Data Management (MDM4U)

R.H. King Academy, TDSB

2017-2018

	Ontario Ministry of Education www.edu.gov.on.ca /eng/		Toronto District School Board www.tdsb.on.ca		R.H. KING ACADEMY http://schools.tdsb.on.ca/ rhking/

COURSE OF STUDY OUTLINE				
Department	*Mathematics*	**Course Type**		*University (U)*
Curriculum Leader	*B. Leszcz*	**Grade**		*12*
Course Title	*Data Management*	**Credit Value**		*One*
Course Code	*MDM4U*	**Prerequisites**		*MCR3U; MCF3M*
Ministry Document	*The Ontario Curriculum. http://www.edu.gov.on.ca/eng/curriculum/secondary/math.html*			
Learning Resources	Mathematics of Data Management McGraw Hill Ryerson 2002			

Curriculum Leader: B. Leszcz

Policy Document: *The Ontario Curriculum Grade 11 and 12 (2007 Revised)*

Prerequisites: Functions, Grade 11, University Preparation, (MCR3U) *or* Functions and Applications, Grade 11, University/College Preparation (MCF3M)

Value: 1 Credit

Textbook: Mathematics of Data Management McGraw Hill Ryerson 2002

Overall Goals   This course broadens 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.

Curriculum
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

- analyze, interpret, and draw conclusions from one-variable data using numerical and graphical summaries;
- analyze, 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* 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.

Learning Skills: The learning skills (Responsibility, Organization, Independent Work, Collaboration, Initiative, and Self Regulation) are critical for the achievement of the curriculum expectations and student success. Students are expected to attend every class, complete all homework and insure that assignments are completed and handed in on time.

Strategies: Students will have the opportunity to learn in a variety of ways –individually, cooperatively, independently, with teacher direction, through hands-on experience, and through examples followed by practice. The approaches and strategies used in the classroom to help students meet the expectations of this curriculum will vary according to the objectives of the learning and the needs of the students. It is important for students to take every opportunity to learn the material covered prior to the evaluation.

Evaluation: Seventy per cent of the grade will be based on evaluations conducted throughout the course. Evaluations will be in the form of tests, quizzes, and assignments. Assignments for evaluation may include rich performance tasks, demonstrations (board work), and projects. This portion of the grade will reflect the student's most consistent level of achievement throughout the course.

Thirty per cent of the grade will be based on a final assessment administered towards the end of the course. The final exam allows the student an opportunity to demonstrate comprehensive achievement of the overall expectations for the course.

Students will be given numerous and varied opportunities to demonstrate the full extent of their achievement of the curriculum expectations (content standards) across all four categories of knowledge and skills.

Teachers will ensure that student learning is assessed and evaluated in a balanced manner with respect to these four categories:

1. **Knowledge and Understanding**   Subject specific content acquired in each course, and the comprehension of its meaning and significance.
2. **Thinking**   The use of critical and creative thinking skills and/or processes.
3. **Communication**   The conveying of meaning through various forms.
4. **Application**   The use of knowledge and skills to make connections within and between various contexts.

Term Grades for Provincial Reports Throughout the Year:

The midterm mark will be based on the evaluations that have been conducted to that point in the course and will be preliminary and tentative. This mark will be based on the most consistent level of achievement to that point in time, but some of the overall expectations, strands, and units will not have been addressed and the student's grades will most likely change when the student's entire work is evaluated by the end of the course.

Evaluation Plan

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Term Work- 70%   Final Evaluation – 30%

- Quizzes, assignments, projects   15%   • Exam   20%
- Tests   55%   • Culminating Project 10%

Course Work

Unit 1: Tools for Data Management   1-2 weeks

Unit 2: Statistics of One Variable   3-4 weeks

Unit 3: Statistics of Two Variables   3-4 weeks

Unit 4: Permutations and Organized Counting   3-4 weeks

Unit 5: Combinations and the Binomial Theorem   3-4 weeks

Unit 6: Introduction to Probability   3-4 weeks

Unit 7: Probability Distributions   3-4 weeks

Unit 8: The Normal Distribution   1-2 weeks

Unit 9: Culmination Project: Integration of the Techniques of Data Management

                                                   7 stages—15 hours

Review and Preparation for Evaluations: 1 week