**Department of Mathematics**

**AM3815a Course Outline-2025**

**1. Course Information**

**Course Information**

AM3815a --- Partial Differential Equation I (Fall 2025)

Prerequisites: (i) Mathematics 1600A/B; Applied Mathematics 2402A; Calculus 2303A/B or Calculus 2503A/B; or (ii) Calculus 2402A/B and Statistical Sciences 2503A/B. In each of the above courses, a minimum mark of 60% is required.

Unless you have either the prerequisites for this course or written special permission from the Department of Mathematic to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

**2. Instructor Information**

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| --- | --- | --- | --- | --- |
| **Instructors** | **Email** | **Office** | **Phone** | **Office Hours** |
| Dr. Xingfu ZOU | xzou@uwo.ca | MC284 | 88781 | Time: TBA  In-person in MC284 |

Two hours per week will be determined after discussing with the class to maximize the accessibility.

Extra meeting times other than the office hours can be scheduled by appointment. Students must use their Western (@uwo.ca) email addresses when contacting their me by email.

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

**Course topics**: derivation of equations; boundary value problems for Laplace, heat, and wave equations; separation of variables; Fourier series; Sturm-Liouville Theory; eigenfunction expansions; cylindrical and spherical problems; Fourier and Laplace transforms for equations on unbounded domains.

**Learning outcomes**: Students are expected to be able to understand the backgrounds of the PDEs of aforementioned equations, the meanings of boundary and initial conditions; know how to solve such equations, and gather information from solution to explain the phenomena described by the PDEs.

**Lecture (001)**: [Redacted]

**Relevant Key Sessional Dates**

Classes begin: September 4, 2025; Classes end: December 9, 2025;

Fall Reading Week: November 3 – 9, 2025

Classes end: December 9, 2025

Exam period: December 11 – 22

National Day for Truth Reconciliation: Sep 30; Thanksgiving Day: Oct13.

**4. Course Materials**

**Textbook:** Richard Haberman, Applied Partial Differential Equations, 5th edition, Pearson, 2013.

Prices for this textbook vary online, from $69.10 CAN at biblio.com to $85.55CAN at AbeBooks.com.

Notes: (i) A portion of the course materials for the next PDE course AM4815 will from this textbook. (ii) Some materials not included in this text may be adopted/added and will be testable in the midterm or final exam. As such, skipping classes may result in disadvantageous consequences.

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](https://brightspacehelp.uwo.ca/) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

**5. Methods of Evaluation**

**Grading Scheme and Assessment Dates**

The overall course grade will be calculated as listed below:

Assignments (6) 15%

Midterm Test 35%

Final Exam 50%

There will be **6 assignments** with the exact due time to be announced depending on the pacing (approximately there is one due every other week). The main purpose of these assignments is to push you to digest the course materials by doing exercises. Thus, the assignments are only given a very small percentage (15 %) toward the final grade. Problems will be assigned and completed assignments will be collected and marked, partially and selectively only though (pending on TA hours assigned to this course).

The **midterm** will be on Wednesday, October 22 at 7:30-9:30pm, and the room(s) will be announced later. It is expected to cover the materials of the first five weeks.

The **Final exam** will be scheduled by the university's registrar's office. It will be cumulative in contents, meaning that all materials in the whole semester may possibly be included in the final exam, although more weight will be given to the materials taught after the midterm.

**Use of Generative AI Tools**

When completing assignments, AI tools (e.g., ChatGPT, Copilot, Gemini) **are prohibited**.

**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>,

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](http://academicsupport.uwo.ca/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/>

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests 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:

* Final Examinations scheduled during official examination periods (Defined by policy)
* Midterm Test (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

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**

Among the 6 **assignments**, only the best 5 will be counted toward your final grade. With such flexibility adopted, for the first missed assignment, no academic consideration will be granted.

For each of the other assignments (if any) that misses the deadline, a penalty of 10% per day will be applied.

If you miss the **midterm**, you need to follow the procedure stated above to request for Academic Consideration. If your request is approved, you can either write a make-up within 48 hours, or the weight of the midterm will be moved to the final exam which will be cumulative.

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](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading_70)), especially for those who miss multiple final exams within one examination period.

**6. Additional Statements**

**6.1 Religious Accommodation**

When conflicts arise 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 of 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>

**6.2 Academic 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%20Accommodation_disabilities.pdf).

**6.3 General Academic Policies**

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

**Use of @uwo.ca email:** In accordance with policy, <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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

**Requests for Relief** (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

<https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf>

Procedures on Request for Relief from Academic Decision (Undergraduate):

<https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf>

Procedures on Request for Relief from Academic Decision (Graduate):

<https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf>

**6.4 Scholastic Offences**

Policy on Scholastic Offences: <https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf>

Procedures on Scholastic Offences:

<https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf>

**Use of Electronic Devices During Assessments**

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, *the* *presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a scholastic offence, even if the device is not in use.*

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

**Use of Generative AI Tools**

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization, will be treated as a **scholastic offence**.

**6.5 Support Services**

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

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>.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

<http://academicsupport.uwo.ca/accessible_education/index.html>

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