The University Of Sheffield.

Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

1	**Programme Title**	Sustainable Agricultural Technologies
2	**Programme Code**	APST11
3	**JACS Code / HECoS Code**	D448, D710 & D750 / 100998, 100516 & 101067
4	**Level of Study**	Postgraduate
5a	**Final Qualification**	MSc
5b	**QAA FHEQ Level**	7
6a	**Intermediate Qualification(s)**	PGDip, PGCert
6b	**QAA FHEQ Level**	7
7	**Teaching Institution** (if not Sheffield)	Not applicable
8	**Faculty**	Faculty of Science
9	**Department**	School of Biosciences
10	**Other Departments providing credit bearing modules for the programme**	None
11	**Mode(s) of Attendance**	Full-time
12	**Duration of the Programme**	1 year
13	**Accrediting Professional or Statutory Body**	Not applicable
14	**Date of production/revision**	February 2022

15. Background to the programme and subject area

More people die each year from hunger and malnutrition than from AIDS, tuberculosis and malaria combined. The question of how we feed our rapidly expanding global population is a challenge not far from becoming a crisis, and the solutions are complex. In the UK alone, it is estimated that £1.2bn is lost annually to the value of our soils due to mismanagement. Flooding is becoming more frequent, and weeds and pests are becoming more prevalent. Furthermore, the average age of UK farmers is now 65 with few younger people choosing it as a profession, meaning that there may be a critical shortage of farming and growing skills in the UK within the next 10 years. Agriculture is likely to become increasingly high-skilled, as precision farming approaches develop, creating a need to future-proof the workforce. This course provides an in-depth coverage of current thinking and major issues in sustainable agriculture, as well as critical analysis of hot topics in this field, drawing on hands-on experience within the School of Biosciences, where our research excellence spans a range of natural, agricultural, and urban ecosystems. The course also draws upon our extensive links to agri-business and policy makers in this sector. This unique combination will equip graduates of this course with the skills needed to understand the challenges of sustainable agriculture and the training required to implement this knowledge effectively within a range of public, private, and third sector organisational contexts.

16. Programme aims

A1 Provide an in-depth coverage of current thinking and major issues in agricultural science (including crop and soil science, environmental change and ecosystem services).

A2 Equip students with the skills to critically analyse current topics in sustainable agriculture and global food security.

A3 Provide training in key skills related to measuring and understanding the environmental impacts of agriculture and developing tools to increase the sustainability of agricultural ecosystems.

4 Show students how they can apply their academic knowledge to effect positive changes in agricultural practice and policy.

17. Programme learning outcomes

Knowledge and understanding: On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:	
K1	Critical understanding of major issues in the sustainability of food production systems and risks posed by environmental change.
K2	The principles of crop and soil science along with ecosystem services in an agricultural context.
K3	The principles of robust scientific enquiry.
K4	The boundaries of the subject and understanding of how it relates to other fields or professions.
K5	The application of subject-specific knowledge to new settings, context and challenges to make a positive difference in the world.

Skills and other attributes: On successful completion of the programme, students will be able to:	
S1	Summarise with competence key current issues surrounding sustainable agriculture.
S2	Critically interrogate contentious ideas in sustainable agriculture.
S3	Apply critical and analytical skills, in particular design of experiments, data analysis and the use of statistics.
S4	Identify field-specific questions or knowledge gaps and design, plan, conduct and report on a rigorous investigation to address these.
S5	Devise creative and strategic approaches to problem solving in to enhance the sustainability and resilience of food production systems.
S6	Communicate complex or contentious ideas effectively, in both writing and orally, to peers, other specialist audiences, and the general public.

18. Teaching, learning and assessment

Development of the learning outcomes is promoted through the following teaching and learning methods:

Learning objectives will be delivered through a range of teaching methods including lectures, seminars, tutorials and discussion groups, practical and field classes, and individual research. K1 and K2 are delivered primarily through lectures and discussions, K3, K4 and K5 delivered primarily through seminars, tutorials and practical classes. Skills will be developed through hands-on practical classes and master-classes, group and individual projects.

Opportunities to demonstrate achievement of the learning outcomes are provided through the following assessment methods:

Assessment methods include written examinations, but in most modules coursework will be the major assessment tool. Coursework includes various written exercises (essays, extended project reports, policy briefing notes, reflective journal entries, statistics exercises), as well as oral presentations, with an emphasis on effective communication to a range of specific audiences. Feedback on coursework will be available to students prior to final assessment. This may involve discussions or annotation of written work.

19. Reference points

The learning outcomes have been developed to reflect the following points of reference:

The learning outcomes and programme content have been developed with reference to existing PGT (QAA FHEQ Level 7) provision within the School of Biosciences. In agreement with the University's Learning and Teaching Strategy, the programme has been designed to benefit from our excellent research-led teaching, and the programme-level approach ensures that students will develop broad skills which cut across individual modules and result in the development of deeper knowledge and understanding. In accordance with the vision set out in The Sheffield Masters Graduate, the programme is designed to allow students to deepen their discipline-based knowledge while at the same time gaining the confidence to apply this knowledge within local, national, and international contexts, and to encourage creative and strategic problem-solving skills which transcend the component disciplines.

20. Programme structure and regulations

This programme consists of the core units only, with 60 credits from specialised taught modules, plus a field course (15 credits), a literature review (15 credits) and Individual Research Project (60 credits) in a relevant topic. The remaining 30 credits is made up of our two general MSc skills module (Advanced Scientific Skills, and Advanced Data Handling and Analysis). Particularly attractive features include the combination of developing practical skills in cutting-edge techniques used in crop science with development of the fundamental understanding and skills to apply this in an agricultural and policy context. No opportunities to transfer between programmes are envisaged at present.

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available on-line at http://www.sheffield.ac.uk/calendar/.

21. Student development over the course of study

Achievement of Programme Learning Outcomes K1-K2 will be delivered through structured lectures, discussions and supervised group activities in Semesters 1 and 2. Achievement of K3 will develop over the entire course, with a shift from more structured to student led enquiry from as the course progresses. K4 will develop through Semester 2, particularly through the Issues in Global Food Security module which will expose students to research and ideas from experts from within the University and to external perspectives too. K5 will apply all of this to a research project which will reflect the learning and development of critical analytical skills over the course of the programme.

22. Criteria for admission to the programme

At least a 2:2 bachelor's degree in Biological Sciences or other relevant science subject. In addition, international students where English is not their first language will need a formal English Language test, e.g. IELTS with an overall score of 6.5 and a score of at least 6.0 in each test category.

23. Additional information

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at http://www.shef.ac.uk/ssid.