

PHYS 1P94 - Introductory Physics III

Instructor:

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Brock Calendar Entry

Rotational and center-of-mass motion; work done by a variable force; electric and magnetic fields; electric potential and potential energy; magnetic induction; AC circuits and resonance; wave-particle duality; elements of modern physics. Use of computers for data acquisition; elements of computer programming; principles of scientific writing and communication

Prerequisites: PHYS 1P21 and one of MATH 1P05, 1P01 or 1P97

Meeting Times: Monday, Wednesday, Friday 12:00-13:00; Friday 11:00-12:00 (office hour)

Textbook: The textbook is published by OpenStax (Rice University). It consists of three on-line volumes *University Physics, Vol. 1,2,3* by Moebs, Ling and Sanny:

<https://openstax.org/details/university-physics-volume-1>

<https://openstax.org/details/university-physics-volume-2>

<https://openstax.org/details/university-physics-volume-3>

and is available to download for free at

<http://cnx.org>

Required Software: Download the IClicker app onto your computer or smartphone. The app (less than \$20 USD) is available at:

<https://www.iclicker.com/students/>

Topics

1. Rotational Motion/ Mechanics - approximately 4 weeks
2. Electrostatics/ DC circuits - 3 weeks
3. Magnetism/ AC circuits - 3 weeks
4. Modern Physics - 2 weeks

Course Policies

- All students are required to know and abide by the Academic Integrity Policy of Brock University. The University takes Academic Misconduct extremely seriously and will follow its strict procedures to the letter in all cases.

<https://brocku.ca/academic-integrity/>

- Late questions/ lab reports / assignments will NOT be accepted.
- Note that the last day to withdraw without academic penalty is Mar. 3, 2021.

Class Questions	5%	<p>(starting class #2)</p> <p>Each class (topic) will have a video (≈ 20 min) that you are expected to watch before class.</p> <p>There are also assigned readings and problems for the lecture. It is strongly suggested to do the readings and problems before class and, if not then, certainly after class.</p> <p>Please send any questions about lecture material by 9pm the night before lecture MWF</p> <p>Class-time will be spent answering these questions and doing problems.</p>
iclicker Quizzes	5%	<p>(starting class #2)</p> <p>Create an iclicker account and then enroll in PHYS1P94.FW21.D3</p> <p>Download iclicker app onto your smartphone or laptop.</p> <p>iclicker Quizzes will be based on the videos/ readings.</p> <p>Understand the definitions and physical meaning of important equations.</p>
Lab Work	32%	<p>Lab 0: Assignment L^AT_EX Documents (2%): due Sun Jan 17- 11pm</p> <p>Lab 1: Assignment: Uncertainty (2%): due Sun Jan 24 - 11pm</p> <p>Lab 2: Report: Angular Motion (4%): due Sun Jan 31 - 11pm</p> <p>Lab 3: Assignment: Least Square Fitting (2%): due Sun Feb 7 - 11pm</p> <p>Lab 4: Report: Viscosity (4%): due Sun Feb 21 - 11 pm</p> <p>Lab 5: Assignment: numerical integration I (2%): due Sun Feb 28 - 11pm</p> <p>Lab 6: Report: Capacitors (4%): due Sun Mar 7 - 11 pm</p> <p>Lab 7: Assignment: numerical integration II (2%): due Sun Mar 14 - 11pm</p> <p>Lab 8: Report: e/m ratio (4%): due Sun Mar 21 - 11 pm</p> <p>Lab 9: Assignment: numerical integration III (2%): due Sun Mar 28 - 11pm</p> <p>Lab 10: Report: Faraday Rotation (4%): due Sun Apr 6 - 11 pm</p>
Tests	40%	<p>There will be five tests during the following lab periods</p> <p>Test 1: Week of Jan. 18-22</p> <p>Test 2: Week of Feb. 1-5</p> <p>Test 3: Week of Feb. 22-26</p> <p>Test 4: Week of Mar. 8-12</p> <p>Test 5: Week of Mar. 22-26</p> <p>Multiple-choice questions and problem(s)</p>
Final Exam	18 %	Oral Final Exam