reflect change of status from BUC to JOOUST	
	Changed title of procedure from Curriculum Development and Review to Curriculum Design and Review	

1.0 Purpose: To ensure effective curriculum design and review for academic programmes in JOOUST

2.0 Scope: It covers effective design, review and implementation of Curricula for academic programmes in JOOUST.

3.0 References:
4.1 ISO 9001:2008 Standards
4.2 JOOUST Quality Manual
4.3 JOOUST Statutes
4.4 The curriculum
4.5 University Strategic Plan

4.0 Terms and Definitions

4.1	BUC:	Bondo University College
4.2	MR:	Management Representative
	VC:	Vice-Chancellor
4.3	DVC AA:	Deputy Vice-Chancellor, Academic Affairs
4.4	RAA:	Registrar Academic Affairs

4.5 HOD:	Head of Department
4.6 Curriculum**:**	The academic content of a given programme.
4.7 School Board**:**	Decision organ in a School or Faculty with similar programmes.
4.8 JOOUST:	Jaramogi Oginga Odinga University of Science and Technology
4.9 Senate	Top academic organ of the University

5.0 Principal responsibility: DVC AA shall be responsible for the implementation of this procedure.

6.0 Method

6.1 HoDs shall collect and collate stakeholders' views on the need to establish new and review of the existing programmes every two and four years respectively.

6.2 The Dean/HoD shall collect the stakeholders view through administration of questionnaires, stakeholder forums, media contacts, research reports, commissioned studies, customer feedback among others.

6.3 The Dean/HoD shall use the collated views to develop new or review the existing programme.

6.4 The Dean/ HoD shall present the proposed new/reviewed programmes to the School/Departmental Boards for consideration and approval.

6.5 The Dean shall notify DVC, AA of intention to table new/revised programme for consideration by Deans Committee.

6.6 The Dean shall present the proposed new/reviewed programme to the Deans Committee for consideration and approval.

6.7 The DVC, AA shall present the proposed new/reviewed programme to the Senate for consideration and approval.

6.8 The VC shall forward the approved programme to the Commission for University Education (CUE) and/or professional body for accreditation.

6.9 If the programme is not approved at any stage, it shall be reverted to the proposer to incorporate and implement the views/decisions as suggested.

6.10 The VC shall communicate the decision of the CUE and/or professional body to the Senate

6.11 The DVC, AA shall communicate the results to the Dean/HoD.

6.11 The Dean/HoD shall mount the new/revised programme if accredited.

4.6 Appendix VI: University Procedures on Teaching

JARAMOGI OGINGA ODINGA UNIVERSITY

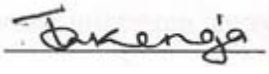
OF SCIENCE AND TECHNOLOGY

DOCUMENT: PROCEDURE FOR TEACHING

DOC. NO: JOOUST/AA/DVC/OP 14

AUTHORIZED BY : VICE-CHANCELLOR SIGNATURE: 

ISSUED BY : DEPUTY VICE-CHANCELLOR

ACADEMIC AFFAIRS SIGNATURE: 

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
(i)	**Original**	**MR**
(ii)	**Copy**	**VC**
(iii)	**Copy**	**DVC AA**
(iv)	**Copy**	**RAA**
(v)	**Copy**	**All Deans, Directors and Coordinators**
(vi)	**Copy**	**HOD (Academic)**
vii)	**Soft Copy**	**JOOUST Website by password**

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
27/04/2012	Restructured the method to include Course Distributions, Course outline, Delivery of Lectures & evaluation	
29/4/2013	Procedure reviewed to reflect change of status from BUC to JOOUST	

1.0 Purpose : To ensure effective teaching.

2.0 Scope **:** It covers all aspects of teaching in the University.

3.0 Reference **:**

3.1 ISO 9001:2008 Standards

3.2 JOOUST Quality Manual

3.3 JOOUST Statutes

3.4 JOOUST Service Charter

3.5 Government Statutory & Regulatory requirements

4.0 Terms and Definitions:

4.1BUC: Bondo University College

4.2 JOOUST: Jaramogi Oginga Odinga University of Science and

Technology
4.2 MR: Management Representative
4.3 DVC AA: Deputy Vice-Chancellor, Academic Affairs
4.4 RAA: Registrar, Academic Affairs

5.0 Responsibility: DVC AA shall be responsible for the implementation of this procedure.

6.0 Method

6.1 Course distributions

6.1.1 The dean/HOD shall convene a School/Departmental board meeting to distribute courses to lecturers at least one month before the beginning of each Semester.

6.1.2 The courses shall be distributed according to specialization and availability of staff.

6.1.3 For course where there are shortfalls in full time staff, the board shall recommend engagement of part-time lecturers by the University at least three weeks before the beginning of each Semester.

6.1.4 The Dean/HOD shall notify the concerned lecturers on the distribution of courses within one week after the distribution.

6.1.5 The Dean/HOD shall retain a copy of duly accepted engagement letter from the part-time lecturer.

6.2 Course Outline

6.2.1 The lecturer shall develop and submit the course outline to the Dean/HOD for approval two weeks to the beginning of the semester.

6.2.2 The lecturer shall ensure course outline contains the Course title, code, objectives, subject matter, mode of evaluation and references

6.2.3 The lecturer shall distribute duly approved course outline to the students at the beginning of lectures.

6.3 Delivery of Lectures

6.3.1 The lecturer shall prepare lecture material prior to the beginning of the lecture.

6.3.2 The Timetabling Coordinator shall forward teaching time table to the Schools/departments and post the same on the student's notice boards at the beginning of each semester.

6.3.3 The lecturer shall ensure the classes start and end on time as timetabled.

6.3.4 The lecturer shall give the lecture and/or administer practical lessons.

6.3.5 Students shall attend all classes registered for.

6.3.6 Lecturer shall ensure all the practical lessons are performed in their respective locations as per **JOOUST/AA/SBPS/OP 23**.

6.3.7 Laboratory technicians shall ensure the laboratories are arranged and all the necessary safety measures are observed.

6.4 Evaluation

Class attendance

6.4.1 The RAA shall develop and distribute a standard class attendance register to Schools/Departments at least one week before the lectures begin.

6.4.2 The lecturer shall administer the Class attendance register during each lecture.

6.4.3 The lecturer shall submit the duly filled registers and its analysis to the Dean/HOD two weeks before examinations.

6.4.4 The Dean/HOD shall submit the analysis to RAA for necessary action. (Refer to **JOOUST/AA/R/OP 13**: Procedure for Examinations).

Students' Course Evaluation

6.4.5 The Director Quality assurance and Enhancement shall develop and distribute course evaluation forms to the Deans/HOD two weeks to the beginning of examinations.

6.4.6 The lectures shall administer the forms to the students.

6.4.7 The students shall fill and submit the duly filled evaluation forms to the lecturers.

6.4.8 The Examinations Coordinator shall analyze the forms and submit the report to the Director Quality Assurance and Enhancement through the Deans/HOD one week before the beginning of examinations.

6.4.9 The Director Quality Assurance and Enhancement shall compile the report and forward the results to Senate for action.

Examination

6.4.10 The lecturers shall administer Continuous assessment tests (CATs) and end of semester examination as per *procedure* ***JOOUST/AA/R/OP 13****: Procedure for Examinations*

4.7 Appendix VII: University Procedures on Management of Examinations

JARAMOGI OGINGA ODINGA UNIVERSITY

OF SCIENCE AND TECHNOLOGY

DOCUMENT : PROCEDURE FOR MANAGEMENT OF EXAMINATIONS

DOC. NO : JOOUST/AA/R/OP 13

AUTHORIZED BY : DEPUTY VICE-CHANCELLOR SIGNATURE:

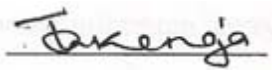
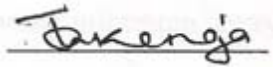
ACADEMIC AFFAIRS

ISSUED BY : REGISTRAR ACADEMIC AFFAIRS SIGNATURE:

0.1 DOCUMENT DISTRIBUTION

S. NO	TYPE	OFFICE
(i)	**Original**	**MR**
(ii)	**Copy**	**DVC AA**
(iii)	**Copy**	**RAA**
(iv)	**Copy**	**All Deans, Directors and Coordinators**
(v)	**Copy**	**Heads of Departments**
vi)	**Soft Copy**	**JOOUST Website by password**

0.2 DOCUMENT CHANGES

DATE	CHANGES	AUTHORIZED BY
27/04/2012	**Restructured methods 6.1.1, 6.1.2, 6.4.2, 6.4.5, 6.5.0, 6.6.1, 6.8.3, 6.8.5 6.8.7, 6.8.13, 6.8.15, 6.8.16, 6.8.18, 6.8.20, 6.9.5, 6.9.8, 6.9.9, 6.11.6 6.12.1, 6.12.6, 6.13.1, 6.13.3,**	
29/4/2013	Procedure reviewed to reflect change of status from BUC to JOOUST.	
	Deleted 6.8.15,6.8.16	

1.0 Purpose: To ensure efficient and effective process of managing examinations in JOOUST

2.0 Scope: It covers administration of examinations, issuance of examination results and academic transcripts in JOOUST.

3.0 References: 3.1 ISO 9001:2008 Standards
3.2 JOOUST Quality Manual
3.3 JOOUST Statutes
3.4 JOOUST Service Charter
3.5 JOOUST Examination Policy

3.6 JOOUST Examination Rules and Regulations

4.0 Terms and Definitions

4.1 BUC: Bondo University College

4.2 JOOUST: Jaramogi Oginga Odinga University of Science and Technology

4.3 MR: Management Representative

4.4 DVC AA: Deputy Vice Chancellor, Academic Affairs

4.5 RAA: Registrar Academic Affairs

4.6 HOD: Head of Department.

4.7 EO : Examination Officer

5.0 Responsibility: RAA shall be responsible for the implementation of this procedure**.**

6.0 Method

6.1 Setting examinations

6.1.1 RAA shall prepare a schedule of examination activities and forward to the Deans of Schools one week before commencement of the semester.

6.1.2 Deans of Schools shall give notices to course lecturers to set examinations within one month after commencement of the Semester.

6.1.3 Course lecturers shall forward examination question papers in soft and hard copies and marking schemes to Deans of Schools within the one month after commencement.

6.2 Moderation

6.2.1 Deans of Schools shall organize for internal moderation one week after receiving the

examinations.

6.2.2 Deans of Schools shall forward internally moderated examination question papers to External Examiners for further moderation one week after internal moderation.

6.2.3 Deans of Schools shall receive back moderated examination papers from the External Examiners one week after moderation.

6.2.4 Deans of Schools shall submit the externally moderated examination question papers (both soft and hard copies) to RAA within one week after receiving them from the External Examiners.

6.3 Examination Processing

6.3.1 RAA shall oversee the printing, collation, stapling and packaging of the examinations.

6.3.2 RAA shall ensure proper storage of examination question papers.

6.4 Registration for Examinations

6.4.1 RAA shall prepare registration schedules

6.4.2 RAA shall release a circular to students informing them of the examination registration dates at least four weeks before the start of examinations.

6.4.3 RAA shall register students at least four weeks before the start of examination

6.4.4 RAA shall issue examination cards to fully registered students.

6.4.5 Teaching and Examination Time-Table Coordinator shall release examination time-tables to students and invigilators at least two weeks before the examinations begin.

6.5 Examination Security

6.5.0 RAA shall receive examination question papers from Deans of Schools at least five weeks before the examinations begin.

6.5.1 RAA shall register and envelope individual examination question papers and store them in a secure safe.

6.6 Conduct and Invigilation of Examinations

6.6.1 RAA shall coordinate the conduct of examinations.

6.6.2 RAA shall release examinations at least half an hour before the start of all respective examinations to invigilators who in turn will conduct the examinations.

6.6.3 Chief Invigilators shall collect printed examination question papers from the examinations office half an hour before the start of the examination.

6.6.4 EO shall supervise the collection of examination question papers and other relevant materials.

6.6.5 Invigilators shall supervise the students while writing the examinations.

6.7 Marking of Examinations

6.7.1 Course lecturers shall mark the examinations within two weeks after the end of examinations.

6.7.2 Course lecturers shall forward the mark sheets, scripts and marking schemes to the Deans of Schools within two weeks after the end of the examinations.

6.8 Processing Examination Results

6.8.1 RAA shall prepare and release a Schedule of Results Processing Activities to Deans of Schools one (1) week after commencement of the semester.

6.8.2 Deans of Schools shall identify External Examiners and forward their names to RAA, one week after commencement of semester.

6.8.3 RAA shall table the names of External Examiners at Deans Committee for discussion one week after completion of examinations.

6.8.4 Deans Committee shall recommend to Senate the names of External Examiners for appointment.

6.8.5 DVC AA shall table the names at Senate for approval one week after the Deans Committee meeting.

6.8.6 Senate shall approve the appointment of External Examiners.

6.8.7 DVC AA shall prepare and release appointment letters to External examiners within two days.

6.8.8 Director, Quality Assurance and Enhancement shall invite External Examiners for moderation of examination results one week after the end of marking.

6.8.9 External Examiners shall moderate results and forward their reports to the VC immediately after moderation.

6.8.10 Heads of Departments shall convene Departmental Boards of Examiners to recommend the marks to the School Boards of Examiners two days after external moderation.

6.8.11 Deans of Schools shall convene School Boards of Examiners to discuss the results.

6.8.12 Deans of Schools shall forward provisional results to Senate for final decision and approval.

6.8.13 Deans of Schools shall release provisional results to candidates indicating pass or fail sixty days after the end of examinations after one academic year.

6.8.14 Deans of Schools shall post results on the Notice Boards.

6.8.15 Deans of Schools shall issue provisional academic transcripts to students two weeks after approval results by Senate.

6.8.16 DVC AA shall release final results to students within five days of senate approval

6.8.17 DVC AA shall release final transcripts to students and their sponsors where necessary within two weeks of Senate approval.

6.9 Examination Irregularities

6.9.1 Invigilators shall draw to the attention of candidates the seriousness of irregularities in examination thirty minutes before the beginning of each examination.

6.9.2 When an Invigilator suspects a candidate to have committed an irregularity in an examination, the invigilator after consulting and confirming with other Invigilators, shall inform the candidate that a report will be made to the DVC AA through the RAA.

6.9.3 The invigilator shall whenever possible confiscate the material that is being used for irregularity, but the candidate shall be permitted to finish the examination.

6.9.4 At the end of the examination the Chief Invigilator shall ask the candidate to make a written statement to be submitted to the DVC AA through the RAA. In the event that a student refuses to write a statement, this shall be considered as contempt of the Senate.

6.9.5 The invigilator and the Chairperson of Department/Programme Coordinator shall make a full report of the incident to the DVC AA through the RAA, the Dean/Director of Faculty/School/Institute three days after the examination.

6.9.6 The DVC AA shall appoint investigating committee one week upon receipt of the report to compare the invigilator's report and the candidate's statement.

6.9.7 The Investigating Committee shall normally be composed of the following (or their representatives), one of whom shall be the Chairperson:

a) Dean of Faculty/Director of School/Institute where the candidate is registered
b) Chairperson of the Department/Programme coordinator giving the course
c) Dean of Students
d) Registrar Academic Affairs (Secretary).

6.9.8 The investigating Committee shall meet within two (**2**) weeks after end of examinations of the reported case and shall make a report to the Special meeting of Academic Board convened to consider the result of the examination.

6.9.9 If the evidence establishes that a candidate committed an irregularity such a candidate shall face any one or a combination of the following penalties:

a) Expulsion from the University.
b) Suspension and cancellation of examination results of the candidate.
c) Issuance of a final stern warning letter.

6.10 Appeal

6.10.1 Discontinued or suspended students may appeal to the Chairman of Council through the VC within a period of ninety (**90**) days from the date of notification of the discontinuation. An appeal not submitted within the stipulated period shall not be considered.

6.10.2 The decision of the council on appeal case shall be communicated to the student within a period of ninety (**90**) days from the date of notification of the appeal.

6.11 Leakage of Examination

6.11.1 Any person suspecting leakage of an examination shall immediately report to the RAA

6.11.2 An Investigating Committee shall be set up by the Senate within one week to

investigate circumstances surrounding the suspected leakage of examinations. The committee shall be constituted as in Clause **8.12.7**, provided that the committee co-opts any other member deemed to be useful to the investigations.

6.11.3 The RAA may, by powers conferred to him/her by the Senate appoint such a committee to carry out an investigation provided it is ratified by Senate as soon as possible.

6.11.4 The Investigating Committee shall make a report of their findings to the Senate within two (**2**) weeks.

6.11.5 Where leakage has been established, the Senate shall cancel/withdraw the examination and order a fresh examination to be set and administered.

6.11.6 The Senate shall take appropriate disciplinary action against those found to be responsible for the leakage within two weeks after receiving the report.

6.12 Remarking of Examinations

6.12.1 A candidate shall be allowed to appeal to the Dean of Faculty/School through the Chairman of Department for remarking of an examination within seven days after examination results are released and upon payment of a non-refundable fee to be determined from time to time by the Council.

6.12.2 Remarking shall be done by an examiner (or Examiners) other than the original one and shall be moderated by the departmental appeals committee.

6.12.3 A candidate shall appeal within seven **(7)** days after results are published by the DVC AA.

6.12.4 A candidate shall address the appeals to RAA.

6.12.5 The RAA shall compile and transmit the appeals to the respective departments within seven days of receiving them.

6.12.6 Marking of the appealed cases must be done within seven **(7)** days after the student submits the request on official Faculty/School Appeal forms.

6.13 Replacement of Transcripts

6.13.1 The student shall pay requisite fees and fill a transcript replacement form.

6.13.2 RAA shall receive request for replacement, confirms details and approves within

two days and forward to respective Deans and Directors.

6.13.3 Dean/Director shall prepare the transcript and forward to RAA for signature within one week.

6.13.4 RAA shall inform the students within three days to collect their transcripts through a notice.

6.13.5 RAA shall issue the transcripts to students.

6.13.6 Students shall sign a transcript receiving form.

7.0 APPENDICES

7.1 Transcript Replacement Form

7.2 Transcript Receiving Form

4.8: Appendix VIII: Stakeholders workshop