



**Michigan
Technological
University**

Course Syllabus

MA5565 – Partial Differential Equations

College of Science and Arts, Spring 2026

Instructor: Allan, Struthers
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Office Hours: MWF 10:30–10:55am, 11:50–12:40am, 1:30–1:55pm, and 2:50–3:40pm

Course Identification

Course Number: MA5565 -R01
Course Name: Partial Differential Equations
Course Location: Fisher 129
Class Times: M/W/F 2:00–2:50pm
Prerequisites: MA 5501

Course Description/Overview

Theory of partial differential equations. Covers classification, appropriate boundary conditions and initial conditions, PDEs of mathematical physics, characteristics, Green's functions, and variational principles.

Course Resources

Course Website(s)

- [Canvas](https://www.courses.mtu.edu/) [www.courses.mtu.edu]
- GitHub <https://github.com/AllanStruthersMTU>

Course Texts/Software

- An Introduction to Partial Differential Equations (Texts in Applied Mathematics, 13) 2nd Edition, Renardy and Rogers, 978-0387004440.
- Mathematica, free to MTU students from <https://downloads.it.mtu.edu/>
- Julia, freeware available from <https://julialang.org/downloads/>

Course Learning Objectives

Upon successful completion of this course, students should be able to

- Prepare beginning graduate students to initiate work on a Ph.D. thesis in PDEs.

- Pass the MTU math PDEcomprehensive exam
<https://www.mtu.edu/math/graduate/comprehensive-exam/archive/>
- Implement and interpret relevant technical material including numerical solvers.

Grading Scheme

Grading System (Note: This is an example and not a Michigan Tech standard)

Grade	Percentage	Grade points	Rating
A	90 & above	4.00	Excellent
AB	85 – 89	3.50	Very good
B	80 – 85	3.00	Good
BC	75 – 79	2.50	Above average
C	70 – 74	2.00	Average
CD	65 – 69	1.50	Below average
D	60 - 64	1.00	Inferior
F	59 and below	0.00	Failure
I	Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student's control.		
X	Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up by the close of the next semester or the grade becomes a failure (F). A (X) grade is included in the grade point average calculation as a (F) grade.		

Grading Policy

Grades will be based on the following:

Course Component	Points
Homework	45
Projects/Exams	45
Attendance and participation	10
Total Points	100

Late Assignments

Deadlines are enforced because solutions and code are discussed in class.

Course Policies

- Attendance is important. Absences and late arrivals disrupt class.
- Ask questions in class. If something is unclear, others likely feel the same!
- Read material and do exercises before class.
- Maintain a respectful and professional learning environment.
- Collaboration and appropriate resource use on code/homework/presentations is encouraged. Not citing appropriately violates MTU Academic Integrity Policy 109-1

AI Policy

Transparency in GenAI tool usage is mandatory, and instructors reserve the right to ask students to explain their work process. This can include prompts and AI-generated output. GenAI changes fast. Course policies are provisional. If in doubt, consult the instructor.

Academic Integrity Rules

Students should discuss homework, code, and projects. Students are individually responsible for individual work. Groups are jointly responsible for group work. Resources used, including but not limited to internet sites, AI tools, etc should be cited. Please do not distract the instructor and other students during class. Maintaining academic standards is important, academic misconduct may result in an appropriate conduct sanction/educational condition(s) imposed by the Office of Academic and Community Conduct and/or in a faculty-imposed academic penalty. For details, review the policy [<http://www.admin.mtu.edu/usenate/policies/p109-1.htm>]

University Policies

As part of the university's commitment to curricular quality, student work products may be used to evaluate how well Michigan Tech students are achieving programmatic learning outcomes. Findings are used to inform future course and curricular improvements to support student learning but are not used to evaluate specific students and individual instructors.

Michigan Tech has standard policies on academic misconduct and complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. For more information about reasonable accommodations or equal access to education or services at Michigan Tech, please call the Dean of Students Office at 906-487-2212 or visit the [Student Disability Services website](https://www.mtu.edu/success/disability/) [<https://www.mtu.edu/success/disability/>]. More information is also available from the [Syllabi Policies webpage](http://www.mtu.edu/ctl/instructionalresources/syllabus/syllabus_policies.html) [http://www.mtu.edu/ctl/instructionalresources/syllabus/syllabus_policies.html].

Course Schedule (example dates & assignments only)

Student experience with prerequisites and interests will determine topics and sequencing. The final exam slot will be used for project presentations or an exam.

Week 1

M Syllabus review, introductions, and planning
WF Review of prerequisite materials. Chapter 1 of text

Week 2-14

MWF Continue working through text and old PDE exams.

Finals Week

The final exam slot scheduled by the Registrar's office will be used for an exam or project presentations.