

COURSE SYLLABUS



COURSE TITLE: MATH-193: Applied Math for Civil/Mech 2

CLASS SECTION: X01

TERM: Summer 2022

COURSE CREDITS: 4

DELIVERY METHOD(S): In person

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and WSÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>.

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Dr. Torsten Schoeneberg

EMAIL: schoenebergt@camosun.ca

OFFICE: CBA 156

HOURS: Mondays & Wednesdays 1.30-2.20pm, and by appointment

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

Students will continue to explore the integral calculus topics begun in MATH 191 and then be introduced to ordinary differential equations and to probability and statistics, with a focus on applications to civil and mechanical engineering technology. In calculus, students will study integration techniques, polar coordinates, and double integrals. Students then learn to solve introductory first and second order differential equations with applications. In probability and statistics, students will examine measures of centre and variability; discrete and continuous random variables; confidence intervals; and linear regression.

PREREQUISITE(S):

One of:

- C in MATH 101
- C in MATH 191

CO-REQUISITE(S):

Not applicable

EXCLUSION(S):

Not applicable

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a student will be able to:

1. Integrate algebraic, exponential, logarithmic and trigonometric functions.
2. Use methods of integration, including integration by parts and non-repeated linear partial fractions.
3. Find partial derivatives of functions.
4. Evaluate double integrals using both Cartesian and polar coordinates and use double integration to calculate volumes under three-dimensional surfaces.
5. Solve separable and linear first-order differential equations.
6. Solve second-order linear homogeneous and non-homogeneous differential equations with constant coefficients.
7. Solve application problems involving first and second-order differential equations, including mass-spring systems.
8. Calculate probabilities using counting techniques and basic probability.
9. Graph a data set using a variety of presentations. Calculate the mean, median, and standard deviation of a data set and interpret the results.
10. Solve problems involving discrete probability distributions such as binomial and Poisson, and continuous probability distributions such as the normal distribution.
11. Calculate point estimates and confidence intervals for means of both large and small samples.
12. For a bivariate data set, calculate the linear regression line using the method of least squares, either using a scientific calculator or using appropriate software. Calculate and interpret the coefficients of correlation and determination.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

(a) Optional Textbooks:

- 1) Washington: Basic Technical Mathematics with Calculus 11th edition
- 2) Stephens: Beginning Statistics (Schaum's Course Outlines) 2nd edition

Both are optional. Both are available through the Camosun bookstore

(https://www.camosuncollegebookstore.ca/buy_textbooks.asp?). Washington's book is also available as e-text there.

(b) Other Resources:

Coursepack and files with suggested exercises on the D2L site.

(c) Calculator: Non-graphing Calculator. Recommended is the Sharp EL W516, but the Sharp EL 510 series also suffices.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
May 2 – May 24	Integration Techniques and Partial Derivatives: Washington sections 28.1-4, 28.6, 28.7, 28.9, 29.3, 29.4	
Wednesday, May 25	First midterm test	
May 26 – June 20	Differential Equations: Washington chapter 31 sections 1,2,4, 6-10	
Tuesday, June 21	Second midterm test	
June 22 – August 1	Statistics: Sections 1-10 from the Coursepack on D2L	
Tuesday, August 2	Third midterm test	
August 3-4	Review	
August 8-16	Final Exam period (actual date to be posted)	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Weekly Homework Assignments, to be submitted on myopenmath.com, generally on Monday mornings. Our <i>Course ID</i> is 143350 , the <i>password</i> is camosun .	10%
3 Midterm Tests (see dates above)	55% (18.3% each)
Final Exam	35%
	TOTAL
	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information. <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

It is expected that students follow lectures attentively (asking questions is encouraged and welcome!), but also continuously work on course topics outside of class hours. The weekly homework assignments are an excellent way to keep up to date with the course material. However, students are strongly encouraged to work on recommended extra exercises from the textbooks and/or other material provided in class and online as well.

One learns mathematics by solving mathematical problems. The lectures are there to provide you with the tools for that; to acquire the skills, you have to practice them on your own.

SCHOOL OR DEPARTMENTAL INFORMATION

The Math Help Centre at Interurban Campus is located in TEC 142. They offer drop-in help (first come, first serve) as well as online meetings by appointment. For schedules and further information see

<https://camosun.ca/services/academic-supports/help-centres/math-help>

The Math & Stats Department has prepared a handout regarding academic integrity. Please read this document carefully and understand what behaviours would fall under what college policy regarding academic integrity and (dis)honesty (like cheating and plagiarism):

<http://georgeballinger.ca/StudentGuidelinesforAcademicIntegrity.pdf>

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Academic Advising

<http://camosun.ca/advising>

Accessible Learning

<http://camosun.ca/accessible-learning>

Counselling

<http://camosun.ca/counselling>

Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the “Attendance” section under “Registration Policies and Procedures” (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun’s Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student’s right to choose what is right for them. For more information see Camosun’s Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College’s Student Misconduct Policy at

<http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.