

Course Outline Form: MATH 1090 – W 2020

General Information

Course Title: **MATH 1090 – Elements of Calculus II, W (3-1) [0.50]**

Course Description:

This course will expand on integration techniques, and introduce students to difference and differential equations, vectors, vector functions, and elements of calculus of two or more variables such as partial differentiation and multiple integration. The course will emphasize content relevant to analyzing biological systems, and methods will be illustrated by application to biological systems.

Prerequisite(s): 1 of IPS*1500, MATH*1080, MATH*1200

Restriction(s): IPS*1510, MATH*1210, MATH*2080

Credit Weight: 0.5

Academic Department (or campus): Mathematics & Statistics

Campus: Guelph

Semester Offering: Winter 2020

Class Schedule and Location: LEC Mon, Wed, Fri 12:30PM - 01:20PM <u>ROZH</u> , Room 103	LAB Fri 08:30AM - 09:20AM <u>RICH</u> , Room 2520	EXAM April 13, 2020
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Instructor Information

Instructor Name: Monica Gabriela Cojocar

Instructor Email: mcojocar@uoguelph.ca

Office location: MACN 549

Office hours: TBD

Tentative: FRI Feb 7, FRI March 20 (before Term Tests) – 10am -12pm (Instructor or TAs)

Regular: Thursdays: 3pm-5pm (Instructor or TAs)

GTA Information:

TBD

Course Content

Specific Learning Outcomes:

The course will teach techniques to analyze and solve problems involving integral, differential equations and their generalization to multivariate functions. This course will contain:

1. integration techniques: substitution rules, integration by parts, partial fractions;
2. separable differential equations, equilibria and models;
3. vectors, matrices, operations with matrices, eigenvalues and eigenvectors;
4. multivariate calculus: functions of 2 or more variables, partial derivatives, differentiability and gradients, optimization of functions on R^n .
5. Linear systems of differential equations, equilibria, stability and models.

Labs & Seminars: This course has a 1 hour Lab every week on Friday. The lab will be used to train students on course material so that they can absorb more examples and problems, and so that they can be able to complete their practice problems, quizzes, term tests etc.

Course Assignments and Tests:

For clarity, the below table refers to:

Week 1 of classes = Week of Jan. 6, 2020

READING WEEK: Feb 17-21, 2020

Week 12 of classes = Week of March 30, 2020

Assigned work	Date Fridays	Location: Online	Contribution to final mark
Quiz** 1	Jan. 10	12am-11:55pm	Warm –up - no grade
Quiz 2	Jan 17	12am-11:55pm	4%
Quiz 3	Jan 24	12am-11:55pm	4%
Quiz 4	Jan 31	12am-11:55pm	4%
Test* 1	Feb 7	In class at lecture time, duration 50 min	18%
Quiz 5	Feb 14	12am-11:55pm	4%
Quiz 6	Feb 28	12am-11:55pm	4%
Quiz 7	Mar 6	12am-11:55pm	4%
Quiz 8	Mar 13	12am-11:55pm	4%
Test 2	Mar 20	In class at lecture time, duration 50 min	18%
Quiz 9	Mar 27	12am-11:55pm	4%

NOTE: There will be NO Office Hours scheduled on Fridays, to avoid the awkward situation of students showing up to write their quiz during Office Hours.

*Students who miss one term test should try to provide motivating circumstances and contact the instructor as soon as they can.

**Best 6 out of 8 quizzes are considered for each student. If a student fails to submit three or more of the online quizzes, they should specify their motivating circumstances in accordance with University policy, directly to the Instructor. To avoid unnecessary emails, please send your documentation to Instructor exactly on March 23, 2020 (not before, nor after), by 5pm that day.

FINAL EXAM:

Quizzes (best 6 out of 8 = 24%) and term tests (36%) = 60% Final exam weighting: 40%

Course Resources

Recommended Text: Calculus for Biology and Medicine, 4th edition by Neuhauser & Roper.

Instructor's Notes will be provided via the Courselink site of the course. They are not mandatory, they are not completely self-contained, but they can be used in conjunction with any textbook treating the same topics. Students relying on Instructor's Notes alone cannot be guaranteed top performance in class.

Course Policies

Email communication with Instructor:

- Student emails will be replied to on a first-come basis, usually within regular working hours. If multiple emails concern an issue for the entire class, the Instructor will email the class list and/or post relevant info on the Courselink site under "NEWS".
- The Instructor will not answer practice or quiz questions by email. Help is available during the Office Hours posted above, on a first-come basis. TAs and Instructor will cooperate in providing plenty of office hours during the semester.
- Should a student need to communicate in-person with the Instructor on specific/personal concerns, please email the instructor 1-2 days in advance, so a specific time can be set.

Quizzes:

- Will be posted online on the Courselink page, according to the dates specified in the above Table.
- Quizzes are graded automatically in Courselink. Marks will be released on the weekend after each test, +/- 2 business days.

Term tests:

- All students will be divided arbitrarily, by Instructor, in 20 groups of 10 students each, with a designated leader.
- Teams can use the opportunity to meet and study with their group.
- Each team is responsible to propose a list of 2 practice questions, with correct solutions, to the Instructor on Jan 31st and March 13th 2020, by 5pm, one week before each test. The instructor will post all questions from all groups online, as practice problems for all students (a total of up to 40 questions – the Instructor will remove repeated/very similar questions).
 - If the list amounts to 25 distinct questions (or above), the Term Test will consist of 50% questions from this list and 50% from Instructor.
 - If the list is less than 25 questions, the Term Test will only contain 1 question from this list (approx. 25% of test content).
 - If no one sends questions for a specific practice list, then there will be no list for that test, and the Instructor will set all questions.

Grading Policies

All marked Tests will be hand graded and returned to students within 7 calendar days, in class first. After that, any marked tests can be picked up any time in Instructor's office hours.

Solution and marking scheme for all tests will be uploaded on Courselink after the hand-in dates.

Any grading concerns should be submitted in writing (on a separate page, stapled on the front page of the assignment or test) to the Instructor either at end of a class or at Instructor's office after solutions and marking scheme have been posted.

For further grading procedures please refer to:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds.shtml>

Please note that these policies are binding unless academic consideration is given to an individual student.

University Policies

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

E-mail Communication

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. [See the undergraduate calendar for information on regulations and procedures for Academic Consideration.](#)

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars. Undergraduate Calendar - Dropping Courses <https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml> Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

[The Academic Misconduct Policy is detailed in the Undergraduate Calendar.](#)

Resources

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.