General Course Information

Prerequisites: MCF3M or MCR3U
Teacher/Office Ext: __________________________

Department: Mathematics
Assistant Curriculum Leader: Sarah Hammond, Annissa Hosein
Extra Help: Upon Request
Textbook and Replacement Cost: Mathematics of Data Management, McGraw-Hill, $90
You will be loaned a text book, which you must return in good condition on or prior to the day of the exam. DO NOT WRITE IN THE TEXT BOOK.
Materials Required: Scientific Calculator, Pencil, Eraser, Ruler, Lined paper, Graph Paper, Binder/Notebook, Textbook

Course Description

This course broadens your understanding of mathematics as it relates to managing data. You 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. You will also refine their use of the mathematical processes necessary for success in senior mathematics. If you plan to enter university programs in business, the social sciences, and the humanities, you will find this course of particular interest.

Overall Expectations

A. 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.

B. 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.

C. 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.

D. 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.

E. CULMINATING DATA MANAGEMENT INVESTIGATION
   • design and/or complete 2 culminating activities* that require the integration and application expectations of this course;
   • communicate the findings of these investigations and provide constructive critiques of the investigations of others.

*These culminating activities allow students to demonstrate their knowledge and skills gained from this course by addressing two different problems, one on probability and the other on statistics.

A complete list of course expectations can be found at: http://www.edu.gov.on.ca/eng/curriculum/secondary/english.html
Course Information

Unit Titles (Time periods are approximate. Order may change.)
- UNIT 1: Permutations (8 periods)
- UNIT 2: Combinations (6 periods)
- UNIT 3: Binomial Theorem (8 periods)
- UNIT 4: Introduction to Probability (11 periods)
- UNIT 5: Probability Distributions - Finite (14 periods)
- UNIT 6: Statistics of One Variable (11 periods)
- UNIT 7: Statistics of Two Variable (10 periods)
- UNIT 8: Normal Distribution (3 periods)

Teaching Strategies
You will have opportunities to learn and be assessed (formative assessment) before evaluations. List of evaluation strategies which may be used (but are not limited to) are: quizzes, tests, problem-sets, independent study, problem-based learning and enrichment. Teaching strategies will include: direct Instruction, investigative methods, student directed/independent leaning (with teacher guidance) and differentiated instruction.

Assessment and Evaluation:
To promote student success, ongoing assessment and feedback is given regularly to the students. A variety of assessment and evaluation strategies are used in this course. Expectations are evaluated based on the provincial curriculum expectations and the strands and/or categories outlined in the ministry document.

The four categories of achievement are:

- **Knowledge and Understanding**: Subject specific content and the comprehension of its meaning and significance.
- **Communication**: The conveying of meaning through various forms. (Vocabulary, notation, graphical, pictorial.)
- **Application**: The use of knowledge and skills to make connections within and between various contexts.
- **Thinking and Inquiry**: The use of critical and creative thinking skills and/or processes.

These categories help guide the creation of assessment and evaluation tools.

Each student's final mark will be in the form of a percentage grade based on their achievement in the categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Understanding</td>
<td>35%</td>
</tr>
<tr>
<td>Application</td>
<td>35%</td>
</tr>
<tr>
<td>Communication</td>
<td>15%</td>
</tr>
<tr>
<td>Thinking and Inquiry</td>
<td>15%</td>
</tr>
</tbody>
</table>

The breakdown of the final mark is as follows:

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Term Evaluation (80% Unit Evaluations + 20% Learning Process)</td>
<td>70%</td>
</tr>
<tr>
<td>Final Evaluation (10% Culminating Project + 20% Exam)</td>
<td>30%</td>
</tr>
</tbody>
</table>

The culminating project will be completed during the final 4 weeks of the course and the exam will be completed during the exam period.
In addition to students’ performance in the achievement categories, students will also be assessed on their performance in the following learning skills:

- Responsibility (completes class work, homework, responsible for behaviour)
- Organization (manages time to complete work/tasks, brings supplies, is on time and ready for learning)
- Independent (work Uses class time well, follows instructions with minimal supervision)
- Collaboration (shares work equally, takes on variety of group roles, resolves conflict, works positively)
- Initiative (approaches new tasks positively, demonstrates interest in learning, proactive with missed work)
- Self-Regulation (seeks help/clarification as needed, honestly assesses strengths and needs, perseveres with challenges)

**KEYS TO SUCCESS -**

- Attendance is mandatory. Each class will build on the previous one.
- Always make arrangements to get missed work if you are absent.
- To avoid receiving a placeholder mark of **ZERO**, it is required that arrangements for an absence be made with your teacher **prior to the test/quiz taking place**.
- Come prepared. (pencils, ruler, paper, textbook, scientific calculator and previous notes)
- Complete all homework. (If unable to do so, attempt everything.)
- Ask questions and seek extra help when having difficulty. (Don’t leave it to the last minute.)
- Review previous lessons. (There will be days in class when you will have time to do this.)
- Take clear, complete and highlighted notes. Review them at the end of each lesson.
- Use the resource book as “secondary notes”. The resource is full of extra examples.
- **See your teacher immediately to arrange extra help if your mark falls below 60%.**
- Be enthusiastic. Enjoy the class. Have fun.

“All work becomes hard if done reluctantly”

For specific policies on Assessment and Evaluation, and Academic Honesty, please refer to School Procedures in the Student Agenda.