Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	PROFIT, LOSS AND GAMBLING (INTERMEDIATE LEVEL)
Unit ID:	MATHS2003
Credit Points:	15.00
Prerequisite(s):	(At least one introductory level maths course or equivalent)
Co-requisite(s):	Nil
Exclusion(s):	(MA653) (MATHS1003) (MA553)
ASCED:	010101

Description of the Unit:
This unit forms part of a general sequence of mathematics unitss, and will be taught at an intermediate level. Through the investigation of popular gambling games, such as Lotto, Keno, casino games, and gaming machines, students will be introduced to the concepts of probability. Common gambling fallacies and misconceptions will also be investigated. A wide variety of statistical distributions and simulations are used to examine important probability concepts. Financial mathematics will also be covered to deal with common problems encountered in everyday financial decisions. This unit will be valuable to both primary and high school teachers interested in teaching with real-life illustrations.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate			✔			
Advanced						

Learning Outcomes:

Knowledge:

K1. describe the mathematical models which underpin games of chance;
K2. explain concepts of probability with a discussion of historical and contemporary applications;
K3. employ techniques for exploring the impact of gambling using descriptive statistics;
K4. apply techniques for comparing alternative financial investment strategies.

Skills:

S1. perform calculations of probabilities;
S2. explain and calculate conditional probabilities and independent events;
S3. discuss and use Bayes` rule;
S4. use conventional mathematical notation associated with probability and combinatorics;
S5. describe and do calculations involving discrete probability distributions;
S6. discuss the probability of winning various games of chance;
S7. apply the concepts of variance and standard deviation for discrete distributions;
S8. use graphs, tables and formulas for financial calculations and modelling investment;

Application of knowledge and skills:

A1. use technology to create simulations, explore mathematical models and perform calculations.
A2. discuss the long term expected outcomes for both the player and the casino (or other gaming host);
A3. compare different investments and choose the best one;

Unit Content:

Topics may include:

- probability theory (including conditional probability and Bayes` rule);
- discrete probability distributions;
- games of chance;
- simple and compound interest;
- time value of money, annuities, present and future values.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K4, S1-S8	Participate in class activities	Portfolio of completed work	10 - 25%
K1-K4, S1-S8, A1-A3	Self-directed or group exploration	Projects, assignments, homework exercises	25 - 50%
K1-K4, S1-S8	Review and skills practice	Tests/examination(s)	30 - 60%

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool