1. **Title of the module**

BI600 Research Project

1. **School or partner institution which will be responsible for management of the module**

Biosciences

1. **The level of the module (e.g. Level 4, Level 5, Level 6 or Level 7)**

Level 6

1. **The number of credits and the ECTS value which the module represents**

30 credits (15 ECTS)

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

Autumn and Spring

1. **Prerequisite and co-requisite modules**

None.

1. **The programmes of study to which the module contributes**

Biochemistry and related programmes

Biology and related programmes

Biomedical science and related programmes

1. **The intended subject specific learning outcomes.**

Students taking all project types will have:

* 1. Developed an in-depth understanding of an advanced research topic within the fields of Biochemistry, Biology, or Biomedical Science through study of the peer-reviewed primary scientific literature.
	2. Developed an appreciation of the how scientific knowledge advances through research e.g. the timescales, challenges, limitations, impact of technological advances.

Students taking **wet/dry (computing-based) laboratory** projects will have:

8.3 An understanding of how to design and execute a sequence of experiments to address a research question and how to record data

8.4 Enhanced existing and acquired new experimental skills

8.5 Developed abilities to identify and solve practical and theoretical problems

8.6 An awareness of the safety implications of laboratory work and knowledge of good laboratory practice (wet lab projects only).

Students taking **dissertation** projects will have:

 8.7 Developed critical analysis: ideas for novel experiments, clearly designed to address specific questions within the chosen topic. Furthermore, will understand the limitations and the practicability of the experimental process.

Students undertaking **business** projects will have:

8.8 An appreciation of how scientific research may be translated into business ideas

8.9 An understanding of the factors that are important in planning and preparing a businessplan

Students taking **communication** projects will have:

8.10 Developed ability to simplify complex scientific information and adapt it to suit the audience

8.11 Gained experience of presenting current scientific research to a general audience making it accessible and interesting

1. **The intended generic learning outcomes.**On successfully completing the module students will have:
	1. An appreciation of how research leads to knowledge.
	2. Developed a clear and concise style of scientific writing that is both informative and lucid
	3. Developed skills in the retrieval of scientific information from journals and through electronic searches

9.4 An understanding of how technologies may be applied/adapted to address a research question.

9.5 Developed their abilities to work independently and as part of a team - self-motivation, diplomacy, planning and organisational skills and time management .

9.6 Developed skills in appraising critically and integrating information.

9.7 Developed skills in communicating science (oral, written or web formats) and in making and defending scientific arguments.

1. **A synopsis of the curriculum**
* Wet/Dry Laboratory and Computing: practical research undertaken in the teaching laboratories, or on computers followed by preparation of a written report
* Dissertation: library-based research leading to production of a report in the style of a scientific review
* Business: development of a biotechnology business plan
* Communication: similar to dissertation projects but with an emphasis on presenting the scientific topic to a general, non-scientist audience
1. **Reading List (Indicative list, current at time of publication. Reading lists will be published annually)**

Reading is entirely project-specific, to be discussed with academic supervisor.

1. **Learning and Teaching methods**

Early in the Autumn term, projects are assigned to students by the project co-ordinator (a member of academic staff), where possible in accordance with student choice. Students then meet with their project supervisor to discuss the objectives of the project and obtain guidance on background reading. During the Autumn term students write a brief formative literature review on the project topic providing them with a good background before embarking on the project work.

The main project activities take place in the Spring term. Students taking laboratory projects spend 192 hours (24 hours per week for 8 weeks) in the lab planning, carrying out and documenting experiments. A further 108 hours are allowed for background reading and report writing. There are informal opportunities to discuss the project work and relevant literature with the supervisor and other laboratory staff. Formal meetings may be arranged at the discretion of the student and supervisor. Students undertaking non-laboratory projects are based in the library or, occasionally, in the laboratory; they are expected to dedicate 300 hours to their project work. Non-laboratory students are strongly encouraged to meet with the supervisor at least once a week to discuss progress and ideas and to resolve problems. At the end of the formal project time, students are allowed time to complete the final project report, although they are encouraged to start writing as early as possible during the Spring term. The supervisor provides feedback on content and style of a draft of the report. In addition, students are expected to deliver their findings in presentation lasting 10 minutes with 5 minutes of questions.

1. **Assessment methods.**

Assessment for all project types is by written report, oral presentation and supervisor’s rating of performance:

Written report(s): 80% (lab, dissertation, business and computer projects), 70% (communication projects, including both the “dissertation” (50%) and communication” (20%) components).

Presentation: 10% (laboratory, computing, dissertation, business projects), 20% (communication projects)

Supervisor’s rating of student performance: 10% (lab, computer projects, dissertation and communication projects)

For all projects, the performance rating assesses the abilities of the students to plan and manage the project work, work effectively (within a laboratory environment, if appropriate) and independently, retrieve, interpret and appraise the scientific literature, discuss ideas, concepts and approaches. Performance also assesses project specific skills: practical research ability (laboratory projects), design and/or use of computer packages (computer/web projects), development of a business idea (business projects), imagination and ideas for effective communication of science (communication projects). The written report assesses the student’s knowledge and understanding of the project and the background literature, and general presentation/writing skills (clarity of style, attention to detail etc). The presentation assesses both subject knowledge and communication skills.

1. ***Map of Module Learning Outcomes (sections 8 & 9) to Learning and Teaching Methods (section12) and methods of Assessment (section 13)***

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** |  | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *8.6* | *8.7* | *8.8* | *8.9* | *8.10* | *8.11* |
| **Learning/ teaching method** | **Hours allocated** |  |  |  |  |  |  |  |  |  |  |  |
| Laboratory  | 192 | X | X | X  | X  | X  | X  |  |  |  |  |  |
| Dissertation  | 12 | X | X |  |  |  |  | X |  |  |  |  |
| Business  | 12 | X | X |  |  |  |  |  | X | X |  |  |
| Communication  | 12 | X | X |  |  |  |  |  |  |  | X | X |
| **Private Study** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Laboratory* | 108 | X |  |  | X |  |  |  |  |  |  |  |
| *Dissertation* | 288 | X |  |  |  |  | X |  |  |  |  |  |
| *Business* | 288 | X |  |  |  |  |  | X | X |  |  |  |
| *Communication* | 288 | X |  |  |  |  |  |  |  | X | X |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Written report**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Laboratory* |  | X | X |  | X |  |  |  |  |  |  |  |
| *Dissertation* |  | X |  |  |  |  | X |  |  |  |  |  |
| *Business* |  | X |  |  |  |  |  | X | X |  |  |  |
| *Communication* |  | X |  |  |  |  |  |  |  | X | X |  |
| **Presentation** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Laboratory* |  | X | X |  | X |  |  |  |  |  |  |  |
| *Dissertation* |  | X |  |  |  |  | X |  |  |  |  |  |
| *Business* |  | X |  |  |  |  |  | X | X |  |  |  |
| *Communication* |  | X |  |  |  |  |  |  |  | X | X |  |
| **Performance** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Laboratory* |  | X | X | X | X | X |  |  |  |  |  |  |
| *Dissertation* |  | X |  |  |  |  | X |  |  |  |  |  |
| *Business* |  | X |  |  |  |  |  | X | X |  |  |  |
| *Communication* |  | X |  |  |  |  |  |  |  | X |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** |  | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* | *9.6* | *9.7* |
| **Learning/ teaching method** | **Hours allocated** |  |  |  |  |  |  |  |
| Private Study |  | X | X | X | X | X | X | X |
| Laboratory time if relevant |  | X |  |  | X |  | X |  |
| **Assessment method** |  |  |  |  |  |  |  |  |
| Written report |  | X | X | X | X |  | X | X |
| Presentation |  | X |  | X | X |  | X | X |
| Performance |  | X |  | X | X | X | X | X |

1. **The School recognises and has embedded the expectations of current disability equality legislation, and supports students with a declared disability or special educational need in its teaching. Within this module we will make reasonable adjustments wherever necessary, including additional or substitute materials, teaching modes or assessment methods for students who have declared and discussed their learning support needs. Arrangements for students with declared disabilities will be made on an individual basis, in consultation with the University’s disability/dyslexia student support service, and specialist support will be provided where needed.**
2. **Campus(es) or Centre(s) where module will be delivered:**

Canterbury

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

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| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 01/02/16 | Major | September 2015 | 1,7, 12,13 | No |
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