

MSc Aquatic Systems Science and Management (ASSAM)

Awarding Institution:	The University of Reading
Teaching Institution:	The University of Reading
Faculty of Science	
Programme length: 12 months F/T, 24 months P/T	
For students entering in 2002	Date of specification: June 2003
Programme Director:	Dr A Howard
Board of Studies:	Geography MSc BoS
Accreditation:	

Summary of programme aims

- To provide its participants with a set of technical and transferable skills that closely match the needs of employing organisations (e.g. the Environment Agency).
- To provide in-depth academic study in water science and management for participants from a range of different backgrounds.
- To provide an understanding of a wide range of model types, their advantages, disadvantages and limitations and to be able to choose the most appropriate model for the particular circumstance.
- To enable the participant to analyse a model or dataset and to develop an appropriate computer application from it that may be used by a non-expert end-user.
- To provide the theory and practical experience of surface freshwater science that will support development of sound modelling and management applications.
- To enhance understanding of the problems of water quality management and aspects of environmental regulation and law and to put these in an international context as appropriate.

Transferable skills

The University's Strategy for Teaching and Learning has identified a number of generic transferable skills that all students are expected to have developed by the end of their first degree programme. This MSc degree programme will further enhance these skills. Almost 50% of the programme is concerned with general skills with a strong emphasis on IT, computing and numeracy. They will develop oral and written communication skills, team-work, problem solving, practical analytical skills, and the ability to relate theoretical knowledge and ideas to 'real life' situations.

Programme content

The following qualifications are available:

- MSc (180 credits with a minimum of 120 credits at M Level)
- Diploma (120 credits with a minimum of 80 credits at M Level)
- Certificate (60 credits with a minimum of 40 credits at M Level)

Participants select a combination of modules and, for MSc students, complete a dissertation. The following list provides general guidance. Participants are welcome to select modules from related degree programmes subject to the approval of the relevant Course Directors.

GG/M/WQM	Water Quality Modelling	20	M
GG/M/SFS	Structure & Function in Surface Freshwater Systems	20	M
GG/M/FLT	Field and Laboratory Techniques	20	M
GG/M/GIS	GIS	20	M
GG/M/SAD	Scientific Application Development	20	M
GG/M/WMR	Water Quality Problems: Management & Regulation	20	M
GG/M/NMS	Numerical Methods	10	M
GG/M/DIS	Dissertation	80	M
GG/3/38	Water Pollution Issues	10	3

Part-time/Modular arrangements

All M level modules usually require a maximum of 4 days residence in Reading spread over not more than 2 separate weeks. Extensive use is made of the Web for presenting learning materials. All modules are offered at least once in a 12 month period.

This structure is designed to encourage prospective part time students and those wishing to take selected modules for continuing professional development. For example, Scientific Application Development will consist of:

- 2 day lecture demonstrations
- Web-based learning with lessons, online support & tutorials
- 1 day tutorial support

Progression requirements

The University's taught postgraduate marks classification is as follows :

<u>Mark</u>	<u>Interpretation</u>
70 – 100%	Distinction
60 – 69%	Merit
50 – 59%	Good standard (Pass)
 <u>Failing categories:</u>	
40 – 49%	Work below threshold standard
0 – 39%	Unsatisfactory Work

For Masters Degrees

To pass the MSc students must gain an average mark of 50 or more overall including a mark of 50 or more for the dissertation and have no mark below 40 in Modules GG/M/WQM, GG/M/SFS and GG/M/WMR. In addition the total credit value of all modules marked below 40 must not exceed 30 credits and for all modules marked below 50 must be less than 60 credits.*

Students who gain an average mark of 70 or more overall including a mark of 70 or more for the dissertation and have no mark below 40 will be eligible for a Distinction. Those gaining an average mark of 60 or more overall including a mark of 60 or more for the dissertation and have no mark below 40 will be awarded eligible for a Merit.

For PG Diplomas

To pass the Postgraduate Diploma students must gain an average mark of 50 or more and have no mark below 40 in Modules GG/M/WQM, GG/M/SFS and GG/M/WMR. In addition the total credit value of all modules marked below 40 must not exceed 30 credits and for all modules marked below 50 must be less than 60 credits.*

Students who gain an average mark of 70 or more and have no mark below 40 will be eligible for the award of a Distinction. Those gaining an average mark of 60 or more and have no mark below 40 will be awarded eligible for a Merit.

For PG Certificate

To pass the Postgraduate Certificate students must gain an average mark of 50 or more and have no mark below 40 in Modules GG/M/WQM, GG/M/SFS and GG/M/WMR. In addition the total credit value of all modules marked below 40 must not exceed 10 credits.*

*The provision to permit a candidate to be passed overall with a profile containing marks below 40 is made subject to the condition that there is evidence that the candidate applied his or herself to the work of those modules with reasonable diligence and has not been absent from the examination without reasonable cause.

Summary of teaching and assessment

Teaching is organised in modules that typically involve lectures, practical classes, discussion and online learning. These modules are assessed by coursework. Coursework may include essays, practical reports, seminars, online tests and software development.

Admission requirements

Entrants to this programme are normally required to have obtained a 2:2 degree in any related academic discipline.

Admissions Tutor: Dr A Howard

Support for students and their learning

University support for students and their learning falls into two categories. Learning support includes IT Services, which has several hundred computers and the University Library, which across its three sites holds over a million volumes, subscribes to around 4,000 current periodicals, has a range of electronic sources of information and houses the Student Access to Independent Learning (S@IL) computer-based teaching and learning facilities. 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 Programme Directors, the Careers Advisory Service, the University's Special Needs Advisor, Study Advisors, Hall Wardens and the Students' Union.

Career prospects

The strong emphasis on transferable skills should ensure graduates of this course are attractive to a wide range of potential employers. Participants have also been successful in obtaining jobs with employers (e.g. Environment Agency) in sectors closely related to the course. Training in GIS and computing provides enhanced opportunities within the IT sector.

Opportunities for study abroad or for placements

We encourage participants to foster links with organisations such as the Environment Agency with a view to obtaining a placement for dissertation work.

Educational aims of the programme

The programme aims to produce graduate with both subject-specific skills and knowledge in water science, modelling and management and a range of transferable skills, including advanced technical skills in computing.

Programme Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:

Knowledge and Understanding

<p>A. Knowledge and understanding of:</p> <ol style="list-style-type: none">1. Processes and concepts in freshwater science.2. Field and laboratory techniques in water science.3. The theory of scientific model development.4. A range of computer and numerical modelling techniques.5. The use of computer applications for processing and presenting scientific information.6. The development of scientific computer applications using Visual Basic7. Structure, management and regulation of the water industry.8. Problems and challenges facing the water industry.	<p>Teaching/learning methods and strategies</p> <p>Combination of lectures, practicals, field classes and online learning materials.</p> <p>Online tutor support for most modules. Small group tutorials for others.</p> <p>Participants must produce detail reports and give some form of public presentation for each module. This may involve giving a talk or producing a multi-media website.</p> <p>MSc participants also complete a dissertation related to one of these themes.</p> <p><i>Assessment</i></p> <p>Knowledge is tested through assessment of coursework. This work includes written research and practical reports and oral or 'virtual' presentations.</p>
---	---

Skills and other attributes

B. Intellectual skills – able to:

1. Think logically.
2. Develop a reasoned argument.
3. Organise tasks into a structured form.
4. Abstract and synthesise information.
5. Critically evaluate evidence and arguments.
6. Assess the merits of contrasting theories, explanations and policies.
7. Transfer appropriate techniques and knowledge from one topic area to another.
8. Organise and reflect upon their own learning.

Teaching/learning methods and strategies

The need to think logically and analytically permeates through all modules in the course. Skills 2-7 are developed in continuously assessed coursework and the dissertation.

The more specialist topics provide many opportunities to apply and develop these skills through the analysis of a range of problems in a wide variety of contexts.

Assessment

Written coursework and online tests.

C. Practical skills – able to:

1. present a chain of reasoning
2. communicate both orally and in writing critical analysis of scientific and environmental issues
3. understand and develop simple models of water quality processes
4. develop simple computer applications that make use of existing datasets and/or models
5. use Geographical Information Systems
6. conduct a range of laboratory and field based investigations
7. carry out independent research
8. plan, organise and write reports

Teaching/learning methods and strategies

The key practical skills are developed in four modules: Water Quality Modelling, Field and Laboratory Techniques, Scientific Application Development and GIS. There is a strong emphasis on practical work and use is made of online materials to support student learning. Fieldwork is conducted in the Kennet Valley.

All modules require participants to produce written reports, usually based on some form of independent research.

Assessment

Practical work is central to modules in GIS, Scientific Application Development (SAD) and Field and Laboratory techniques and is tested through written report and the production of working software in SAD.

D. Transferable skills – able to:

1. use IT (word processing, spreadsheets, databases, email, WWW, statistics, GIS)
2. develop web pages and simple computer software
3. apply skills of numeracy and computational data analysis
4. communicate ideas in a logical way in both writing and speech
5. give oral presentations
6. plan and manage projects effectively.

Teaching/learning methods and strategies

All modules require some use of IT and Scientific Application Development introduces computer programming and Web technology.

All modules require completion of written work and most modules require participants to give oral presentations.

The dissertation is an independent participant-led research project that develops key project management and research skills.

Assessment

These skills are tested as part of the coursework in each module.

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 expect 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 module and programme handbooks.