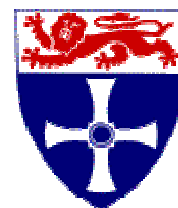


UNIVERSITY OF
NEWCASTLE UPON TYNE

FACULTY OF
SCIENCE, AGRICULTURE & ENGINEERING

DEGREE PROGRAMME SPECIFICATION

UNIVERSITY OF
NEWCASTLE



1 Awarding institution	University of Newcastle upon Tyne
2 Teaching institution	University of Newcastle upon Tyne
3 Programme accredited by	
4 Final award	MSc
5 Programme	Drug Chemistry
6 UCAS code	5099
7 Relevant QAA subject benchmarking group	Chemistry
8 Date of revision	September 2004

9 Programme Aims

- To provide advanced training in modern drug chemistry
- To provide an appreciation of how new drugs are developed, from their conception in the laboratory to their application, testing and subsequent industrial production
- To provide an overview of the chemistry pertinent to modern drug design, as practiced in the pharmaceutical industry and in academia
- To provide training in topics which constitute the “holy grail” of modern drug design and to introduce potential therapies not yet established commercially
- To enable the student to achieve a high level of research competence and to gain experience through training in relevant aspects of laboratory work, including COSHH and safety
- To provide the student with enhanced presentational skills.

10 Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate:

A Knowledge and understanding

- 1 Organic Synthesis for drug targets
- 2 Host-guest chemistry
- 3 Modern Methods in Drug Chemistry
- 4 Drug Metabolism and Chemical Toxicology
- 5 Theory and Practice of Chemotherapy
- 6 Technology Transfer
- 7 Data processing/presentation



Teaching and learning methods and strategies

- Acquisition of knowledge is achieved mainly through lectures and directed student centred learning based on course assignments.
- The student will be encouraged to participate in independent reading designed to supplement and extend the taught material
- Certain modules (1-5) contain associated seminars and tutorials.

Assessment methods and strategies

- Assessment methods are specified in the module outlines
- All learning outcomes in each module are assessed
- Each module is generally assessed by a combination of end of semester examination and coursework, the nature of the coursework varying from module to module

B Practical Skills – able to

- 1 Work safely and independently in a chemistry laboratory
- 2 Undertake an original piece of research
- 3 Assist in the design, implementation and management of a chemical laboratory

Teaching and learning methods and strategies

The ability to work safely in a laboratory is of paramount importance. The integration of science and management is an important aspect of practical work.

Assessment methods and strategies

These skills are assessed via laboratory diaries and oral/poster presentations.

C Cognitive skills - able to

- 1 Critically evaluate data
- 2 Apply learnt knowledge to unseen problems
- 3 Analyze and interpret data
- 4 Demonstrate the skills necessary to plan, conduct and report a programme of original research

Teaching and learning methods and strategies

Intellectual skills are developed by means of the teaching and learning programme, which includes practical project work, seminar work and coursework assignments. The research project in particular is designed to allow students to demonstrate achievement in all the learning outcomes in this category.

Assessment methods and strategies

Intellectual skills are partly assessed through formal examinations but assessment of coursework and practical project work is used to assess higher order skills. A variety of assessment methods are used, including formal written reports, essay and oral poster presentations.

D Key skills - able to

- 1 Communicate and express clearly ideas both orally and in writing
- 2 Manage time and complete work to deadlines
- 3 Assess and form an opinion of other peoples work
- 4 Find information from a range of sources
- 5 Be self-reliant
- 6 Critically evaluate data and use when required.

Teaching and learning methods and strategies

The research project requires regular written work, the use of search libraries and the Internet

Assessment methods and strategies

The Research project plus dissertation and the Data processing and presentation modules provide training in key professional skills

11. Programme Features, Curriculum and Structure

- the programme is offered in full time mode (1 year) or part time mode (2 year), to a total of 180 credits
- all modules are compulsory
- successful completion of the programme leads to the award of the MSc degree

Semester 1

CHY836 Organic Synthesis for
Drug Targets (20)
CHY852 Modern Methods in
Drug Discovery (20)
CHY855 Drug Metabolism and
Chemical Toxicology
(10)

Semesters 2 and 3

CHY825 Technology Transfer
(5)
CHY830 Data Processing &
Presentation (5)
CHY840 Host-Guest
Chemistry (10)
CHY861 Theory and Practice
of Chemotherapy
(20)
CHY899 Research Project and
Dissertation (90)
CHY895 Research Project or
Dissertation (60) +
Literature
Dissertation (30)*
* part time students

Distinctive Features

- The taught programme highlights the key role of organic synthesis in drug discovery, including combinatorial synthesis, the concept of molecular recognition in the context of drug design and delivery and the principles associated with newly emerging therapeutic modalities
- The programme surveys the routes by which drugs are metabolised in the human body and details mechanisms of toxicity, reviews the mechanisms of action of the major drug classes used to treat infectious disease and cancer and demonstrates how modern drug design is performed
- The programme includes the topic of technology transfer and the principles of laboratory management, and teaches presentational skills
- The research project and dissertation will provide training in how to tackle and how to communicate the results of a significant research problem in drug chemistry using modern instrumentation
- The relevance of the programme to the pharmaceutical industry will be assured through the involvement in some courses of visiting scientists from leading pharmaceutical companies.

C Programme Curriculum

(Insert Regulations as given on University web site – currently being updated)

Development of specific Intended Learning Outcomes occurs through the following modules (compulsory modules in bold text, optional modules in normal, italic text)

A1. Synthesis for drug target	CHY836
A2. Host-guest chemistry	<i>CHY840</i>
A3. Drug metabolism and chemical toxicology	<i>CHY855</i>
A4. Natural medicines and toxins	CHY852
A5. Theory and practice of chemotherapy	CHY861
A6. Technology transfer	CHY825
A7. Data processing /presentation	CHY830
B1. Work safely and independently in a laboratory	<i>CHY895, CHY899</i>
B2. Undertake and original piece of research	<i>CHY895, CHY899</i>
B3. Assist in the design, implementation and management of a chemical laboratory	<i>CHY895, CHY899</i>
C1. Critically evaluate data	CHY825, CHY830, CHY840, CHY852, CHY855, CHY895, CHY899
C2. Apply learnt knowledge to unseen problems	CHY825, CHY830, CHY836, CHY840, CHY852, CHY855, CHY895, CHY899
C3. Analyse and interpret data	CHY825, CHY830, CHY840, CHY852, CHY855, CHY895, CHY899
C4. Demonstrate the skills necessary to plan, conduct, and report a programme of original research	<i>CHY895, CHY899</i>
D1. Communicate and express ideas orally and in writing	CHY825, CHY830, CHY840, CHY852, CHY895, CHY899
D2. Manage time and complete work to deadlines	CHY830, CHY895, CHY899
D3. Assess and form an opinion of other people's work	CHY825, CHY830, CHY840, CHY852, CHY895, CHY899
D4. Find information from a range of sources	CHY836, CHY895, CHY899
D5. Be self-reliant	CHY840, CHY895, CHY899
D6. Critically evaluate data and use when required	CHY825, CHY895, CHY899

12 Criteria for Admission:*Standard entrance criteria*

A 2nd class degree in Chemistry from a UK University, or its overseas equivalent, is the normal qualification for entry. Other closely related subjects, eg Applied Chemistry, are also acceptable.

Applicants for whom English is not their first language must provide evidence of a satisfactory command of English by means of an IELTS score of 6.5 or greater.

Applicants with non-standard qualifications

Applicants who hold non-standard qualifications will be considered on an individual basis.

Admissions Policy

Upon receipt of a completed application form, UK- based applicants are invited to visit Chemistry for an informal interview. Offers of places are made to suitable candidates following the visit; these may be conditional on the applicant achieving a 2nd class degree (if they do not hold such a qualification at the time of interview) and upon the receipt of a satisfactory reference or references. EPSRC funding and any other funding that may be available, is awarded on a competitive basis.

Applicants not based in the UK are not required to attend for interview.

13 Support for Students and their Learning:*Induction*

The first week of the first term/semester is an Induction Week with no formal teaching. During this period all students will be given detailed programme information relating to their Stage and the timetable of lectures/practicals/labs/ tutorials/etc. In particular all new students will be given general information about the School and their course, as described in the Degree Programme Handbook. The International Office offers an additional induction programme for overseas students (see http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml).

There is an Induction Week Programme in Natural Sciences which includes social events as well as informative presentations about the course, facilities and student support. Each student receives a Welcome Package, including book vouchers, laboratory coat, Periodic Table etc. Returning students also have induction week programmes.

Study skills support

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification.

Academic support

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff/Student Committee, and/or at the Board of Studies.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at <http://www.ncl.ac.uk/undergraduate/support/tutor.phtml>. In addition the University offers a range of support services, including the Student Advice Centre, the Student Counselling Service, the Mature Student Support Service, and a Childcare Support Officer, see <http://www.ncl.ac.uk/undergraduate/support/welfare.phtml>.

Support for Special Needs

Support for students with special needs is provided as required and the University's Disability Support Service can be consulted where appropriate. For further details see <http://www.ncl.ac.uk/undergraduate/support/disability.phtml>.

Learning resources

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see <http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml>.

All new students whose first language is not English are required to take an English Language test in the Language Centre. Where appropriate, in-session language training can be provided. The Language Centre houses a range of resources for learning other languages which may be particularly appropriate for those interested in an Erasmus exchanges. See <http://www.ncl.ac.uk/undergraduate/support/langcen.phtml>.

Student Evaluations of Modules and the MSc Programme

Student opinion about the modules is gathered annually. The Programme is evaluated by means of a questionnaire towards the end of the course.

There is a Chemistry Staff-Student Committee and the MSc students are invited to select a representative for the committee.

The MSc Board of Studies conducts an annual review of the programme. The comments and recommendations of the External Examiner and comments from future internal subject reviews will be considered by the Board. Graduate surveys will be conducted for consideration.

Programme reviews

Student opinion about the modules is gathered annually. All stages of the Programme are evaluated by means of module and Stage Reviews.

The School operates a system of Peer Observation of teaching activities following the Guidelines issued by the University's Quality and Standards Unit.

The Board of Studies conducts an annual review of the programme. The Board considers the comments and recommendations of the External Examiners. Graduate surveys are conducted for consideration. The Board will consider comments and recommendations arising from any subject reviews.

The Director of Teaching (who is also the Chair of the Board of Studies) and/or Degree Programme Director is available to discuss academic issues with students throughout the course with a view to improving the quality and standard of teaching and learning. The External Examiners confirm that the standards are appropriate on an annual basis.

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External examiner reports

External Examiner reports are considered by the Board of Studies under Reserved Business, in the absence of the student representatives. The Board responds to these reports through Faculty Teaching and Learning Committee.

Accreditation reports

This programme is not accredited by any professional body.

Student evaluations

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff/Student Committee, and the Board of Studies.

Feedback mechanisms

Feedback to students is effected via the Staff/Student Committee and the Board of Studies.

Faculty and University Review Mechanisms

The Programme is subject to the University's Internal Subject Review programme, see <http://www.ncl.ac.uk/internal/academic-quality/qualityhome.htm#2>.

15 Regulation of Assessment:*Assessment Rules and Degree Classifications*

The course consists of a number of modules. The credit value for the modules varies from 5 – 90. The assessment methods used are indicated in the module descriptions in the handbook. They include written examinations, assignments and in-course assessment. In addition, the project module is assessed by presentation, viva and dissertation.

The pass mark for each module is 50 and each module must be passed for the award of the degree. No mark <45 may be condoned by compensation. The classification of degree is determined by the averaging method and will be awarded according to the scheme:

Distinction	70+
Merit	60-69
Pass	50-59
Fail	<50

Award of a Diploma

A candidate whose performance in the written examinations and course work in semester 1 and coursework during semester 2 is deemed not to have reached the pass mark may be recommended of the award of a Diploma. This diploma programme is equivalent to nine months of full time study and requires the candidate to undertake study equivalent to 120 credits. Diploma students would carry out a research project in the form of a library based project/dissertation in addition to the 90 credits of taught material

Role of External Examiner

An External Examiner for the course is appointed by the SAGE Faculty Teaching Committee. The external examiner is a distinguished member of the community with expertise in the subject area. The role of the external examiner is that of a moderator; to do this he performs the following functions:

Sees the examination scripts and comments upon the standard of examination questions and marking.
 Sees coursework and comments on the standard of working.
 Examines the dissertations and comments on their topics.
 Performs viva voce examinations of some or all of the students.
 Attends the August Board of Examiners meeting.
 Reports to the University on standards.

16 Indicators of Quality and Standards:

Professional Accreditation Reports
Not applicable

Internal Review Reports
This programme was covered by the Internal Subject Review of Chemistry held on February 2003 and was subsequently approved by Faculty Teaching and Learning Committee and University Teaching and Learning Committee. The team was impressed by the very positive relationships between staff and students – it was abundantly clear that the subject group are very student-focused and this was to their significant credit.

Previous QAA Reports
This programme received a QAA Subject Review in April 2004 and was judged to be Excellent/Satisfactory.

This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

17 Other Sources of Information:

The University Prospectus (see <http://www.ncl.ac.uk/undergraduate/>)

The Departmental Prospectus (see <http://www.ncl.ac.uk/undergraduate/subjects/xxx>)

The University and Degree Programme Regulations (see <http://www.ncl.ac.uk/calendar/pdf/uniregs.pdf> and <http://www.ncl.ac.uk/calendar/sae/>)

The Degree Programme Handbook

QAA Subject Review Report