Module specification

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking on the following link: Module directory

Refer to the module guidance notes for completion of each section of the specification.

Module code	SCI442
Module title	Maths and Statistics for Science
Level	4
Credit value	20
Faculty	FAST
Module Leader	Dr Jixin Yang
HECoS Code	100417
Cost Code	GAFS

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Forensic Science	Core
BSc (Hons) Biochemistry	Core
BSc (Hons) Biomedical Science	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	36 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**36** hrs
Placement / work based learning	164 hrs
Guided independent study	0 hrs
Module duration (total hours)	200 hrs

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Initial approval date	05/08/20
With effect from date	01/09/2020
Date and details of revision	14/10/20 Addition of BSc Biochemistry 21/04/21 Addition of BSc Biomedical Science
Version number	3

Module aims

A proper understanding of science, both pure and applied, requires a student to have a good working knowledge and understanding of mathematics. This module will bring students up to the required level for university science programmes. Basic statistics, probability and data analysis will also be covered in this module to facilitate the students with essential skills of data processing for their later modules.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Manipulate algebraic expressions and calculations.
2	Understand mathematical functions and their pictorial expressions.
3	Interpret and calculate basic numeric measures of average and spread.
4	Estimate probabilities and perform hypothesis tests.
5	Apply basic statistical knowledge to the data processing.

Assessment

Indicative Assessment Tasks:

Assessment 1: Multiple choice questions test (online, 50%) for the foundation maths. There are 25 questions in total. It will occur around the middle of the semester. (1 hour duration)

Assessment 2: Coursework of approximately 12 short questions on knowledge and calculations in statistics (50%, word count ~1,000) will be issued near the end of semester

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1 & 2	Multiple Choice Questions	50%
2	3, 4, 5	Coursework	50%

Derogations

N/A

Learning and Teaching Strategies

Methods of delivery:
- Lectures
- Problem solving workshops
- Directed study via Moodle VLE
- Student directed study

The basic factual material will be delivered by means of lectures. Lectures will be supported by workshops in which the students will be able to test their knowledge and understanding of the concepts covered. Students will further be able to develop their knowledge and understanding by attempting problem sets and quizzes on Moodle VLE. Independent student- directed learning will enable students to delve more deeply into the subject material, enhancing their learning, while developing their IT skills. External links of maths support are available for students to practice and self-test their mathematical skills.

Indicative Syllabus Outline

- Numbers, scientific notation and significant figures
- Algebra and manipulation of algebraic expressions
- Powers, indices, exponentials and logarithms
- Functions and their pictorial expressions
- Introduction to statistics
- Introduction to probability
- Normal distribution
- Basic t-test
- Correlation, egression and calibration

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Currell, G. and Dowman, A. (2009) *Essential Mathematics and Statistics for Science.* Wiley-Blackwell.

Other indicative reading
Adam, C. (2010) *Essential Mathmatics and Statisitcs for Forensic Science.* Wiley-Blackwell.

Ennos, R. (2011) *Statistical and data handling skills in biology.* 3rd ed. Essex: Pearson Education Limited.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas. Click here to read more about the Glyndwr Graduate attributes

Core Attributes
Engaged
Creative

Key Attitudes
Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Leadership and Team working
Critical Thinking
Emotional Intelligence
Communication