THE UNIVERSITY OF HONG KONG

Bachelor of Science in Bioinformatics
Credit Unit Statement

The Bachelor of Science in Bioinformatics curriculum consists of five different types of courses according to the modes of learning. All courses except the research project course are of 6-credit, each embracing 120-180 hours of student learning activity (including both contact hours and all other forms of student learning activity). The year-long research project course carries 12 credits. The total student learning hours for the 96-credit major is 1,920-2,880 hours. Assessment is based on a combination of continuous assessment (20%–100%) comprising oral presentation, seminar discussion, tutorial performance, reports, tests, and written examinations (0%–80%). The five categories of courses are summarized as follows:

1. Anchoring Courses (6 credits each)
    Three anchoring courses are the centre-piece of the programme. There is at least one anchoring course available at each of Years 1, 2, 3 or 4 of the programme. These courses adopt a case-based problem-solving approach to support interdisciplinary integration of subject-specific content at each year level (horizontal integration), and provide a consistent backbone for the curriculum across different year levels (vertical integration). These courses will emphasise communication and critical thinking. Teaching normally takes the form of a weekly case-based tutorials supported by lectures and online resources. Assessment is conducted through continuous assessment including reports, presentation and product (70-100%), and a final examination (0-30%). Outputs may include test performance, reports, presentations, software product, and case-study analysis (independent and group submissions).

2. Lecture Courses (6 credits each)
    These courses focus on content, including theories and concepts in various interdisciplinary topics associated with bioinformatics, such as computational biology, biomedical sciences, clinical research, biomedical engineering, mathematics, statistics, computer science, and so on. They are taught predominantly by lectures (typically 36 hours), with most being supplemented by tutorials (typically 12 hours) and/or computer or experimental laboratory practicals (typically 12 hours). Assessment is conducted through continuous assessment, including tests, assignments, reports, group discussions, presentations and performance in class (25%-100%), and written examinations (0%–75%). Outputs may include test performance, presentations and assignments with the range of word requirement from 500–3,000 words.

3. Data Science Laboratory Courses (6 credits each)
    These courses provide the opportunity for students to acquire hands-on computer programming or data analysis skills, and reinforce the underlying principles of mathematical, statistical and algorithmic concepts presented in the lecture or anchoring courses through tailored data science exercises. A number of lectures (12 hours) are also offered to introduce the theoretical concepts. The contact hours of the practicals range from 36 to 48 hours, and they could be delivered in person or online. These courses are primarily assessed via continuous assessment covering tests,

laboratory reports, assignments, software product or artifact, and laboratory performance and skills (100%). In particular, assessment may include tests, assignments, software product or artifact, presentation and laboratory reports, with the range of word requirement from 500–3,000 words.

4. Internship (6 credits)

   This course will offer students the opportunity to gain work experience in the industry relating to bioinformatics and health data science. The workplace learning experience will enable students to apply knowledge gained during their studies in real work environments. Students have to take on approximately 160 hours of internship work including contact hours with supervisors either within the University or outside the University with the approval of the course coordinator. The internship will be assessed via a 15-minute oral presentation covering the nature of the job, knowledge/skills applied and self-reflection (40%), as well as a written report (1,000 words) (30%). An evaluation from the immediate supervisor will also contribute to the assessment (30%).

5. Research Project (12 credits)

   The course involves around 300 students' learning hours spreading over 2 semesters, including at least 20 contact hours. Each student is required to carry out an in-depth study of a specialized field of bioinformatics under the guidance of a supervisor who will provide continuous assessment on the students' performance (15%). The project entails about 100 hours of students' time to write up a dissertation (10,000 words) and give a professional presentation (20 minutes), which accounts for 60% and 25% of the final assessment, respectively.

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