**Evaluation Profile & Outline**

2018 – 2019

###### Grade 12, University Preparation

Mathematics of Data Management

MDM4U1

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## Earl Haig

SecondarySchool

**Course Description/Rationale/Overview:**

This course will broaden students’ understanding of mathematics as it relates to managing data. Students will apply methods for organizing and analyzing 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. Students planning to enter university programs in business, the social sciences, and the humanities will find this course of particular interest.

**Course Requirements/Department Policies**

Course Prerequisites: MCF3M or MCR3U

Arrangements for missed tests for valid reasons must be made ahead of time if known in advance, or the teacher must be contacted on the day of the test by phone (395-3210 ext. 20080) in case of illness or other unexpected absence. The student should be prepared to write the test immediately upon return to school.

Late assignments must be accompanied with a note signed by a parent or guardian stating the reason for late submission. The note must list the due date of the assignment and the actual date of submission.

**Marks will be deducted for late assignments, up to and including the full value of the assignment.** [Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools, Ministry of Ontario, 2010, pg. 43.]

**Class Requirements:**

Calculator (scientific, not graphing)

Textbook : (supplied)

Mathematics of Data Management McGraw-Hill Ryerson

A deposit cheque in the amount of $90,

signed but not dated, is required when the text is issued. The cheque is to be

made out to Earl Haig S.S.

Replacement textbook cost: $90.00

#### Assessment Strategies

Diagnostic Quizzes Homework Check

Diagnostic Tests Group Work

In-class Assignments Technology Based Tasks

Peer Assessments Observations

Class Participation/Interaction

Conferences/Interviews

**Mathematical Process Expectations**

Problem Solving Connecting

Reasoning and Proving Representing

Reflecting Communicating

Selecting Tools and Computational Strategies

**Learning Skills:**

* Responsibility
* Initiative
* Organization
* Independent Work
* Collaboration
* Self-regulation

**Curriculum strands:**

1. Counting and Probability
2. Probability Distributions
3. Organization of Data for Analysis
4. Statistical Analysis
5. Culminating Data Management Investigation

**FINAL MARK**

Year’s Work: 70%

Final Summative Evaluation 30%

(Summative – 10%)

(Final Exam – 20%)

Achievement Categories and Weighting

Knowledge & Understanding 25%

Application 20%

Thinking 10%

Communication 15%

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1. **Combinatorics - Organized Counting, Permutations and Combinations**

###### Fundamental principle of counting

###### Factorials

###### Permutations

Problem Solving with Permutations

###### Set Theory and Venn diagrams

Combinations

Problem solving with combinations

1. **Pascal’s Triangle and the Binomial Theorem**

Pascal’s Triangle

The Binomial Theorem

3. **Introductory Probability**

Experimental and theoretical probability

Odds

More advanced problems in probability (using techniques of combinatorics)

Dependent and independent events

Conditional probability

Mutually exclusive events

Stochastic processes

4. Probability Distributions

Binomial distribution

Geometric distribution

Hypergeometric distribution

1. **Statistics of One Variable**

Graphs

Bias

Measures of central tendency

Measures of spread

Sampling Techniques

Databases

1. **Data Project**

7. **Statistics of Two Variables**

Scatter plots

Linear correlation

Linear and non-linear regression

Causal relationships

Analysis of uses of statistics

8. **The Normal Distribution**

Properties of the normal distribution (a continuous distribution)

Sampling and modeling

Approximating the binomial distribution

**Outline**