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

Module Code	SCI442
Module Title	Maths & Statistics for Science
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100403
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) Forensic Science with Placement Year	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	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	**200 hrs**

For office use only	
Initial approval date	05/08/2020
With effect from date	
Date and details of revision	10/05/2023 module update through revalidation process
Version number	4

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 mathematical level for university science programmes. Essential statistics, probability and data analysis will also be covered in this module to facilitate the students with key skills of data processing for their later modules. Examples will also be given on the applications of maths and stats in forensic science, biochemistry and biomedical science.

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

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

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment 1: Exam (50%, online, 2 hours)
Multiple choice questions for the foundation maths. There are 25 questions in total.

Assessment 2: Coursework (50%)
Approximately 12 short-answered and problem-solving questions on knowledge and calculations in statistics.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1-2	Examination	50
2	3-5	Coursework	50

Derogations

None.

Learning and Teaching Strategies

The module will be delivered in line with the University's Active Learning Framework and will involve:

Lectures: To provide students with a comprehensive overview of the key concepts and principles.
Problem solving workshops: To test students' knowledge and understanding of the concepts covered and train their mathematical and statistical skills.
Online resources and videos: To supplement classroom learning by providing students with additional information and visual aids to further their understanding of the materials.

Self-directed study: To empower students to take responsibility for their own learning and to explore topics of interest in more depth.

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 and t-distribution
- One sample and two sample t-tests
- Correlation, regression and calibration
- Use of scientific calculator and MS Excel in statistics
- Applications of maths and statistics in forensic, biomedical and biochemical sciences.

Indicative Bibliography:

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

Essential Reads
Currell, G. & Dowman, A. (2009), *Essential Mathematics and Statistics for Science,* 2nd Edition, Chichester: Wiley-Blackwell.

Other indicative reading
Adam, C. (2011), *Essential Mathematics and Statistics for Forensic Science*, Germany: Wiley.

Currell, G. (2015), *Scientific Data Analysis*, United Kingdom: Oxford University Press.

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.

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

Module spec template 2022-23