

MATH 1543 N2 : Mathematical Concepts II

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Syllabus

Course Overview

This course is one of a pair of courses designed for students who wish to become elementary school teachers. It's designed to fulfill the certification requirements of the Nova Scotia Department of Education. But that's not its only purpose. It is also designed to build your background with the material as well as to build your comfort level and confidence with teaching mathematics. And in fact that's my real goal. You don't need this particular course to fulfill certification requirements. Other math courses will do that. The reason for taking this particular course is to try to become a better, stronger, and more confident math teacher.

How are we going to do that? The main theme of this course is to study some of the material taught in elementary and middle school, and to go beyond that material a little more deeply. We won't always focus on basics, but instead will try to use the basic ideas in ways which I hope will help clarify them. So we will at times be going outside classroom material to consider further ideas. This means that even if you did well in math in high school, there will likely be some ideas introduced in the course that you have not seen before.

So regardless of why you've decided to take this course, I have assumed throughout that your intention is to go into teaching. It won't affect most of the course, but there will be some activities and material that looks at mathematics *in the classroom*, from a teacher or child perspective, rather than just at the mathematics itself. It also means that there will be significant emphasis on *understanding* the mathematics we see, and on putting it in perspective. In other words, we won't just look at *how* to do the math, but at *why*: why we use particular methods, and why they work. Unfortunately, when it comes to Mathematics as a subject, there is often a misunderstanding that treats it as if there is some set of rules or

formulas we have to accept and use. That's not true. What *is* the case is that there are reasons for these various rules and formulas, and *understanding* these reasons can make the subject less confusing. So our focus will often be on understanding what we are doing.

Instructor

I have been teaching in the Math Department here at Acadia since 2001, and I am currently the Head of the Department. But I have also had a lot of previous teaching experience as well before coming here, including periods at the University of Windsor, McMaster University, the University of Waterloo, and the Universities of Cambridge and Durham in the UK. Math 1503 is a course I developed here and have been teaching for the last several years. I have also been actively involved in Nova Scotia's Math curriculum development, and have tried to integrate some of the ideas I've encountered into this course.



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Course Materials

The Textbook for this course is:

A Problem Solving Approach to Mathematics for Elementary School Teachers, 12th edition (2016)

by Rick Billstein, Shlomo Libeskind, and Johnny W. Lott; published by Pearson.

ISBN: 9780321987297 (hardcover)

ISBN: 9780321990747 (looseleaf)

ISBN: 9780134462752 (etext)

Optional - student solution guide ISBN: 9780321990563

See the [student handbook](#) for ordering information.

Our textbook is a big book, and is just full of stuff. In fact, there's a lot more in this book than we're going to get to this course. But I deliberately chose this book so that you will not only have the material we've covered from class available, but you'll have an easy to use resource once you get out into the classroom. For one thing, you're bound to run into topics or ideas once you're teaching that are unfamiliar, and you may find things that you have to refresh as you go. Not only that, but education departments routinely update their curricula, and as a teacher that means that you are almost certainly going to find material introduced into your classroom is new to you. Having a resource like this textbook will hopefully allow this kind of transition to be an easy one.

Module Structure and Evaluation

The heart of the course will be work you do in each module. Each module contains an introduction and a reading assignment. This will be a list of sections to read through in the textbook. Alongside your reading, I have also provided *Overview* documents intended to help summarize and clarify concepts. These Overview documents are meant to supplement the reading, and not to replace the text material. Each module also includes a number of web links to material that I have felt might be useful to you in clarifying things, including a number of applets which allow you to practice. Even if you don't use these directly, it's not a bad idea to have a look at them, since they may be things you can come back to when you're actually teaching. I have also included several video examples with each module. For each video I've included a pdf file of the problem(s) we'll be looking at, so you can try this out before watching the video. The video follows me as I work through the solution, and I've also included a pdf of the final solution for each.

Each module also has a set of worked problems and a list of additional practice problems, and finishes with an assignment.

The worked problems are meant to be used for practice, and do not get handed in. I have provided extensive solutions for these. The optimal way to use these is to attempt the problems on your own, and then compare with my solutions to see how you've done. Note that these problems are somewhat connected to the actual assignment questions, so should serve as good practice before the assignment is attempted.

The additional practice problems are also chosen so that they tend to be similar to the assignment problems, but the practice ones have answers in the back of the text. So these may also be useful to test yourself on your understanding before tackling the assignment.

The assignments should be neat, easy to read, and organized, with problems done in order. As far as format, my preference is for you to write the assignment, rather than type it out. Typing tends in many cases to take you longer, and it can be harder to display answers. [If typing is really necessary for you, please let me know.] My preference is to receive files in PDF format; in many cases the simplest method is to write your assignment, scan the pages to PDF, and submit the PDF file. If this method is not workable for you, then please email me and we can try to find a format that works for both of us.

Assignments should be delivered to me via the assignment drop-boxes here in Acorn. Please remember to put your name, student number, course number, and assignment number on the assignment and keep a copy in the event the original is lost. The system will send me an email to let me know that you've submitted.

The last assignment should be received at least 4 weeks prior to the date you wish to write the exam. This will allow adequate processing time for the request, and for setting up the exam.

Evaluation

Your grade in this course will be calculated using the following 2 schemes; you will receive the best of the two outcomes. The second scheme places higher weight on the exam in case you do better on this than on the assignments as you go along.

Scheme 1		Scheme 2	
Assignments	40%	Assignments	20%
Final Exam	60%	Final Exam	80%

Course Schedule

Click to download the suggested schedule for this course: [MATH 1543 N2 - Suggested Schedule](#)

You have 6 months to complete this course, though there is nothing wrong with moving through the material faster if you wish to. However, if you intend to complete the course more quickly (say in less than 3 months) then you should let me know so that we can arrange a schedule.

Please do not leave all of your course work until a few weeks before your completion date. Although I will make every effort to accommodate your schedule within reason, I need time to grade assignments and mark exams.

Recommended Schedule

The schedule listed here is only a recommendation. The course modules are not all equal in length or depth, so I assume that some of these will take longer than others to complete. They can also be completed in any order, though generally the ideas build from 1 through 7.

The schedule listed here will allow you to complete the modules in about 4 months, with time left at the end to prepare for the final exam. Previous students have found modules 2 and 7 to take a bit longer than the rest.

Quick Overview:

Week 1-2	Module 1
Weeks 3-4	Module 2
Week 5-6	Module 3
Week 7-8	Module 4
Week 9-10	Module 5
Weeks 11-12	Module 6

Exam

How to apply: Complete the [Application for Examination](#)

Proctored at Acadia

- The final exam in a distance education course must be passed to successfully complete the course. There are no rewrites or supplemental examinations at Acadia University.
- Examination requests must be received one month prior to the date you wish to write your examination.
- Course requirements must be completed to the satisfaction of your instructor.
- **Graduating Students Note:** If you are graduating in Spring Convocation you must write by April 15th. If you are graduating in Fall Convocation you must write by September 15th.

Proctored at Another Location

If it isn't practical to take your exam at Acadia, off-campus exams can be written at another university or college. Arrangements for an examination may be made through the Registrar's Office or the Continuing Education office of most universities and colleges. If it is not possible to write your exam at an approved institution, please contact us for assistance.

- ***All fees associated with examinations written at other locations are your responsibility.***
- Some courses may require specific software or internet accessibility at the off-campus examination location.

Student Handbook

You are responsible for becoming familiar with the contents of the Student Handbook. It contains important information about scheduling examinations (if applicable), applying for extensions, withdrawing from your course, ordering books, and computer and library services available to you. If you have questions about the policies outlined in [the handbook](#), contact:

Open Acadia

21 University Avenue (Rhodes Hall)

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Phone: 1-800-565-6568

Fax: 902-585-1068

Email: openacadia@acadiu.ca

Academic Integrity

Academic integrity demands responsible use of the work of other scholars. It is compromised by academic dishonesty such as cheating and plagiarism. A student who is uncertain whether or not a course of action might constitute cheating or plagiarism should seek in advance the advice of the instructor involved.

- Cheating is copying or the use of unauthorized aids or the intentional falsification or invention of information in any academic exercise
- Plagiarism is the act of presenting the ideas or words of another as one's own. Students are required to acknowledge and document the sources of ideas that they use in their written work.
- Self plagiarism is also a form of plagiarism. It is the presentation of the same work in more than one course without the permission of the instructors involved.
- A student who knowingly helps another to commit an act of academic dishonesty is equally guilty.
- Penalties are levied in relation to the degree of the relevant infraction. They range from requiring the student to re-do the piece of work, through failure on that piece of work, to failure in the course, and to dismissal from the university.

[Click here to return to the Module](#)

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