Secondary 4 TS Mathematics
(2019-2020)

Teacher:	Email:	Phone:
G. Antonecchia	antonecchiag@loyola.ca	514-486-1101 ext. 640
C. Taddeo	taddeoc@loyola.ca	514-486-1101 ext. 631

Online Textbook and Resources: **Math-Help-Services (MHS)** http://math-help-services.org

Websites: http://moodle.loyola.ca (contains topic-by-topic information)

Supplies: 3-ring binder (max 1½"), copybooks, loose leaf, graph paper, separators, pencils, eraser, ruler, scientific calculator (non-graphing).

Evaluation: The final grade for the course will be calculated as follows: Term 1 → 20%
Term 2 → 20%
Term 3 → 60%

Competency 1→ 30% = "Solves a Situational Problem"

Competency 2 → 70% = "Uses Mathematical Reasoning"

	Term 1	Term 2	Term 3
Homework/Assignments and Quizzes	20%	20%	20%
Class Tests	50%	50%	50%
Term Situational Problem Evaluations	30%	30%	10%
Loyola Situational Problem Exam (TBD)			20%

*June Exam → 50% of reasoning mark

The TS Mathematics Final Exam is a provincial exam provided by MEES. As such, this exam will make up 50% of the students final "reasoning" grade for the course.

Homework/Assignments
Homework is assigned daily. It will be checked regularly, and collected and marked sporadically.
Review and practice of daily work is essential to understanding and retaining the information taught.
Failure to complete homework will result in loss of marks and/or disciplinary action. **A mark of 0 will be given for any work that has not been completed or submitted on time**.

Quizzes
Quizzes may be given without prior warning to evaluate day-to-day understanding of the material.

Tests
Class tests will be given each term. If a student is absent for any quiz or class test because of an illness or unexpected reasons, **he must make arrangements to write the test on the first day back in school**. Otherwise, the student will receive a grade of 0%.

*Homework, quizzes and tests are to be **done in pencil** (up to 5% penalty for work not done in pencil).
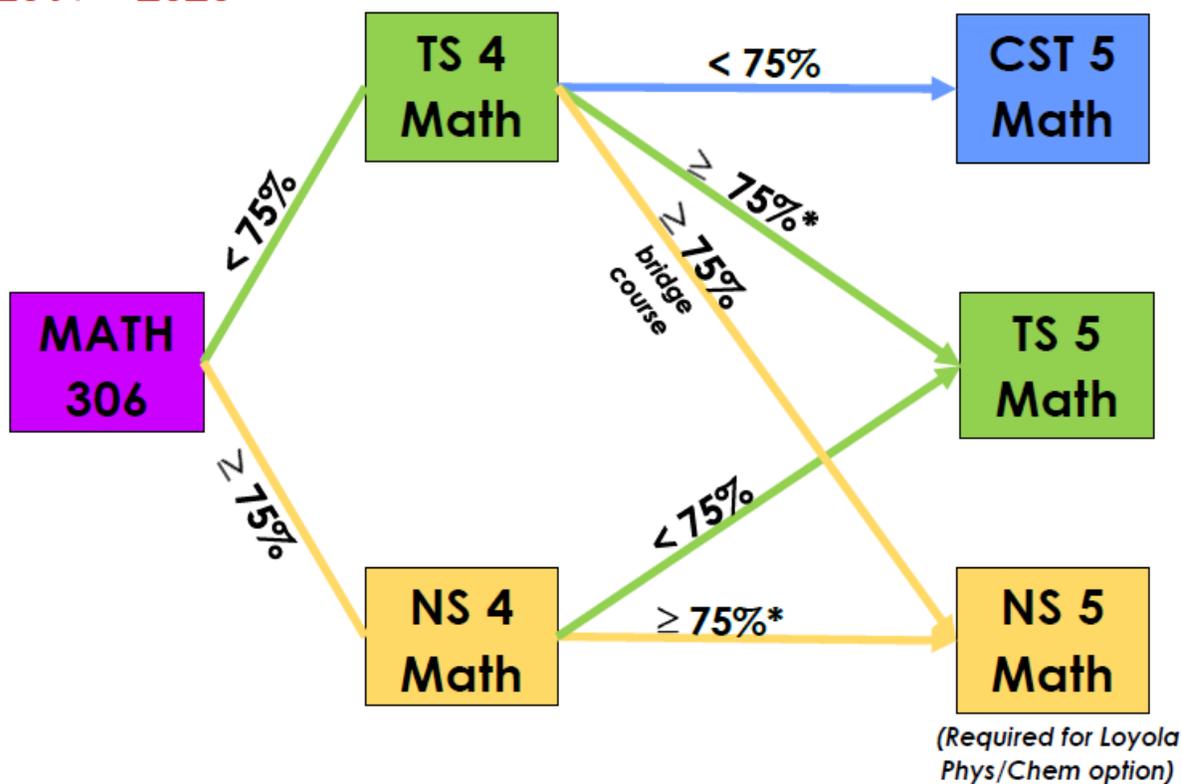
Expectations
Students are expected to further develop their work ethic, study habits and time management skills as they continue their progress to becoming independent and active learners.

Advancement

Students with an overall grade of 75% or greater (including the provincial exam results) in the TS4 course will be eligible to take TS5 Math next year. Students who do not obtain this minimum grade in the course will automatically be placed in CST 5 Math unless they enroll into summer school.

If a student achieves a grade 75% or greater in TS4, he will also be permitted to take an NS4 math bridge course over the summer. If a mark of 75% or greater is then achieved in NS4, he may then move into the NS5 math course in secondary five.

Senior Math Options
2019 – 2020


```
                    TS 4                  < 75%              CST 5
                    Math                                     Math

                                          ≥ 75%*

  < 75%                                   ≥ 75%
                                          bridge
                                          course

  MATH                                                       TS 5
  306                                                        Math

  ≥ 75%

                                          < 75%

                    NS 4                  ≥ 75%*             NS 5
                    Math                                     Math
```

(Required for Loyola
Phys/Chem option)

* TS4 and NS4 students achieving a final grade that does not meet the respective sec 5 course requirement, must attend summer school and write the MEES July supplemental exam. The minimum mark prerequisite must be achieved in order to remain in the same course stream the following year.

COURSE TOPICS

Algebraic Expressions
- Exponential expressions
- Operations of polynomials

Factoring
- Greatest common factor
- Simple trinomials
- Grouping
- Complex Trinomials
- Difference of squares
- Perfect Squares
- Solving quadratic equations
- Rational Expressions $(x, \div, +, -)$

Functions
- Definitions, characteristics, modes of representation/function notation
- Properties: domain, range, intercepts, increase/decrease, extremes, sign of function
- Inverse of a function
- Linear function applications and interpretation $y = ax + b$
- Graphing Linear Inequalities (half plane)/(single inequation)

Polynomial Functions
- Linear function $\qquad\qquad$ $y = ax + b$
- Quadratic function $\qquad\qquad$ $y = ax^2$
- Square root function $\qquad\quad$ $y = \sqrt{bx}$
- Exponential function $\qquad\quad$ $y = a(c)^{bx}$
- Logarithmic function $\qquad\quad$ $y = a\log_c b(x)$
- Piece-wise function $\qquad\qquad$ $y = \begin{cases} 3x + 1 \\ 2x^2 \end{cases}$
- Greatest Integer function (i.e. step) $\quad y = a[bx] + k$
- Periodic function

Analytic Geometry and Lines
- Distance midpoint, slope, division of a line segment
- Parallel and perpendicular lines
- Equation of lines, intercepts,
- Linear inequalities (half plane)

Systems of Equations`
- Graphs and tables
- Algebraic solutions: Comparison, Elimination, Substitution
- Special cases: parallel, coincident, broken lines

Trigonometry/Triangles
- The mean proportional
- Right triangle ratios: sine, cosine, tangent
- Finding the height of a triangle
- Sine law, Cosine law, Hero's formula
- Angles and triangles
- Similar triangles
- Metric Relations in a right angle triangle

Probability
- Theoretical and Experimental Probability
- Fairness, Odds (for and against)
- Mathematical expectation
- Venn diagrams (2 and 3 rings)
- Subject Probability /Conditional Probability

Statistical Analysis
- Measures of central tendency, (mean, median, mode, weighted mean)
- Tables and Graphs (Scatter Plots)
- Regression line, linear correlation, correlation coefficient
- Investigating Outliers, Bias
- Statistical measure: Mean Deviation, Standard Deviation