

DEPARTMENT OF MATHEMATICS

MATH 3132 ENGINEERING MATHEMATICAL ANALYSIS 3

September – December 2019

A01: Instructor: G.I. Moghaddam, 426 Machray Hall, 474-8345, e-mail: moghadm@cc.umanitoba.ca
Office hours: Monday and Wednesday 12:30–1:30 PM , Friday 10:00–11:00 AM , or by appointment
Lecture: 206 Human Ecology, Slot 1, Monday, Wednesday and Friday 8:30–9:20 AM

Textbook: *Calculus for Engineers* by Donald Trim, fourth edition, Prentice-Hall. Chapters 17-21 to be purchased from the bookstore.

Course Outline:

- *Vector Calculus:* Vector fields, line integrals and independence of path, Green's theorem, surface integrals, divergence and Stokes's theorems
- *Series solutions of ODEs:* Power series and Frobenius solutions, ordinary and singular points
- *Fourier series:* Fourier series, sine and cosine series and their properties
- *Sturm Liouville systems:* Introduction to the theory of Liouville systems
- *Derivation of PDEs:* Heat, vibration, and Poisson's equations
- *Separation of variables:* Separation of variables applied to heat, vibration, and Laplace's equations

Information about which sections/topics in the text are required material will be given in lectures.

Students are advised to do as many of the exercises (in assigned sections) as possible.

Course Webpage : <http://home.cc.umanitoba.ca/~moghadm/Math3132>

Midterm Tests: There will be two term tests where each counts as 20% of the final grade.

Term test 1 will be on Friday **October 11** in class during the lecture time.

Term test 2 will be on Friday **November 8** between 5:45 and 7:00 PM, (location TBA).

Calculators and/or reference material will NOT be allowed on tests or final examination.

Evaluation:

The two midterm tests counts as 40% of the final grade.

A three hour final examination, to be scheduled by the Registrar's Office, will count for the remaining 60% of the final grade.

Grading Table: The following is the grading table which may be adjustable downwards:

Letter Grade	Minimum percentage to guarantee	Final Grade Point
A+	93	4.5
A	84	4.0
B+	77	3.5
B	71	3.0
C+	66	2.5
C	60	2.0
D	50	1.0

Notes:

(1) If you miss a midterm test, you will be assigned a mark of “zero” unless reasons and acceptable supporting evidence are provided. In that case the weight of the final exam will be 80% of the final grade. A student missing a midterm test must contact the instructor within 2 days of the scheduled midterm (email contact is sufficient).

(2) **Notes, books, calculators or other computing devices are not allowed for the midterm tests or the final exam.**

(3) Students are expected to attend all classes and are responsible for all material presented in class even if they are not present.

(4) 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. If student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it.

(5) Course materials, presentations and lectures that form part of this course are copyrighted material. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission. Course materials (both paper and digital) are for the participants private study and research.

(6) 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

(7) Students are advised to familiarize themselves with the General Academic Regulations of the University contained in the Undergraduate calendar. All forms of academic dishonesty are treated very seriously by the Department of Mathematics, and the Faculty of Science. Submitting another person’s work as your own, copying from another person at an exam, or bringing unauthorized information into a test or examination is a serious offense. For further information, please see reverse.

(8) Voluntary Withdrawal Deadline is Monday **November 18**, 2019.

Academic Integrity

The Department of Mathematics, The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline By-Law, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline By-Law may be accessed at:

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science web page:

http://www.sci.umanitoba.ca/wp-content/uploads/2018/11/Acad_Dishon_TABLE_RevCSS_AdminC_Jul2012_WEB.pdf

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.