



## Math 10-3 Section G College and Career Preparation Course Outline Fall 2014

### **MATH 10-3**

#### **Mathematics 10-3**

*5 credits, 16 weeks, 6 hours lecture*

Math 10-3 is a part of the new Alberta Program of Studies. The "-3" course sequence is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into the majority of trades and for direct entry into the work force. Topics of study will include finance, algebra, geometry, measurement, and number. This course will be delivered through projects, activities, and problems set in real world contexts, enabling students to make connections between high school math and the workplace.

***Pre-requisite:*** *Math 9 or permission of the Program Chair.*

***Alberta Education course equivalency:*** *Math 10-3*

**Class Hours:** Monday and Tuesday 1:00 - 4:00  
Wednesday 12:00 – 1:00; 3:00 – 4:30  
Thursday 11:00 – 12:00; 1:00-3:30

**Instructor:** Melodee Helgason

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**E-mail:** [melodee.helgason@keyano.ca](mailto:melodee.helgason@keyano.ca)

**Office Hours:** Monday and Tuesday 12:00-1:00  
Wednesday 1:00-2:00  
Thursday 12:00-1:00 and 3:00-4:00

### **Required Resources:**

**Text:** **Pacific Press: *MathWorks 10 Workbook***

- Scientific calculator that has the sine (sin), cosine (cos), and tangent (tan) buttons on it.
- Geometry Set/Straight edge
- Binder, ruled paper, pencils, pen, eraser

## Goals:

The main goals are to prepare student to use mathematics confidently to solve problems to communicate and reason mathematically, to appreciate and value mathematics, and to become mathematically literate adults, using mathematics to contribute to society.

## General Math Program Outcomes:

Students will

- ✓ Develop spatial sense and proportional reasoning
- ✓ Develop algebraic reasoning and number sense
- ✓ Develop algebraic and graphical reasoning through the study of relations

## Course Outcomes:

Upon successful completion of Math 10-3, students will be able to:

Measurements

- Demonstrate an understanding of the Système International (SI) by:
  - describing the relationships of the units for length, area, volume, capacity, mass and temperature
  - applying strategies to co Demonstrate an understanding of the imperial system by:
- Describe the relationships of the units for length, area, volume, capacity, mass and temperature
- Compare the American and British imperial units for capacity.
- Apply strategies to convert imperial units to SI units and convert SI units to imperial units.
- Solve and verify problems that involve SI and imperial linear measurements, including decimal and fractional measurements.
- Solve problems that involve SI and imperial area measurements of regular, composite and irregular 2-D shapes and 3-D objects, including decimal and fractional measurements, and verify the solutions.
- Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.
- Demonstrate an understanding of the Pythagorean theorem by:
  - identifying situations that involve right triangles
  - verifying the formula
  - applying the formula
  - solving problems.
- Demonstrate an understanding of similarity of convex polygons, including regular and irregular polygons.

- Demonstrate an understanding of primary trigonometric ratios (sine, cosine, tangent) by:
  - applying similarity to right triangles
  - generalizing patterns from similar right triangles
  - applying the primary trigonometric ratios
  - solving problems
- Solve problems that involve parallel, perpendicular and transversal lines, and pairs of angles formed between them.
- Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex, by:
  - drawing
  - replicating and constructing
  - bisecting
- Solve problems that involve unit pricing and currency exchange, using proportional reasoning.
- Demonstrate an understanding of income, including:
  - wages
  - salary
  - contracts
  - commissions
  - piecework
 to calculate gross pay and net pay.
- Solve problems that require the manipulation and application of formulas related to:
  - perimeter
  - area
  - the Pythagorean theorem
  - primary trigonometric ratios

## Evaluation:

| Category           | Weight      |
|--------------------|-------------|
|                    |             |
| Tests              | 40%         |
| Assignments        | 30%         |
| Unit Projects      | 10%         |
| Final Exam         | 20%         |
| <b>Total Grade</b> | <b>100%</b> |

### Keyano College Grading System (from Credit Calendar)

| Descriptor                  | 4.0 Grade Scale | Percentage Scale   |
|-----------------------------|-----------------|--------------------|
| Excellent                   | 4.0             | 96% - 100%         |
|                             | 4.0             | 90 % - 95 %        |
|                             | 3.7             | 85 % - 89 %        |
| Good                        | 3.3             | 81 % - 84 %        |
|                             | 3.0             | 77 % - 80 %        |
|                             | 2.7             | 73 % - 76 %        |
| Satisfactory                | 2.3             | 69 % - 72 %        |
|                             | 2.0             | 65 % - 68 %        |
| <b>Minimum Prerequisite</b> | <b>1.7</b>      | <b>60 % - 64 %</b> |
| Poor                        | 1.3             | 55 % - 59 %        |
| Minimum Pass                | 1.0             | 50 % - 54 %        |
| Failure                     | 0.0             | 0 % - 49 %         |

#### Additional Information:

##### Practice:

- You will receive daily practice exercises, either in the textbook or as handouts. Answers are provided, thus you should check your own progress. If you choose not to do the entire exercise, pick questions from throughout the practice since question difficulty levels vary. For maximum mastery of the material, students should be prepared to spend between *one and two hours* working on problems outside of class *for every hour* in class.

#### Unit Projects & Assignments:

**Unit Projects & assignments, to be handed in for marks, will be assigned a DUE DATE on the first page.** (Expect to receive at least one major assignment per chapter). The project will be due near the end of the unit. Plan your time wisely to ensure completion of the unit project.

- Projects & assignments are considered late if handed in **after** the due date. "Late" assignments may be accepted if discussed with the instructor.

- Marks for Projects and/or assignments missed, for a legitimate reason may be deferred. However, you must discuss the reasons with the instructor! Otherwise, missed Projects & assignments will receive a grade of 0.
- Only under exceptional circumstances will late Projects & assignments be accepted after marked Projects & assignments have been returned to students.
- Assignment answer keys will be available after marked assignments are handed back.

#### **Tests:**

- The unit test will be scheduled to be completed after marked assignments have been returned to students. Thus, this means that the class will proceed with the next chapter prior to the unit test being written.
- **Tests must be written when scheduled.** Make up tests will not be given and you will receive a grade of zero unless:
  - ❑ the instructor has been notified on or before the day the test is scheduled
  - ❑ a medical certificate is submitted
  - ❑ exceptional circumstances beyond the student's control arise.
    - ✓ Marks for test(s) missed, for a legitimate reason may be deferred to the final exam (upon request by the student and agreement of the instructor); however, you must discuss the reasons with the instructor!
    - ✓ Under excusable circumstances, a student may complete a missed test in the SKILL Centre.
- Each student is allowed to have one small recipe-card size "cheat sheet" present during a test or an 8.5" x 11" "cheat sheet" present during the final exam. The "cheat sheet" must be handed in with the test or final exam.
- The final exam will be cumulative (covers the material from the entire semester).

#### **Attendance:**

Regular, punctual attendance is necessary for success at Keyano College and on the job after graduation. Students are responsible for attending all learning activities in their courses on a regular and punctual basis. Excessive or inexcusable absences can result in poor or failing grades, loss or reduction of sponsor allowances, and/or probation or suspension.



Please notify your instructor of absences via email or voice mail (preferably in advance of the absence); if your absence will be for more than one class day, please communicate the extended absence to your instructor. It is the **student's responsibility** to seek out missed assignments/tasks that were assigned during his/her absence in a timely manner. Your instructor encourages you to make use of assigned office hours for this purpose.

### **Student Rights and Responsibilities:**

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own.
- The use of unauthorized aids in assignments or examinations (cheating).
- Collusion or the unauthorized collaboration with others in preparing work.
- The deliberate misrepresentation of qualifications.
- The willful distortion of results or data.
- Substitution in an examination by another person.

Penalties for academic offences may range from a verbal reprimand to dismissal from the College, and in certain circumstances may involve legal action.

- By virtue of membership in the College's academic community, students accept a responsibility to understand and abide by the Academic Regulations stated in the Keyano College course calendar.
- Student Responsibilities: Students must "refrain from unduly disturbing, disrupting or otherwise interfering" (Keyano College Credit Calendar) with the work or other activities of fellow students or staff.
- See also: Student Rights & Responsibilities (Keyano College Credit Calendar)

### **Counselling and Disability Services:**

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career, and academic counselling.

Disability Services provides educational services to students with disabilities.

Both Counselling and Disability Services are located in CC167.

## **Proposed Topics:**

### **Chapter 1: Unit Pricing and Currency**

- 1.1. Proportional Reasoning
- 1.2. Unit Price
- 1.3. Setting Price
- 1.4. On Sale
- 1.5. Currency Exchange

### **Chapter 2: Earning an Income**

- 2.1. Wages and Salaries
- 2.2. Alternate Ways to Earn Money
- 2.3. Additional Earning
- 2.4. Deductions and Net Pay

### **Chapter 3: Length, Area and Volume**

- 3.1. Systems of Measurements
- 3.2. Converting Measurements
- 3.3. Surface Area
- 3.4. Volume

### **Chapter 4: Mass, Temperature, and Volume**

- 4.1 Temperature Conversion
- 4.2 Mass in the Imperial System
- 4.3 Mass in the Systeme International
- 4.4 Making Conversion

### **Chapter 5: Angle and Parallel Lines**

- 5.1 Measuring, Drawing, and Estimating Angles
- 5.2 Angles Bisectors and Perpendicular Lines
- 5.3 Non-Parallel Lines and Transversal
- 5.4 Parallel Lines and Transversal

### **Chapter 6: Similarity Of Figures**

- 6.1 Similar Polygons
- 6.2 Determining if Two polygons are Similar
- 6.3 Drawing similar Polygons
- 6.4 Similar Triangles



## **Chapter 7: Trigonometry of Right Triangles**

7.1 The Pythagorean Theorem

7.2 The Sine Ratio

7.3 The Cosine Ratio

7.4 The Tangent Ratio

7.5 Finding Angles and Solving Right Triangles



## Important College Dates:

Fall 2014

|   |              |
|---|--------------|
| Orientation Day   | September 2  |
| First Day of Class  | September 3  |
| Last day to ADD Courses   | September 9  |
| Tuition is due (\$100 late fee charged after this date)                     | September 9  |
| Last day to DROP Courses with full refund (\$100 deposit is non-refundable) | September 16 |
| Last day to WAIVE SAKC health and dental plan or add family                 | September 16 |
| Last day to submit Keyano College Fall Awards Applications                  | September 30 |
| Last day to WITHDRAW with a refund (50%)                                    | October 10   |
| Last day to WITHDRAW (Grade of W)   | November 26  |



**Authorization: Math 10-3                      Section G                      Fall 2013**

This course outline has been authorized by the following individuals:

Melodee Helgason \_\_\_\_\_  
(Instructor)

Lisa Turner \_\_\_\_\_  
(Chair)

Guy Harmer \_\_\_\_\_  
(Dean)

Course Outline Effective Date: September 3, 2014