



Programme Specification

MSc Sustainable Agriculture & Food Security



ROYAL AGRICULTURAL UNIVERSITY, CIRENCESTER

PROGRAMME SPECIFICATION

**MSc Sustainable Agriculture
&
Food Security**

NB

The information contained in this document is intended only as a guide to the programme. It does not constitute a legally binding document or contract between the individual and the Royal Agricultural University.

The information contained herein is correct at the time of going to print, but the University reserves the right to make changes to the structure of the programme, assessment methods, etc. at any time without prior notification. Any changes made however will be made known as soon as possible.

Dr John Conway - Programme Manager

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1. Awarding Institution	Royal Agricultural University (RAU)
2. Teaching Institution	Royal Agricultural University (RAU)
3. Final Award Title(s)	MSc Sustainable Agriculture & Food Security
4. Academic level on Framework for Higher Education Qualifications (FHEQ)	Level 7
5. UCAS Code(s)	N/A
6. Relevant QAA Subject Benchmark Statement(s) and other reference points, e.g. FHEQ, FD qualification benchmark	QAA Framework for Higher Education Qualifications (FHEQ) (August 2008) Agriculture, Horticulture, Forestry, Food and Consumer Sciences (2009) QAA Master's degree characteristics (March 2010)
7. Details of accreditation by a professional/statutory body	N/A
8. Mode of study	Full-time or part-time
9. Language of study	English
10. Date of production/revision	October 2017
11. Educational Aims of the Programme	

This Master's programme, which specifically addresses sustainable agriculture and food security, has been designed to be equally relevant to UK and overseas graduates, to those looking for intensive solutions or local, low tech solutions to food production. It is also of relevance to public administrations, international aid/funding agencies and business sectors. The justification for this is summarised as follows:

- ❑ The demand for such programmes from prospective UK and overseas students (the latter applying for scholarships to the RAU, British Council and donor organisations).
- ❑ The observation that similar programmes offered in the UK do not fully address the global nature of sustainable food supply and rely heavily on either UK, European and 'developed nation' solutions or they focus solely on the tropics and sub tropics and hence 'emerging economy' solutions.
- ❑ The fact that embedded in an agricultural university, this programme is grounded in practicable agricultural solutions and taught alongside programmes designed for practising farmers.
- ❑ Recent trends in the appointment of graduates in this sector emphasise the need for an understanding of, and empathy with, the concepts of population dynamics as well as sustainable agricultural

development, resource management, social and environmental responsibility.

Future decisions on resource allocation and management in many professions will demand a better understanding of the 'sustainability concept' in order to optimise development within acceptable social, ethical and environmental frameworks.

This programme is at the heart of the RAU's Mission statement:

'To be a centre of excellence for developing the leaders of tomorrow in sustainable development relating to the rural economy, built environment and food chain, and to provide leadership regionally, nationally and internationally through its education, research and knowledge exchange activities'.

As reported in the Foresight Report¹ (2011) 'The global food system will experience an unprecedented confluence of pressures over the next 40 years. On the demand side, global population size will increase from nearly seven billion today to eight billion by 2030, and probably to over nine billion by 2050; many people are likely to be wealthier, creating demand for a more varied, high-quality diet requiring additional resources to produce. On the production side, competition for land, water and energy will intensify, while the effects of climate change will become increasingly apparent. The need to reduce greenhouse gas emissions and adapt to a changing climate will become imperative. Over this period globalisation will continue, exposing the food system to novel economic and political pressures'.

All of these pressures will challenge both local and global food security on the one hand and exert pressures on resource use for production on the other. This programme explores the dual challenges of food security and sustainable production strategies from a global to local perspective. In doing so, you will explore the five key challenges set out in the Foresight Report above, namely:

1. Balancing future demand and supply sustainably – to ensure that food supplies are affordable.
2. Ensuring that there is adequate stability in food supplies – and protecting the most vulnerable from the volatility that does occur.
3. Achieving global access to food and ending hunger. This recognises that producing enough food in the world so that everyone can *potentially* be fed is not the same thing as ensuring food security for all.

¹ Foresight. The Future of Food and Farming (2011) Final Project Report. The Government Office for Science, London. <http://www.bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf>

4. Managing the contribution of the food system to the mitigation of climate change.
5. Maintaining biodiversity and ecosystem services while feeding the world.

Many governments are re-focussing their food and agriculture strategies around sustainable production and consumption and a number focus on sustainable agricultural methods, environmental protection and food security driven by the triple issues of climate change, increasing population and demand for food augmented by increasing purchasing power in developing countries, and diminishing natural resources. All were synthesized in Sir John Beddington's "Perfect Storm" argument. These factors and drivers prevail globally, where shortages of food supply and increasing prices are causing particularly destabilising effects in many countries and concerns in most others.

At the same time, the Millennium Ecosystem Assessment² and the evaluation of the failure to achieve many of the Millennium Development Goals³ have both focused attention on continuing food scarcity, malnutrition and the environmental degradation caused by the need to feed an ever growing human population.

This programme focuses on food security by increasing supply and also considers the implications of supply beyond primary production combining the essence of sustainability with the need for major improvements in agricultural production systems. Through this programme, we will explore production issues such as sustainable intensification, the role of large scale and smaller scale farming, land sharing and substitution where the natural systems are able to support such intensification. At the same time consumption trends and the impact of malnutrition⁴ are explored from a sustainability perspective'

By bringing sustainable agriculture and food security together there is an opportunity to explore new paradigms for agriculture whilst linking this to the rest of the food supply chain and consumers. This programme promotes sustainable development and sustainable natural resource management within the agricultural and food sectors allowing participants to develop a series of alternative food producing strategies, including sustainable intensification and small scale urban, peri-urban and community based systems to enhance the current sustainable agricultural and organic production systems modules. This provides the full range of options from small, local, low input through to highly intensive large scale, global and allows students to choose their own path.

Irrespective of the source of production, the course also explores the role of food supply chains in contributing to sustainability and food security against

² <http://www.millenniumassessment.org/documents/document.297.aspx.pdf>

³ [http://www.un.org/millenniumgoals/pdf/\(2011_E\)%20MDG%20Report%202011_Book%20LR.pdf](http://www.un.org/millenniumgoals/pdf/(2011_E)%20MDG%20Report%202011_Book%20LR.pdf)

⁴ Malnutrition is taken to embrace under and over consumption as well as unbalanced diets

the back drop of increasing populations, nutritional challenges, post peak oil and P as well as climate change. In addition, there is an opportunity to explore the impacts of policy on production and consumption including the complexities of the 'aid versus trade' arguments linked to food.

A core theme in the programme is the focus on Future Agriculture. Whereas others seem to be stuck on 'contemporary agriculture' or 'centres of excellent for farming' we plan to expand the debate to embrace the uncertainties of future production and consumption globally as well as locally. In addition it focuses through a core module on issues of food security, thus combining production and supply to feeding the expanding global human population.

Programme Aim

The aim of the programme is: -

'To enable participants to gain the specialised knowledge, understanding, skills and attitudes necessary to contribute effectively and ethically to strategic decision making, opinion forming and operational management for the sustainable development of agricultural and food supply systems in both developed and developing regions'

Students will gain a broader understanding of relevant issues through knowledge acquisition, intellectual enquiry, debate, and team/individual research. The programme will also provide a learning environment that encourages them to explore factors influencing sustainability while at the same time reflecting on their own actions and attitudes, and those of others. The following themes will be developed:

- ❑ **Human exploitation of the Earth's resources for food production and the global and local implications of human development.**
- ❑ **The ecological basis for resource utilisation allied to wider environmental and landscape considerations of food production and supply**
- ❑ **The role and function of institutional structures in relation to development, resource exploitation, social, cultural, ethical and inter-generation considerations.**
- ❑ **The application of development paradigms models and tools to build capacity within communities, institutions and individuals.**

12. Intended Learning Outcomes

Learning outcomes describe what students should know and be able to do if they make full use of the opportunities for learning that the programme provides. By studying at the RAU, students will acquire knowledge and understanding of the context, core concepts and theories of the subject and develop key skills that they will be able to apply to both their academic studies and the wider world of work once they have graduated.

A. Knowledge and Understanding

Students will be able to:

- A1 Demonstrate a conceptual knowledge and understanding of the principles and framework of sustainable development in relation to agricultural production, resource use and food supply sectors.
- A2 Critically evaluate the application of principles of agricultural production and resource use at the local, regional and national level in developed and developing nations as well as at the international level.
- A3 Critically evaluate the strengths and limitations of the methods and techniques used in the provision of food supply and security in the face of increasing population and changing diets.
- A4 Understand the attitudes and motivations of those stakeholders involved in policy formulation and management of agricultural production, food supply and resource management and describe how these attitudes may impact on sustainable development strategies.

B. Intellectual Skills

Students will be able to:

- B1 Develop an independent enquiry, based on established research techniques, that critically evaluates and interprets advanced research and scholarship linked to sustainable food production, and demonstrates conceptual understanding and originality that contributes to knowledge in the discipline.

C. Practical / Professional Skills

Students will be able to:

- C1 Communicate with a range of stakeholders in a variety of mediums (e.g. verbal, visual presentations, written documents, etc.).
- C2 Manage projects through the application of project management models, skills and techniques.
- C3 Demonstrate the appropriate technical and professional skills necessary to measure economic, social and environmental aspects of agriculture and food production change at the policy level, at the individual business level, and within the rural areas themselves.
- C4 Demonstrate strategic decision making skills, especially in relation to reconciling the complex and (sometimes) unpredictable interactions between the economic, environmental and social dimensions of sustainable agriculture and food production.

Assessment methods used to test these outcomes will include written examinations and coursework such as report writing, essay writing, critical literature review, oral and poster presentations, assessed group and individual

seminars, and the submission of two research papers written to the submission requirements of a specified scientific journal.

D. Transferable Skills

Students will be able to:

- D1 Communication skills - The ability to express the ideas you have obtained verbally as well as through written and visual work in a form which is appropriate to the intended audience.
- D2 Interpersonal skills - The ability to work effectively as a member of a team or on your own, including the ability to motivate yourself and others, to show and take initiative and to demonstrate negotiation skills.
- D3 Independent learning ability required for continuing professional development - The capacity for independent and self-managed learning, including the ability to analyse and reflect on your own personal strengths/ weaknesses and formulate strategies for improvement.
- D4 Numerical and IT skills - The ability to use Information Technology e.g. email and internet, databases, statistical packages, spreadsheets and word processing.

Assessment methods used to test these outcomes will include: Written examinations and coursework such as: Report writing, essay writing, critical literature review, oral and poster presentations, assessed group and individual seminars, and the submission of research papers.

13. Programme Structure and requirements

The MSc programme comprises 180 credits, each taught module is equivalent to about 150 hours of study and is worth 15 credits; the research project is worth 60 credits. The MSc programme consists of a one-year full-time programme starting in either October or January (or part time equivalent) which comprises eight taught modules and a research project.

The structure of the taught programme consist of the following five compulsory modules

- 4002 Agriculture
- 4040 Sustainable Management of Soil and Water
- 4250 International Rural Development
- 4201 Poverty and Food Security
- 4081 Agricultural and Rural Policy

plus three of the following:

4082 Natural Resource Management

4083 Climate change and development

4238 Integrated Organic Systems

4202 Sustainable Agricultural Intensification

4203 Small Scale Farming and Local Food Supply

4075 Independent Research Project.

The independent research study is presented as two papers, a review paper and a research paper, based on your personal research on a subject of your own choosing under the guidance of a member of academic staff with expertise in this specialist area.

Full Time Study

The maximum time period for completing the programme on a full-time basis is two years.

Part Time Study

The programme may be completed by part time study, normally over two years, up to a maximum of four years. Generally four modules are completed over the first academic year, followed by the remaining modules and the independent research programme in the second year.

Student workload

All full-time academic programmes at the RAU are constructed using a selection of modules, each of which requires engagement with a variety of learning activities.

The credit system is used to ensure a balanced workload across each programme, with each credit point representing a notional learning time of 10 hours of student work. Thus a 15-credit module will require a notional input of 150 hours of work, and a complete academic year of 120 credits will require 1200 hours of work, or approximately 40 hours per week.

Within this total time, students can expect to participate in formal timetabled activities such as lectures, seminars, tutorials, practicals and visits for approximately one third of the total time; usually around 2 hours per week for a 15 credit module studied over 30 weeks of the year. Thus the majority of module activities, such as reading around the subject, preparing for tutorials and seminars, preparing for, and completing, module assessments and revision for, and sitting, examinations, will take place outside of these scheduled activities, but are an essential part of a student's learning journey.

Students attempting to short-cut their learning activities may find themselves experiencing difficulties as each module progresses, and as the level of assumed understanding increases. Thus it is vitally important that new students establish an effective routine for their studies as soon as possible. Maintaining a balanced workload from the start of the programme will help to avoid intense periods of activity, and ensure knowledge and understanding gradually develop throughout the year in readiness for any end-of-module examinations.

14. Student support services

The Programme Management Group includes the Programme Manager (Dr John Conway), and staff responsible for individual modules, as well as the Head of the Centre for Agriculture, and 2 elected student representatives. Each student is allocated a personal tutor upon registration, to whom any academic and/or personal (if relevant) matters may be addressed.

In addition, your learning will be supported by:

- an induction programme when you join University which will introduce your programme of study and the study skills you need to complete it successfully;
- the RAU Student Handbook;
- individual module sites on the VLE, describing in detail the teaching programme for each module you study;
- extensive library and other learning resources, including study skills packages;
- a personal tutor, whose role is to assist you with the progress of your academic studies as well as advise on pastoral care issues;
- student email and open and personal access to academic staff, including the Programme Manager;
- access to the Student Support Hub, the University health centre and a counselling service;
- access to a Disability Officer, who provides assistance and guidance on teaching and learning support for students with dyslexia (or other forms of specific learning difficulties) and other disabilities, including dyslexia specialist to help you develop your learning skills.
- a careers service

15. Criteria for admissions

Academic Qualifications

Applicants should normally hold a first or upper second class Honours degree in a relevant subject and have evidence of English reading, speaking and writing to a minimum of IELTS 6.5 in each category. Suitable applied disciplines include rural land management, agriculture, environmental science or countryside management while pure disciplines such as geography; sociology and economics are equally suitable.

Mature applicants with relevant experience such as working for government departments or agencies, environmental or aid organisations, or with a high level of aptitude and motivation are welcomed.

16. Teaching, learning and assessment

This programme is inclusive of disabled people (e.g. hearing impaired, vision impaired, speech impaired, dyslexic and mobility impaired) with particular regard to teaching, learning and assessment, in accordance with Part 10: Inclusive Practice of the University's Teaching Quality Handbook and the Equality Act 2010. Students are encouraged to disclose any impairment to the Disability Officer so that the appropriate support can be provided. Students have the right to request that the nature of their impairment be treated as confidential.

Teaching Methods and Styles

Understanding, and being able to contribute to, the complex issues of sustainable development and resource management requires the harmonisation of the acquisition of knowledge, skills and attitudes. In order to manage this harmonisation, three modes of learning will permeate throughout the programme:

- **Knowledge input** - *[i.e. formal lectures and guided reading], this process involves the acquisition of data, factual information and concepts. Knowledge input also takes place in a less structured manner through discussions and seminars.*
- **Discovery** - *a process where the learner acts and notes the consequences of that action. It is essential that the action/feedback cycle is managed during this process, for example, through the management of case studies and seminar discussions as well as through the project management exercises.*
- **Reflection** - *involves the restructuring of knowledge input and discovery, making sense of them, conceptualising and generating theories, rules or hypotheses about what has happened, for example during case studies, discussions or students' individual research. This enables students to restructure their views of the world in the light of new experiences and information.*

The SAFS programme is delivered through a combination of lectures, small group tutorial workshops, visits and directed study. In addition, case studies, practical workshops, field studies, group projects and role play exercises enable theory to be put into practice and enables students to develop both independent and team skills. Also, as one seeks to develop the necessary professional understanding, skills and attitudes required to address issues of sustainable development, there is an integrated programme of workshops [e.g. environmental assessment, policy and resource appraisals and field survey methodologies].

As a result of greater student participation, there will be opportunities for students to actively acquire knowledge, develop skills and most importantly form a view or attitude towards the subject in question and sustainable development *per se*.

The forms of disseminating knowledge employed on the programme include lectures (including those from guest speakers), seminars (group, individual-led, student-led), tutorials, literature-based research, computer assisted learning and practical instruction. The emphasis on further development of independent learning skills is a key cognitive attribute of Master's level study and so directed and private study constitute a major element of scholarship, and culminate in the research leading to review and research papers.

Lectures

Lecturers are not intended to be seen as the founts of all knowledge. The purpose of lectures is to interest students in a particular subject matter in order that they can research it further.

At postgraduate level lectures often lend themselves to informality and debate, due to small group size. Where this is impractical there may be question times offered at various intervals.

Lectures are intended to:

- Stimulate interest in the subject matter.
- Give information.
- Offer a range of perspectives on a subject.
- Explain higher level concepts and theories.
- Show students how to deepen their knowledge.
- Provide an opportunity to listen to specialist guest lecturers.

Seminars and Tutorials

Seminars and tutorials are primarily interactive and provide an opportunity for students to inter-relate with each other in an academic context. They are an occasion for the exchange of ideas and information under the guidance of a lecturer/tutor. Individual or group preparation of a topic is usually required and performance may contribute to assessment.

Seminars and tutorials are intended to:

- Offer the chance for students to express their views.
- Allow academic interaction.
- Give students valuable practice in making presentations.
- Facilitate discussions.
- Encourage structured research.
- Share information and experience.
- Consolidate experience of group work.

Practical classes

Practicals, field studies, visits and demonstrations allow students to experience concepts and principles in the field or laboratory, and to gain a wider perspective from outside the University. Students should be prepared to participate fully in such activities, including physical engagement.

Directed and private study

Students are expected to undertake private study as the important learning method within the programme. This will normally involve reading texts and learned journals to explore the breadth and depth of the syllabus, and familiarisation with web-based abstracts services. The preparation of tutorial/seminar work, coursework, case study submissions and major projects will involve in-depth knowledge of current theories in the field of international rural development. The use of the full range of resources (hard copy and electronic) provided by the University library is very important for the effective use of private study time. The academic and library staff provide advice and assistance on both finding and using relevant material.

Research Project

Students will provide a proposal for a research project of their own choosing, for advice, guidance and approval by programme managers and allocation of a supervisor. The research project is submitted in the format of two scientific journal papers; a review paper and a research paper.

The review paper (approx. 6,000 words) is a comprehensive review of the literature on the chosen topic which concludes with a research question or hypothesis, or arrives at a model to be tested, for the research project. During the review process workshops are offered on a range of research methods.

On completion of the review, a research project is designed to test the hypothesis or to apply the model and carried out over the following months; this should be written up in the format of a research paper (approx. 6,000 words) and submitted by the end of the 12 month year (e.g. end of September for those starting in October] accompanied by a synopsis linking the two papers.

Late submissions are subject to the normal penalties unless mitigating circumstances are claimed.

17. Quality Assurance Procedures

A Programme Manager who is normally an experienced member of academic staff and may teach modules or part modules or may have specific expertise in the disciplines relevant to the programme will:

- (i) Convene the meetings of the Programme Management Group and Programme Committee.
- (ii) Coordinate teaching input and agree timetable arrangements.
- (iii) Be responsible for producing the Programme Specification and programme revalidation documents as approved by the Academic Quality and Standards Committee (AQSC).
- (iv) Present an Annual Programme Manager's Report to AQSC through the respective Dean.
- (v) Have delegated authority to respond to immediate problems or difficulties within the management of a programme.
- (vi) Liaise with all relevant members of teaching staff, including peripatetic staff.

A Programme Committee, comprising the Programme Manager (Chair), Dean (SOA), relevant teaching staff and 2 elected student representatives, is expected to meet at least twice a year and has responsibility for monitoring delivery of the programme of study during the academic year.

18. Marking Guides and Assessment Regulations

The marking criteria for coursework and examinations and the regulations for assessment and progression are available on the University website

19. Ownership of programme specification

The School of Agriculture, Food and Environment is responsible for the internal management of the programme.

20. Curriculum Map

	International Rural Development	Agriculture	Sustainable Management of Soil and Water	Agricultural and Rural Policy	Poverty and Food Security	Individual Research	Sustainable Agricultural Intensification	Small scale farming and local food supply	Integrated Organic Systems
	Core Modules					Focus modules			
Knowledge and Understanding									
A1 Demonstrate a conceptual knowledge and understanding of the principles and framework of sustainable development in relation to agricultural production, resource use and food supply sectors	√	√	√	√	√	√	√	√	√
A2 Critically evaluate the application of principles of agricultural production and resource use at the local, region and national level in developed and developing nations as well as at the international level.	√	√	√	√		√	√	√	√
A3 Critically evaluate the strengths and limitations of the methods and techniques used in the provision of food supply and security in the face of increasing population and changing diets.		√		√		√	√	√	
A4 Understand the attitudes and motivations of those stakeholders involved in policy formulation and management of agricultural production, food supply and resource management and describe how these attitudes may impact on sustainable development strategies.	√			√			√	√	
Cognitive Skills									
B1 Develop an independent enquiry, based on established research techniques, that critically evaluates and interprets advanced research and scholarship linked to sustainable food production and demonstrates conceptual understanding and originality that					√				

contributes to knowledge in the discipline									
Practical Skills									
C1 Communicate with a range of stakeholders in a variety of mediums (e.g. verbal, visual presentations, written documents etc.).	√	√	√	√	√	√	√	√	√
C2 Manage projects through the application of project management models and skills.	√	√		√		√			
C3 Demonstrate the appropriate technical and professional skills necessary to measure economic, social and environmental aspects of agriculture and food production change at the policy level, at the individual business level, and within the rural areas themselves.	√			√			√	√	
c4 Demonstrate strategic decision making skills, especially in relation to reconciling the complex and (sometimes) unpredictable interactions between the economic, environmental and social dimensions of sustainable agriculture and food production.	√	√		√		√	√	√	
Transferable Skills									
D1 Communication skills	√	√	√	√	√	√	√	√	√
D2 Interpersonal skills	√	√		√					
D3 Decision making skills	√	√		√		√	√	√	
D4 Independent learning ability required for CPD	√		√	√		√			
D5 Numerical and IT skills				√		√			√

21. Career prospects

Graduates have found employment in the following sectors:

International institutions	UN IFAD FAO IFPRI etc.
Government and Statutory Bodies	Ministries and Departments (e.g. Defra, DfID) Food Standards Agency

Business and Industry	Major agricultural & food supply companies Consultancy
Non-Governmental Organisations	Soil Association NFU / CLA Local food associations Aid and Development
Education	Development of education materials
Academia and Research	Lecturer PhD

22. Further information

The Programme Specification is designed to be a concise summary of the main features of the MSc in Sustainable Agriculture and Food Security. More detailed information about the modules is available in the module sections on the University's VLE (Moodle). The University regulations, which include the assessment regulations, are available from the RAU website. The Student Handbook also includes details of the University's Equal Opportunities and Disabilities statements and the details of the learning resources available to students.

23. Module Reference Sheets

Core Modules [compulsory]

4002 Agriculture
4040 Sustainable Management of Soil and Water
4250 International Rural Development
4201 Poverty and Food Security
4081 Agricultural and Rural Policy
4075 Independent Research Project

Elective Modules [choose any three]

4082 Natural Resource Management
4083 Climate change and development
4238 Integrated Organic Systems
4202 Sustainable Agricultural Intensification
4203 Small Scale Farming and Local Food Supply

Module reference sheets, for all modules studied on the programme, are available on the University website.

https://www.rau.ac.uk/about/organisation/public-information/academic-information/modules?field_module_level_value=7&field_related_courses_target_id_selective=970

or <http://tinyurl.com/ya2eeymx>