

PHYS 2P51

[Outline](#)[Formula Sheet](#)[Calendar entry](#)

Brock University PHYS 2P51 Course Outline 2023

- **Instructor**
 - M. Reedyk
 - Contact Info: MCB205, ext.3877, mreedyk@brocku.ca:
 - Office Hours: by appointment
- **Lectures**
 - Tue 1:30-3:00 pm (TH 255)
 - Fri 1:30-3:00 pm (TH 255)
- **Course Communications:**

In the event of class cancellations due to inclement weather please monitor the main Brock webpage. For class communications monitor your Brock email.
- **What this course is about:**

This course will introduce both geometrical and physical optics. In addition to studying the theoretical concepts there will be a research skills and/or hands-on laboratory component.
- **Requirements:**

In this course some simple derivatives, integrals and matrices will be used, so it is important that the students feel comfortable with the calculus covered in Y1 mathematics courses. The course will build on the optics covered in first year Physics courses. As such, the prerequisites are: PHYS 1P21 or 1P91 (recommended); PHYS 1P22 or 1P92 (recommended); MATH 1P01 and 1P02, or MATH 1P05 and 1P06 (recommended).
- **Learning Objectives/Outcomes:**

To appreciate the relationships between results of experiments and theory and their role in developing the field of optics. To establish the vocabulary and concepts of geometrical and physical optics. To analyze and solve problems using oral and written reasoning skills both independently and in a laboratory setting. To conduct hands on experiments and/or conduct independent research and relay the results in written and/or oral format, as specified.
- **Required Textbook:**
 - Introduction to Optics, 3rd edition, F.L. Pedrotti, L.M. Pedrotti and L.S. Pedrotti, Cambridge University Press, 2018.
- **Topics to be Covered**
 - Geometrical Optics:
 - Reflection
 - Refraction
 - Lenses
 - Mirrors
 - Stops and Pupils
 - Fiber Optics
 - Ray Tracing
 - Wave Optics:
 - Interference
 - Coherence
 - Diffraction
 - Polarization
 - Holography

- **Laboratory/Research Skills Component**

- PHYS 2P51 lab sections (currently scheduled L2 Wednesday 14:00-17:00, and L3 Thursday 14:00-17:00) will be held in MC H308. The instructor for the laboratory/research skills component of the course is Dr. Ivana Komljenovic-Metcalf (B210A, ext. 3417, ikmetcalf@brocku.ca) who should be contacted for all queries concerning this component of the course.
- An introduction to the laboratory/research skills component will be held in the first week of classes during your scheduled lab section at 2:00 pm in H308. Attendance is mandatory.
- The due dates of the lab/research skills assignments will depend on your lab schedule and will be assigned by Dr. Komljenovic-Metcalf. No late submissions will be accepted.
- You must complete and submit all lab/research skills components in order to pass the course.

- **Evaluation scheme**

Component	PHYS 2P51	Comments
Reading Quizzes	10%	Done on Webwork. Based on required readings in the textbook as assigned on the course Sakai site.
Homework Assignments (Webwork)	14%	No late Webwork will be accepted.
Homework Assignments (written submissions)	4x4%=16%	No late assignments will be accepted. Assignments will be posted on and submitted to the course Sakai site.
Midterm Test	15%	During scheduled time slot Tuesday March 7th. The test will be in one or more of handwritten and/or Webwork and/or oral formats.
final exam	25%	You must obtain a grade of 40% or greater on the final exam in order to pass the course. The exam will be in one or more of handwritten and/or Webwork and/or oral formats.
lab/research skills	8x2.5%=20%	<i>Both</i> attending the lab/research skills sessions <i>and</i> submitting the assigned work is required to complete a lab/research skills item. Failure to complete all lab/research skills items will result in a failing grade <i>in the course</i> .

- **Homework:**

There are two ways homework is to be done in this course: (1) assignments which are to be handed in as a .pdf file to the course Sakai site and (2) problems answered using Brock's WeBWorK system, which can be accessed at [WeBWorK](#). Scroll down the displayed list of courses, click on the course that you are enrolled in (PHYS2P51D03FW2021) and log on using your Brock username (of the form ab18cd) and password.

- **Important Dates:**

The last date for withdrawal from this course without academic penalty is March 10, 2023. For other important dates see the Office of the Registrar's [sessional or important dates](#).

- **Notes:**

- No late WeBWorK or assignments (homework/lab/research skills) will be accepted unless accompanied by medical documentation. See Medical Exemption Policy and the medical health certificate under [forms and self-service](#).
- The term test and the examination will be based on material covered during lectures, lab/research skills sessions and in homework.
- Attendance at the lab/research skills sessions is mandatory.

- Topics may be covered in lectures, homework and/or the lab/research skills component.
- If your grade is less than 40% on the final exam and/or you do not complete all of the lab/research skills assignments, your final grade can be no greater than 45. In this case, your reported final grade will be either your calculated final grade or 45, whichever is less.
- Turnitin may be used to check student submissions for originality

Academic Policies:

Academic Integrity:

All students must comply with Brock's [academic integrity policies](#). Academic misconduct is a serious offence. The principle of academic integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should consult Section VII, "Academic Misconduct", in the "Academic Regulations and University Policies" entry in the Undergraduate Calendar, available at <http://brocku.ca/webcal>. Information on what constitutes academic integrity is available at <https://brocku.ca/academic-integrity/>.

Intellectual Property Notice:

All posted lecture material, slides, presentations, handouts, tests, exams, and other course materials created by the instructor(s) in this course are the intellectual property of the instructor(s). A student who publicly posts or sells an instructor's work, without the instructor's express consent, may be charged with misconduct under Brock's Academic Integrity Policy and/or Code of Conduct, and may also face adverse legal consequences for infringement of intellectual property rights.

Special Accommodation:

The University is committed to fostering an inclusive and supportive environment for all students and will adhere to the Human Rights principles that ensure respect for dignity, individualized accommodation, inclusion and full participation. The University provides a wide range of resources to assist students, as follows:

- a) If you require ongoing academic accommodation please contact [Student Accessibility Services](#).
- b) If you require short-term accommodation because of an incapacitating medical condition, you must, as soon as practicable, inform your instructor(s) of your inability to complete your academic work. You must also submit a Brock University Student Medical Certificate (found at <https://brocku.ca/registrar/toolkit/forms>). The University may, at its discretion, request more detailed documentation in certain cases. If you are unable to write a scheduled examination due to an incapacitating medical condition, you must follow the process set out in the Faculty Handbook III:9.4.1.
- c) If you are experiencing mental health concerns, resources can be found [here](#).
- d) Information regarding the Student Wellness and Accessibility Centre can be found [here](#).
- e) If you require academic accommodation on religious grounds, you should make a formal, written request to your instructor(s) for alternative dates and/or means of satisfying requirements. Such requests should be made during the first two weeks of any given academic term, or as soon as possible after a need for accommodation is known to exist.
- f) Information regarding Human Rights and Equity can be found [here](#).

COVID 19:

All students are expected to comply with Brock Covid-19 policies. Information can be found [here](#).