Report of Validation Panel

Date of Meeting: 15 June 2011

Named Award:	Master of Science
Programme Title:	Master of Science in Computational Biology
Award Type:	Major
NFQ Level:	9
Intakes Commencing:	Proposed for September 2011
ECTS/ACCS Credits:	90

PANEL MEMBERS

Name
Dr Cormac Gahan, Department of Microbiology, UCC - Chairperson
Dr Paul Cotter, Principal Researcher, Alimentary Pharmabiotic Centre, Teagasc (Moorepark)
Dr Catherine Hack, School of Biomedical Sciences, University of Ulster.
Mr Edmond Riordan, Deputy Registrar & Head of Academic Quality CIT

PROPOSING TEAM MEMBERS

Name
Dr Hugh Mc Glynn
Mr Jim O'Dwyer
Dr Paul Walsh
Ms Aisling O'Driscoll
Mr Byron Treacy
Mr Brendan O'Connell
Dr Helen O'Shea
Dr Roy Sleator

BACKGROUND TO THE PROPOSED PROGRAMME

This is a 90-credit proposed Master of Science which has been jointly devised by the Department of Biological Sciences and the Department of Computing at CIT. It is designed as an interdisciplinary programme which will produce graduates with advanced skills in mathematics, computing and biological sciences. Such skilled personnel are required as a result of the explosion of data arising from advances in genome sequencing.

FINDINGS OF THE PANEL

1. General Findings

*NOTE: In this report, the term "**Requirement**" is used to indicate an action or amendment which in the view of the Panel **must** be undertaken prior to commencement of the Programme. The term "**Recommendation**" indicates an item to which the Institute/Academic Council/Course Board should give serious consideration for implementation at an early stage and which should be the subject of on-going monitoring.*

The Panel is impressed with the evident talent and enthusiasm of the proposing team. In general the content and outcomes of the modules making up the programme are appropriate to masters level. . The overall concept behind this multidisciplinary programme was thought to be excellent and the programme would greatly enhance the portfolio of courses offered within the School of Science and Informatics.

The proposal is referred for further development to address some structural issues identified below. The Panel will consider an early resubmission of the programme, and is of the opinion that the issues identified are well capable of resolution.

2. Validation Criteria

The Panel has considered the documentation provided and has discussed the programme with the proposers. The panel has concluded that the programme has the potential to meet the required standards in the science field of study at Level 9 of the National Framework.

With regard to the CIT Validation Criteria:

2.1   Is there a convincing need for the programme with a viable level of applications?

YES. The graduates will be attractive to a wide variety of pharmachem employers. Research positions in computational biology are also expanding. Developing fields such as personalised (stratified) medicine and SNP analysis will also provide opportunities.

Recommendation: The proposers should "poll" their industry contacts to ensure that specific technical requirements, current industry problems, and likely avenues for development are addressed in the content. It is noted that the industry survey as presented with the document was quite generic.

It is clear that the main group of applicants will be from biological sciences graduates. In its initial offering, the programme should be tailored to meet the requirements of this primary group. Computing and other graduates entering the programme should be assessed on a case-by-case basis, and for these, some additional study in biology topics may be necessary, depending on their level of attainment in biology/science areas. RPL should be available to mature and industry entrants.

2.2   Are the level and type of the proposed award appropriate?

YES.

Recommendation: Consideration should be given to offering a 60-credit Postgraduate Diploma as an exit award.

2.3   Is the learning experience of an appropriate level, standard and quality?

While the content and outcomes of the modules are generally satisfactory, the programme as presented fell below the standard for validation for the following reasons.

Many of the modules did not have an assessment breakdown, a linking of learning outcomes to assessments, and/or a listing of resources.

Requirement: All modules must be fully completed with appropriate assessments linked to the learning outcomes. Adequate resources (recommended texts, other texts, web resources) must be specified for each module.

Recommendation: There should be detailed engagement with industry to ensure that module content is addressed at industry requirements.

Recommendation: The panel was told that while the programme will be initially delivered fulltime on-campus, distance learning and part-time options are likely to be offered. The panel recommends that these be made available when possible, and notes the considerable expertise available in the staff team.

2.4   Is the programme structure logical and well designed (including procedures for access, transfer and progression)?

It is noted that all modules are of ten credits (with the exception of a 30 credit Research Project).

Requirement: The Panel notes that the CIT policy favours 5-credit modules, with multiples of 5 credits by exception. The proposers did not convince the Panel that the blanket 10-credit approach was justified. The programme should therefore be redesigned to include at least a number of 5 credit modules and to provide strong justification for the remaining 10 credit modules. The Research Project weighting of 30 credits is accepted.

Recommendation: In carrying out the redesign in the requirement above, the opportunity should be taken to tune the programme in the first instance for the main entry group, i.e. biology honours degree holders. Accordingly, material which may have been included in the programme which would normally have been covered at undergraduate level by such entrants can be stripped out (and perhaps retained as an elective for non-biology applicants).

2.5   Are the programme management structures adequate?

YES. The panel commends the development team. There is evidence of very good cross-departmental co-operation in this programme. The programme co-ordinators, lecturers and the respective Heads of Department are clearly working well together and are anxious to launch this programme as soon as possible. The School of Science & Informatics provides an excellent multidisciplinary umbrella structure for the programme.

2.6   Are the resource requirements reasonable?

YES.

The Panel was assured that the Institute will provide the necessary academic and physical resource supports for the programme. In discussion, it was clarified that the computing requirements (servers, workstations etc) will be available, partly through sharing with investments in other programmes such as the cloud computing BSc (Hons) and Masters. Advanced biology laboratories for 20 students will be available as required.

The CREATE Building has been approved for funding of €3.8M and will be a very considerable resource for this and other programmes.

2.7   Will the impact of the programme on the Institute be positive?

YES.

3.   Programme Structure

The Panel notes that the programme structure had already been the subject of external peer evaluation at an earlier QA stage.

Requirement: See 2.4 above.

4.   Modules

The Panel was informed that the new draft modules have been the subject of external scrutiny by external reviewers. However, not all the recommendations from the reviewers had been implemented. While the panel does not insist that external module reviewers opinions should always be accepted in detail, they should at least be carefully considered.

In exercising its brief to consider the overall standard and appropriateness of modules, the Panel wishes to add the following observations:

Across all modules: Assessment methods should be carefully tailored to the learning outcomes and should be part of a coherent approach across the programme.

Requirements: See 2.3 and 2.4 above.

Requirement: Molecular Biology for Computer Scientists. Critically review the module. Is the "description" field accurate? Is the level of the module really "expert"?

Requirement: IT Systems Engineering. Review the advice of extern Prof. Humm, and implement where appropriate.

Recommendation: Research Project. The learning outcomes seem somewhat generic and might benefit from an industry focus. The balance of marks (thesis = 70%, Presentation = 30%) should be looked at again; perhaps 80/20 might be more appropriate, depending on accepted CIT approaches. The Panel was assured that a sufficient supply of project mentors would be available, given the co-operating departments and the use of industry joint mentors.

5. Conclusions

The Panel recommends that the programme structure and modules be resubmitted to it in line with the requirements and recommendations above. The Panel will respond as rapidly as possible to the resubmission so that a possible launch in Autumn 2011 remains feasible.

ADDENDUM TO THE REPORT: [JULY 2011].
The above report was noted by the Academic Council Executive on June 20th 2011.
In July 2011 a heavily revised programme schedule and modules were submitted for consideration of the Panel. The revised programme CR_SCMPB_9 is recommended for approval by the Validation Panel to Academic Council.