Proposal form for a new course

Course details

<table>
<thead>
<tr>
<th>Course name*</th>
<th>Research Project for Drug Discovery and Protein Biotechnology</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCQF credit points*</td>
<td>☒ 10 ☐ 20 ☐ 40 ☐ Other</td>
</tr>
<tr>
<td>SCQF credit level*</td>
<td>11</td>
</tr>
<tr>
<td>UG or PGT*</td>
<td>PGT</td>
</tr>
<tr>
<td>Normal year taken*</td>
<td>Postgraduate</td>
</tr>
<tr>
<td>Visiting student availability*</td>
<td>☒ Not available to visiting students</td>
</tr>
<tr>
<td></td>
<td>☐ Available to all students</td>
</tr>
<tr>
<td></td>
<td>☐ Available to part-year visiting students only</td>
</tr>
<tr>
<td></td>
<td>For a one-semester VS variant which has a different credit value or course content to its ‘parent’ course.</td>
</tr>
<tr>
<td>Home subject area</td>
<td>Postgraduate</td>
</tr>
<tr>
<td>Course organiser*</td>
<td>Douglas Houston</td>
</tr>
<tr>
<td>Course administrator*</td>
<td>Vicky McTaggart</td>
</tr>
<tr>
<td>Contact teaching hours*</td>
<td>approx 20</td>
</tr>
<tr>
<td>Pre-requisites*</td>
<td>To have completed diploma level courses in the owning programme at an average &gt; 49.99 %, with 100 points at pass level.</td>
</tr>
<tr>
<td>Co-requisites*</td>
<td>None</td>
</tr>
<tr>
<td>Visiting student pre-requisites*</td>
<td>N/A</td>
</tr>
<tr>
<td>Prohibited combinations*</td>
<td>None</td>
</tr>
<tr>
<td>Semester*</td>
<td>☒ Full year</td>
</tr>
<tr>
<td>Timetable (day and time)*</td>
<td>N/A</td>
</tr>
<tr>
<td>Campus location*</td>
<td>Distance Learning</td>
</tr>
</tbody>
</table>

Rationale/short description

1. Why is this proposal being made?
We wish to broaden the appeal of our distance learning M.Sc programme, Next Generation Drug Discovery. Recruitment has been disappointing perhaps because the subject proposed is too much a “niche” interest. A cognate new course in “Biologics and Protein Design” will broaden the appeal to include biological drugs. This proposed research project in “Research Project in Drug Discovery and Protein Biotechnology”, will form a Distance Learning Programme in “Drug Discovery and Protein Biotechnology”.

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2. What evidence is there of student demand?
The field of biologics, namely medicinal compounds created by a biological processes, is a growth area in modern pharmacology. Many people in the industry have developed as organic/medicinal chemists. The new course will allow these people to educate themselves to keep their skills relevant in the next generation of drug discovery.

3. Is this an additional course, or is it a replacement course?
Additional.

4. What are the steps needed to secure external validation, if appropriate?
none

5. Please provide a short description of the course.
The course involves a research topic involving the design of a biologic drug. This will be computationally based.

Course aims and objectives

1. What balance of knowledge, understanding, skills and attitudes or values does the course aim to achieve? Please list aims and objectives below.
The course seeks to train students in how to carry out a novel research project; to write a coherent academic account of the question they are posing, including its importance and context, and the design of the strategy to solve the problem; to present the results clearly and to analyse them critically; to make a reasoned discussion of the results; and to discuss them in the wider context of designing biologic drugs.
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2. Have the course objectives been clearly set out?
   Yes. See above.

3. Do the course aims and objectives complement those of existing courses?
   Yes. The course is a capstone to the whole Masters programme in Drug Discovery and Protein Biotechnology. All courses are designed to lead up to this point.

4. If there is overlap with other courses, can duplication of effort be justified?
   The course is similar to “Research Project in Next Generation Drug Discovery” but is distinct in that a biologic is optimised for binding to a target rather than a small molecule. The sections on selecting a target can be used for both courses. The fundamental methods using in both courses are similar, but we need a course with the name of the Masters and to have a subject appropriate to it.

5. How does the proposal relate to any relevant subject area benchmarks?
   N/A

### Intended learning outcomes

1. What are the intended learning outcomes of the course?
   - learning the skills, knowledge and understanding to carry out a novel research project
   - ability to report a research project in a coherent manner in an accepted academic style
   - acquire skills to find information from literature and to assess it critically

2. What transferable skills will students acquire?
   - Organisation
   - Research skills
   - Time-management
   - Clear writing in an acceptable academic style

### Student intake

1. At what students is the course aimed?
   Distance learning students in the M.Sc in Drug Discovery & Protein Biotechnology.
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2. What are the formal qualifications for admission?
Acceptance onto M.Sc programme

3. Are there additional attainments needed to undertake the course?
no

4. What is the minimum number of students the course must attract if it is to be viable?
5

5. What is the maximum number of students which can realistically be accommodated?
30

Organisation of teaching

1. What teaching methods will be used?
Just as for a research project taken on campus, there will be “face-to-face” meetings through Collaborate. Initial training in methods will also take place through Collaborate and through provision of bespoke on-line learning materials. Students will be encouraged to give preliminary feedback to each other and to help their peers through student run Collaborate session and use of Discussion groups.

2. Beyond participation in timetabled teaching, what independent study activities (and associated time commitments) will be expected of students?
See above

3. Comment on the appropriateness of teaching-learning strategies proposed in the light of: programme/course objectives; intended learning outcomes; programme/course content and structure; the students taking the programme/course; staffing arrangements (including frequency and size of tutorial groups, ratio of demonstrators to students).
The teaching strategy has been formulated in the light of the need to keep students engaged when they are working alone and at a distance; students will have introductions to scientific writing at an early stage, and to plagiarism awareness, both involving active assessment of work that contains common flaws. The course will be supported by the course organiser and a Programme manager, who will have expertise in the field and who can field more of the trivial problems (involving IT for example).

4. What aspects of the teaching-learning proposed are innovative or enhance existing good practice?
The formation of a “community of learners” for peer-teaching and mutual support extends best practice in distance-learning.
The use of Collaborate, Skype, or instant messaging (appropriate technology for the students circumstances) is relatively innovative.
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5. Have checks been made for potential clashes with other relevant courses?
☒ Yes
☐ No

Content of the course

1. Please outline the indicative teaching programme. Include week/lecture numbers, lecture titles, description and suggested reading.

<table>
<thead>
<tr>
<th>Weeks</th>
<th>content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to the research project. Priming students on main problem to be assessed and guidance to the on-line modules that will prepare them for it.</td>
</tr>
<tr>
<td>2</td>
<td>Virtual Classroom. Introduction to assessing work, illustrated by a range of abilities; recognizing plagiarism.</td>
</tr>
<tr>
<td>3&amp;4</td>
<td>Virtual Classroom to give feedback on Week 2 task.</td>
</tr>
<tr>
<td>Subsequent weeks</td>
<td>Carry out the research work. After week 10, virtual classroom presentations on progress in a rolling seminar programme. Regular on-line virtual classroom to discuss progress.</td>
</tr>
<tr>
<td>Three weeks before handin</td>
<td>Submission of draft for comment.</td>
</tr>
</tbody>
</table>

2. Can the topics be handled on the basis of presumed previous knowledge and experience of the students?
   Yes, the Masters course has been designed to lead up to this point.

3. Is the content within the expertise of the staff available?
   Yes

Student assessment and guidance

1. Please expand as appropriate on the components of assessment to be used on the course.

   The course will be assessed by a written report in the form of a research paper that will be submitted electronically.
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| 2. Outline components of assessment for part-year visiting students, where these are different from those above. | N/A |
| 3. How will coursework, examinations (including class exams) and any other assessed work be timetabled? | The assessed hand-in will be at the end of the course. Note that the course will be timetabled such that they are not doing another at the same time. |
| 4. What exemptions, if any, are offered and on what basis? | none |
| 5. What provision is made, where appropriate, for resit examinations or for resubmission of coursework? | N/A |
| 6. How will the course be externally examined? | An external examiner will be appointed as for the M.Sc in Next Generation Drug Discovery. There will be an exam board drawn from members of the course team, who will ensure that assessment is at the appropriate level. Each report will be doubly marked. |
| 7. How will students be kept regularly informed on their progress? | Through on-line meetings with their supervisor, and peer feedback. |
| 8. What help with difficulties will students be given? | There is a dedicated Programme manager who will triage problems to solve “nuts&bolts” problems themselves or direct them to academic staff members. |

## Feedback and evaluation

| 1. How will the effectiveness of the course in meeting its objectives be determined? | We will assess the effectiveness through Programme Review meetings, and interaction with the External examiner. |
| 2. What feedback will be sought from students and others e.g. those involved in teaching? | We will build in a questionnaire into the course to gather student opinion. We will form a staff-student committee across the owning programme to collect more discursive views. Programme review meetings, the exam-board, and discussion of the external examiner's report will be points for reflection by the staff. |
| 3. What course monitoring procedures will be followed? | Normal QA procedures will be followed. |
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### Resource requirements

1. Will the course require significant new resources or additional funding?  
   No

2. How will the course be staffed (including the provision for tutors and demonstrators)?  
   Core M.Sc Drug Discovery Staff.

3. What lecture theatres and other teaching space will be needed and what laboratory, computing or other facilities will be required?  
   N/A for a distance learning course.

4. Are there any other significant resource requirements?  
   No

5. Are there any additional costs to be met by the students?  
   No

### Documentation

1. What course documentation will be available to students and to external examiners?  
   The course description will be available on the MSc website. A course booklet will be prepared. The information will be available through the VLE.

2. What steps need to be taken to publicise the course?  
   The course will be advertised within biology MSc courses through the existing Masters publicity mechanisms. In addition we will advertise on Google Ads and on specific interest websites relevant to our target audience.

### Teachability

1. Discuss the course’s teachability. See guidance notes.  
   In common with all distance learning courses we recognise that we are likely to have a higher proportion of students with special needs than there are on campus courses. Accordingly, where feasible, we will provide the same material in a variety of formats (e.g. transcripts of videos; recordings of virtual classrooms) and we will follow best practice in digital learning design. (e.g. provide alt keys for images), as well as choosing software designed for teachability(e.g. Xerte).
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