

**BINDURA UNIVERSITY OF SCIENCE EDUCATION**  
**FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE**  
**DEPARTMENT OF AGRICULTURAL ECONOMICS, EDUCATION AND**  
**EXTENSION**

**MASTER OF SCIENCE DEGREE IN FOOD SECURITY AND SUSTAINABLE**  
**AGRICULTURE WITH OPTIONS**  
**IN**  
**1) PRODUCTION (MSc.FSPr)**  
**AND**  
**2) POLICY (MSc.FSPo)**  
**(2 YEARS)**

**1.0 RATIONALE**

**1.1 Background**

The Department of Agricultural Economics, Education and Extension is proposing to offer a Master of Science Degree in Food Security and Sustainable Agriculture as a new programme that will produce highly skilled individuals who can address the problem of food insecurity in Zimbabwe and beyond. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life. The current projected world population growth of 2 billion in the next 30 years is likely to cause an unmatched demand for food and increased pressure on land. Since poverty is the root cause of food insecurity, the ultimate way to improve the situation is to increase per capita incomes and/or ensure that households have the resources and capacity to produce their own food through farming. Food security is currently of critical concern globally and the development of food systems that can provide food of adequate quantity and quality in a sustainable way is now a research and policy priority.

No such programme is currently being offered in Zimbabwe and the SADC region. The programme will take a multidisciplinary approach to food security that includes socio-economic issues, crop and animal production, policy, climate change and food utilisation. It is important to note that for each food insecure situation, different options of response

programmes are needed and do not always include food aid. Only a good analysis can help decide the most appropriate response for a specific context. The programme will therefore equip Students in analysing different coping strategies to food insecurity at global, continental, national and household levels. The programme will provide:

- A multi-disciplinary approach to analysis of food security in developing countries and the main drivers of global food insecurity, malnutrition and poverty.
- An all-encompassing understanding of the contribution of sustainable agriculture and entrepreneurship to food security.

## **1.2 Benchmarking the Programme**

The proposed Master of Science Degree in Food Security and Sustainable Agriculture builds upon the BSc Honours Degrees in Crop Science, Animal Science, Agricultural Economics and Management and Agricultural Education and Extension programmes that are being offered in the Faculty of Agriculture and Environmental Science. Currently there is no degree programme in Zimbabwe that addresses the problem of food insecurity in a holistic approach.

## **2. CONSULTATIONS**

Organizations/individuals that were consulted included:

- Food and Agriculture Organisation
- World Vision International
- Department of Agricultural Economics and Extension, University of Zimbabwe
- Advisory Board Member: Walter Chambati
- Commercial Farmers Union
- World Health Organisation

Attachment 1a and 1b presents the written communications to and from stakeholders

Appendix 1 and 2 presents summarised reports on changes effected to comments made by the stakeholders and the

University Regulations-Sub Committee

## **3. KEY FEATURES OF THE PROGRAMME**

The Programme provides an in depth scientific understanding of food security and sustainable agriculture globally, regionally, nationally, at community and household level.

The programme will equip students with skills, principles, strategies and analytical techniques relating to food security and sustainable agriculture. The programme will create links with Non-Governmental Organisations, and Government Departments so that students can appreciate the nature of real life food insecurity challenges facing individuals, households, communities and the nation. The research component in the programme provide students with skills of finding the current food security status of households, evaluation of food security programmes and finding practical solutions to pressing food insecurity challenges.

#### **4. LEARNING OUTCOMES**

On completion of the programme, students are expected to:

- have an understanding of the global context of food insecurity including its main causes;
- carry out food security and vulnerability assessment using different approaches;
- be able to conduct independent research and produce food security and sustainable agriculture reports in a number of different formats (e.g. written, verbal);
- analyse food security intervention strategies;
- be able to design policies that enhance food security at global, continental, national and household level.

#### **5. CAREER OPPORTUNITIES**

Graduates from this programme can embark on careers in research, consultancy, policy formulation and project management for international organisations, government departments and national agencies, Non-Governmental Organisations (NGOs), research institutes, academia, commercial companies across the world and various organs of the United Nations including the Food and Agriculture Organisation (FAO).

#### **6. FINANCIAL IMPLICATIONS**

Teaching shall mainly be done within the structures of the Faculty of Agriculture and Environmental Science with input from the Faculty of Social Sciences and Humanities, Commerce and Science.

**7. DATE OF IMPLEMENTATION**

August 2017

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**REGULATIONS FOR THE MASTER OF SCIENCE DEGREE IN FOOD SECURITY  
AND SUSTAINABLE AGRICULTURE WITH OPTIONS**

**IN**

**1) PRODUCTION (MSc.FSPr)**

**AND**

**2) POLICY (MSc.FSPo)**

**(2 YEARS)**

**1. PREAMBLE**

These regulations shall be read and applied in conjunction with Bindura University of Science Education General Academic Regulations for Postgraduate Diplomas and Masters Degree by Course Work and they only apply to students registered under Bindura University of Science Education.

**2. ENTRY REQUIREMENTS**

2.1 The minimum entry requirements for the production option are a BSc Degree in Agriculture, Biological Sciences, Food Science, Nutrition and Forestry with a 2.2 grade or better.

2.2 The minimum entry requirements for the policy option are a BSc Degree in Agriculture, Natural Resources Management, Geography, Development Studies or any Social Science Degree with a 2.2 grade or better.

2.3 Candidates with at least 2 years of relevant working experience with a pass will also be considered.

**3. STRUCTURE OF PROGRAMME**

3.1 The Master of Science Degree in Food Security and Sustainable Agriculture programme shall extend over a period of 2 academic years of study. Taught Courses shall be covered in the first academic while the second academic year shall be for the Research Project (MFS 517).

3.2 The Degree Programme shall be arranged as follows:

- Part I: Students shall take at least five modules per semester in their first year of study.
- Part II: During the second academic year of study, students shall be required to do a research project on Food Security and/or Sustainable Agriculture.

## 4. ASSESSMENT

### 4.1 Taught Courses

- 4.1.1 Course work shall account for 40 % and the formal examination shall account for 60 % of the overall assessment.
- 4.1.2 Each taught course shall normally be assessed through a three-hour formal examination and course work.
- 4.1.3 The examiners may, at their discretion, require candidates to present themselves for an oral examination.

### 4.2 Research Project

- 4.2.1 To be allowed to register for the Research Project (MFS 517), the student must have passed Applied Research Methods (MFS 511).
- 4.2.2 The Department shall normally approve two supervisors for student's Research Project.
- 4.2.3 The Student shall submit three loose bound copies of the Research Project (MFS 517) to the Department for marking.
- 4.2.4 The assessment of the Research Project (MFS 517) shall be based on a dissertation submitted at least 1 month within the second academic year.
- 4.2.5 Normally, the dissertation shall be assessed by two examiners, excluding the supervisors.
- 4.2.6 The Departmental Board of Examiners shall consider the two examiners' assessments and decide on the final mark for the dissertation.
- 4.2.7 At the discretion of the examiners, the Student may be required to do a *viva voce* of the Research Project (MFS 517) before a selected Departmental Panel of Examiners.
- 4.2.8. Award of student certificates shall normally be based on meeting all academic requirements, including development of a manuscript in acceptable form based on the student's research.

## **5. DETERMINATION OF RESULTS**

5.1 For each course, the Departmental Panel of Examiners shall determine, for each student a continuous assessment mark, a formal examination mark and a final mark to determine whether the Student has passed.

5.2 Each Departmental Panel shall submit, for each course and research project under its control and for each student enrolled, the final mark and the result to the Faculty Board of Examiners.

## **6. AWARDING AND CLASSIFICATION OF THE DEGREE**

6.1 To be eligible for the award of an MScFS, a candidate must have;

6.1.1 Submitted two bound copies of the Research Project and a CD, which incorporate all amendments recommended by the Departmental Board of Examiners,

6.1.2 Passed all core courses in the programme, and

6.1.3 Accumulated a minimum of 60 credits.

6.2 Marks for 10 taught courses including all core courses and the research project shall be used to classify the degree

6.3 The weightings and classification of the degree shall be as follows:

### **6.3.1 Weighting**

Part I: 60 %

Part II: 40 %

### **6.3.2 Classification**

Distinction: 80 % and above

Merit: 70 - 79 %

Credit: 60 - 69 %

Pass: 50 – 59 %

Fail: 49 % and below

## 7.0 COURSES

### PART I

#### SEMESTER 1

CODE	DESCRIPTION	CORE/PRE-REQ/CO-REQ	CREDITS
MFS 501	Food Security Principles and Issues	Y	4
MFS 502	Applied Statistics		4
MFS 503	Planning, Monitoring and Evaluation		4
MFS 504	Food Safety, Preparation and Human Nutrition	Y	4
MFS 505	Post-Harvest and Marketing Management		4
MFS 506	Food Systems and Value Chain Management	Y	4
MFS 507	Food Security and Vulnerability Assessment	Y	4

#### PART 1      SEMESTER 2      PRODUCTION OPTION

MFS 512	Sustainable Crop Production	Y	4
MFS 513	Sustainable Livestock Production	Y	4
MFS 508	Food and Agricultural Policy		4
MFS 510	Food Security and Climate Change	Y	4
MFS 511	Applied Research Methods	MFS 502	4
MFS 514	International Trade		4
MFS 515	Gender, Food Security and Sustainable Agriculture		4
MFS 516	Agricultural Extension Approaches in Food and Agricultural Programmes	Y	4

<b>PART 1</b>	<b>SEMESTER 2</b>	<b>POLICY OPTION</b>		
MFS 508	Food and Agricultural Policy		Y	4
MFS 509	Contemporary Issues in Food Security and Sustainable Agriculture			4
MFS 510	Food Security and Climate Change		Y	4
MFS 511	Applied Research Methods		MFS 502	4
MFS 514	International Trade		Y	4
MFS 515	Gender, Food Security and Sustainable Agriculture			4
MFS 516	Agricultural Extension Approaches in Food and Agricultural Programmes		Y	4
 <b>PART II</b>				
MFS 517	Research Project		MFS 511 Y	24

## **8.0 COURSE SYNOPSIS**

### **FOOD SECURITY PRINCIPLES AND ISSUES (MFS 501)**

#### **Preamble**

The main aim of this course is to ensure that students enrolled for this course are able to ensure affordable access to sufficient, safe and nutritious food for an active and healthy life for all maintaining the natural environment. The course will also give students an understanding of the challenges of food security and to develop solutions that are effective, sustainable, socially equitable and ecologically friendly.

#### **Course content**

The following topics will be covered in this course:

- Definitions of food security
- Pillars of food security
- Discussion on household, national, regional and global food and nutrition security
- Role of institutions in food security
- Role and application of ICT in food security
- World Summit on Food Security
- Effects of food and nutrition insecurity
- Genetically Modified Products and their future in Zimbabwe and globally
- Challenges to achieving food and nutrition security at household, national, regional and international level
- Risks to food and nutrition security
- Children and food and nutrition security
- Approaches to minimize the impact of food and nutrition insecurity
- Financing options for food security and sustainable agriculture
- Business ethics and corporate governance for food security and sustainable agriculture programmes

## **APPLIED STATISTICS (MFS 502)**

### **Preamble**

This course is designed with an emphasis on practical application of statistical concepts (principles) in research scenarios. Students are assumed to be conversant with statistical principles from their undergraduate studies. The course will start with a brief review of descriptive and inferential statistics (hypothesis testing). Emphasis will be on use of statistical packages to generate output and the interpretation of the output thereof. Students will be taught the use of statistical packages such SPSS; STATA/Genstat and an introduction to Regression analysis.

### **Course content**

The following concepts will be covered:

- Descriptive statistics
  - Means
  - Frequencies
- Inferential statistics: Hypothesis testing
  - Parametric Tests (T-Test and ANOVA)
  - Non Parametric tests (Ch-squared test and Kruskall Wallis Test)
- Regression Analysis and Correlation Analysis
  - Simple linear regression
  - Binary Logistic regression
  - Multinomial logistic regression
  - Ordinal regression
- Generalized Linear Modelling:
  - Probit
  - Logit
  - Tobit

The final examination will include a practical session in which students will use statistical software to generate an output which they will interpret to answer specific research questions and problems.

## **PLANNING, MONITORING AND EVALUATION (MFS 503)**

### **Preamble**

The purpose of this course is to guide students in understanding the theories, methods and applications of planning, monitoring and evaluation for a variety of developmental projects. The course will describe various methods of planning, monitoring and evaluation of a diversity of socio-economic initiatives. It will also review planning, monitoring and evaluation theories for developmental organisations, while providing opportunities for students to analyse applications of evaluation in the field. The course will discuss the formulation of evaluation questions, data collection, analysis and reporting, and will provide students with the opportunity to analyse case studies of actual assessments of socio-economic mission initiatives carried out in the field. This course will also allow students to demonstrate their mastery of the material through designing and presentation of an outcome assessment (end of course project).

### **Course content**

The course will cover the following aspects:

- Principles of planning, monitoring and evaluation
- Rationale for planning, monitoring and evaluation
- Project impact assessment and social impact assessment
- Project design and management
- Designing and implementing an M&E system in Developmental Organisations
- Conducting baseline and evaluative studies
- Financial and economic appraisals of projects e.g. value for money, cost benefit analysis, hedonic methods, etc
- Performance monitoring and evaluation
- Data management and information use
- Sustaining M&E systems
- Final project assignment and presentations

## **FOOD SAFETY, PREPARATION AND HUMAN NUTRITION (MFS 504)**

### **Preamble**

The course will enable learners to determine the relationship between food and human health. The six categories of nutrients, their characteristics, physiological functions, food sources and their interrelationship with the requirements of the human body will be covered. The application of sound nutritional principles toward a better understanding of food preparation, diet analysis and recipe modification of foods consumed in Zimbabwe will also be covered. The basic nutrition and energy requirements of the human body will also be addressed.

### **Course content**

The course will cover the following aspects:

- Definitions of terms
- Types of nutrients
  - I. Macro-nutrients
  - II. Micro-nutrients
- Diet Planning Guides
- Making Dietary Recommendations
- Nutrition literacy
- Malnutrition
- Diet and Chronic Diseases
- Food hygiene and regulations
- Food handling and preservation
- Food preparation and processing
- Changing Food Habits
- Exercise and Sports Nutrition
- Food Toxins

## **POST-HARVEST AND MARKETING MANAGEMENT (MFS 505)**

### **Preamble**

Post-harvest activities are an integral part of the food production system, and the aim of this course is to enable students to be able to promote best practices for post-harvest handling and management along the entire food supply chain, focusing on a broad spectrum of operations and stakeholders in traditional and modern marketing systems. The ultimate goal of the system is to deliver high quality, safe food to consumers. The course will consider post-harvest processes both at farm and industrial level. Traditional processing technologies used at village level will be discussed in relation to modern day technologies. The course will also explore the available options of improving some of the traditional technologies to increase productivity. Recent developments in the processing and marketing of agricultural produce will also be covered.

### **Course content**

The course will also cover the following aspects:

- Crop characteristics
- Maturity indices of horticultural crops
- Pre-harvest crop management practices
- Harvesting and its relationship with quality
- Post-harvest treatments
- Major storage pests and diseases,
- Management of storage pests and disease
- Pesticides used in grain protection
- Hygiene
- Meat preservation methods
- Fundamentals of marketing
- Strategic marketing management
- Market Mix and channels of distribution
- Degrees of market competition
- Market segmentation
- Product pricing and marketing costs

## **FOOD SYSTEMS AND VALUE CHAIN MANAGEMENT (MFS 506)**

### **Preamble**

This course examines the drivers of food security and challenges facing the Zimbabwean food industry from farm through to retail and explicitly examines the role of supply chain management in enhancing the competitiveness of the sector. At the end of the course, students shall be able to identify and analyse all activities involved in the production, processing, transport and consumption of food. The food system includes the governance and economics of food production, its sustainability, the degree to which food is wasted, and how food production affects the natural environment. Interconnected or interlinked networks, channels and node businesses involved in the provision of products and services required by end customers in a supply chain will also be addressed.

### **Course content**

The course will cover the following aspects:

- The changing environment of the global food industry - its challenges and opportunities
- Farming as a business
- An introduction to the Zimbabwean food industry - its structure, conduct and performance
- Food systems
  - I. Conventional food systems
  - II. Alternative food systems
  - III. Transparency
- The concept of value chain management
- Supply Chain Analysis
- Limitations of value chain analysis
- Sustaining Chain Relationships
- Evaluation of food supply chains
- Sustainability and social responsibility in supply chains
- Global applications

## **FOOD SECURITY AND VULNERABILITY ASSESSMENT (MFS 507)**

### **Preamble**

This course examines in-depth picture of the food security situation and the vulnerability of households in a given household, community or country. Upon completion of this course, students will be able to use different approaches to measure food security at all levels (household, community and national). Upon completion of this course students will be able to determine food-insecure and vulnerable people, reasons why they are food insecure and give individuals, households, Government and Non-Governmental Organisation the appropriate assistance to reduce vulnerability and food insecurity.

### **Course content**

The course will cover the following aspects:

- Why measure food and nutrition security
- Methods used in measuring food and nutrition security
- Analysis of proxies used to measure food and nutrition security
- Steps followed in food and nutrition security assessment
- Sampling procedures
- Data collection procedures for food and nutrition security assessment surveys.
- Monitoring and measurement: Instruments and tools
- How to use the GPS System
- Entry of Food Security and Nutrition Data
- Analysis of Food Security and Nutrition Data
- Report preparation and dissemination
- Practical on food and nutrition security assessment
- Issues on vulnerability and resilience
- Linkages to sustainable livelihoods

## **FOOD AND AGRICULTURAL POLICY ANALYSIS (MFS 508)**

### **Preamble**

This course offers a multi-disciplinary approach to understanding agricultural and food policy in Zimbabwe and the world. It examines the agricultural policy process in terms of rationale, content, and consequences. It thereby helps students develop a better understanding of policy-making entities at various levels of government. It also provides a broad understanding of how policy actions in agriculture impact not only farmers' incomes, but also the well-being of consumers, the economic viability of rural communities, and the quality of our nation's environmental resources.

### **Course content**

The topics covered in the module are:

- Current Global Policy Issues and Debates,
- Role and Scope of Quantitative Agriculture Policy Analysis
- Policy Framework
- Agricultural Production Economics
- Fiscal policy
- Agrarian reform in Zimbabwe- land tenure, land use and administration
- Effects of agrarian reform on Food and Nutrition Security
- Land Policy
- Zimbabwe Food and Nutrition Policy
- Pricing Policy
- Contract Farming Policy
- Irrigation Policy
- Price Distortions in Agriculture
- Policy Analysis Matrix
- Poverty Reduction Strategies
- Analysis of Environmental Issues

## **CONTEMPORARY ISSUES IN FOOD SECURITY AND SUSTAINABLE AGRICULTURE (MFS 509)**

### **Preamble**

This course is designed to provide students with clear guidelines for effective oral communication of scientific information and an opportunity to put those guidelines into practice. Students will also be trained on how to review literature and write publishable review papers. This course acquaints students with sources of literature in the field of food security and sustainable agriculture. Students will be provided with an opportunity to review literature and personal communication and apply these findings to solve current agricultural and food insecurity problems that the world is experiencing. Students will be required to create two review presentations: a 15 minute oral presentation and a poster presentation. These are the common modes of communicating primary research at conferences and workshops. Students will therefore develop higher cognitive skills (critical thinking, creativity, analytical ability) and effective communication skills (written, oral, interpersonal, group).

### **Course content**

The programme will involve the following activities:

- Each student will be required to formulate two research topics in the area of food security and/or sustainable agriculture. The subject should be technical in nature, relevant to the society and based on scientific facts.
- The students will then be required to conduct a multimedia topic research in the library utilising journals, internet and other secondary sources of data.
- Each student will then present a 15 minutes oral presentation using PowerPoint for the first topic. A short question and answer session will follow each speaker's presentation.
- A written technical report of material presented orally must be submitted to the Lecturer in charge within one school week after the oral presentation. The report must be in a publishable format and the style should follow that found in the Journal of Food Security published by Springer.
- For the second research topic, the student is required to prepare and make a poster presentation.
- A full paper on material presented on the poster must be submitted to the Lecturer in charge within one school week after the poster presentation. The report must be

in a publishable format and the style should follow that found in the Journal of Food Security published by Springer.

## **FOOD SECURITY AND CLIMATE CHANGE (MFS 510)**

### **Preamble**

This course will enable students to identify and find solution to the impact of climate change on food security. Climate changes will likely impact on rainfall patterns and the availability of safe drinking water. This will result in dire shortages of food and thus lead to an unhealthy citizenry and an overall threat on human life. To counteract this possible scenario this course will enable students to educate people on issues related to food security in the advent of climate change so as to come up with mitigation measures to avoid a global catastrophe.

### **Course content**

The course will tackle the following issues:

- Impact of climate change on agricultural variables related to food production
- Impact of climate change on food availability
- Modeling the impacts of climate change on food and nutrition security
- Environmental Impact Assessment
- Technological responses to food security in the face of climate change
- Policy issues related to food security and climate change
- International cooperation on food and climate change
- Biotechnology and food security under climate change
- Climate change and agricultural employment
- Impact of climate change on food access
- Climate change and agricultural prices
- Quantification of climate change on food security
- Climate change adaptation and mitigation

## **APPLIED RESEARCH METHODS (MFS 511)**

### **Preamble**

The course offers an in-depth study of the philosophy of applied research methodologies in the social sciences in general and food security in particular. It focuses on the different quantitative and qualitative approaches as well as considerations and challenges involved in social research. The course seeks to equip students with skills that empower them to run research independently when confronted with socio-economic and food security problems.

### **Course content**

The main components include:

- Theoretical/conceptual foundations and philosophy of research methodology
- The research process
- Identification and description of research problems, objectives and hypotheses
- Literature review
- Research design
- Data collection methods and techniques
- Data analysis methods and techniques with emphasis on qualitative analysis
- Formulation and appraisal of a research proposal
- Ethical considerations in food security research
- Writing a scientific research paper,
- Communication of research results
- Research work planning and general research management

## **SUSTAINABLE CROP PRODUCTION (MFS 512)**

### **Preamble**

Crop agriculture provides mankind's increasing population with food, fibres and fuel. This course provides the knowledge and practical skills for how crops are improved, grown and managed. It will also give students the understanding and background to allow them to adapt to future industry changes influenced by climate change, pressure on resources or food shortage. Students will be taught a combination of practical skills and academic understanding to develop a critical and creative mindset. The course will also explore societal concerns of changes to agriculture/food production and the environment/landscape.

### **Course content**

The course will cover the following aspects:

- Principles of crop production
- Cropping systems in Zimbabwe
- Major crops grown in Zimbabwe.
- Cropping pattern and intensity
- Crop rotation
- Climate Smart Agriculture
- Organic farming
- Latest advances in plant pathology
- Integrated Pest Management
- Weed Control
- Moisture Management
- Agricultural intensification approaches to crop production
- Modern techniques of plant breeding
- Ethics in crop production
- Record keeping
- Value addition options for crops
- Ecological and sustainable field production system

## **SUSTAINABLE LIVESTOCK PRODUCTION (MFS 513)**

### **Preamble**

Livestock has been used throughout history for producing food and fiber. Because of pollution and dwindling natural resources, more farmers and ranchers are adopting sustainable production methods. If properly managed, livestock help to preserve the land and environment for future generations. Hence the need to study the various domestic animal production systems in relation to sustainable agriculture and integrated ranch and farm management strategies. The study of this course will also put into consideration the environmental factors and overall profitability.

### **Course content**

The course will include the following aspects:

- Introduction to the Health and Nutrition of Farm Animals
- Ecological and sustainable livestock production systems
- Management and Production of Beef, Sheep, and Goats
- Management and Production of Poultry and Swine
- Dairy Production and Management
- Facilities
- Natural forage and foraging
- Livestock integration
- Animal welfare
- Ethno veterinary medicine
- Breed selection
- Breeding
- Indigenous breeds and breeding management
- Marketing
- Value addition
- Financial planning and record keeping
- Evaluating the effectiveness of Sustainable Livestock Systems

## **ADVANCED INTERNATIONAL TRADE (MFS 514)**

### **Preamble**

No countries are entirely self-sufficient in the supply of goods and services. All of them are engaged in trade, whereby some goods and services are exported abroad and others are imported. Food security in most regions of the African continent is so reliant on trade amongst African countries themselves and others outside the continent. The course discusses sources of trade, analysis of trade opportunities and legal issues relating to trading. The course focuses on key issues that are of special interest to developing countries' decision-makers and discusses the strategic agricultural trade issues associated with food insecurity reduction. The course equips the student with the requisite skills needed in today's dynamic agricultural and food sectors by providing a broad understanding of how trade improve countries' food security status. Upon completion of this course, students shall be able to calculate terms of trade, analyse different trade intervention policies, theories and effects of tariff and non-tariff barriers to trade.

### **Course content**

The course will cover the following content issues among other topics:

- Trade theories
- Causes of trade
- Trade equilibrium
- Terms of trade
- Balance of payment
- Trade Intervention
- Tariff and non-tariff barriers
- Effect of imposing import tariffs on trade
- Reasons for trade intervention
- International Food and Agricultural trade
- Economic Integration.
- Retaliation and trade wars
- Trade creation and Trade diversion
- Agriculture and Globalisation

## **GENDER, FOOD SECURITY AND SUSTAINABLE AGRICULTURE (MFS 515)**

### **Preamble**

Women play an important role in the food value chain i.e. production, distribution and utilisation-the three components of food security. They also undertake a range of household and community level activities that support agricultural development such as soil and water conservation. This course will therefore explore the links between gender and food security starting with a discussion on the concept of gender and Women's Movement. Contemporary issues such as gender differentiated roles in agriculture and gender gaps in agriculture that make women particularly vulnerable to food insecurity will also be discussed. Issues on gender roles, social exclusion, resource control, and labour are also examined, as well as the use of gender analysis and tools. The importance of agency and the effects of public policies and actions on gender equity are studied through case studies from around the world.

### **Course content**

- Gender concepts
- Gender equality vs equity
- Gender mainstreaming
- Evolving approaches to gender
- Gender analysis at government, community, household and institutional levels
- Gender analysis frameworks
- Role of women in agriculture
- Gender gaps in the agricultural sector
- Appropriate responses to close the gender gap in the agricultural sector

## **AGRICULTURAL EXTENSION APPROACHES IN FOOD AND AGRICULTURAL PROGRAMMES (MFS 516)**

### **Preamble**

Capable and skilled extension managers do not only display technical and conceptual knowledge, but demonstrate ability to apply extension methods through planning, organizing, leading and reflecting on extension programme cycles. This course seeks to develop critical innovative agricultural managers capable of designing and developing sustainable extension programmes for developing countries.

### **Course content**

The course will cover the following content issues among other topics:

- Farming as a Business concept
- Theoretical concepts of Agricultural Extension
- Ethical considerations in Extension
- Managing Extension Programmes
- Extension and social change
- Communication strategies
- Innovative Extension approaches
- Sustainability of Extension Programmes
- Extension Organizations
- Extension approaches
- Approaches to group formations
- Farmer group development
- Monitoring and Evaluation of Extension Programmes