COURSE SPECIFICATION

Course Aim and Title	BSc (Hons) Bioinformatics Technology
Intermediate Awards Available	BSc, DipHE, CertHE, University Certificate
Teaching Institution(s)	Ain Shams University, Cairo, Egypt
Alternative Teaching Institutions (for local arrangements see final section of this specification)	N/A
UEL Academic School	Architecture, Computing and Engineering
UCAS Code	N/A
Professional Body Accreditation	N/A
Relevant QAA Benchmark Statements	Computing
Additional Versions of this Course	N/A
Date Specification Last Updated	July 2020

Course Aims and Learning Outcomes

This Course is designed to give you the opportunity to:

- Provide students the interdisciplinary practical skills and knowledge of computational and statistical biosciences for challenging careers in academic research, biotechnology, the pharmaceutical and health care industries.

- Develop competency in both the design and analysis of studies and the effective extraction of information in genetics, genomics and other biosciences coupled with the ability to communicate the information, results, issues and ideas to audiences of both a specialist and non-specialist background.

- Prepare and provide guidance to perform an original piece of research within the specialist area in which they wish to pursue their career.

What you will learn:

Knowledge

- Demonstrate knowledge, and sound understanding of core of physics, algebra, applied mathematics, statistics, numerical analysis, biology, genetic engineering, and data mining.

- Acquire strong knowledge of computational methods.

- Illustrate different methods for simulating complex systems and visualize different types of data.
- Demonstrate principles of algorithms, formal languages, data structures, databases, system analysis and design, and software engineering.
- Identify the legal, ethical, and social responsibility of computer scientists.

Thinking skills

- Analyse, and organize information and ideas.
- Analyse computing problems and their solutions in a precise scientific way.
- Design algorithms and numerical techniques for modelling mathematical, physical, and biological problems.
- Validate models for real-life problems using appropriate modelling and simulation techniques.
- Evaluate research papers in a range of knowledge areas

Subject-Based Practical skills

- Implement computational solutions using a variety of high-level programming languages.
- Use tools to implement algorithms for solving bioinformatics problems related to other disciplines.
- Reuse of publicly available software such as APIs or open source materials.
- Use quantitative analysis techniques appropriately and effectively.

Skills for life and work (general skills)

- Work effectively as a member or a leader of a development team.
- Appreciate the ethical, legal, and social responsibilities of a computing scientist.
- Make effective presentations to audiences with different backgrounds.
- Practice project activities such as planning, tracking progress, measuring quality, risk analysis, and software documentation.

- Utilize Student self-paced learning and time management skills.

Learning and Teaching

Knowledge is developed through

- Guided reading
- Attending lectures / guest presentations
- Knowledge-based activities with feedback
- In-class discussions and activities
- preparation for examinations and timed controlled assignments

Thinking skills are developed through

- Reflective activities with feedback
- Tutorial activities and discussions
- In-class discussions and activities
- Preparation of coursework assignments

Practical skills are developed through

- Programming activities with feedback
- Research skills-based activities with feedback
- Seminar preparation and presentations
- Applying technical regulations to given scenarios
- Application to real life and simulated case studies

Skills for life and work (general skills) are developed through

- The demands of the study medium
- Planning activities with feedback
- Project and teamwork
- Using specialized ICT and software

Assessment

The assessment methods to achieve the different learning outcomes are as follows:

Knowledge is assessed by

- Coursework
- Reports
- Examinations
- Individual oral presentations

Thinking skills are assessed by

- Projects

- Coursework
- Time controlled assessments
- Individual oral presentations

Practical skills are assessed by

- Projects
- Practical examination
- Portfolio completion
- Timed controlled assessments

Skills for life and work (general skills) are assessed by

- Projects
- Group work
- Coursework
- Oral presentations

Students with disabilities and/or particular learning needs should discuss assessments with the course leader to ensure they can fully engage with all assessment within the course.

Work or Study Placements

We encourage full time students to seek work experience during their academic course, especially during the summer vacations period.

Course Structure

The course follows the British system: One academic year covers 120 credits.
All courses are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

3 Equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree Course.
4 Equivalent in standard to the first year of a full-time undergraduate degree Course.
5 Equivalent in standard to the second year of a full-time undergraduate degree Course.
6 Equivalent in standard to the third year of a full-time undergraduate degree Course.
7 Equivalent in standard to a Masters degree.

Courses are made up of modules that are each credit weighted.

The module structure of this course:

Level	Module Code	Module Title	Credit Weighting	Core/Option	Available by Distance Learning? Y/N
4	AS4001	Fundamentals of Programming	20	Core	N
4	AS4002	Mathematics for Computer Scientists	20	Core	N
4	AS4003	Digital Design and Computer Architecture	20	Core	N
4	AS4011	Molecular Physics and Genetics	20	Core	N
4	AS4004	Mental Wealth: Professional Life 1 (Operations Research and Communication Skills)	20	Core	N
4	AS4005	Mental Wealth: Professional Life 1 (Database Systems and Reports)	20	Core	N
5	AS5012	Introduction to Bioinformatics Algorithm	20	Core	N
5	AS5013	Software Engineering and Design	20	Core	N

5	AS5006	Computer Networks and Operating Systems	20	Core	N
5	AS5014	Artificial Intelligence in Data Mining	20	Core	N
5	AS5015	Mathematical Models in Genetics	20	Core	N
5	AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20	Core	N
6	AS6016	Computational Bioinformatics	20	Core	N
6	AS6017	Biomedical Image Processing	20	Core	N
6	AS6018	Application of Statistics in Biotechnology	20	Core	N
6	AS6019	Cloud Computing and Neural Networks	20	Core	N
6	AS6020	Mental Wealth: Professional Life 3 (Project)	40	Core	N

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, in order to create the best learning experience.

Additional detail about the course module structure:

A core module for a course is a module which a student must have passed (i.e. been awarded credit) in order to achieve the relevant named award. An optional module for a course is a module selected from a range of modules available on the course.

The overall credit-rating of this course is 360 credits. If for some reason you are unable to achieve this credit you may be entitled to an intermediate award, the level of the award will depend on the amount of credit you have accumulated.

Course Specific Regulations

N/A

Typical Duration

This is a full-time study Course. The minimum allowed study duration is 3 Years / 6 terms.

Further Information

More information about this course is available from:

- The ASU web site (http://cis.asu.edu.eg/) .
- The course handbook.
- Module study guides.

For further information, contact the CHP via email: CHP@cis.asu.edu.eg

All faculty of Computer and Information Sciences, Ain Shams University courses are subject to thorough course approval procedures before we allow them to commence. We also constantly monitor, review and enhance our courses by listening to student and employer views and the views of external examiners and advisors.

Additional costs:

Tuition Fees

•Tuition fees, set per 120 credits, are specified yearly by the University administration based on the recommendation of the courses administration council and the approval of the council of the faculty of Computer and Information Sciences.
•The student will sign a pledge to abide by the educational service charges proposed by the Faculty, and approved by the University, with the commitment of timely payment of fees from admission until graduation.
•The tuition fees are paid every year (the first semester of each year) based on 120 credits registered by the student,
•The educational service fees for the Summer semester are determined separately.

Alternative Locations of Delivery

N/A

University of East London