Cameron Heights Collegiate Institute

301 Charles Street E., Kitchener, Ontario N2G 2P8 (519)-578-8330 www.chci.wrdsb.on.ca

Subject	Grade	Level	Code	Prerequisite
Mathematics	12	University	MDM4UI Data Management	11 University or 11 University/College

Course Description

This course broadens students' understanding of mathematics as it relates to managing data. Students will apply methods for organizing and analysing large amounts of information; solve problems involving probability and statistics; and carry out a culminating investigation that integrates statistical concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics.

Ministry Website

http://www.edu.gov.on.ca/eng/curriculum/secondary/math1112currb.pdf

	Unit of Study	Overall Expectations (essential understandings)	Assessment
60%	**Combinatorics**	• recognize the use of permutations and combinations as counting techniques with advantages over other counting techniques (tree diagrams, list, Venn Diagrams etc.) • distinguish between situations that involve the use of permutations and those that involve the use of combinations and make connections. • counting permutations and combinations, where all objects are distinct, and express the solutions using standard combinatorial notation • solve introductory counting problems involving the additive counting principle and the multiplicative counting principle	• Variety of formative assessments in the form of quizzes and assignments • Summative unit tests ~ 10% (Permutations) ~10% (Combinations)
	Probability	• recognize and describe how probabilities are used to represent the likelihood of a result of an experiment • determine the theoretical probability, P (i.e. a value from 0 to 1), of each outcome of a discrete sample space recognize that the sum of the probabilities of the outcomes is 1 • determine, the tendency of experimental probability to approach theoretical probability as the number of trials in an experiment increases • determine whether two events are independent or dependent and whether one event is conditional on another event, and solve related probability problems	• Variety of formative assessments in the form of quizzes and assignments • Summative unit test ~ 10%
	1-Variable Statistics	• Recognise and describe the role of data in statistical studies, distinguish different types of statistical data. • Determine and describe principles of primary data collection • Recognise that the analysis of one-variable data involves determining relevant numerical summaries (mean, median, mode, range, interquartile rage, variance and standard deviation) • Interpret statistical summaries	• Variety of formative assessments in the form of quizzes and assignments • Summative unit test ~ 10%
	2- Variable Statistics	• recognize that the analysis of two-variable data involves t relationship between two attributes, recognize the correlati coefficient as a measure of the fit of the data to a linear model, a determine, using technology, the relevant numerical summaries. • determine, by performing a linear regression using technology, the equation of a line that models a suitable two-variable data set, determine the fit of an individual data point to the linear model • interpret statistical summaries	• Variety of formative assessments in the form of quizzes and assignments • Summative unit test ~ 10%

	Probability Distributions	• recognize and identify a discrete random variable X, generate a probability distribution [i.e., a function that maps each value x of a random variable X to a corresponding probability, P(X = x)] by calculating the probabilities associated with all values of a random variable. • calculate the expected value for a given probability distribution, • represent a probability distribution graphically using a probability histogram • recognize conditions that give rise to a random variable that follows a binomial probability distribution, hyper-geometric distribution, calculate the probability associated with each value of the random variable, • recognize and identify a continuous random variable , and distinguish between situations that give rise to discrete frequency distributions and continuous frequency distributions • recognize that the normal distribution is commonly used to model the frequency and probability distributions of continuous random variables, describe some properties of the normal distribution. Recognise the z-score as the positive or negative number of standard deviations from the mean to a value of the continuous random variable, and solve probability problems involving normal distributions	• Variety of formative assessments in the form of quizzes and assignments • Summative unit test ~ 10%
20%	**Project**	• pose a significant problem of interest that requires the organization and analysis of a suitable set of primary or secondary quantitative data • design a plan to study the problem • gather data related to the study of the problem • interpret, analyse, and summarize data related to the study of the problem • draw conclusions from the analysis of the data • compile a clear, well-organized, and detailed report of the investigation	• 10% of project attributed to the term work for a total of 70% • 10% attributed to summative project for a total of 30%
20%	**Final Exam**	• Will include all of the overall expectations listed within the units of study	• Summative Final Exam (20%)