



OTTAWA  
CATHOLIC  
SCHOOL BOARD

## Grade 12 Mathematics of Data Management MDM4U

Inspired education.  
Inspiring students.

**Prerequisite Course:** Functions, Grade 11, University Preparation, or Functions and Applications, Grade 11, University/College Preparation

**Description and Overall Expectations:** This course broadens students' understanding of mathematics as it relates to managing data. Students will 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.

**Math Processes:** problem-solving, reasoning and proving, reflecting, selecting tools and computational strategies, connecting, representing, 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\* that requires the integration and application of the knowledge and skills related to the expectations of this course; communicate the findings of an investigation and provide constructive critiques of the investigations of others.

**Course Resources:** See teacher and school for the list of key resources, digital tools, sites, passwords, including replacement cost for resources if lost or damaged.

**Catholic Graduate Expectations:** Our goal for all students is to experience an education based on our Catholic Graduate Expectations.

We work in community to develop graduates that are:

- Discerning Believers Formed in the Catholic Faith Community
- Effective Communicators
- Reflective and Creative Thinkers
- Self-Directed, Responsible, Life-Long Learners
- Collaborative Contributors
- Caring Family Members
- Responsible Citizens

<http://www.iceont.ca>

**Assessment, Evaluation and Reporting:** The primary purpose of assessment and evaluation is to improve student learning. Students will understand what is expected of them, using learning goals, and success

criteria, based on the overall expectations. Feedback (self, peer, teacher) supports learning, and plays a critical role in academic achievement and success.

The development of learning skills and work habits is a key indicator of future success. The following learning skills and work habits will be developed, assessed, and reported during this course:

1. Responsibility fulfills responsibilities and commitments (*e.g. accepts and acts on feedback*)
2. Organization manages time to complete tasks and achieve goals (*e.g. meets goals, on time*)
3. Independent work uses class time appropriately to complete tasks (*e.g. monitors own learning*)
4. Collaboration works with others, promotes critical thinking (*e.g. provides feedback to peers*)
5. Initiative demonstrates curiosity and an interest in learning (*e.g. sets high goals*)
6. Self-Regulation sets goals, monitors progress towards achieving goals (*e.g. sets, reflects goals*)

Group work supports collaboration, an important 21<sup>st</sup> century skill. This will be assessed only as a learning skill. Homework may also be assessed as a learning skill. Evaluation completed in class will be based only on individual student work. Regular attendance is important to support group work, various forms of feedback, and to allow students to demonstrate evidence of their learning. Students are responsible for providing evidence of their own learning (with references where required), in class, within given timelines. Next steps in response to academic integrity issues, such as lack of work completion, plagiarism, or other forms of cheating, range from providing alternate opportunities, to a deduction of marks.

The achievement chart identifies four levels, based on achievement of the overall expectations:

- |         |   |           |
|---------|---|-----------|
| Level 1 | achievement falls below the provincial standard | (50-59%)  |
| Level 2 | achievement approaches the provincial standard  | (60-69%)  |
| Level 3 | achievement is at the provincial standard       | (70-79%)  |
| Level 4 | achievement surpasses the provincial standard   | (80-100%) |

The report card grade will be based on evidence of student performance, including observations, conversations and student products. Consideration will be given to more recent evidence (skill development) and the most consistent level of achievement.

#### **Mark Breakdown:**

Term Work (70%) will include a variety of rich assessment tasks designed to demonstrate students' development in their knowledge and understanding, thinking and inquiry, communication and application, of all overall expectations.

Summative evaluation (30%) takes place towards the end of the semester, is completed in class, and provides the final opportunity for students to demonstrate what they know, and the skills they have learned, based on the overall expectations. In Data Management 4U Math, the summative evaluation will consist of a rich summative assessment task (20%) and a final exam (10%).

**Awarding of Course Credit:** Students who demonstrate evidence of achievement of overall expectations, **and** earn a mark of 50% or greater, will earn one credit for the course with the following exception:

Students who do not complete their summative evaluation (exam and/or end of year performance task) will not earn their credit regardless of their mark.

#### **Student and Parent/Guardian Acknowledgement**

We have read the above course outline and are aware of the student responsibilities to attend class on a regular basis and to provide evidence of learning within the established timelines.

Student's Name (print): \_\_\_\_\_ Student's Signature: \_\_\_\_\_

Parent/Guardian Name (print): \_\_\_\_\_ Parent/Guardian Signature: \_\_\_\_\_