MSc by Research Agriculture, Ecology and Environment (full-time)
For students entering in 2017/8

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	
Programme length:	12 months
Date of specification:	14/Aug/2017
Programme Director:	Dr Robbie Girling
Board of Studies:	Agriculture, Policy and Development

Summary of programme aims
The programme aims to prepare students for subsequent doctoral studies in agriculture, ecology and environmental science, and for a research career in related industries by providing them with:
- Rigorous training in research methods and statistical analyses commonly used in agriculture, ecology and environmental science;
- A multi-disciplinary appreciation of the underlying environmental, social and economic issues surrounding contemporary agricultural systems;
- Critical appraisal skills of research literature at the interface between agriculture, ecology and environmental science;
- The ability to plan, manage and conduct an in-depth field- and/or lab-based independent research project.

Transferable skills
The programme requires a substantial amount of independent reading, research and study, and students are expected to take personal responsibility and show initiative in developing their knowledge and understanding of the field of study. In following this programme, students will also have the opportunity to enhance and develop their skills relating to communication (oral and written), presentations, information and data handling, problem solving, teamwork, and the use of information technology. Students will learn to work independently, under time pressures, and will learn to set priorities and manage their time in order to meet strict deadlines. Career planning will also be an integral part of the programme.

Programme content
Students must take two compulsory taught modules (APMA110, APMA112) totalling 40 credits and an in-depth research project (APMA111) worth 120 credits. They must select a further 20 credits from a range of taught modules. All compulsory taught modules will take place in the Autumn term with the research project commencing in January.

Compulsory

Module code	Module title	Credits	Level
APMA110	Research methods in Agriculture, Ecology and Environment	20	7
APMA111	Research project in Agriculture, Ecology and Environment	120	7
APMA112	Issues in Agriculture, Ecology and Environment	20	7

Optional (students select 20 credits)*

Module code	Module title	Credits	Level
APMA102	Ecosystem Services	10	7
APMA104	Principles of Integrated Pest Management	20	7
APMA90	Climate Change and Food Systems	10	7
APME40	Qualitative Research Methods	10	7
APMA41	Agriculture in the Tropics	10	7
APMA89	Water, Agriculture and Irrigation	10	7
GVMCGC	Carbon and Global Change	10	7
GVMLASP	Laboratory Analysis of Soils and Pollutants	10	7
BIMWK1	Invertebrate Survey and Assessment	10	7

* The optional modules listed are a sample of those available. Students may select widely from the modules available in the module guide, subject to timetabling constraints.
Part-time or modular arrangements

Part-time students will be required to complete both compulsory modules (APMA110 and APMA112) during the Autumn term of their first year. Those students will then be able to take their optional modules (20 credits) and intensive research project (APMA111) over the course of the subsequent 21 months.

Progression requirements
Students are required to achieve an overall pass mark for all of the taught modules in the Autumn term (APMA110 and APMA112, plus any optional modules) before being allowed to progress to the research project (APMA111).

Summary of Teaching and Assessment
Teaching is organised in modules. The delivery of materials takes a variety of forms including lectures, practical classes, seminars and small group discussions. Assessment is modular and involves coursework. The nature of the assessment is determined by the aims of the module. A project supervisor is appointed for each student.
The University's taught postgraduate marks classification is as follows:
Mark Interpretation
70 -100% Distinction
60 - 69% Merit
50 - 59% Good standard (Pass)
Failing categories
40 - 49% Work below threshold standard
0 - 39% Unsatisfactory Work
For Masters Degree
To qualify for Distinction, students must gain an overall average of 70 or more over 180 credits and a mark of 60 or more for the dissertation, and must not have any mark below 40.
To qualify for Merit, students must gain an overall average of 60 or more over 180 credits and a mark of 50 or more for the dissertation, and must not have any mark below 40.
To qualify for Passed, students must gain an overall average of 50 or more over 180 credits and a mark of 50 or more for the dissertation. In addition, the total credit value of all modules marked below 40 must not exceed 30 credits and of all modules marked below 50 must not exceed 55 credits.

Admission requirements

Academic Requirements
Entrants to this programme are normally required to have obtained a good upper second class (2:1) honours degree or above (or the equivalent from a university outside the UK) in a subject relevant to agriculture, ecology, geography or environmental sciences.
Applicants with other qualifications and relevant professional experience will be considered and are encouraged to apply.
English Requirements
If English is not your first language, you may be required to take an IELTS test and achieve an overall score of 6.5 with no less than 5.5 in each element. The University also accepts a number of other tests instead of IELTS. A full list of approved tests and scores can be found at www.reading.ac.uk/ad-Englishtests.aspx.
If you take one of our Pre-sessional English courses before your main programme, you will be able to enter the programme with an end of course assessment score of 6.5 with no element less than 5.5.

Admissions Tutor: Dr Robbie Girling

Support for students and their learning
University support for students and their learning falls into two categories. Learning support is provided by a wide array of services across the University, including: the University Library, In-sessional English Support Programme, the Study Advice and Mathematics Support teams and IT Services. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme. Student guidance and welfare support is provided by Personal Tutors, School Senior Tutors, the Students' Union, the Medical Practice and the Support Centres. If a student has a general enquiry and is unsure where to seek help, they should visit their Support Centre. There are five Support Centres across the University, including one based at the London Road Campus. The Support Centre will be able to advise on matters such as extenuating circumstances, module selection, suspensions, withdrawals, timetable queries and transferring programme. The Support Centre will also be able to signpost students to

Carrington building where other University services related to disability, financial support, counselling and wellbeing, accommodation and careers can be found. More information on what student services are available can be found here: http://student.reading.ac.uk/essentials.

Day-to-day queries regarding academic matters (e.g. timetabling) should be addressed in the first instance to the Postgraduate Student Office in the School of Agriculture, Policy and Development or, where necessary, to the Programme Director.

Students on the programme will have access to the talks and training courses provided under the Researcher Development Programme by the University's Graduate School.

Career prospects
The MSc by Research in Agriculture, Ecology and Environment prepares students for work in a wide range of organisations engaged in the agricultural and ecological sectors. These include government agencies, private and nationally funded research institutes, non-governmental organisations, charities, agrochemical companies, media and private sector consultancies. We also envisage that some graduates will go on to pursue a PhD programme.

Opportunities for study abroad or for placements
With the agreement of their dissertation supervisor, students may be allowed to study abroad in a collaborator's lab or to learn a new research technique as part of their project work.

Programme Outcomes

Knowledge and Understanding

A. Knowledge and understanding of:

1. How to form unambiguous testable hypotheses and design appropriate experiments and select statistical analyses to test those hypotheses.
2. How to plan and manage a research project in agriculture, ecology and environmental science.
3. The current issues facing agricultural systems, in particular with respect to sustainable food production.
4. The types of statistical and data analysis techniques used in research in agriculture, ecology and environmental science.

Teaching/learning methods and strategies

Mixtures of lectures, seminars, a field trip, tutorials, computer laboratory classes, excursions to relevant external organisations and independent research. Feedback and guidance are important elements complementing an emphasis on self-directed study.

Assessment
By dissertation and coursework including: a lab notebook; in class tests (multiple choice and short answer); a reflective photo diary; and short assignments.

Skills and other attributes

B. Intellectual skills - *able to:*

1. Engage with and draw upon different scientific fields to develop a holistic and multi-disciplinary perspective on the issues in agricultural systems with particular regard to ecology and the environment.
2. Perform gap analysis of the scientific literature to identify the limitations of current knowledge and to propose a research plan to address the identified gaps.
3. Develop a scientific hypothesis and then develop an experimental strategy to test this hypothesis.
4. Think logically, analytically and critically with respect to interpreting scientific data.
5. Evaluate and select appropriate field studies techniques to answer questions in agricultural, ecological and environmental research.
6. Select and apply relevant quantitative statistical

Teaching/learning methods and strategies

Mixtures of lectures, seminars, tutorials, excursions to relevant external organisations and independent research.

Assessment
By oral presentation and other coursework including reports and the project literature review and dissertation.

techniques to address questions in agricultural, ecological and environmental research.

C. Practical skills - *able to:*

1. Perform a range of standard research tasks used in agriculture, ecology and environmental sciences, including: insect and plant identification, techniques in field crops research, citizen science research techniques and geographic information systems.
2. Perform data manipulation and analysis, using the R statistical package, on experimental results where appropriate in order to quantify the data and perform statistical analysis of the data and evaluate the significance of experimental results.
3. Appraise and contrast different approaches to research in agriculture, ecology and the environment.
4. Problem-solve and troubleshoot technical issues that arise during a research project.

Teaching/learning methods and strategies

Mixtures of seminars, field practical classes, laboratory practical classes, a field trip and computer laboratory classes.

Assessment
By coursework including: a lab notebook; in class tests (multiple choice and short answer); a reflective photo diary; and short assignments.

D. Transferable skills - *able to:*

1. Communicate knowledge and opinions effectively to a wide range of people.
2. Work independently, responsibly and professionally.
3. Reflect and evaluate his/her own academic progress and its implications for emerging/changing professional practice.
4. Identify, access, evaluate, synthesise, analyse, collate and represent data relevant to the issue at hand.
5. Manage time and prioritise workloads in the context of changing demands.

Teaching/learning methods and strategies

Presentation of research results to a large group including other students and academics. The modules in this programme will develop independent working skills, while the research project will also develop time management, team working and self-reflection skills.

Assessment
By oral presentation and other coursework including reports and the project literature review and dissertation.

Please note - This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance process or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.