WILFRID LAURIER UNIVERSITY

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Course Syllabus

SC101 A, B, & C -- Essential Skills for Mathematics
Department of Mathematics, Faculty of Science, Waterloo Campus
Fall Semester | 2018

I acknowledge that in Kitchener, Waterloo, Cambridge and Brantford we are on the traditional territory of the Neutral, Anishnawbe, and Haudenosaunee peoples.

Sections A & B Instructor Information

Name: Erin Kathleen McKenna Meger | Office: LH3063 (Lazaridis Hall)
Email: ekmmeger@wlu.ca | Telephone: 519-884-0710 ext. 2464
Weekly Office Hours: Wednesday 11:30-1:30 or By Appointment

Section C Instructor Information

Name: Katie McGarry | Office: LH3074 (Lazaridis Hall)
Email: cmcgarry@wlu.ca | Telephone: 519-884-0710 ext. 2146
Weekly Office Hours: Monday 11:30-12:30, Tuesday 1:00-2:00, Thursday 3:00-4:00 or By Appointment

Course Information

Thorough review of pre-university skills in algebra, trigonometry and functions. Topics discussed will include: algebraic manipulations used to simplify expressions and solve equations and inequalities; analytic geometry; and polynomial, rational, exponential, logarithmic and trigonometric functions. Also integrated with the course content will be discussion of specific learning strategies to help students with the transition from high school mathematics to university level expectations. The course will not count towards satisfying program requirements in mathematics.

Prerequisites: One of: 12U Advanced Functions, 3U Functions and Relations, 3M Functions; or permission of the Department of Mathematics.

Exclusions: If a student has successfully passed, or is currently enrolled in MA100, MA101, MA103, MA110*, or MA129, then SC101 will not be eligible for credit. This course will not count for credit in mathematics programs. Additionally, the course will not count towards satisfying program requirements in mathematics.

Registration Notes: Open to first-year students enrolled in one of: Biology, Chemistry, Health Science, Environmental Science, Applied Water Science, Psychology

Lectures :

Section A : Monday, Wednesday, Friday 8:30-9:20 a.m., DAWB 1-101A (Dr. Alvin Woods Building)
Section B: Monday, Wednesday, Friday 10:30-11:20 a.m., BA211 (Bricker Academic Building)
Section C: Monday, Wednesday, Friday 10:30-11:20 a.m., BA208 (Bricker Academic Building)

Course Overview and Approach

SC101 is designed to prepare students for higher level mathematics courses such as MA100 and MA101 through a review of pre-university mathematics skills and discussion of learning strategies. Instructors will also motivate the subject matter through discussions about the importance of math in science and the use of relevant application problems.

Students are expected to attend and participate fully in all classes. Classes will be a mix of teaching/lecturing, time to work on problems, time to ask questions, and time to complete short tasks. Tasks may include groupwork, small presentations, journal entries, and other activities. Students are also expected to complete the assigned practice problems and ask for help as needed. Homework will be collected and quizzes will be held each week to encourage students to keep up with course material, and allow them to receive feedback on their work.

Throughout the semester, the instructors will discuss strategies to support students during the transition to university. Discussion topics may include dealing with math anxiety, accessing on-campus resources, communicating effectively and appropriately (e.g., how to structure an email to an instructor), homework and study strategies, and note taking. Students are expected to participate in these discussions and complete all related tasks.

Course Goals and Learning Outcomes

SC101 is designed to prepare students for university-level mathematics and science courses. The course includes a thorough review of pre-university mathematics and incorporates strategies to foster the ability of students to be successful in their university careers.

By the end of this course students should be able to:
- reason mathematically and communicate their thinking as they solve multi-step problems.
- communicate mathematical solutions in clear, plain English.
- refine their study habits and learning strategies as necessary for success in university.
- simplify real numeric expressions involving integers, fractions, exponents, radicals, and absolute value.
- factor and perform operations on polynomials.
- simplify algebraic and rational expressions.
- graph lines, parabolas, and circles.
- model and solve problems using linear and nonlinear equations.
- model and solve problems using linear and nonlinear inequalities.
- demonstrate an understanding of the mathematical definition of a function.
- represent functions numerically, algebraically, and graphically, including polynomial, rational, exponential, logarithmic, and trigonometric functions.
- develop techniques for transforming and combining functions and determining the inverse of a function.
- solve problems involving applications of functions.
- solve problems involving the primary and reciprocal trigonometric ratios using radian measure.
- solve problems involving trigonometric equations using radian measure.

Course Tools and Learning Materials

MyLearningSpace: All important course information will be posted in MyLearningSpace (MyLS). You should frequently check MyLS for updates and news items.

Text: We will be using several chapters from the Stitz Zeager Precalculus Textbook, an online open-source textbook. The links to Chapter 0 - Prerequisites and the Precalculus Textbook (Chapter 1 onwards) can both be found on www.stitz-zeager.com. It is recommended that you download and save all the files, in case the websites become unavailable at some future date. Links to all textbooks are also posted in MyLearningSpace.
- Stitz Zeager Chapter 0 - Prerequisites:
  http://www.stitz-zeager.com/ch_0_links.pdf
- Stitz Zeager Precalculus Textbook:
  http://www.stitz-zeager.com/szprecalculus07042013.pdf

Calculators: The Casio FX-300MS Plus calculator is required for quizzes, tests, and exams. This exact model is the only acceptable calculator. A picture of the approved calculator is included at the end of this course outline.

Mathematics Assistance Centre: The MAC offers both resources for students requiring remediation in mathematics, as well as support for current course content. In particular, the MAC operates a Drop-in Help Centre, located in LH1018 (Lazaridis Hall). For more information on any service offered by the MAC and hours of operation, see the MAC website.

Student Evaluation

Assessment	Weighting	Due Date
Participation	10%	Ongoing
Homework	15%	Each Monday
Quizzes	5%	Each Wednesday
Term Test 1	15%	Thursday, October 4, 7:00-8:20pm in 1E1 (Arts Building)
Term Test 2	15%	Thursday, November 8, 7:00-8:20pm in 1E1 (Arts Building)
Final Examination	40%	To be announced (2.5 hours/150 minutes)
Total	**100%**	

Your final mark will be determined as a percentage according to the above weights and converted to a letter grade in accordance with the conversion table of the current Undergraduate Calendar.

To be eligible for a passing grade, a student must score at least 40% on the Final Examination.

Learning Activities, Assignments, Tests, and Examinations

Participation: You are expected to attend all classes. Excellent attendance is vital to your success in this course, and all university math courses. Classes will be a mix of teaching, time to work on problems, time to ask questions, and time to complete short tasks.

Your participation grade will be based on various activities, including, but not limited to:
- Working on practice problems or completing an activity individually or in small groups, sometimes to be handed in or shared at the end of the allotted time.
- Writing short responses (may be personal responses to questions asked in class, or math problems) to be submitted at the end of class.
- "Strategies for Success" activities (may include small component to be completed outside of class).

You must miss no more than three classes (i.e., one week) in the entire semester, participate fully in all activities, and exhibit excellent classroom etiquette to achieve full marks on this portion of the grade. The 10% participation grade is split between participation in activities (8%) and classroom etiquette (2%), with marks deducted from the total for absences (described below).

For every week of classes missed beyond the first week, you will automatically lose 1% from your participation mark (for example, if you miss up to three classes, you can achieve full marks; if you miss between four and six classes, you can achieve at most 9 out of 10 for participation; if you miss between seven and nine classes, you can achieve at most 8 out of 10 for participation; and so on).

Note that, to be a "good" participant, you are not required to raise your hand and speak in front of the entire group. Listening actively, working on problems, engaging quietly with the material, and asking the instructor questions one-on-one is perfectly acceptable. Using cell phones, laptops, tablets, or other electronic devices for non-academic purposes during class will affect your participation mark negatively, as will any other disruptive behaviour.

Integrated into the course are short lessons about "Strategies for Success." These will give general tips on being successful in this course and future university courses.

If you have any concerns about earning participation grades, please do not hesitate to speak with your instructor. We want to work with you to ensure your success in this course.

Homework: A list of practice problems is posted in MyLearningSpace. Additional practice problems may also be announced in class. Regular practice is necessary to be successful in the course. As such, homework will be collected and assessed on a weekly basis. Sometimes homework will only be marked for completion (not correctness). The homework problems to be handed in correspond to the sections covered in class the previous week (this will be specified in lecture and/or on MyLearningSpace).

Homework is always due at the beginning of class on Monday. Late homework will not be accepted.

Students are encouraged to attempt non-assigned textbook exercises for extra practice, as needed.

Quizzes: There will be a short quiz (1-2 questions) at the beginning of class every Wednesday. These quizzes will be marked out of 2. A perfect and complete solution, with good form, will receive full marks. Partially correct solutions will receive 1 out of 2. Incorrect solutions, or solutions with poor form, will receive 0 out of 2.

Students who are late to class on a Wednesday will not receive extra time on the quiz. There are no deferred or makeup quizzes under any circumstances.

Term Tests: There are two term tests, scheduled for Thursday, October 4 and Thursday, November 8. Each test will be held from 7:00-8:20pm in 1E1 (Arts Building).

In case of a time conflict between a scheduled term test and the requirements of another course, you must inform your instructor **two weeks before the test, at the latest**, so that alternative arrangements can be made.

There are no deferred term tests. A term test missed without a valid, documented reason (e.g. medical certificate) will be assigned a mark of zero. If a term test is missed for valid, documented reasons, its weight will be transferred to the Final Examination.

Tentative Weekly Schedule

Week	Dates	Topics
1	☐ Sep 7	Properties of Real Numbers
2	☐ Sep 10	Basic Set Theory
	☐ Sep 12	Linear Equations and Inequalities
	☐ Sep 14	Absolute Value Equations and Inequalities
3	☐ Sep 17	Polynomials
	☐ Sep 19	Factoring
	☐ Sep 21	Quadratic Equations
4	☐ Sep 24	Rational Expressions and Equations
	☐ Sep 26	Radicals
	☐ Sep 28	
5	☐ Oct 1	Test Review
	☐ Oct 3	
	☐ Oct 4	**Term Test 1 (worth 15%): Oct 4, 7:00-8:20pm**
	☐ Oct 5	Analytic Geometry
		Thanksgiving and Reading Week: October 8-12
6	☐ Oct 15	Intro to Functions
	☐ Oct 17	Function Notation
	☐ Oct 19	Linear Functions
		Absolute Value Functions
7	☐ Oct 22	Function Arithmetic
	☐ Oct 24	Graphs of Functions
	☐ Oct 26	Function Composition
		Inverse Functions
		Quadratic Functions and Inequalities
8	☐ Oct 29	Polynomial Functions
	☐ Oct 31	Transformations of Functions
	☐ Nov 2	
9	☐ Nov 5	Test Review
	☐ Nov 7	**Term Test 2 (worth 15%): Nov 8, 7:00-8:20pm**
	☐ Nov 8	Angles and Their Measure
	☐ Nov 9	Trigonometric Functions
10	☐ Nov 12	Trigonometric Functions continued
	☐ Nov 14	
	☐ Nov 16	

Tentative Weekly Schedule Continued

Week	Dates	Topics
11	☐ Nov 19	Graphing Trigonometric Functions
	☐ Nov 21	Trigonometric Equations
	☐ Nov 23	Intro to Exponential and Logarithmic Functions
12	☐ Nov 26	Exponential and Logarithmic Functions continued
	☐ Nov 28	Properties of Logarithms
	☐ Nov 30	Exponential and Logarithmic Equations
13	☐ Dec 3	Exam Review
	☐ Dec 5	

Note: This schedule is subject to change. Check MyLS for updates.

University and Course Policies

1. **Final Examinations:** Students must reserve the examination period of **December 8-21, 2018**. Students are strongly urged not to make any commitments (i.e., vacation) during the examination period. Students are required to be available for examinations during the examination periods of all terms in which they register. Refer to the Handbook on Undergraduate Course Management for more information.

2. **Special Needs:** Students with disabilities or special needs are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources. Students are encouraged to review the [Academic Calendar](#) for information regarding all important dates, deadlines, and services available on campus.

3. **Academic Integrity:** Laurier is committed to a culture of integrity within and beyond the classroom. This culture values trustworthiness (i.e., honesty, integrity, reliability), fairness, caring, respect, responsibility and citizenship. Together, we have a shared responsibility to uphold this culture in our academic and nonacademic behaviour. The University has a defined policy with respect to academic misconduct. As a Laurier student you are responsible for familiarizing yourself with this policy and the accompanying penalty guidelines, some of which may appear on your transcript if there is a finding of misconduct. The relevant policy can be found at Laurier's [academic integrity](#) website along with resources to educate and support you in upholding a culture of integrity. Ignorance is not a defense.

   Academic misconduct includes, but is not limited to, transmission or reception of information, or possession of unauthorized information, during quizzes, tests, or examinations. Academic misconduct also includes plagiarism. The work that you hand in (for example, your weekly homework assignments) must be your own. WLU [Policy 12.2 Student Code of Conduct and Discipline](#) provides information on academic and research misconduct code, and the procedures for investigating and determining appropriate disciplinary measures for breaches of this Code.

4. **Classroom Use of Electronic Devices:** The use of electronic devices in the classroom is governed by WLU [Policy 9.3: Classroom Use of Electronic Devices](). Details of this Policy and the consequences of breaches are stated in the Academic Calendar.

   Mobile devices such as laptops and tablets may be used in class only for educational (learning) purposes directly related to the course. At times, the instructor may explicitly permit students to use a mobile device to complete an activity or task, at other times, the instructor may ask students to close laptops and turn off tablets in order to focus attention on other course-related tasks. Students who fail to comply may be asked to stow their devices at the front of the classroom, or to leave the classroom.

   Kitchener/Waterloo and Multi-campus Resources:

   - [Waterloo Student Food Bank](): All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.

   - [Waterloo Foot Patrol](): 519.886.FOOT (3668). A volunteer operated safe-walk program, available Fall and Winter daily from 6:30 pm to 3 am. Teams of two are assigned to escort students to and from campus by foot or by van.

   - [Waterloo Student Wellness Centre](): 519-884-0710, x3146. The Centre supports the physical, emotional, and mental health needs of students. Located on the 2nd floor of the Student Services Building, booked and same-day appointments are available Mondays and Wednesdays from 8:30 am to 7:30 pm, and Tuesdays, Thursdays and Fridays from 8:30 am to 4:15 pm. Contact the Centre at x3146, wellness@wlu.ca or @LaurierWellness. After hours crisis support available 24/7. Call 1-844-437-3247 (HERE247).

   - Good2Talk is a postsecondary school helpline that provides free, professional and confidential counselling support for students in Ontario. Call 1-866-925-5454 or through 2-1-1. Available 24-7.

Course Drop Dates Fall 2018

September 12: Last day to drop/withdraw from 12-week course(s) at no tuition charge (provided the student remains registered in at least one course).
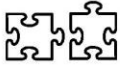
September 19: Last day to drop/withdraw from 12-week course(s) at 10% tuition charge (assessed at course rate).

November 7: Last day to drop/withdraw without failure and for possible tuition adjustment (tuition charge assessed at 55% of the course rate).

FOOT **PATROL**   519.886.3668 (FOOT)
Foot Patrol is a volunteer operated safe walk-home service, available daily during evening hours. Teams of two radio-dispatched volunteers are available on request to escort students to and from campus as well as to off-campus destinations. Foot Patrol operates both a walk and van service, and can be found in the office on the ground floor of the Fred Nichols Campus Centre.

PEER **CONNECT**   1.866.281.7337 (PEER)
Peer Connect is a committee that addresses mental health by promoting a balanced lifestyle for all students. We promote a confidential phone service run by students for students as a resource for any information and support. We run campaigns of mental health, stress relief and healthy body care. We provide programming such as access to athletic equipment, movies, board games and volunteers through booking to dons, icebreakers, campus clubs and campus committees.

EMERGENCY **RESPONSE** TEAM   519.885.3333
The Emergency Response Team provides on-call medical assistance to students on campus. ERT operates Monday through Thursday 3pm-3am and Friday to Sunday 24 hours. ERT can also be booked for on site event support be filling out the online booking request form at ert.yourstudentsunion.ca. Operating on the Waterloo campus only.

STUDENT **RIGHTS** ADVISORY COMMITTEE   studentrights@mylaurier.ca
The Student Rights Advisory Committee exists to provide you with information about your rights when it comes to landlord-tenant issues or academic appeals. While in no way legal representation, it can help to inform you about your options in order to make difficult situations easier to navigate.

FOOD **BANK**   foodbank.yourstudentsunion.ca
Food Bank provides food parcels in order to cater to the nutritional and dietary needs of students. All students are eligible to use this service, regardless of circumstance or financial situation. Request a package at foodbank.yourstudentsunion.ca. Food Bank also carries out various initiatives throughout and during the year such as the weekly on-campus Farmers' Market and monthly Pancake Tuesdays.

For more Information visit www.yourstudentsunion.ca

Picture of Casio FX-300MS Plus calculator: