YukonCollege

COURSE OUTLINE

MATHEMATICS 020

MATHEMATICS FUNDAMENTALS

180 Hours

3 CREDITS

PREPARED BY: Elizabeth Bosely   DATE: May 19, 2016

APPROVED BY: Tosh Southwick   DATE: February 12, 2016

MATHEMATICS FUNDAMENTALS

INSTRUCTOR: Elizabeth Bosely   **OFFICE HOURS:** M, W, F from 2:30-4:00 pm

OFFICE LOCATION: A2314   **CLASSROOM:**   A2313

E-MAIL: ebosely@yukoncollege.yk.ca **TIME:** M-F,   8:30 am – 10:00 am
                                                  M, W, F   1:00 – 2:30 pm

TELEPHONE: **DATES:** September 6 – December 16, 2016

COURSE DESCRIPTION:

Math 020, Fundamental Mathematics, is an entry-level math course comprised of 15 Units and manipulatives designed to address basic numeracy skills in plain language with relevant and interesting examples based on Yukon culture and experience. Students will acquire a strong foundation of basic math skills, concepts, mathematical vocabulary, and problem solving strategies to prepare them to meet personal, career or further academic goals. Concepts covered include:
- Whole numbers; shape & measurement; fraction; decimals; percentages;
- Time; ratios; rate; probability; angles;
- Volume; weight; graph & coordinates; integers.

LEARNING OUTCOMES:
Upon successful completion of the course, students will be able to

1. Demonstrate an understanding of the relationship between manipulatives and numbers;
2. Read, write, compare, order and use estimation with whole numbers.
3. Apply logical thinking to solve mathematical word problems.
4. Recognize common base time units and their relationship to each other.

COURSE FORMAT:

Units will be covered in a lecture-based format and material will be covered as a group.

COURSE REQUIREMENTS:

PREREQUISITES:
None.

RELATED COURSE REQUIREMENTS:
None.

EQUIVALENCY OR TRANSFERABILITY:
None.

ATTENDANCE & PARTICIPATION:
It is the student's responsibility to attend all classes.

The following is an excerpt from the Yukon College Academic Regulations and Procedures (January 2000) manual from section 4.01—Attendance:

> "Students in all program areas are expected to attend classes. However, attendance requirements may vary from program to program. Special permission from the Dean or Chair is required if a student is enrolled in another course and the timetables for the two courses overlap. Attendance requirements are noted below.
> Individual instructors shall inform students of the attendance requirements for their course at the beginning of the semester.

- Admission to a lecture or laboratory may be refused by the instructor due to lateness or misconduct. Students who do not attend classes or submit assignments as required may be refused admission to further classes.
- Attendance at practicum activities and work placement activities (in Co-op programs) is required. Students shall notify the placement agency as well as the instructor whenever practicum/work attendance is not possible.
- Attendance for sponsored students will be reported to the sponsoring agency as required.

ELECTRONIC DEVICES
In order to be successful in classes and minimize distractions for others, cell phones, iPods and other electronic devices must be turned off while students are in class. In an emergency situation, the instructor may give a student permission to use a cell phone or pager.

APPROPRIATE LANGUAGE

In all areas of the college environment, students are responsible to show respect for others, swearing, or language that is discriminatory or derogatory in relation to race, sex, ethnic background, religious beliefs, age and physical condition is not appropriate.

ASSIGNMENTS
Student are expected to complete a math unit per week.

TESTS/QUIZZES
There is a final test after each Unit. Students are required to achieve 80% or better on each test.

PASSING GRADE   Students have successfully completed MATH 020 once 80% has been achieved on all unit tests.

REQUIRED TEXTBOOKS AND MATERIALS
Units #1 - #15: Essential Math Skills for Adult Learners (Sold as one set)

Supplementary Materials: (optional)
Howett, Jerry, *Contemporary's Number Power: A Real World Approach to Math: Addition, Subtraction, Multiplication, and Division,* revised edition, McGraw-Hill, ISBN 978-0-8092-2380-0
Howett, Jerry, *Contemporary's Number Power: A Real World Approach to Math: Fractions, Decimals, and Percent,* revised edition, McGraw-Hill, ISBN 0-8092-2377-5

Binder, writing paper or notebook, ruler, pencils, eraser, and calculator.

ACADEMIC AND STUDENT CONDUCT
Information on academic standing and student rights and responsibilities can be found in the Academic Regulations:
http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_and_Procedures_-_August_2013_final_v1.pdf

PLAGIARISM
Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the

College.

YUKON FIRST NATIONS CORE COMPETENCY
Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.ca/yfnccr.

ACADEMIC ACCOMMODATION
Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

TOPIC OUTLINE
This course covers 15 units in Essential Math Skills for Adult Learners.

Week 1   Unit 1: Number Sense
Week 2   Unit 2: Shape and Measurement
Week 3   Unit 3: More Measurement
Week 4   Unit 4: Fractions
Week 5   Unit 5: Decimals
Week 6   Unit 6: Percentages
Week 7   Unit 7: Time
Week 8   Unit 8: Ratios
Week 9   Unit 9: Rates
Week 10   Unit 10: Probability
Week 11   Unit 11: Angles
Week 12   Unit 12: Volume
Week 13   Unit 13: Weight
Week 14   Unit 14: Graphs and Coordinates
Week 15   Unit 15: Integers

Math 020 Essential Math Skills for Adult Learners
Course Schedule

Weeks	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1- Number Sense	1.1 Counting by Grouping	1.2 How Our Counting System Works	1.3 Reading & Writing Number Words	1.4 Rounding & Estimating	1.5 Comparing & Ordering Numbers **Unit 1 Test**
Week 2- Shape & Measurement	2.1 Shapes in Nature & Design	2.2 Traditional Measurement	2.3 Imperial Units for Length	2.4 Metric Units for Length	2.5 Perimeter **Unit 2 Test**
Week 3 More Measurement	3.1 Area Definition & 3.2 Multiplication	3.3 Area Formula	3.4 Division 3.5 Long Division	3.6 Speedy Multiplication	3.7 Converting Metric Units 3.8 Converting Metric to Imperial **Unit 3 Test**
Week 4 Fractions	4.1 Naming Fractions 4.2 Exploring the Sizes of Fractions	4.3 Reading & Writing Fractions	4.4 Finding One-Quarter 4.5 Fractions & Mixed Numbers	4.6 Placing Fractions on a Number Line	4.7 Baking with Fractions **Unit 4 Test**
Week 5 Decimals	5.1 Decimals in Money 5.2 Tenths	5.3 Hundredths 5.4 Decimals in Measurement	5.5 Zeros after the Decimal Point 5.6 Comparing Decimals	5.7 Changing Decimals to Equivalent Fractions 5.8 Changing Fractions to Decimals	5.9 Rounding Decimals 5.10 Using Decimals to find Fractions of a Group **Unit 5 Test**
Week 6 Percentages	6.1 Percentages as Fractions & Decimals	6.2 Estimating Percentages 6.3 Pie Charts	6.4 Finding Percentages of Populations	6.5 Calculating Tax	6.6 Calculating Discounts **Unit 6 Test**
Week 7 Time	7.1 Analog & Digital Clocks 7.2 Duration	7.3 Getting Paid	7.4 24-Hour Clock 7.5 Writing Today's Date	7.6 Time Conversions	7.7 Finding Average Amounts of Time 7.8 Time Zones **Unit 7 Test**
Week 8 Ratios	8.1 Showing Ratios 8.2 Introduction to Ration Problems	8.3 Equivalent Ratios	8.4 Solving Ratio Problems with Equivalent Ratios	8.5 Circle Ratio	8.6 Solving Circumference Problems **Unit 8 Test**

Week 9 Rates	9.1 Units for Rates 9.2 Solving Rate Problems with Tables	9.3 Rates & Unit Costs 9.4 Calculating Unit Cost	9.5 Your Heart Rate 9.6 Conversion Rates	9.7 Units for Speed, Distance, & Time 9.8 Solving Speed Problems	9.9 Using the Formula for Distance & Time 9.10 Rates of Pay **Unit 9 Test**
Week 10 Probability	10.1 Finding Probability	10.2 More Than One "Outcome you want"	10.3 Experimental Probability	10.4 Probability in Real Life	10.5 Solving Probability Problems with Diagrams **Unit 10 Test**
Week 11 Angles	11.1 Angles, Right Angles, & Straight Angles	11.2 Protractors	11.3 Classifying Angles	11.4 Classifying Triangles	11.5 Sum of Angles in a Triangle **Unit 11 Test**
Week 12 Volume	12.1 Cubic Units 12.2 Formula for Volume of a Box	12.3 More Cubic Units for Volume	12.4 Volume Units for Liquids	12.5 Converting Between	12.6 Using Volume, Area, Length **Unit 12 Test**
Week 13 Weight	13.1 Comparing Weight & Volume 13.2 Imperial Units for Measuring Weight	13.3 Metric Units for Measuring Weight	13.4 Scales for Weight 13.5 The Switch to Metric: A Story	13.6 Finding Information in Ice Road Dispatches	13.7 Milligrams in Medication: Problem Solving **Unit 13 Test**
Week 14 Graphs & Coordinates	14.1 Nutrition Labels & Calories 14.2 Bar Graphs	14.3 Analyzing Line Graphs	14.4 Using Coordinates 14.6 Scale Drawings	14.7 Using Coordinates to Read Maps	14.8 Latitude & Longitude **Unit 14 Test**
Week 15 Integers	15.1 Integers We Use a Lot 15.2 Opposites	15.3 Comparing Integers	15.4 Finding the Total with Integers 15.5 Applications of Integers	15.6 Graphing with Negative Coordinates	15.7 Reflections (flips) 15.8 Translations (slides) **Unit 15 Test**