Acton High School
MDM4U - Data Management Course Outline

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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. Students planning to enter university programs in business, the social sciences, and the humanities will find this course of particular interest.

HDSB Equity Statement

All courses within HDSB are taught in learning environments that promote inclusive education, and identify and eliminate discriminatory biases, systemic barriers, and power dynamics that limit the ability of students to participate, learn, grow, and succeed. All students see themselves reflected in the curriculum, their physical surroundings, and the broader environment, so that they are engaged in and empowered by their learning experiences.

Curriculum

A student's final report card grade will be based on the evidence provided of these overall curriculum expectations:

PROCESS EXPECTATIONS

Students will be actively engaged in the following seven processes which are integrated into all areas of the course: **problem solving, reasoning and proving, reflecting, connecting, representing, selecting tools and computational strategies and communicating**.

COUNTING AND PROBABILITY

- solve problems involving the probability of an event or a combination of events for discrete sample spaces;
- solve problems involving the application of permutations and combinations to determine the probability of an event.

PROBABILITY DISTRIBUTIONS

- demonstrate an understanding of discrete probability distributions, represent them numerically, graphically, and algebraically, determine expected values, and solve related problems from a variety of applications;
- demonstrate an understanding of continuous probability distributions, make connections to discrete probability distributions, determine standard deviations, describe key features of the normal distribution, and solve related problems from a variety of applications.

ORGANIZATION OF DATA FOR ANALYSIS

- demonstrate an understanding of the role of data in statistical studies and the variability inherent in data, and distinguish different types of data;
- describe the characteristics of a good sample, some sampling techniques, and principles of primary data collection, and collect and organize data to solve a problem.

STATISTICAL ANALYSIS

- analyse, interpret, and draw conclusions from one-variable data using numerical and graphical summaries;
- analyse, interpret, and draw conclusions from two-variable data using numerical, graphical, and algebraic summaries;
- demonstrate an understanding of the applications of data management used by the media and the advertising industry and in various occupations.

CULMINATING DATA MANAGEMENT INVESTIGATION

- design and carry out a culminating investigation[1] that requires the integration and application of the knowledge and skills related to the expectations of this course;
- communicate the findings of a culminating investigation and provide constructive critiques of the investigations of others.

Assessment and Evaluation

Your report card grade will be determined as follows.

Term work: **70%** of your grade will be based on all of the evidence you have provided. It will reflect your most consistent level of achievement with special consideration given to more recent evidence.	**15% Knowledge & Understanding:** Knowledge of content and the understanding of mathematical concepts. **20% Application:** the application of knowledge and skills in familiar contexts; transfer of knowledge and skills to new contexts; making connections within and between various contexts. **20% Thinking:** use of planning and processing skills; use of critical and creative thinking processes. **15% Communication:** Expression and organization of ideas and mathematical thinking, communication for different audiences/purposes and use of conventions, vocabulary and terminology of the discipline … all using oral, visual and written forms.
Final Evaluation: **30%** of your grade will be determined at the end of the course.	**10% Performance Task:** Consisting of a mathematical investigation or contextual, open-ended problematic situation suited to a variety of approaches including use of technology where appropriate. **20% Exam:** Consisting of a variety of question types (e.g. short answer, multiple choice, extended tasks) sampling all strands and categories of 120 minutes duration in a 150 minute time frame.
Your **final grade** will be calculated by combining your Term (70%) grade and your Exam and Performance Task Evaluations (30%).	

It is your responsibility to provide evidence of your learning within established timelines. Due dates for assignments and the scheduling of tests will be communicated well in advance to allow you to schedule your time. If you aren't going to be able to follow an agreed upon timeline you should demonstrate your responsibility and organizational skills by discussing with your teacher the challenges you're facing as far in advance of the deadline as possible.

It is your responsibility to be academically honest in all aspects of your schoolwork so that the marks you receive are a true reflection of your achievement.

Plagiarism is using the words, ideas or work of someone else without giving appropriate credit to the original creator. This is a form of cheating.

Consequences for not meeting these academic standards may include:

- Reporting the issue to your parents;
- Requiring you to complete the original or alternative work after school or during your lunch hour;
- Requiring you to complete an alternative assignment;
- Suspension;
- Assigning a "zero" for an assignment not completed prior to an agreed upon closure date;
- Mark deduction of 5% / day.

NOTE: the complete HDSB policies and administrative procedures for "Lates and Missed Assignments" and "Cheating and Plagiarism" policies may be found at www.hdsb.ca

Learning Skills & Work Habits

These learning skills and work habits will be taught, assessed and evaluated throughout the course.

[1] This culminating investigation allows students to demonstrate their knowledge and skills from this course by addressing a single problem on probability and statistics or by addressing two smaller problems, one on probability and the other on statistics.

Learning Skills and Work Habits

E – Excellent G – Good S – Satisfactory N – Needs Improvement

Responsibility			**Organization**		
▪ Fulfils responsibilities and commitments within the learning environment. ▪ Completes and submits class work, homework, and assignments according to agreed-upon timelines. ▪ Takes responsibility for and manages own behaviour.			▪ Devises and follows a plan and process for completing work and tasks. ▪ Establishes priorities and manages time to complete tasks and achieve goals. ▪ Identifies, gathers, evaluates, and uses information, technology, and resources to complete tasks.		
Independent Work			**Collaboration**		
▪ Independently monitors, assesses, and revises plans to complete tasks and meet goals. ▪ Uses class time appropriately to complete tasks. ▪ Follows instructions with minimal supervision.			▪ Accepts various roles and an equitable share of work in a group. ▪ Responds positively to the ideas, opinions, values, and traditions of others. ▪ Builds healthy peer-to-peer relationships through personal and media-assisted interactions. ▪ Works with others to resolve conflicts and build consensus to achieve group goals. ▪ Shares information, resources, and expertise, and promotes critical thinking to solve problems and make decisions.		
Initiative			**Self-Regulation**		
▪ Looks for and acts on new ideas and opportunities for learning. ▪ Demonstrates the capacity for innovation and a willingness to take risks. ▪ Demonstrates curiosity and interest in learning. ▪ Approaches new tasks with a positive attitude. ▪ Recognizes and advocates appropriately for the rights of self and others.			▪ Sets own individual goals and monitors progress towards achieving them. ▪ Seeks clarification or assistance when needed. ▪ Assesses and reflects critically on own strengths, needs, and interests. ▪ Identifies learning opportunities, choices, and strategies to meet personal needs and achieve goals. ▪ Perseveres and makes an effort when responding to challenges.		