University of Manitoba
Faculty of Science
Department of Mathematics

1 Course Details

Course Title & Number	MATH 2160 A01: Numerical Analysis 1
Number of Credit Hours	3
Lecture Times & Days of Week	8:30 am – 9:45 am TR
Location for lectures	Zoom/Crowdmark
Lab Times & Days of Week	B01: 3:30 pm – 4:20 pm W B02: 4:30 pm – 5:20 pm W
Location for labs	Zoom/Crowdmark
Pre-Requisites	[MATH 1232 (C) or MATH 1690 (C) or MATH 1700 (B) or MATH 1701 (B) or MATH 1710 (B)] and [MATH 1220 (C) or MATH 1300 (B) or MATH 1301 (B)]
Not to be held with	MATH 2120 (Eng)

2 Instructor Contact Information

Instructor(s) Name	Richard Mikaël Slevinsky
Office Location	464 Machray Hall
Office Hours or Availability	1:00 – 2:00 pm TWF or by appointment on Zoom.
Office Phone Number	204-474-6647
Cell Phone Number	431-334-9330 (mathematical emergencies)
E-mail	Richard.Slevinsky@umanitoba.ca All e-mail communication must conform to the Communicating with Students university policy. E-mail inquiries will be answered as soon as possible.

3 Course material

The course is entirely based on course notes and other materials that are available online at https://github.com/MikaelSlevinsky/MATH2160.
For a second opinion, it is recommended that you have *a* textbook, such as
K. Atkinson and W. Han, *Elementary Numerical Analysis*, third edition, 2003.
A copy of JULIA-1.6, available from https://julialang.org/downloads/.

4 Course Outline

Elementary techniques of numerical solution of mathematical problems: solution of equations, linear systems of equations, nonlinear equations; finite and divided differences, interpolation; numerical differentiation and integration.

5 Course Evaluation Methods

Students will be assessed using lab quizzes and a final examination.

Date	**Assessment Tool**	**Value of Final Grade**
Weekly	Lab quizzes	50%
TBA	Final examination	50%

6 Grading

We will use the following scheme, subject to adjustments due to overall class performance.

Letter Grade	Minimum percentage to guarantee	Final Grade Point
A+	95	4.5
A	86	4.0
B+	80	3.5
B	72	3.0
C+	65	2.5
C	60	2.0
D	50	1.0

7 Grading Expectations

Normally, students can expect quizzes and the final examination to be graded and returned within one week. Feedback will include a numerical grade and any comments that may be helpful for the students and/or that may be helpful for the justification of the grade.

8 Schedule of quizzes

The quizzes will be scheduled for distribution via Crowdmark on Monday mornings at 8:00 am and they will be due on Friday evenings at 5:00 pm. The labs themselves on Wednesdays afternoons will give you a chance to interface with the TAs and they may guide you to successfully solve the weekly quizzes.

At the end of every chapter, there is a list of suggested problems. They are **optional** and not for marks, although it is strongly recommended that you try to solve the problems. I am happy to review your work, if you wish.

9 Policy on missed quizzes and final examination

No missed quizzes will be accepted; however, if a student reports an absence to the instructor within two days of the due date, then this quiz will not be counted to their quiz average.

If a student misses half or more of the lab quizzes, they may be asked to withdraw from the course.

If a student misses the final examination, they may be eligible for deferral. They must contact an advisor in their faculty of registration for a deferral request.

10 Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Student Accessibility Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline "gaming" during scheduled class time.

We will use Zoom, Crowdmark, JULIA, UM Learn and e-mail communication as the primary technologies and transmission of information.

11 Recording Class Lectures

Richard Mikaël Slevinsky holds copyright over the course material, presentations, and lectures which form part of this course. Audio or video recording of lectures, labs, and/or presentations is allowed in any format, openly or surreptitiously, in whole or in part so long as they are only used for the participant's private study and research.

12 Student Accessibility Services

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services http://umanitoba.ca/student/saa/accessibility/
520 University Centre
204-474-7423
Student_accessibility@umanitoba.ca

13 Academic Integrity

All assessments are **open everything**. In particular, students may collaborate only with other students enrolled in MATH 2160, but they must submit their own written quizzes and exams.

I request that students do the honourable thing and write a statement such as, "I collaborated with Stefan Banach and Emmy Noether on questions 1, 3, and 5." This will have no effect on the grading; it is just a way to encourage good practice.