



Experimental Methods in Materials Physics

Course Information

Course Number: PHYS 3P91/5P80

Term/Year/Duration: Fall 2023/D2

Course Title: Experimental Methods in Materials Physics

Instructor Information

Instructor Name: Jasneet Kaur

Email: jkaur2@brocku.ca

Office Locations: MCE220

Contact: 905 688 5550 X 3997

Times and Locations:

Wednesday and Friday: 14:00 – 15:30 MCH300

Course Communications

All live course information will be posted on the Brightspace platform. Please follow the Brightspace page for announcements and updates.

Course Outline:

This is an advanced level experimental laboratory course which runs for 13 weeks period for four hours per week, including experimental demonstration, running experiments independently, data acquiring, data analysis and lab reports submission. At least, six lab reports should be completed, some of which involve several weeks of experiments.

This is an approximate list of the experiments.

- Preparation of a thin film of Bismuth (H303B)
- Resistivity and Hall effect measurements on a thin film of Bismuth (H300A)
- Gamma-ray scintillation spectroscopy and the Compton effect (H308)
- Energy-dispersive X-ray diffraction (H305B)
- Planck's constant measurement I (black-body radiation) (H308)
- Planck's constant measurement II (photoelectric effect) (H308)
- Electron diffraction (H300)
- Raman spectroscopy (H300A)
- X-ray powder diffraction (H305)

Assessment Components and Due Dates

Completing all experiments and submitting all lab reports is required to pass the course. Lab marks contribute a total of 75% to the final grade.

There is a two-part final exam in the course:

- an oral exam worth 15% of the final mark, during which the student has access only to his/her lab book and reports and may be required to provide detailed explanations of the operating procedures and/or of the operation of the equipment in any of the experiments; and
- a written submission, due by noon on the last day of classes and worth 10% of the final mark, that is a brief writing of one of the lab reports into a formal article manuscript.

Maintaining safe and tidy workspace in the laboratory is required, and a failure to do so will result in an immediate involuntary withdrawal from the course. A passing grade in the course is conditional on maintaining safe laboratory practices, and on the final clean-up of the laboratory workspace at the end of the term, to the satisfaction of the instructor.

Late Submission Policy

Check the section on sessional or important dates in the relevant online [University Calendar](#)

The penalties for late submission of assigned coursework are 20% per day to a maximum of 5 days late, unless accompanied by medical documentation. See Medical Exemption Policy and the medical health certificate at the [Registrar's Website \(Forms\)](#).

Requirements for attendance and participation, and relationship to grades:

Students are expected to attend all labs in full. Early departure from the lab disqualifies students from further TA assistance with the lab.

Students must submit all the lab reports in order to pass this course.

Important dates for Fall 2023 (D2)

The most recent listing of Important Dates for all durations is at <https://brocku.ca/important-dates/all/>

First day of classes: 6 September

Last day of lectures: 5 December

Snow/Reading days: 6-7 December

Reading Week: 9-13 October

Exams: 8-20 December

Deadline for withdrawal without academic penalty: 7 November

Academic Policies

Academic Integrity

Statement for undergraduate courses

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](#) to view a fuller description of prohibited actions, and the procedures and penalties. Information on what constitutes academic integrity is available at [Brock University Academic Integrity Website](#).

Plagiarism software:

This course will use Turnitin.com, phrase-matching software for plagiarism check.

Penalties for Academic Misconduct in the Faculty of Mathematics and Science

The following are minimum penalties usually imposed in academic misconduct cases in FMS. Please be aware that the Associate Dean, Undergraduate Programs, may assign different penalties than those listed here, depending on the details of individual cases. Also note that cheating on exams carries significantly higher penalties.

First offence: Zero grade on assignment, additional penalty of 100% of the weight of the assignment to be subtracted from the final grade, mandatory completion of the AZLS Academic Integrity workshop.

Second offence: Zero grade on assignment, additional penalty of 200% of the weight of the assignment to be subtracted from the final grade, 4-month suspension

Third or additional offence: Zero grade in course, 1-year suspension, permanent removal from major program.

Cheating on exams: Zero grade in course, including for first offenses.

Intellectual Property Notice

All slides, presentations, handouts, tests, exams, and other course materials created by the instructor in this course are the intellectual property of the instructor. 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.

Accommodations

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 academic accommodation because of a disability or an ongoing health or mental health condition, please contact Student Accessibility Services at askSAS@brocku.ca or 905 688 5550 ext. 3240.

b) Medical Self-Declaration Forms (brief absence up to 72 hours)

In the case of a short-term medical circumstance, if a student wishes to seek an academic consideration, please use the [Medical Self-Declaration Form](#). The request is to be made in good faith by the student requesting the academic consideration due to a short-term condition that impacts their academic activities (e.g., participation in academic classes, delay in assignments, etc.).

The period of this short-term medical condition for academic consideration must fall within a 72-hour (3 day) period. The form must be submitted to the instructor either during your brief absence or if you are too unwell, within 24 hours of the end of your 3 day brief absence.

Medical Verification Form (extended duration)

In cases where a student requests academic consideration due to a medical circumstance that exceeds 72 hours (three days) and will impact their academic activities (e.g., participation in academic classes, delay in assignments, etc.), or in the case of a final exam deferral, the [medical verification form](#) must be signed by the student and the health professional as per process set out in the [Faculty Handbook III:9.4.1](#).

- c) If you are experiencing mental health concerns, contact the Student Wellness and Accessibility Centre. *Good2Talk* is a service specifically for post-secondary students, available 24/7, 365 days a

year, and provides anonymous assistance: [Good 2 Talk](#) or call **1-866-925-5454**. For information on wellness, coping and resiliency, visit: [Brock University \(Mental Health\)](#)

- d) 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.
- e) If you have been affected by sexual violence, the Human Rights & Equity Office offers support, information, reasonable accommodations, and resources through the Sexual Violence Support & Education Coordinator. For information on sexual violence, visit [Brock's Sexual Assault and Harassment Policy](#) or contact the Sexual Violence Support & Response Coordinator at humanrights@brocku.ca or 905 688 5550 ext. 4387.
- f) If you have experienced discrimination or harassment on any of the above grounds, including racial, gender or other forms of discrimination, contact the Human Rights and Equity Office at humanrights@brocku.ca.