**MBF 3C Course Outline 2016-2017**

This Course Outline is based upon the Ministry of Education and Training Ontario Curriculum for Grade 11 Foundations for College

Mathematics as per the revised document of 2006.

***Board:*** Toronto District School Board

***School:*** EAST YORK Collegiate Institute

***Curriculum Leader:*** R.Singh

***Developing Teacher:*** M.Datta

***Date of Revision:*** Sept. 2016

***Course Title:* Foundations for College Mathematics**, Grade 11, College Preparation

***Grade:*** 11

***Code:*** MBF 3C

***Credit Value:*** 1.0

***Pre-requisite:*** Foundations of Mathematics, Grade 10, Applied

or Principles of Mathematics, Grade 10, Academic

***Textbooks:*** Foundations for College Mathematics 11, McGraw-Hill Ryerson (2007)

***Resources:*** Teacher’s Resource for Foundations for College Mathematics 11

Computerized Assessment Bank for Foundations for College Mathematics 11

Graphing Calculators, Fathom, Geometers’ Sketchpad, and Manipulatives

OMCA/OAME Materials

Algebra with Pizzazz

**Course Description**

This course enables students to broaden their understanding of mathematics as a problem-solving tool in the real world. Students will extend their understanding of quadratic relations; investigate situations involving exponential growth; solve problems involving compound interest; solve financial problems connected with vehicle ownership; and develop their ability to reason by collecting, analyzing, and evaluating data involving one variable; connect probability and statistics; and solve problems in geometry and trigonometry. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. Throughout the course, students will engage in the following processes: Problem Solving, Reasoning and Proving, Reflecting, Selecting Tools and Computational Strategies, Connecting, Representing, Communicating.

**Strands**

Mathematical Models: 41 periods Personal Finance: 17 periods Trigonometry: 11 periods Data Management: 14 periods Geometry: 10 periods

**Program Planning Considerations**

***Exceptional Students****:* Additional time will be allowed for tests. Additional accommodations will be provided in consultation with the Guidance, Special Education and ESL departments.

***Technology:*** Manipulatives, Graphing Calculators, Fathom, and Geometer’s Sketchpad will be utilized for hands-on and technology-related applications.

***Career Education:*** Links to related fields will be established throughout the course. ***Co-operative Education****:* These will be provided in association with Guidance Department. ***Mathematics Anxiety****:* Attention will be addressed according to the following:

• Cultural perspectives

• Positive reinforcements

• Variety of assessment techniques

• Group structures

• Consideration for Learning Styles

**Learning Skills**

Assessment of the learning skills will be done on an ongoing basis throughout the academic year by observations of students at work, checklists and interviews. This will include:

• Classwork/homework (Work habits, homework and organization)

• Completed work and seeking assistance (Organization and initiative)

• Persistence and independence at tasks (Working independently and initiative)

• Extension of task (Organization and initiative**)**

• Achievement of group goals (Team work)

**Assessment Strategies**

A variety of teaching/assessment strategies to address students’ needs will be used during the school year. Formative assessments will be ongoing through out the academic year. These may include:

• Diagnostic assessment

• Formative assessment

• Performance assessment

• Portfolio assessment

• Rubrics

• Checklists

**Term Summative Evaluations (70% Term Work)**

• Tests, quizzes, tasks and other forms of term summative evaluations will occur throughout the academic year at the end of units of work as outlined in the accompanying course outline.

• Students will be provided with reasonable opportunities to master skills relating to the achievement of the curriculum

expectations before assessment and evaluation occurs.

• Major evaluations will be announced at least one week in advance.

• Accommodations will be made for school activities, statutory holidays, religious days, cultural days, sports events and other occurrences that may impact on any scheduled evaluation. It is the student’s responsibility to notify teachers of such absences in advance and to make up missed work.

• Absence on the day of an evaluation must be documented. If a student must miss an evaluation, s/he is expected to:

a) see the teacher before the absence to arrange for an alternative date to make up the evaluation; or

b) in case of illness or unexpected absence, present a note to the teacher, signed by a parent or guardian, immediately upon their return to explain the absence. An alternate evaluation will then be scheduled at a mutually convenient time.

• The EAST YORK Late Policy applies to all assignments and evaluations. See your Agenda book.

• Cheating will not be tolerated in any form and will be dealt with appropriately.

**Final Mark Calculation**

Calculation of the Term Mark will be based upon the ***Categories*** of the ***Achievement Chart***. This chart is meant to assist teachers in planning instruction and learning activities for the achievement of the curriculum expectations. It is also used in designing assessment and evaluation tools and in providing feedback to students. Each mathematical topic will contain each category in the chart due to the integrated nature of the discipline in mathematics. Final marks will be calculated as follows:

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| **Term Work:** |  | **70%** | ***Levels of Achievement:*** |
| Knowledge and Understanding: | 50% |  | Level 1: 50 - 59% |
| Application: | 20% |  | Level 2: 60 – 69% |
| Thinking and Inquiry: | 20% |  | Level 3: 70 – 79% |
| Communication: | 10% |  | Level 4: 80 - 100% |
| **Final Summative Evaluations:** |  | **30%** |  |
| Performance Task | 15% |  |  |
| Final Evaluation | 15% |  |  |

**Reporting**

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| **Report #1** | **Report #2** | **June Report** |
| 100% Term Work | 100% Term Work  (Cumulative Sept – Feb) | 70% Term Work + 10% Performance Task + 20% Final Evaluation  (Cumulative Sept to June) |

**Communication**

***Access to extra help and mark records***. Students are encouraged to consult their teachers on a regular basis for extra help and guidance as it relates to improving their academic performance. Students are also expected to discuss strategies for improving their grades with their teachers. Students are expected to view their report cards as an indication of their current achievement and discuss with teachers for clarification.

***Communication with Parents/Guardians***. Comments pertaining to academic achievement and learning skills are placed on the report cards are primarily to provide feedback for parents/guardians as well as students. Parent/guardian nights can be used for one to one discussion. At times it may be necessary to contact parents/guardians by telephone to discuss a student’s performance. Parents/guardians are also encouraged to contact teachers as and when the need arises

**MBF3C Daily Course Outline 2016-2017**

**Textbook:** Foundations for College Mathematics 11, McGraw-Hill Ryerson (2007)

**Strand #1: Mathematical Models (41 periods)**

Overall Expectations:

• To make connections between the numeric, graphical, and algebraic representations of quadratic relations, and use the connections to solve problems;

• To demonstrate an understanding of exponents, and make connections between numeric, graphical, and algebraic representations of

exponential relations;

• To describe and represent exponential relations, and solve problems involving exponential relations arising from real-world applications.

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| **Per #** | **TOPIC** | **Section** | **ASSIGNMENT** | **Comment** |
|  |  |  |  |  |
| **UNIT #1: QUADRATIC RELATIONS I (11 periods)** | | | | |
| 1 & 2 | Modelling with Quadratic Relations | 4.1 | p. 174, #1-14 | See OMCA materials for  Introductory Investigations |
| 3 & 4 | The Quadratic Relation y=ax2+k | 4.2 | Investigations pp. 180-185 p. 190, #1-12 | Graphing calculators needed for this entire unit. |
| 5 | The Quadratic Relation y=a(x-h)2 | 4.3 | Investigations pp. 194-196 p. 200, #1-10 |  |
| 6 & 7 | The Quadratic Relation y=a(x-h)2+k | 4.4 | Investigations pp. 204-206 p. 212, #1-10 |  |
| 8 & 9 | Interpret Graphs of Quadratic Relations | 4.5 | p. 222, #1-8  Additional handout |  |
| 10 | Review |  | pp. 226-229 |  |
| 11 | Test and/or Performance Task |  |  |  |
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| **UNIT #2: QUADRATIC RELATIONS II (13 periods)** | | | | |
| 1 & 2 | Expand Binomials | 5.1 | p. 238, #1-16  Additional handout |  |
| 3 | Change Quadratic Relations from Vertex to  Standard Form | 5.2 | p. 245, #1-13 |  |
| 4 & 5 | Factor Trinomials of the Form x2+bx+c | 5.3 | p. 253, #1-15  Additional handout |  |
| 6 & 7 | Factor Trinomials of the Form ax2+bx+c, where a is a common factor | 5.4 | p. 259, #1-16  Additional handout |  |
| 8 & 9 | The x-intercepts of a Quadratic Relation | 5.5 | p. 271, #1-11 |  |
| 10 & 11 | Solve Problems Involving Quadratic  Relations | 5.6 | p. 281, #1-17 |  |
| 12 | Review |  | pp. 286-289 |  |
| 13 | Test and/or Performance Task |  |  |  |
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| **UNIT #3: EXPONENTS (14 periods)** | | | | |
| 1 & 2 | Exponent Rules with Whole Number  Exponents | 7.1 | p. 360, #1-17  Additional handout |  |
| 3 & 4 | Zero and Negative Exponents | 7.2 | p. 367, #1-12  Additional handout |  |
| 5 & 6 | Investigate Exponential Relations | 7.3 | Investigations pp. 372-376 p. 377, #1-12 | See OMCA materials for additional investigations |
| 7 & 8 | Exponential Relations | 7.4 | Investigations pp. 382-383 p. 390, #1-14 | See OMCA materials for additional investigations |
| 9 & 10 | Modelling Exponential Growth & Decay | 7.5 | Investigations pp. 395-400 p. 401, #1-10 | Use graphing calculators |
| 11 & 12 | Solve Problems Involving Exponential  Growth & Decay | 7.6 | Investigations pp. 406-409 p. 410, #1-14 |  |
| 13 | Review |  | pp. 414-417 |  |
| 14 | Test and/or Performance Task |  |  |  |
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| **1 & 2** | **Review for Cumulative Test #1 pp. 350-351 & 500** | | | |
| **3** | **CUMULATIVE TEST #1 (Units #1-3)** | | | |

**Strand #2: Personal Finance (17 periods)**

Overall Expectations:

• To compare simple and compound interest, relate compound interest to exponential growth, and solve problems involving compound interest;

• To compare services available from financial institutions, and solve problems involving the cost of making purchases on credit;

• To interpret information about owning and operating a vehicle, and solve problems involving the associated costs.

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| **Per #** | **TOPIC** | **Section** | **ASSIGNMENT** | **Comment** |
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| **UNIT #4: COMPOUND INTEREST (10 periods)** | | | | |
| 1 | Simple & Compound Interest | 8.1 | Investigation pp. 422-426 p. 428, #1-9 |  |
| 2 & 3 | Compound Interest | 8.2 | p. 432, #1-19 |  |
| 4 & 5 | Present Value | 8.3 | p. 439, #1-16 |  |
| 6 | The TVM Solver | 8.4 | p. 444, #1-17 | Use TVM Solver on TI-83 |
| 7 & 8 | Effects of Changing Conditions on  Investments & Loans | 8.5 | p. p. 450, #1-18 | Use TVM Solver on TI-83 |
| 9 | Review |  | pp. 454-457 |  |
| 10 | Test and/or Performance Task |  |  |  |
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| **UNIT #5: PERSONAL FINANCE (7 periods)** | | | | |
| 1 | Savings Alternatives | 9.1 | p. 465, #1-11 | Project-based unit  Use TVM Solver on TI-83 |
| 2 | Investment Alternatives | 9.2 | p. 472, #1-16 |
| 3 | Manage Credit Cards | 9.3 | p. 479, #1-10 |
| 4 | Obtain a Vehicle | 9.4 | p. 486, #1-10 |
| 5 | Operate a Vehicle | 9.5 | p. 493, #1-14 |
| 6 | Review |  | pp. 496-499 |  |
| 7 | Test and/or Project |  |  |  |

**Strand #3: Trigonometry (11 periods)**

Overall Expectations:

• To solve problems involving trigonometry in acute triangles using the sine law and the cosine law, including problems arising from real- world applications.

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| **Per #** | **TOPIC** | **Section** | **ASSIGNMENT** | **Comment** |
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| **UNIT #6: TRIGONOMETRY(11 periods)** | | | | |
| 1 & 2 | Revisit The Primary Trigonometric Ratios | 1.1 | p. 13, #1-14  Additional handout |  |
| 3 | Solve Problems Using Trigonometric  Ratios | 1.2 | p. 21, #1-14 |  |
| 4 & 5 | The Sine Law | 1.3 | p. 31, #1-13  Additional handout |  |
| 6 & 7 | The Cosine Law | 1.4 | p. 39, #1-13  Additional handout |  |
| 8 & 9 | Making Decisions Using Trigonometry | 1.5 | p. 48, #1-14 |  |
| 10 | Review |  | pp. 52-55 |  |
| 11 | Test and/or Performance Task |  |  |  |
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| **1 & 2** | **Cumulative Review** |  | **pp. 160, 351, 500-501** |  |
| **3** | **CUMULATIVE ASSESSMENT #2 (Units #4-6)** | | | |

**Strand #4: Data Management (14 periods)**

Overall Expectations:

• To solve problems involving one-variable data by collecting, organizing, analyzing, and evaluating data;

• To determine and represent probability, an identify and interpret its applications.

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| **UNIT #7: ONE-VARIABLE STATISTICS (8 periods)** | | | | |
| 1 | Sampling Techniques | 3.1 | Investigation pp. 102-105 p. 106, #1-12 |  |
| 2 | Collect and Analyse Data | 3.2 | p. 114, #1-16 |  |
| 3 | Display Data | 3.3 | p. 125, #1-14 | TI-83 or Fathom |
| 4 | Measures of Central Tendency | 3.4 | p. 136, #1-14 | TI-83 or Fathom |
| 5 | Measures of Spread | 3.5 | p. 145, #1-14 | TI-83 or Fathom |
| 6 | Common Distributions | 3.6 | p. 153, #1-7 |  |
| 7 | Review |  | pp. 156-159 |  |
| 8 | Test and/or Performance Task |  |  |  |
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| **UNIT #8: PROBABILITY (6 periods)** | | | | |
| 1 | Probability Experiments | 2.1 | Investigations pp. 60-65 p. 66, #1-9 |  |
| 2 | Theoretical Probability | 2.2 | Investigations pp. 68-72 p. 73, #1-12 |  |
| 3 | Compare Experimental & Theoretical  Probabilities | 2.3 | Investigations pp. 77-81 p. 1-14 |  |
| 4 | Interpret Information Involving  Probability | 2.4 | Investigations pp. 86-88 p. 89, #1-11 |  |
| 5 | Review |  | pp. 94-97 |  |
| 6 | Test and/or Performance Task |  |  |  |
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**Strand #5: Geometry (10 periods)**

Overall Expectations:

• To represent, in a variety of ways, two-dimensional shapes and three-dimensional figures arising from real-world applications, and solve design problems.

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| **UNIT #9: GEOMETRY IN DESIGN (10 periods)** | | | | | |
| 1 | Investigate Geometric Shapes and Figures | 6.1 | | p. 302, #1-15 |  |
| 2 & 3 | Perspective and Orthographic Drawings | 6.2 | | Investigations pp. 306-312 p. 314, #1-13 |  |
| 4 & 5 | Create Nets, Plans, and Patterns | 6.3 | | p. 322, #1-13  GSP Task pp. 325-326 |  |
| 6 | Scale Models | 6.4 | | p. 331, #1-13 |  |
| 7 & 8 | Solve Problems with Given Constraints | 6.5 | | p. 340, #1-14 |  |
| 9 | Review |  | | pp. 346-349 |  |
| 10 | Test and/or Performance Task |  | |  |  |
|  | **Jan/June Cumulative Review (Units #1-9) pp. 504-513** | | | | |
|  | **PERFORMANCE TASK (15%) & JUNE SUMMATIVE EVALUATION (15% of Final Mark)** | | | | |