STLT11/04-05

The major changes in this module are with respect to assessment. Assessment weightings have been changed to give more weighting to coursework, and less to exams (now 50:50 rather than 20:80). This has resulted in a decrease in the number of final examination papers from 2 to 1.

Revised I621 Skills for Molecular and Cellular Biology
MODULE SPECIFICATION TEMPLATE

1 The title of the module

Skills for Molecular and Cellular Biology

2 The Department which will be responsible for management of the module

Biosciences

3 The Start Date of the Module

September 2004

4 The number of students expected to take the module

20

5 Modules to be withdrawn on the introduction of this proposed module and consultation with other relevant Departments and Faculties regarding the withdrawal

None

6 The level of the module (eg Certificate [C], Intermediate [I], Honours [H] or Postgraduate [M])

H

7 The number of credits which the module represents

15

8 Which term(s) the module is to be taught in (or other teaching pattern)

Stage 3 term 2

9 Prerequisite and co-requisite modules

This module is only available to students registered for the Molecular and Cellular Biology degree programme.

10 The programmes of study to which the module contributes

Molecular and Cellular Biology

Molecular and Cellular Biology with a Sandwich Year

Molecular and Cellular Biology with a Year in Europe

11 The intended subject specific learning outcomes and, as appropriate, their relationship to programme learning outcomes

Subject Specific Learning Outcomes:

On successful completion of this module students will be able to:

1. Demonstrate competence in solving extended problems in molecular and cellular biology involving data manipulation and comprehension using both subject-specific and transferable skills.
2. Integrate scientific material and present it in a clearly written form.
3. Structure, develop and defend complex scientific arguments.

12 The intended generic learning outcomes and, as appropriate, their relationship to programme learning outcomes

Generic Learning Outcomes:

1. Cognitive (bioscience-based problem solving) skills at level 3.
2. Essay writing skills under both examination conditions and under less time constraint.
3. Abilities to review (integrate and write about) biological knowledge, building on library skills taught earlier.
4. Ability to integrate information and themes taught earlier in the degree and in final year through essays, problem solving and reviewing.

13 A synopsis of the curriculum

Synopsis of Curriculum:

(1) Problem solving

There will be SIX two-hour sessions of problem-solving in a whole class workshop format, only the last of which will count for assessment. Each problem (assessed or otherwise) will cover 'central themes/core skills'.

In the first five problem-solving sessions each two-hour slot will be devoted to a brief introductory period, then time to read the set problem, one hour to tackle it and then immediate feedback of the answer. During this feedback students will mark their own answers according to a recommended marking scheme and receive a model answer/mark schedule. Thereafter, students are encouraged in their own time to tackle similar problems from past examination papers. Finally (two hour session) students will tackle a choice (one from five) of problems. Their answer will be marked, commented on and returned.

(2) Essay writing

Students will be provided with photocopies of actual examination answers covering a range of performance. They will be asked to read and mark them in their own time, according to the recommended mark scheme. There will then be a class discussion (1 hour) of what was good and bad about the particular essays. This exercise is aimed at getting students to appreciate what criteria an examiner looks for in an answer when assigning marks. Students will also participate in group work sessions to draw up and then discuss essay plans for answering actual essay questions set on past examination papers.

In the final session, students will be given an example of a typical skills essay examination paper. They will be required to answer one question under examination conditions. This will be marked and count towards the module assessment.

(3) Literature review

A review to be written in preparation for the final year project: This will require students to use and develop their skills in researching, comprehending and evaluate published scientific work and literature searching facilities available through the library and on-line. The review stands not only in its own right, but also as a practice exercise for writing the Introduction Chapter to the project report and for acquiring a significant number of references relevant to the project.

14 Indicative Reading List

There are no recommended texts *per se*.

Students may, however, find the following particularly useful:

(a) Their own notes from all modules taken during their Molecular and Cellular Biology degree to date.
(b) Past 'finals' papers from recent years (problem solving and essay papers)
(c) Recommended textbooks for previous modules insofar as these have sections or supplements with problems and/or suggested essay titles (e.g. examples can be found in *Molecular Biology of the Cell – The Problems Book* (1994) by Wilson, J. and Hunt, T., Garland Publ. Inc NY)
(d) Guidebooks on general aspects of essay writing, style and English usage/grammar by scientists of which the following are examples aimed at bioscientists; - *How to Write About Biology* (1994) by Pechenik, J and Lamb, B., Harper Collins Publ., London. and *Postgraduate Study in the Biological Sciences. A Researcher's Companion* (1993) by Beynon, R.J., Portland Press, London.

15 Learning and Teaching Methods, including the nature and number of contact hours and the total study hours which will be expected of students, and how these relate to achievement of the intended learning outcomes

Contact Time:

Problem solving:	12h
Essay writing:	4h
Literature review:	2h

Self Study: 12h problem solving and practice
20h essay writing
30h literature review
70h examination practice/revision

16 Assessment methods and how these relate to testing achievement of the intended learning outcomes

(1)Problem solving (see Learning Outcome 1).

(2)Essay (see Learning Outcome 2).

(3) A literature review of the background to the research project (Term 8) but written in Term 7. This will be a 2000-word essay reviewing the pertinent and current literature and identifying the aims and objectives of the research project plus a reference list of publications relevant to and underpinning the research project. (see Learning Outcomes 2 & 3).

Final examination of the module will be by one examined paper, with a section on each primary aspect of this course unit. The first section will require candidates to write an essay; the essays may be set on any aspect of Molecular and Cellular Biology. The second will require an answer to a problem. Students will have to answer one question from each section in a 3-hour period. Problems may be set on any aspect of Molecular and Cellular Biology, but aim to test what are deemed to be core skills in analysing experimental data.

1. Problem solving = 10%
2. Essay = 10%
3. Literature review = 20%
4. Reference list for literature review = 10%
4. End of module examination = 50%

17 Implications for learning resources, including staff, library, IT and space

This is a revision of a previous module and no additional resources will be needed.

18 A statement confirming that, as far as can be reasonably anticipated, the curriculum, learning and teaching methods and forms of assessment do not present any non-justifiable disadvantage to students with disabilities

As far as can be reasonably anticipated, the curriculum, learning and teaching methods and forms of assessment do not present any non-justifiable disadvantage to students with disabilities.

Statement by the Director of Learning and Teaching: "I confirm I have been consulted on the above module proposal and have given advice on the correct procedures and required content of module proposals"

.....K Foster..... ..24/9/04.....

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Director of Learning and Teaching Date

Statement by the Head of Department: "I confirm that the Department has approved the introduction of the module and will be responsible for its resourcing"

....24/9/2024.....

Head of Department Date

Revised August 2002; Revision 2 in 2003.