PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MSc
4	**Programme Title**	Drug Chemistry
5	**UCAS/Programme Code**	5099
6	**Programme Accreditation**	
7	**QAA Subject Benchmark(s)**	Chemistry
8	**FHEQ Level**	MSc
9	**Date written/revised**	29 September 2008

10 Programme Aims

1. To provide advanced training in modern drug chemistry
2. To provide an appreciation of how new drugs are developed, from their conception in the laboratory to their application, testing and subsequent industrial production
3. To provide an overview of the chemistry pertinent to modern drug design, as practiced in the pharmaceutical industry and in academia
4. To provide training in topics which constitute the “holy grail” of modern drug design and to introduce potential therapies not yet established commercially
5. 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
6. To provide the student with enhanced presentational skills.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Chemistry.

Knowledge and Understanding

On completing the programme students should know:

A1 The two main branches of drug chemistry (organic and medicinal)
A2 Practical laboratory Chemistry
A3 Data analysis and numeracy
A4 Spectroscopy and Chemical characterisation
A5 Specialist aspects of drug chemistry
A6 Research methods

Teaching and Learning Methods

Students acquire understanding and knowledge through lectures, seminars and workshops (**A1, A5**). In the laboratory class they consolidate the learning started in lectures by performing carefully designed and tested experiments (**A1, A2, A4**) and apply skill **A3**. Modules CHY8103, CHY8105 and CHY8101 cover some specialised areas of drug chemistry (**A5**). The Research Project, CHY8001, allows application and extension of taught material to the research environment (**A1–A6**). Throughout the period of the programme the student is expected to read around the taught material to supplement and strengthen the taught/learnt work. Reading lists are provided to facilitate this.

Assessment Strategy

Knowledge and understanding is assessed through unseen written examinations and in-course assessment (**A1, A3–A5**), practical reports (**A2**) and oral examinations on the Research Project (**A1–A6**).

Intellectual Skills

On completing the programme students should be able to:

B1 Critically evaluate data
B2 Apply learnt knowledge to unseen problems
B3 Analyze and interpret data
B4 Independently plan and undertake a research project.

Teaching and Learning Methods

Intellectual skills are developed by means of the teaching and learning programme described above. Students apply the concepts learnt to problems in laboratory work, seminars and coursework assignments (B1–B3). Students develop skills B1–B4 in the design and conduct of the Research Project.

Assessment Strategy

Problem solving components of taught modules present in examinations and course work assess skills **B1–B3**. The Research Project assesses skills **B1–B4** through written reports, oral presentations and oral examinations.

Practical Skills

On completing the programme students should be able to:

C1 Work safely and independently in a chemistry laboratory
C2 Plan and undertake an advanced practical course
C3 Plan and undertake a research project.

Teaching and Learning Methods

Students receive close supervision from a demonstrator or member of staff in the laboratory when performing experiments to enable them to develop safe working practices and good techniques. Formative feedback is used to enable progressive development of these skills (**C1**). Due to the diverse backgrounds of students on the programme initial experiments in CHY8105 have detailed procedures. Later experiments allow students to plan and design their experiments, work with a greater level of independence and perform more technically demanding procedures (**C2**). CHY8001 allows the students to plan and undertake a research project requiring diverse practical techniques. Research teams require coordination of the effort to achieve the desired goal (**C3**).

Assessment Strategy

C1 and **C2** are assessed through practical reports (CHY8105). In addition to the final report, written and oral presentations are used to assess the planning and outcome of the Research Project (**C3**).

Transferable/Key Skills

On completing the programme students should be able to:

D1 Communicate and express clearly ideas both orally and in writing
D2 Work in a group environment
D3 Manage time and complete work to deadlines
D4 Assess and form an opinion of other peoples work
D5 Find information from a range of sources
D6 Be self-reliant
D7 Critically evaluate data and use when required.

Teaching and Learning Methods

Both lecture courses (through assignments) and practical courses require the students to produce regular written work which is submitted to deadlines (**D1, D3, D5, D6**). Assignments may also require critical evaluation and interpretation of data (**D7**). Both CHY8105 and the Research Project provide the opportunity for students to plan work and solve problems as part of a team (**D2**). Peer assessment is introduced in a formative sense in CHY8105 and through the planning of the Research Project (**D4**). All skills (**D1–D7**) are further developed through the Research Project.

Assessment Strategy

Written work and oral examinations are used to assess skill **D1**. Assignments as part of the taught modules assess **D1, D3, D5–D7**. The Research Project evaluates skills **D1–D7**. **D4** is addressed by peer assessment of individual contributions to the group effort and of team presentations on the Research Project. In addition skill **D2** is assessed in CHY8105 or CHY8007.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

- the programme is offered in full time mode (1 year) or part time mode (2 year), to a total of 180 credits
- the research project (CHY8001) is compulsory
- successful completion of the programme leads to the award of the MSc degree

Key features of the programme (including what makes the programme distinctive)

- The taught programme highlights the key role of organic synthesis in drug discovery, including combinatorial synthesis, the use of radioisotopes, the concept of molecular recognition in the context of drug design and delivery.
- 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 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.
- The relevance of the programme to the pharmaceutical industry will be assured through the involvement of visiting scientists from leading pharmaceutical companies.

Programme regulations (link to on-line version)

http://www.ncl.ac.uk/regulations/programme/

13 Criteria for admission

Entry Qualifications
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.

Admissions Policy/Selection Tools
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.

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

Level of English Language Capability
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 6.0 or greater.

14 Support for Student Learning

Induction
During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students (see http://www.ncl.ac.uk/international/arrival/)

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.

Study Skills Support
Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

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 Counselling and Wellbeing team, the Mature Student Support Officer, and a Childcare Support Officer, see http://www.ncl.ac.uk/undergraduate/support/welfare.phtml

Support for Students with Disabilities
The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies. For further details see http://www.ncl.ac.uk/disability-support/

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/library/ and http://www.ncl.ac.uk/iss/

All new students whose first language is not English are required to take an English Language assessment in the Language Centre. Where appropriate, in-sessional 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 exchange. See http://www.ncl.ac.uk/langcen/index.htm

15 Methods for evaluating and improving the quality and standards of teaching and learning

Module Reviews
All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Programme Reviews
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. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

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. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. Further information is at www.thestudentsurvey.com/
With reference to the outcomes of the NSS and institutional student satisfaction surveys actions are taken at all appropriate levels by the institution.

Mechanisms for Gaining Student Feedback
Feedback is channelled 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 process, see http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php

Accreditation reports
N/A

16 Regulation of assessment

Pass Mark
The pass mark is 50 (Postgraduate programmes)

Course Requirements
Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research (http://www.ncl.ac.uk/calendar/university.regs/tpmdepr.pdf) and Examination Conventions for Taught Masters Degrees (http://www.ncl.ac.uk/calendar/university.regs/tpmdeprexamconv.pdf). Limited compensation up to 40 credits of the taught element and down to a mark of 40 is possible and there are reassessment opportunities, with certain restrictions.

The course consists of a number of modules. The credit value for the modules varies from 10 – 60. 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.

Common Marking Scheme
The University employs a common marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

Summary description applicable to postgraduate Masters programmes		**Summary description applicable to postgraduate Certificate and Diploma programmes**	
<50	Fail	<50	Fail
50-59	Pass	50 or above	Pass
60-69	Pass with Merit		
70 or above	Pass with Distinction		

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 the External Examiner
An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies. The External Examiner is expected to:

- see and approve examination papers
- moderate examination and coursework marking
- attend the Board of Examiners
- report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus (see http://www.ncl.ac.uk/undergraduate/)
The School Brochure (contact enquiries@ncl.ac.uk)
The University Regulations (see http://www.ncl.ac.uk/calendar/university.regs/)
The Degree Programme Handbook (see http://www.ncl.ac.uk/nsci/postgrad/chemistry/taught_degrees/MScHandbook07-08.pdf

Please note. 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.

Annex 1

Mapping of Intended Learning Outcomes onto Curriculum/Modules

C Programme Curriculum

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

A1.	The two main branches of drug chemistry (organic and medicinal)	**CHY8101**, *CHY8102*,**CHY8103***, CHY8104,* **CHY8105***, CHY8301, CHY8401*
A2.	Practical laboratory Chemistry	**CHY8001, CHY8105**
A3.	Data analysis and numeracy	**CHY8001**, **CHY8007**, *CHY8102,* **CHY8103**, **CHY8105**
A4.	Spectroscopy and Chemical characterisation	**CHY8001, CHY8103**, **CHY8105**
A5.	Specialist aspects of drug chemistry	*CHY8102,* **CHY8103**, **CHY8105**, *CHY8104*
A6.	Research methods	**CHY8001, CHY8007**
B1.	Critically evaluate data	**CHY8001, CHY8103**, **CHY8105**
B2.	Apply learnt knowledge to unseen problems	**CHY8001**, **CHY8101**, **CHY8103, CHY8105**, **CHY8007**
B3.	Analyse and interpret data	**CHY8001, CHY8101**, **CHY8103**, **CHY8105**
B4.	Independently plan and undertake a research project	**CHY8001, CHY8007**
C1.	Work safely and independently in a laboratory	**CHY8001**
C2.	Plan and undertake an advanced practical course	**CHY8105**
C3.	Plan and undertake a research project	**CHY8001, CHY8007**
D1.	Communicate and express ideas orally and in writing	**CHY8001**, **CHY8007**, **CHY8101**, *CHY8102,* **CHY8103**, **CHY8105,** *LCE8014*
D2.	Work in a group environment	**CHY8001,** *CHY8102*
D3.	Manage time and complete work to deadlines	**CHY8001**, **CHY8101**, **CHY8103**, **CHY8105**, *CHY8301, CHY8401, LCE8014*
D4.	Assess and form an opinion of other people's work	**CHY8001**
D5.	Find information from a range of sources	**CHY8001**, **CHY8007**, **CHY8101**, **CHY8103**, **CHY8105**, *CHY8301, CHY8401*
D6.	Be self-reliant	**CHY8001**, **CHY8007, CHY8101**, **CHY8103**, *CHY8104*, **CHY8105**, *CHY8301*
D7.	Critically evaluate data and use when required	**CHY8001, CHY8007**, **CHY8101**, *CHY8103*, **CHY8105**, *CHY8301*