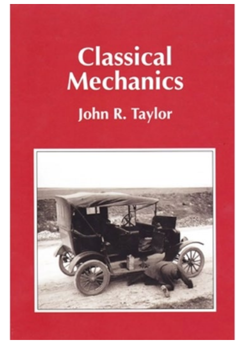
PHYS 3230: Classical Mechanics II – Winter 2025
Monday, Wednesday, and Friday 11:00 -11:50
Lecture Room: C-4036

Prerequisites
PHYS 3220



Instructor
Dr. L.Y. Beaulieu
Office: Room C-2046,
e-mail: lbeaulieu@mun.ca (Do not e-mail me through Brightspace)
Office hours: Anytime

Textbook
Classical Mechanics by John R. Taylor

Support Material
This course we will use Brightspace.

- All lecture notes will be available on Brightspace
- Class problems will not be available on Brightspace
- All marks will be posted on Brightspace
- All announcements will be posted on Brightspace
- Homework assignments will be available through Brightspace only.
- Important links to relevant material will be posted on Brightspace

Evaluation Scheme
Students will receive a numerical grade out of 100 which will be divided in the following manner:
Assignments (approx. 5): 20%

- There will be one assignment for every chapter covered in this course.
- The assignments will be due approximately one week after the chapter is completed.
- All assignments are to be handed in at the beginning of class the day the assignment is due.
- In the event there is no class the day the assignment is due, instructions will be provided *via* Brightspace on how to submit your assignment.
- No assignment will be accepted after the assignment solutions have been given out or the solutions have been covered in class. It is the responsibility of the student to ensure his/her assignment is handed in at the proper time.
- Some assignments may require plots/graphs to be made by a computer. Any of the following programs will suffice: Excel, Python, Grapher, Mathematica, Maple, Matlab, etc.

Paper: (5%)

- Students are required to write a paper (5 pages or less) on Chaos Theory. This paper will be due on the last day of class. Papers will not be accepted after this day. The paper should discuss the following key points:
    - Difference between linear and nonlinear systems.

    - Difference between dissipative and nondissipative systems.
    - Characteristics or chaotic systems
    - Discuss terms like *transients* and *attractors*.
    - The sensitivity of chaotic systems to initial conditions
    - Bifurcation diagrams, Poincaré sections, etc.

Midterm: 25%

- There will be one midterm in this course. The midterm date will be decided in class by way of a majority vote.
- There will be no supplementary midterm.
- The midterm will be closed book with all formulas provided.

Final exam: 50%

- The date and time of the final exam will be decided and posted by the university administration. It is the responsibility of the student to find out when and where the final exam will be held.
- The final exam will be closed book. All necessary formulas will be provided.

If it favors the student, the following marking scheme will be used:
Assignments 20%, Paper 5%, and Final Exam 75%

Outline

1) Chapter 10: Rotational Motion of Rigid Bodies
2) Chapter 11: Coupled Oscillators and Normal Modes
3) Chapter 13: Hamiltonian Mechanics
4) Chapter 14: Collision Theory
5) Chapter 15: Special Relativity
6) Chapter 9: Mechanics in Noninertial Frames (time permitting)
7) Chapter 16: Continuum Mechanics (time permitting)

***** Please Note the Following University Regulation *****

The value of any uncompleted work for reasons falling under University Regulation 6.7.5 will be added to the value of your final exam.

Important general information from the University:
It is the student's responsibility to acquaint themselves with these items. Please read.

Accommodations for Students with Disabilities
Memorial University of Newfoundland is committed to fostering equitable and accessible learning environments for all students. Accommodations for students with disabilities are provided in accordance with the Accommodations for Students with Disabilities Policy (www.mun.ca/policy/site/policy.php?id=239) and its related procedures. Students who feel that they may require formal academic accommodations to address barriers or challenges they are experiencing related to their learning are encouraged to contact Accessibility Services (the Blundon Centre) at the earliest opportunity to ensure any required academic accommodations are provided in a timely manner. You can contact Accessibility Services (Blundon Centre) by emailing blundon@mun.ca.

Student Code of Conduct.
Students are expected to adhere to those principles which constitute proper academic conduct. A student has the responsibility to know which actions, as described under Academic Offences in the University Regulations, could be construed as dishonest or improper. Students found guilty of an academic offence may be subject to a number of penalties commensurate with the offence including reprimand, reduction of grade, probation, suspension or expulsion from the University. For more information regarding this policy, students should refer to the University Regulations for Academic Misconduct (Section 6.12) in the University Calendar.

Student Work
Original work, completed wholly by you, is expected to be submitted in this course. The use of an artificial intelligence tool like ChatGPT is not permitted

6.8.2 Exemptions from Final Examinations
http://www.mun.ca/regoff/calendar/sectionNo=REGS-0628