Module: Statistics 381

Module name:	Statistics 381
Code:	STA381
NQF level:	7
Type:	Fundamental – Bachelor of Computing (Data Science stream)
Contact time:	38 hours
Structured time:	6 hours
Self-directed time:	46 hours
Notional hours:	90 hours
Credits:	9
Prerequisites:	STA281

Purpose

The overall purpose of the program is to produce graduates that can think clearly and critically and apply the knowledge of Business Statistics in decision making when solving business problems and build a culture of informed decision making using statistical models.

Outcomes

Upon successful completion of this module, the student will be able to:

- Demonstrate integrated knowledge of the central areas of statistics, including an understanding of and the ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of statistics; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices.
- Demonstrate an understanding of knowledge as contested and the ability to evaluate types of knowledge and explanations typical within statistics.
- Demonstrate an understanding of a range of methods of enquiry in statistics, and their suitability to specific investigations; and the ability to select and apply a range of methods to resolve problems or introduce change within a practice.
- Identify, analyse, evaluate, critically reflect on and address complex problems, applying evidence-based solutions and theory-driven arguments.
- Develop appropriate processes of information gathering for a given context or use; and the ability to independently validate the sources of information and evaluate and manage the information.

Assessment

Assessment is performed using a variety of instruments:

- Continuous evaluation of theoretical work through written assignment, formative, and summative test.
- Final assessment through a written examination.
- The assignments or projects collectively will count 20% of your class mark.
- All tests will collectively account for 80% of your class mark.
- Your class mark contributes 30% towards your final mark for the subject, while the final assessment accounts for 70% of your final mark.

Teaching and Learning

Learning materials

Prescribed Book

- Presentation notes and hand-outs from direct instruction and feedback sessions;
- 🕮 Wegner, T. (2016). Applied Statistics. JUTA. [ISBN: 9781485111931].
- 🕮 Alexander M, Walkenbach J. (2013). Excel Dashboards and Reports. Wiley. [ISBN: 9781118490426]
- 🕮 Stroud, K.A. (2007). Engineering Mathematics. Palgrave. [ISBN: 9781403942463]

Additional Material

- 🕮 Rumsey, D. (2009). *Statistics II for Dummies*. Wiley. [ISBN: 9780470466469]

Learning activities

Teaching and learning is done via formal lectures on theoretical concepts, exercises and discussions. These lectures discussion based to stimulate peer discussion on relevant topics and issues as they arise. Two mandatory assignments must be completed during the course.

Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		27.0		14.0
Formative feedback		6.0		
Project	2	5.0		12.0
Assignment	1			3.0
Test	2		4.0	8.0
Exam	1		2.0	9.0
		38.0	**6.0**	**46.0**

Syllabus

- Hypothesis testing
- Experimental design
- Anova
- Multiple Linear regression
- Logistic regression
- Generalized linear model (GLM)
- Principal Component Analysis (PCA)