

Distance Education Course Outline

Foundations of Mathematics 20

GENERAL INFORMATION

- i. Foundations of Math 20
- ii. Asynchronous, taught by Cindy Cantelon based out of Winston School

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COURSE DESCRIPTION

- i. This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that do not require the study of theoretical calculus.
Topics include: logical reasoning, proportional reasoning, geometry, trigonometry, algebra, statistics and probability.
- ii. Prerequisites: Foundations of Math and Precalculus 10

STUDENT LEARNING OUTCOMES:

- i. Demonstrate understanding of the mathematics involved in an historical event or an area of interest.
- ii. Demonstrate understanding of inductive and deductive reasoning including: analyzing conjectures, analyzing spatial puzzles and games, providing conjectures and solving problems.
- iii. Expand and demonstrate understanding of proportional reasoning related to: rates, scale diagrams, scale factor, area, surface area, volume.
- iii. Demonstrate understanding of properties of angles and triangles including: deriving proofs based on theorems and postulates about congruent triangles, solving problems.
- iv. Demonstrate understanding of the cosine law and sine law (including the ambiguous case).
- v. Demonstrate an understanding of normal distribution, including standard deviation and z-scores.
- vi. Demonstrate understanding of the interpretation of statistical data, including: confidence intervals, confidence levels, margin of error.
- vii. Demonstrate understanding of systems of linear inequalities in two variables.
- viii. Demonstrate an understanding of the characteristics of quadratic functions of the form $y = a(x - p)^2 + q$, including: vertex, intercepts, domain and range, axis of symmetry.

TEACHING STRATEGIES:

- i. There are instructor prepared videos for each topic. The chapter overview communicates what needs to be completed each chapter. This includes practice questions with answers that can be found at the back of the text.
- ii. Each chapter has a few Hand Ins and a pretest. The pretest needs to be handed in before the Chapter Test. You can receive partial marks for showing your process – not just the right answer.
- iii. This is an asynchronous course, so it may be completed at your own timeline, but all course material must be completed by: January 18th to complete in Semester 1 and June 15th to complete in semester 2.

Semester 1:

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|-----------|-------------------------------|
| Chapter 1 | Sept 17 |
| Chapter 2 | Oct 1 |
| Chapter 3 | Oct 15 |
| Chapter 4 | Oct 27 |
| Chapter 5 | Nov 10 Pretest only (no exam) |
| PROJECT | Nov 20 |
| Chapter 6 | Dec 4 |
| Chapter 7 | Jan 7 |
| Chapter 8 | Jan 18 |

Semester 2:

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|-----------|-----------------------------------|
| Chapter 1 | Feb 22 |
| Chapter 2 | March 4 |
| Chapter 3 | March 8 |
| Chapter 4 | April 8 |
| Chapter 5 | April 22 * Pretest only (no exam) |
| PROJECT | May 6 |
| Chapter 6 | May 24 |
| Chapter 7 | June 6 |
| Chapter 8 | June 15 |

FINAL EXAM No final if mark is above 80%, otherwise I will schedule with your school.

COURSE MATERIALS

- i. Textbook: Nelson Foundations of Mathematics 11.
- ii. While it is not required, using a graphing calculator is valuable. You do not need to purchase one, as we will use online simulators and calculators.

EVALUATION:

- i. Assignments – 30%

Students will be responsible for the completion of their practice assignments. Practice assignments will be self-corrected using the answer key provided at the back of the book. No marks will be given for practice questions. Do not be tempted to skip these as they are important for your development. Make mistakes here – seek help and remedy the problem before hand in assignments

Each chapter will also have hand-in assignments for marks. You will receive marks for process and for the correct answer.

- ii. Chapter Tests – 40%

Students are expected to write the exam on the day and time arranged. If an unforeseen absence does occur (ie. medical emergency, illness, funeral), I will need a phone call or email clarifying the reason for the missed exam.

I do not offer rewrites. If the mark does not reflect ability, send me an email or give me a call

- iii. Project – 10%

There is a substantial research project in this course. There are many options for this project, but it is essential you base it on your interests.

- iv. Final Examination – 20%

This will assess and provide feedback about your achievement related to the preparation for and completion of a summative final examination.

If a course grade of 80% has been achieved, you may receive a recommendation and not write the final exam

You will arrange exams with your cooperating teacher and I will email the exam to them. Your cooperating teacher will email me the completed exam

You may prepare ONE double-sided sheet of paper to be brought into each Test. This sheet may include definitions, sample questions, diagrams and notes for your success on the exam.