

## Calculus 1501 Course Outline

### 1. Course Information

#### Course Information

This course is Calculus 1501, section 001. The lecture material is presented online in an asynchronous manner through the course OWL site.

#### Prerequisites

A minimum mark of 60% in one of Calculus 1000A/B, 1500A/B or the former 1100A/B.

#### Antirequisites

Calculus 1301A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Advisors and Science Academic Advisors) 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.

**ALL TESTS AND EXAMS WILL BE HELD IN-PERSON ON CAMPUS. THERE IS NO OPTION AVAILABLE FOR ONLINE TESTS OR EXAMS. OFFERED THROUGH VIRTUAL CLASSROOM ONLY.**

### 2. Instructor Information

| Instructors                           | Email         | Office | Office Hours     |
|---------------------------------------|---------------|--------|------------------|
| Dr. Allen O'Hara (Course Coordinator) | aohara@uwo.ca | MC 113 | Available on OWL |

**Students must use their Western (@uwo.ca) email addresses when contacting their instructors. The subject line of emails must include "CALCULUS 1501". Do not reply to an announcement! If you have a question, send a new email to the instructor.**

### 3. Course Syllabus, Schedule, Delivery Mode

Students who intend to pursue a degree in Actuarial Science, Applied Mathematics, Astronomy, Mathematics, Physics, or Statistics should take this course. Techniques of integration; The Mean Value Theorem and its consequences; series, Taylor series with applications; parametric and polar curves with applications; first order linear and separable differential equations with applications.

Upon successful completion of this course, you will be able to:

1. Use the formal  $\epsilon$ - $\delta$  and  $\epsilon$ - $N$  definitions of a limit to prove a limit does in fact have a proposed value.
2. Correctly apply Rolle's Theorem and the Mean Value Theorem to functions that satisfy the necessary preconditions.
3. Use the integration techniques of substitution, integration by parts, partial fractions, and trigonometric identities to evaluate definite integrals and find antiderivatives.
4. Apply the convergence tests learned in the course to correctly determine when a given infinite series converges to a value or diverges.
5. Create power series for given functions and correctly determine the radii of convergence of such series.
6. Calculate areas and arc lengths of curves given in exotic forms (parametric, polar, etc).
7. Solve both linear and separable differential equations.

## 4. Course Materials

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace 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

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for any relevant services.

## 5. Methods of Evaluation

### Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

| Assessment            | Weight | Notes  |
|-----------------------|--------|--|
| Written Assignment #1 | 15%    | Wednesday July 16 <sup>th</sup>                          |
| Written Assignment #2 | 10%    | Wednesday July 30 <sup>st</sup>                          |
| Written Assignment #3 | 15%    | Wednesday August 13 <sup>th</sup>                        |
| Midterm Exam          | 20%    | Saturday July 26 <sup>th</sup>                           |
| Final Exam            | 40%    | Cumulative. The date will be published by the registrar. |

Written assignments are expected to be posted no later than a week prior to their due date to provide ample time for students to attempt all questions.

The midterm will be 2 hours in length. The specific coverage of the midterm will be announced on OWL closer to the date. The Final Exam, 3 hours in length and covering all course material, will be scheduled by the Registrar's Office during the August Exam Period. Tests and examinations in this course will be

in-person and handwritten on paper. In-person tests/exam will have some multiple choice and some written-answer questions.

Your mark in the course will be the mark that you earn based on your demonstrated understanding of the course content, assessed using the outlined criteria. Extra credit assignments are not available, and assessments cannot be rewritten to obtain a higher mark. So, students are encouraged to take the course material and the methods of assessment seriously.

### **General information about missed coursework**

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration\\_Sep24.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf),

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

[https://registrar.uwo.ca/academics/academic\\_considerations/](https://registrar.uwo.ca/academics/academic_considerations/)

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline, using the [Student Absence Portal](#).

All Academic Consideration requests normally must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- The Final Exam (scheduled by the Office of the Registrar) and its makeup
- The Midterm and its makeup

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

### **Evaluation Scheme for Missed Assessments**

In the case of a missed midterm, a common makeup test will be arranged. If a student misses the midterm and the corresponding makeup midterm and has appropriate permission for both, then the final exam will be re-weighted to include the weight of the missed term test.

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

### **Coursework with Assessment Flexibility**

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

**Deadline with a No-Late-Penalty Period** Students are expected to submit both of the assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and they are permitted to submit their assignment up to 24 hours past the deadline without a late penalty. Should students submit their assessment beyond 24 hours past the deadline, a late penalty of 20% per day will be applied, although assignments submitted more than 48 hours past the deadline will not be accepted. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period. Students who receive academic consideration lasting longer than the No-Late-Penalty Period will have the weight of the relevant assignment shifted to the final exam.

## 6. Additional Statements

### Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

### Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

### Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

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 their official university address is attended to in a timely manner.

**NO calculators or other electronic devices or any other aids are allowed on tests and exams. Any work submitted by a student for grades must be the student's own work.**

**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:

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

## **Support Services**

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

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

[https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html).

To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).

Learning-skills counsellors at Learning Development and Success (<https://learning.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.

This course is supported by the Science Student Donation Fund. If you are a student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Advising site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at [ssc@uwo.ca](mailto:ssc@uwo.ca).