

Trinity Western University  
Undergraduate Course Syllabus  
MATH 190  
Mathematics for Elementary School Teachers  
Summer 2017

Pre-requisite: At least a C in B.C. Principles of Mathematics 11, Foundations of Math 11, Pre-Calculus 11 or equivalent, or permission of the instructor.

Semester Hours: 3

Instructor: Stephen Benecke

Contact Information: office: TWUX, email: stephen.benecke@gmail.com

Office Hours: TBA

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**Academic Calendar Course Description:**

Mathematical concepts and topics that undergird the school mathematics curriculum. The principles and applications of number systems, sets, equations, linear programming, geometry, and mathematical proof within a historical and societal context. It may not be used to meet a mathematics requirement in any other program.

NB: Credit is granted for only one of MATH 101, 102, 108, or 190. Open to declared Elementary Education majors only. Education students may meet their requirement for a Mathematics course by substituting another course for MATH 190 unless transferring for their professional year to a school requiring this specific course. Students planning to transfer to University of Victoria (and some other universities) for their professional year are required to take two Mathematics courses rather than one.

**Course Objectives:**

This course gives prospective elementary school teachers insight into a range of mathematical concepts. Logical reasoning and problem solving will be an integral part of the course, in an attempt to equip students with the necessary skills and understanding required to effectively understand mathematical thinking and hence effective teaching. Course content may include an introduction to problem solving, different number systems, elementary number theory, probability theory and techniques in arithmetic. Although methods may be discussed from time to time, this is not a methods course in the teaching of mathematics. Instead, it aims to provide a foundation knowledge and skill crucial for being an effective mathematics teacher.

**Required/optional Texts and Materials:**

The course material used will consist of class notes and handouts that will be provided by the instructor or on the course website.

**Instructor:**

Stephen Benecke

Office: TWUX

Office Hours: TBA

Email: stephen.benecke@gmail.com

Students are encouraged to approach the instructor if they wish to discuss any aspect of the course, either during office hours, by appointment or by email.

### Course Web page:

Students are encouraged to visit the course web page <http://stephen.ministryofconstructions.com/math/> on a regular basis. Besides the fact that the assignments will be posted here, it is also a useful tool to convey important information regarding the course.

### Course Outline:

The topics discussed in this course may include some of the following:

- General Problem Solving
- Patterns and Number Sequences
- Historical Number Systems
- Elementary Number Theory
- Logical Reasoning
- Sets and Set Operations
- Basic Principles of Counting and Combinations
- Elementary Probability Theory
- Techniques in Mental Arithmetic
- Geometry

### Course Evaluation:

At the end of each section/day a tutorial session will be held during class time, according to the online schedule. This gives the student the opportunity to solidify their understanding of the concepts and discuss it with the class and the instructor. The tutorial session may conclude with a small quiz. These quizzes contribute 30% of the final grade. There will be additional assignments presented periodically throughout the course. These assignments test the student's understanding of the various mathematical concepts and his/her ability to answer various questions based on the course material. The schedule of assignments and due dates will be available on the course web page and will contribute 10% to the final grade.

There will be one midterm, taken halfway through the course. This test contributes 30% to the final grade. In addition, the final examination contributes 30% to the final grade, and will mainly cover the second half of the course.

<b>Assessment Opportunity</b>	<b>Percentage</b>
Quizzes	30%
Homework Assignments	10%
Midterm	30%
Final Exam	30%

The nature of what students will be expected to do on the tests and the final examination is largely defined by the in-class examples and additional examples.

The University Standard Grading System used in the Department of Mathematical Sciences is:

Letter Grade	Percentage	Grade Point
A+	95-100%	4.3
A	85-94%	4.0
A-	80-84%	3.7
B+	77-79%	3.3
B	73-76%	3.0
B-	70-72%	2.7
C+	67-69%	2.3
C	63-66%	2.0
C-	60-62%	1.7
D+	57-59%	1.3
D	53-56%	1.0
D-	50-52%	0.7
F	Below 50%	0

### **Policies:**

Once marked, homework assignments and midterm tests will be returned in class, or may be claimed during office hours. There will be no make-up tests. If a student misses a test due to reasons in accordance with University regulation, the instructor should be notified as soon as possible. A written request to be excused, as well as the relevant supporting documentation, should be submitted prior to the test. In such cases the other assessment opportunities will be used to assign a score for the missed test.

Students are strongly advised to **not** make final plans for travel or employment during exam period, since special arrangements will not be made for examinations that may conflict with such plans.

Questions or concerns regarding graded test or assignment papers should be brought to the attention of the instructor within 7 calendar days of the date when it was returned. Grades may be posted by student number on the website. If a student wishes to be excluded from this posting, the instructor should be notified in writing.

### **Academic Integrity and Avoiding Plagiarism at TWU**

As Christian scholars pursuing higher education, academic integrity is a core value of the entire TWU community. Students are invited into this scholarly culture and required to abide by the principles of sound academic scholarship at TWU. This includes, but is not limited to, avoiding all forms of plagiarism and cheating in scholarly work. TWU has a strict policy on plagiarism (see academic calendar). Learning what constitutes plagiarism and avoiding it is the student's responsibility. An excellent resource describing plagiarism and how to avoid it has been prepared by TWU Librarian William Badke and is freely available for download (PPT file) or used as flash (self running) tutorials of varying lengths from:

<http://acts.twu.ca/library/plagiarism.ppt>

<http://acts.twu.ca/library/Plagiarism.swf> (14 minute flash tutorial)

[http://acts.twu.ca/library/Plagiarism\\_Short.swf](http://acts.twu.ca/library/Plagiarism_Short.swf) (8 minute flash tutorial)

## **Campus Closure and Class Cancellation Policy**

In the event of extreme weather conditions or other emergency situations, please consider the website the primary source of information, along with the TWU bulletin line 604.513.2147. The University will communicate information regarding the cancellation of classes to the following radio stations: CKNW (980 AM), CKWX (1130 AM), STAR FM (107.1 FM), PRAISE (106.5 FM) and KARI (550 AM). Should there be conflicting reports regarding campus closures, the TWU website and bulletin line are to be considered correct.

The first announcement regarding status of campus is made at 6:30 am and covers the period up to 1:00 p.m. The second announcement will be made at 11 am and will cover afternoon classes. Students and faculty should assume that all night classes will continue to operate. If the emergency continues into the evening, students and faculty may check for a class cancellation notice on the University's weather bulletin line or the website after 3:00 p.m. that day.

If this specific class must be cancelled for any other reason, the instructor will communicate this in advance. In the case of an unexpected cancellation, a sign will be posted on the classroom door.

**This document is prepared before the beginning of the course. It is possible that some of the information in it will have to be modified before the course ends. Any such changes will be announced in class and on the course web page. It is the student's responsibility to be aware of any such changes.**