Subatomic Physics—PHYS*4130

Winter 2018

Instructor:
Dennis Mücher, MacN 224
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Lectures:
MCKN 226; Monday - Wednesday - Friday 11:30 -12:20

Lecture Content:
1. Nuclear Physics
   1.1. Nuclear Phenomenology
   1.2. Experimental Methods for Nuclear Physics Experiments
   1.3. The Nuclear Force
   1.4. Nuclear Models and Collectivity in Nuclei
2. Physics of Exotic Nuclei
   2.1. Nucleosynthesis
   2.2. Experiments with Radioactive Ion Beams
3. Particle Physics
   3.1. Particle Phenomenology
   3.2. Experimental Methods for Particle Physics Experiment
   3.3. Overview to Feynman Calculus and QED
   3.4. Quantum Chromodynamics, Quark-Gluon Plasma, Higgs
4. Weak Interaction, Symmetries and Neutrino Physics
5. Applications of Nuclear and Particle Physics

Textbook:
There is no single textbook which covers the complete course. I will be posting my lecture notes and additional material onto courselink.

Recommended texts:
- "Particles and Nuclei" by Povh, Rith, Scholz, Zetsche
- "Introductory Nuclear Physics" by Kenneth S. Krane
- "Nuclear and Particle Physics" by B. R. Martin (Wiley)
- "Introduction to Elementary Particles" by David Griffiths
- "Subatomic Physics" by Henley and Garcia

Grading:
20% Assignments
30% Midterm (Wednesday, 28 of February 2018, 6pm - 8pm)
50% Final Exam (Wednesday, 18 of April 2018, 11:30am – 1:30pm)

If the final exam mark is greater than that of the midterm, the midterm will be dropped and the final exam mark will be weighted as 80% of the final mark.
Office hours:
Thursday, 2 - 4 pm in my office (MacN 224)
If office hours do not work for you, please arrange an appointment via email or drop in for quick questions.

E-mail Communication
As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

Drop Date
The last date to drop one-semester courses, without academic penalty, is Friday, March 9, 2018. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar.

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.uoguelph.ca/csd/

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their
work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources
The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

Course Evaluation Information
The Department of Physics requires student assessment of all courses taught by the Department. These assessments provide essential feedback to faculty on their teaching by identifying both strengths and possible areas of improvement. In addition, annual student assessment of teaching provides part of the information used by the Department Tenure and Promotion Committee in evaluating the faculty member's contribution in the area of teaching.

The Department's teaching evaluation questionnaire invites student response both through numerically quantifiable data, and written student comments. In conformity with University of Guelph Faculty Policy, the Department Tenure and Promotions Committee only considers comments signed by students. Your instructor will see all signed and unsigned comments after final grades are submitted. Written student comments may also be used in support of a nomination for internal and external teaching awards.

NOTE: No information will be passed on to the instructor until after the final grades have been submitted.