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| Module Title: | Quantitative Methods 2 |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | 6 programme(s) |
| Teaching & Learning Strategies: | This module will be taught in three theory classes and one computer lab practical each of one hour duration per week. Students will be expected to complete problem-sets to re-enforce learning. Delivery of the computing module will involve practical assignments. |
| Module Aim: | The aim of this module is to provide students with the fundamental mathematical and computing skills necessary for comprehension and progression through the field of science. |
| Learning Outcomes | |
| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Explain the concept of a function and solve problems involving various types of functions. |
| LO2 | Solve single variable calculus problems. |
| LO3 | Use computer software applications for mathematical analysis. |
| Pre-requisite learning | |
| Module Recommendations | |
| <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i> | |
| No recommendations listed | |
| Incompatible Modules | |
| <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i> | |
| No incompatible modules listed | |
| Co-requisite Modules | |
| No Co-requisite modules listed | |
| Requirements | |
| <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i> | |
| No requirements listed | |

Module Content & Assessment

Indicative Content

Functions and Graphs

Concept of a function. Domain and range. Linear, polynomial, exponential and logarithmic functions.

Trigonometry

Angle measurement, trigonometric ratios, identities and equations. Trigonometric waveforms, their characteristics and applications.

Differential Calculus

Limit of a function. Definition of the derivative. Rates of change. Rules of differentiation, scientific and business applications using maxima and minima.

Integral Calculus

Definition of an integral. Table of integrals. Basic integration, substitution and integration by parts. Areas and volumes of integration.

Practical

Software applications for graphing and solving mathematical problems.

| Assessment Breakdown | % |
|----------------------------------|--------|
| Continuous Assessment | 30.00% |
| Practical | 30.00% |
| End of Module Formal Examination | 40.00% |

Special Regulation

Students must achieve a minimum grade of 35% in the practical/CA and the final exam.

Continuous Assessment

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|------------------------|-------------------|------------|-----------------|
| Examination | In-class assessments | 1,2 | 30.00 | n/a |

No Project

Practical

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------------------|---|-------------------|------------|-----------------|
| Practical/Skills Evaluation | Computer based assignments and assessments. | 3 | 30.00 | n/a |

End of Module Formal Examination

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|------------------------|-------------------|------------|-----------------|
| Formal Exam | 2 hour examination | 1,2 | 40.00 | End-of-Semester |

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

| Workload: Full Time | | |
|----------------------------|-----------------------|--|
| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Lecture | 12 Weeks per Stage | 3.00 |
| Practicals | 12 Weeks per Stage | 1.00 |
| Estimated Learner Hours | 15 Weeks per Stage | 5.13 |
| Total Hours | | 125.00 |

Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|----------------|---|----------|-----------|
| CW_SABTP_B | Bachelor of Science (Honours) in Biosciences with Biopharmaceuticals | 2 | Mandatory |
| CW_SABRE_B | Bachelor of Science (Honours) in Brewing and Distilling | 2 | Mandatory |
| CW_SAPHA_B | Bachelor of Science (Honours) in Pharmaceutics and Drug Formulation | 2 | Mandatory |
| CW_SAASC_D | Bachelor of Science in Analytical Science | 2 | Mandatory |
| CW_SABFQ_D | Bachelor of Science in Biosciences | 2 | Mandatory |
| CW_SASCI_C | Higher Certificate in Science in Applied Biology or Applied Chemistry | 2 | Mandatory |