

**Columbia College**  
**Intermediate Mathematics for Professionals (MAT102)**

**Lecture 1**

**Course Outline**

Semester Dates: October 12, 2015 – November 14, 2015

Please note that when a holiday falls during the week, your class will be rescheduled for the Friday of that week. Students are required to make arrangements to be present at the rescheduled class.

Facilitator: : Muhammad Sultan

Email: sul\_2n@yahoo.com

Class Time: 5:30 pm to 9:30 pm (Tue./Thur.)

Room: 4-170

Credit: Non Credit Course

Prerequisite: None

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Note: It is the student's responsibility to be familiar with the information contained in the Course Outline and to clarify any areas of concern with the facilitator.

**Course Description:**

This course is designed to introduce students to a number of areas of mathematics that support the development of higher critical thinking and problem solving skills in the application of math concepts to real-world situations. The course will cover the following topics: Organizing Data; Linear Systems; Non-Linear Equations; Systems of Equations; Range, Mean, Medium Mode; Measurements; Geometry, Volume and Capacity; and Finance. Different focus will be applied to each of the areas covered based on the degree of relevancy and application for the various professions being pursued by the students in the class. (5 weeks, 40 hours)

**Learning Outcomes:**

As a result of active participation in these sessions, a student can expect to:

- Analyze graphs or charts of given situations to derive specific information.
- Represent and analyze quadratic, polynomial, and rational functions, using technology as appropriate.
- Represent and analyze situations that involve expressions, equations, and inequalities.
- Use linear programming to solve optimization problems.
- Understand and analyze data for range, mean, medium, mode, variance and standard deviation
- Solve consumer problems, using arithmetic operations.
- Develop and apply the geometric properties of circles and polygons to solve problems.
- Demonstrate an understanding of scale factors and their interrelationship with the dimensions of similar shapes and objects.
- Use measuring devices to make estimates and to perform calculations in solving problems.

## Course Format:

This course uses a variety of teaching/learning methods including discussion, personal reflection, experiential exercises, student presentations, role-plays, group activities and especially case studies. Our faculty aims to create a learning environment where the learner is actively engaged in inquiry, critical thinking and problem solving. The classroom provides you with a place where you can learn with and from others in a cooperative and collaborative manner.

You are expected to take a very active part in class discussions and take responsibility for your own learning. Be a positive and co-operative team member. Columbia College uses a facilitation model of instruction where the facilitator's role is to facilitate your learning. The expectation is that you will come to class prepared with pre-class homework completed. Your facilitator will engage you in activities that are based on your completed homework and readings. Your enthusiastic and positive approach in the classroom will create an atmosphere that will help every student develop the knowledge, skills and attitudes that are needed for success.

How you conduct yourself in our classes will, to a large extent, mirror your conduct in society and your future work site. For example, if you have a tendency to ask questions, challenge the ideas of others in a respectful manner, draw out the best from your colleagues, and encourage both group development and task accomplishment in this class, it is likely you will do the same at work. A high level of student involvement and developing professionalism is expected in the classroom as you work towards your goal.

## Required Textbooks and Equipment:

Columbia College Math 102 Workbook

Raines, V. (2010). *Basic Math Review for Nurses*. Philadelphia: F.A. Davis Company

## Recommended Readings and Resources:

*Students may access these sources from the College and from home.*

ProQuest Nursing and Allied Health, Canadian Business and Current Affairs, and Canadian Newsstand

- <http://proquest.umi.com/login>  
Username: cc-library  
Password: welcome

GALE InfoTrac Custom Journals

- <http://infotrac.galegroup.com/itweb/calg145?db=SP00>  
Password: cclibrary09

*Further Recommended Readings and Resources:*

## Homework Assignment Due for the First Class:

- None

### Evaluation - Assessment of Student Performance:

The final grade in the course will be based on the following elements. Wherever possible facilitators will use rubrics to assess your performance and offer feedback.

Title of Assignment/Examination	Due Date	Weight
Participation, Engagement	Daily	5%
In-class Learning Activities	Daily	25%
Daily Quizzes	Daily	30%
Final Exam	Class 10	40%

Please note that all homework and assignments are due at the beginning of each class.

### Grading:

Grades for each component will be added together at the end of the semester. The final total will be translated to the Columbia College's 4.0 grading scale as follows:

#### Marking and Grading Conversion:

Description	Letter Grade	Grade Points	Percentage Scale	
Excellent	A+	4.0	100	95
	A	4.0	94	90
	A-	3.7	89	85
Good	B+	3.3	84	80
	B	3.0	79	75
	B-	2.7	74	70
Satisfactory	C+	2.3	69	65
	C	2.0	64	60
	C-	1.7	59	55
Poor	D	1.0	54	50
Failure	F	0.0	49	0

The minimal passing grade is "C".

### Submission and Completion of Assignments:

You are expected to submit assignments by the due date. Any late assignments may be assessed a marking penalty of 5%. If you are unable to submit an assignment on the due date, you must request an extension **before** the due date by filling out an *Application for Assignment Extension form (SSPP-F012)* that is to be submitted to the Department Chair for approval. This form is available on Columbia's website, Bldg. 802 – Main Office and from Department Chairs.

### **Requesting an Examination Deferral:**

If you are requesting an exam to be deferred, you must submit an Application for *Deferred Examinations form (SSPP-F012)* to the Department Chair **within 48 hours of the missed examination date and time**. Applications for deferred examinations will only be considered due to medical or personal emergency. A medical certificate or other appropriate documentation may be required. This form is available on Columbia's website, Bldg. 802-Main Office and from Department Chairs.

### **Attendance Requirements:**

Columbia College believes that students are committed to their program and learning experiences. However, it is understood that there are times when students may be absent. Any absences can be viewed as a potentially serious disruption of the learning process and necessary achievement of the learning objectives. Being late is also considered unacceptable as it interferes with the learning opportunities of others. Unavoidable absences or lateness must be reported to the course facilitator in advance. Please refer to Columbia College's *Attendance Policy and Regulations (ADM-P151)* for detailed information on Attendance Requirements.

### **Academic Integrity:**

Academic dishonesty is a serious offence and can result in suspension or expulsion from Columbia College.

There is no tolerance for academic dishonesty and any student caught plagiarizing is subject to serious sanctions as outlined in the *Student Code of Conduct Policy (ADM-P229)*. Students are encouraged to familiarize themselves with this policy and avoid any behavior that could possibly be seen as cheating, plagiarizing, misrepresenting, or putting into question the integrity of one's academic work.

### **Student Conduct:**

It is the responsibility of each student to uphold the expectations and responsibilities outlined in the *Student Code of Conduct Policy (ADM-P229)* and any additional requirements established by your program.

Generally, each student will:

- be respectful and courteous toward others;
- demonstrate appropriate and supportive communication skills, and coach, assist, advise and otherwise support other students in their studies;
- manage any personal stress and conflict in a positive and resourceful manner, and assist others to do the same;
- be dressed in a manner appropriate for their workplace or learning environment, as established by the program;
- conduct themselves in a professional manner with regard to their communication with others and their behavior in class;
- conduct themselves with academic integrity in all of their learning activities, tests, exams, and assignments
- keep up with day-to-day classroom and course expectations.

### Important Dates:

<b>Description</b>	<b>Date</b>
Last to add/drop courses	5 school operating days from the start of the semester OR before the third scheduled class, whichever is greater
Last day to withdraw without academic penalty	50% or less of the semester has been completed
Final Examination	A final exam may take many formats. If a final exam is scheduled, it will be taken in an assigned room under the supervision of a Test Proctor. <u>Students must be on time as they will not be permitted to enter once the exam has started.</u> Exam dates, times, and location are posted by the main office Bldg. 802 and by the library in Bldg. 4. <u>It is the student's responsibility to check this exam posting.</u>

### Appeals:

Please refer to the *Student Appeal Policy (ADM-P177)*.

### Students with Temporary or Permanent Disabilities:

Students with temporary or permanent disabilities may apply for accommodations. To be considered for an accommodation, a student must register with Columbia College's Disability Services by making an appointment with a Disability Services Advisor – Main Office – Bldg. 802 or emailing [disabilityservices@columbia.ab.ca](mailto:disabilityservices@columbia.ab.ca). The Department Chair or facilitator is not able to provide you with any accommodations without you taking this step. Please refer to Columbia College's website to review *the Accommodation Policy and Handbook (ADM-P188)*.

### Student Support:

Students should be aware that Life Coaching, Career and Disability Services, and Student Support Services (i.e. tutoring, academic strategists, etc.) are provided by Columbia College. Inquire how to request these services at the Main Office in building 802. It is the student's responsibility to discuss their specific learning needs with the appropriate service provider.

### Class Schedule/Overview:

Please note that this schedule is subject to change. Any changes or cancellations will be emailed to you. It is your responsibility to check the email address you have given to the school on a daily basis for any messages from the Department Chair/designate, facilitator or College Administration. It is the student's responsibility to be familiar with the information contained in the Course Outline and to clarify any areas of concern with the facilitator.

Class Session	Topics	Pre-Class Readings
1	Organizing Data: Finding different ways data is displayed	Be ready to discuss syllabus.
2	Graphing and Coordinates Understanding coordinate systems Using spreadsheets to create graphs	Homework as assigned by facilitator
3	Linear and Nonlinear graphs	Homework as assigned by facilitator
4	Systems of Equations	Homework as assigned by facilitator
5	Range, Mean, Median and Mode and understanding their uses Variance, Standard Deviation – understanding what they tell	Homework as assigned by facilitator
6	Measurement Conversion	Homework as assigned by facilitator
7	Geometry including Areas of squares, rectangles, triangles and circles Units of measurement involved Volume and Capacity Measures of 3-dimensional solids including units of measurement involved.	Homework as assigned by facilitator
8	Finance including Spreadsheets	Homework as assigned by facilitator
9	Course review – prepare questions that need clarifying Tips on doing math exams	Homework as assigned by facilitator
10	<i>.Final Exam- 3 hours – location to be announced.</i>	

**Appendix 1**  
**Assignment Rubrics**

**Columbia College**  
**In-Class Learning Activity Rubric**  
Last Revised: May 7, 2014

Student's Name		Course Code	Date	Facilitator/Evaluator's Name	
Area	A 10-9	B 8-7	C-D 6-5	F 4-0	Score
<b>Contribution to Group Goals and Tasks</b>	<ul style="list-style-type: none"> <li>Regularly provides useful ideas to group.</li> <li>Contributes consistently and actively to group tasks and makes a strong effort to achieve goals.</li> <li>Fully accepts and fulfills individual role within group.</li> </ul>	<ul style="list-style-type: none"> <li>Often provides useful ideas to group.</li> <li>Contributes actively to group tasks with occasional prompting.</li> <li>Usually accepts and fulfills individual role within group.</li> </ul>	<ul style="list-style-type: none"> <li>Sometimes provides useful ideas to group.</li> <li>Does what is required with occasional prompting.</li> </ul>	<ul style="list-style-type: none"> <li>Rarely provides useful ideas to group.</li> <li>Works toward goals only when prompted.</li> </ul>	
<b>Quality of Work Output</b>	<ul style="list-style-type: none"> <li>Demonstrates superior quality work.</li> <li>Does not need to be prompted to get work done on time.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates good quality work.</li> <li>May need occasional prompting to get the work done on time, but does not hold up group's progress.</li> </ul>	<ul style="list-style-type: none"> <li>Work sometimes needs monitoring or re-doing.</li> <li>Usually needs prompting to get work done on time and tends to hold up group progress.</li> </ul>	<ul style="list-style-type: none"> <li>Work usually needs monitoring or re-doing.</li> <li>Group's progress is held up by poor personal management.</li> <li>Always needs prompting to get the work done.</li> </ul>	
<b>Working with Group Members</b>	<ul style="list-style-type: none"> <li>Listens to others and speaks a significant amount as appropriate.</li> <li>Never argues with group members.</li> <li>Always helps all group members to arrive at a fair and logical decision.</li> </ul>	<ul style="list-style-type: none"> <li>Listens but sometimes talks too much or dominates the discussion.</li> <li>Rarely argues with group members.</li> <li>Usually considers the views of all group members.</li> </ul>	<ul style="list-style-type: none"> <li>Usually dominating the discussion, rarely allows others to speak.</li> <li>Sometimes argues with group members.</li> <li>Often sides with specific individuals instead of considering views of all group members.</li> </ul>	<ul style="list-style-type: none"> <li>Is always talking, never allows anyone else to speak.</li> <li>Usually argues with group members.</li> <li>Usually wants to have things his/her own way.</li> </ul>	

Area	5	4	3	2-0	Score
<b>Overall Attitude / Disposition</b>	<ul style="list-style-type: none"> <li>Never openly critical of learning activity, group tasks, or group members.</li> <li>Always demonstrates positive attitude towards group goals and tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Rarely openly critical of learning activity, group tasks or group members;</li> <li>Generally demonstrates positive attitude towards group goals and tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Sometimes openly critical of learning activity, group tasks or group members.</li> <li>Demonstrates occasional negative attitude towards group goals and tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Often openly critical of learning activity, group tasks or group members.</li> <li>Usually demonstrates negative attitude towards group goals and tasks.</li> </ul>	
<b>Readiness to Engage in Group Activity</b>	<ul style="list-style-type: none"> <li>Always ready to begin tasks without the need for prompting.</li> <li>Always comes prepared with ideas and materials needed to get the work started on time.</li> </ul>	<ul style="list-style-type: none"> <li>Almost always ready to begin tasks and rarely needs prompting.</li> <li>Almost always comes prepared with ideas and materials to get the work started on time.</li> </ul>	<ul style="list-style-type: none"> <li>Often needs prompting to begin tasks and do the required work.</li> <li>Usually comes prepared with ideas and materials to get the work started on time.</li> </ul>	<ul style="list-style-type: none"> <li>Always needs prompting to begin tasks and do the required work.</li> <li>Always or often relies on others to do the work.</li> <li>Does not usually come prepared with ideas and materials to get the work started on time.</li> </ul>	

**Plagiarism:** A “0” grade will be given to a paper where significant sections of the paper were copied from other, unattributed sources.

**Total Score out of 40:**

**Facilitator/Evaluator’s Comments:**



**Columbia College**  
**Student Engagement Rubric**  
 Last Revised: December 2011

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**Student's Name** \_\_\_\_\_ **Course Code** \_\_\_\_\_ **Date** \_\_\_\_\_ **Facilitator/Evaluator's Name** \_\_\_\_\_

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Pts	Preparation for Class	Quality of Participation	Involvement in Process	Frequency of Participation
5	<ul style="list-style-type: none"> <li>Demonstrates completion of readings or assignment and awareness of all key concepts contained in readings or assignment on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>Comments significantly add to the learning process; consistently demonstrates high order thinking, analysis, synthesis, and evaluation; demonstrates ability to appropriately apply concepts to real-life situations; always participates constructively in discussion on a daily basis</li> </ul>	<ul style="list-style-type: none"> <li>Comments build on contribution of others, enabling group to integrate experiences and insights (linking theory and real-life experiences); supportive and encouraging to other class members; comments are focused and concise.</li> </ul>	<ul style="list-style-type: none"> <li>Contributes actively and consistently to group process on a daily basis.</li> </ul>
4	<ul style="list-style-type: none"> <li>Demonstrates completion of readings or assignment and awareness of most of the key concepts on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>Comments contribute to learning process; shows evidence of ability to apply concepts to real-life situations; mostly demonstrates higher order thinking skills; generally participates constructively in discussion on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>Comments do not always build on the contribution of others; most times shows support of other classmates.</li> </ul>	<ul style="list-style-type: none"> <li>Contributes actively and somewhat inconsistently to group process on a daily basis.</li> </ul>
3	<ul style="list-style-type: none"> <li>Demonstrates awareness of some key concepts or ideas contained in readings or assignment on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>Comments show evidence of awareness and understanding of concepts covered in the reading or assignment; inconsistently demonstrates high-order thinking; inconsistently participates in a constructive manner.</li> </ul>	<ul style="list-style-type: none"> <li>Speaks up when asked with comments that add to understanding; inconsistently shows support of other classmates; comments tend to be at times off focus.</li> </ul>	<ul style="list-style-type: none"> <li>Contributes inconsistently to group process.</li> </ul>
2	<ul style="list-style-type: none"> <li>Inconsistently demonstrates awareness of concepts or ideas contained in readings or assignment; inconsistent daily preparation.</li> </ul>	<ul style="list-style-type: none"> <li>Comments show background knowledge of basic concepts covered in the readings or assignment; little demonstration of higher-order thinking; generally, participation is not constructive</li> </ul>	<ul style="list-style-type: none"> <li>Contributes little to group understanding; little evidence of being encouraging to others.</li> </ul>	<ul style="list-style-type: none"> <li>Does not contribute to group except when asked.</li> </ul>
1	<ul style="list-style-type: none"> <li>Demonstrates little or no awareness of key concepts or ideas contained in readings or assignment; little to no daily preparation.</li> </ul>	<ul style="list-style-type: none"> <li>Comments show no evidence of awareness of concepts covered in the readings or assignment; shows no evidence of higher-order thinking; shows general lack of interest.</li> </ul>	<ul style="list-style-type: none"> <li>Does not contribute to the group process.</li> </ul>	<ul style="list-style-type: none"> <li>Does not contribute.</li> </ul>

**Total Score out of 20:**

**Facilitator/Evaluator’s Comments:**

