

# Course Outline

## Applied Math 1201A

### 1 Course Information

- *Course Name:* Applied Math 1201A: Calculus & Probability with Biological Applications
- *Section Number:* Section 001.
- *Prerequisites:* One or more of Calculus 1000 A/B, Calculus 1500 A/B, or Mathematics 1225A/B

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

### 2 Instructor Information

- *Instructor Name:* Asghar Ghobanpour, Ph.D.
- *Email Address:* aghorba@uwo.ca
- *Office Hours:* The office hours will be held online through Zoom. You can find the Zoom Meeting ID on OWL. Please use the **sign up tool** to make an appointment for the available hours.

Students must use their **Western (@uwo.ca) email** account and must include “**Applied Math 1201**” in the subject line when contacting their instructor.

- *Academic Term:* Summer Evening 2021; the classes runs from May 3<sup>rd</sup> to July 23<sup>rd</sup>.

### 3 Course Syllabus, Schedule, Delivery Mode

- *Course Syllabus:* Limits, continuity, definition of derivative, rules for differentiation, higher-order derivatives, velocity, acceleration, implicit differentiation, related rates, exponential functions, logarithmic functions, differentiation of exponential and logarithmic functions, maxima and minima, concavity, curve sketching, optimization.
- *Course-Level Learning Outcomes*
  - Provide a definition of the term “mathematical model” and describe the limitations inherent to various mathematical models.
  - Use written information to develop mathematical models of biological scenarios by reasoning both directly and indirectly (i.e. recursively and non-recursively).
  - Identify and critically evaluate key assumptions on which a mathematical model relies.
  - Derive support for a mathematical model and make recommendations for model improvement when support cannot be found.
  - Use models to support the scientific process by finding support for (or against) claims based on data.
  - Use a computer language to carry our calculations or other functions related to a given modelling problem.

## Delivery Mode

The course delivery has both synchronous and asynchronous components:

- *Lecture Videos*: Lecture videos and related content will be posted on the course OWL page in weekly base.
- *Lab Sessions*: These sessions will run synchronously through Zoom meetings on Wednesdays 7:00-10:00 PM (EDT). The lab sessions will consist of review of the course content, problem solving, coding practices and planned related activities.

## 4 Course Materials

### Course Text

We shall follow series of notes by Professor G. Wild. The free pdfs will be posted on OWL: <http://owl.uwo.ca>

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

All course material will be posted to OWL:<http://owl.uwo.ca>.

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

### Technical Requirements

The course is an entirely online course, therefore it is essential that each student has access to the technology that will be used to deliver the course, including:

- Computer or tablet able to run a recent version of web browser such as Chrome, Safari or Firefox and , a pdf reader, and Zoom.
- a Google account in order to access and create Colab Notebooks ([colab.research.google.com](http://colab.research.google.com))
- Working microphone and webcam
- Stable high-speed internet connection.
- Document Scanner device or App.

## 5 Methods of Evaluation

The overall course grade will be calculated as listed below:

- *In-Unit Questions*: Check the units (See OWL page)– 5%
  - *Attendance*: Attending Labs and engaging with the activities of the Labs – 10%
  - *Online Quizzes*: Weekly Online Webwork Quizzes– 10%
  - *Written Assignments*: Three Assignments– 10%
  - *Midterm Test 1*: Online Exam on OWL– 15%
  - *Midterm Test 2*: Online Exam on OWL– 15%
  - *Final Exam*: Online Exam on OWL– 35%
- All the midterm tests and the final exam will be scheduled Registrar's Office.
  - No calculators or other electronic devices or any other aids are allowed on tests and exams.
  - Tests and examinations in this course will be conducted using the remote proctoring service, such as Proctortrack.

By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:

<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

## 6 Accommodation and Accessibility

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/AcademicAccommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/AcademicAccommodation_disabilities.pdf)

### Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are not met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Consideration\\_for\\_absences.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

### Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwoc>

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see [http://www.registrar.uwo.ca/examinations/exam\\_schedule.html](http://www.registrar.uwo.ca/examinations/exam_schedule.html)).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See Academic Calendar for details (under Special Examinations).

## 7 Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Contingency plan for an in-person class pivoting to 100% online learning In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any remaining assessments will also be conducted online as determined by the course instructor.

All of the remote learning sessions for this course will be recorded. The data captured during these recordings may include your image, voice recordings, chat logs and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals participating in the course for their private or group study purposes. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

### Scholastic offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Tests and examinations in this course will be conducted using the remote proctoring service, such as Proctortrack. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:

<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link:

<https://www.proctortrack.com/tech-requirements/>

## 8 Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western ([http://www.health.uwo.ca/mental\\_health](http://www.health.uwo.ca/mental_health)) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.