CENTRAL TORONTO ACADEMY
MCF3M Course Outline 2026-2027

Course Information			
Course Name	Functions and Applications	**Course Code**	MCF3M
Teacher		**Teacher Email/Dept. Ext.**	
Learning Platform		**Prerequisite (if any)**	MPM2D MFM2P
Textbook/ Digital Tool	N/A	**Textbook/Resource Replacement Cost**	N/A
Course Description	This course introduces basic features of the function by extending students' experiences with quadratic relations. It focuses on quadratic, trigonometric, and exponential functions and their use in modelling real-world situations. Students will represent functions numerically, graphically, and algebraically; simplify expressions; solve equations; and solve problems relating to applications. Students will reason mathematically and communicate their thinking as they solve multi-step problems. Ontario Curriculum for MCF3M		
Overall Expectations	Quadratic Functions • expand and simplify quadratic expressions, solve quadratic equations, and relate the roots of a quadratic equation to the corresponding graph • demonstrate an understanding of functions, and make connections between the numeric, graphical, and algebraic representations of quadratic functions • solve problems involving quadratic functions, including problems arising from real-world applications Trigonometric Functions • solve problems involving trigonometry in acute triangles using the sine law and the cosine law, including problems arising from real-world applications • demonstrate an understanding of periodic relationships and the sine function, and make connections between the numeric, graphical, and algebraic representations of sine functions • identify and represent sine functions, and solve problems involving sine functions, including problems arising from real-world applications Exponential Functions • simplify and evaluate numerical expressions involving exponents, and make connections between the numeric, graphical, and algebraic representations of exponential functions • identify and represent exponential functions, and solve problems involving exponential functions, including problems arising from real-world applications		

	• demonstrate an understanding of compound interest and annuities, and solve related problems Discrete Functions • demonstrate an understanding of recursive sequences, represent recursive sequences in a variety of ways • demonstrate an understanding of the relationships involved in arithmetic and geometric sequences and series, and solve related problems • make connections between sequences, series, and financial applications, and solve problems involving compound interest and ordinary annuities

Assessment and Evaluation

Term Work	**65%**	**Final Evaluations**	**25%**	**Attendance and Participation**	**10%**
Classroom work completed **throughout** the course		Mandatory final evaluations at the **end** of the course based on Ministry mandatory final evaluation breakdowns		Student's **attendance and participation** in class will have an impact on achievement	
Knowledge	18.5	Culminating Task (acc to Ministry directions)	N/A	See below: **Assessment Criteria for Attendance and Participation**	
Application	18.5				
Thinking	14	Examination (acc to Ministry directions)	25		
Communication	14				

- *Description of the achievement chart categories and learning skills/work habits:* https://www.dcp.edu.gov.on.ca/en/assessment-evaluation

Assessment Criteria for Attendance and Participation

	Level 4 (80% to 100%)	**Level 3 (70% to 79%)**	**Level 2 (60% to 69%)**	**Level 1 (50% to 59%)**	**Below level 1 (less than 50%)**
Attendance and Participation	The student misses 0.0% to 2.5% of classes for unexcused absences (approximately 2 or fewer classes per semester).	The student misses 2.5% to 5 % of classes for unexcused absences (approximately 2.5 to 4.5 classes per semester).	The student misses 5% to 7.5 % of classes for unexcused absences (approximately 5 to 7 classes per semester).	The student misses 7.5% to 10% of classes for unexcused absences (approximately 7.5 to 9 classes per semester).	The student misses more than 10% of classes for unexcused absences (more than 9 classes per semester).
	The student consistently: participates in class discussions and contributes ideas asks relevant questions respects the contributions of others and demonstrates positive	The student generally: participates in class discussions and contributes some ideas asks relevant questions respects the contributions of others	The student occasionally: participates in class discussions and sometimes contributes ideas asks relevant questions respects the contributions of others	The student infrequently: participates in class discussions and rarely contributes ideas asks relevant questions respects the contributions of others	The student does not: participate in class discussions or contribute ideas ask relevant questions respect the contributions of others contribute to

	leadership contributes to fostering a positive classroom culture	contributes to fostering a positive classroom culture	contributes to fostering a positive classroom culture	contributes to fostering a positive classroom culture	fostering a positive classroom culture

- *Excused absences do not negatively affect a student's mark.*
- *Assessment criteria for attendance and participation:*
  Growing success: assessment, evaluation and reporting (Kindergarten to Grade 12) | ontario.ca

Course Content

Unit/Focus	Description
1. Quadratic Functions	• expand and simplify quadratic expressions, solve quadratic equations, and relate the roots of a quadratic equation to the corresponding graph • demonstrate an understanding of functions, and make connections between the numeric, graphical, and algebraic representations of quadratic functions • solve problems involving quadratic functions, including problems arising from real-world applications
2. Trigonometric Functions	• solve problems involving trigonometry in acute triangles using the sine law and the cosine law, including problems arising from real-world applications • demonstrate an understanding of periodic relationships and the sine function, and make connections between the numeric, graphical, and algebraic representations of sine functions • identify and represent sine functions, and solve problems involving sine functions, including problems arising from real-world applications
3. Exponential Functions	• simplify and evaluate numerical expressions involving exponents, and make connections between the numeric, graphical, and algebraic representations of exponential functions • identify and represent exponential functions, and solve problems involving exponential functions, including problems arising from real-world applications • demonstrate an understanding of compound interest and annuities, and solve related problems
4. Discrete Functions	• demonstrate an understanding of recursive sequences, represent recursive sequences in a variety of ways • demonstrate an understanding of the relationships involved in arithmetic and geometric sequences and series, and solve related problems • make connections between sequences, series, and financial applications, and solve problems involving compound interest and ordinary annuities

This is a tentative outline for the units of study of this course. It is subject to changes that will be discussed and shared in class.

Academic Integrity

All students in the TDSB are expected to submit their own work for evaluation. Cheating and plagiarism will not be condoned.

- **Cheating**: Practicing deceit or breaking rules during assessment/evaluation, such as copying another student's work, using unauthorized media/AI during an evaluation, or bringing unauthorized notes.
- **Plagiarism**: Copying language or thoughts without attribution (e.g. internet copy-pasting, omitting quotation marks). Using Artificial Intelligence (e.g., ChatGPT, Grammarly) without citation and explanation is considered Plagiarism.
- **Generative AI Policy**: Students considering using AI for planning, grammar, or content generation must consult their teacher before starting. Students are responsible for any AI-generated content (including incorrect or misleading facts). To help students navigate the ever-changing landscape of technology, TDSB supports the use of GenAI as a valuable tool to enhance student learning and prepare for future success. Students may have the opportunity to use TDSB supported Generative AI tools to assist with their learning including research, brainstorming and planning processes. All submitted work must reflect the student's own understanding. Students are expected to follow the TDSB Academic Honesty Procedure, and the expectations set out by their teacher regarding the use of Gen AI tools.

Consequences: Suspected academic dishonesty will be investigated and communicated to the student, parent/guardian, and appropriate Vice Principal. Where academic dishonesty is confirmed, consequences may include a mark of zero. Repeated instances may result in progressively more serious consequences. Students have the right to appeal decisions to their Vice Principal.

Missed Assessments/Evaluations

Students are responsible for their own behaviour and for completing and submitting work for evaluation on time. Students must make themselves aware of each due date and the ultimate deadline for submitting assignments or completing evaluations. Teachers support students in the development of their learning skills and work habits. Students should advocate for their learning needs. If they think they may miss a submission deadline, students should follow the EXTENSION REQUEST POLICY:

- COMMUNICATE: with your teacher before the due date. Email your teacher and CC your parents)/guardian(s) to request an extension.
- COLLABORATE: with your teacher to determine and meet the ultimate deadline. Make a plan to submit your work by the ultimate deadline in order to avoid penalties.
- CREATE A PLAN: Clarify expectations and due dates. Schedule time for your assignment work. Start your assignment when you can.

For more information please see TDSB PR 614: EVALUATION OF LATE AND MISSED ASSIGNMENTS

Learning Skills

The following learning skills are assessed on a continuous basis and appear on report cards alongside numerical grades. Success descriptors are listed below. Learning Skills Rubric

- Independent Work
- Collaboration
- Organization
- Responsibility
- Initiative
- Self-regulation
- E – Excellent
- G – Good
- S – Satisfactory
- N – Needs improvement

Course Materials and Resources

- Student Agenda
- Scientific Calculator
- Pencil, Paper, Binder