SYLLABUS
PHY 2049 – Physics 2 with Calculus
Class number 16037, 16038, 16040, 16041, 15645, 15646, 15647, 15648, 15649, 15650, 15651, 15652, 15664, 15665, 15666, 15667, 15668, 15669, 15670, 15671, 15672, 15673.

Natural Sciences – Fall 2024

This syllabus contains the basic outline of the course organization. For complete details on the course policies, please visit the course Canvas page.

Instructors: Professor Andrey Korytov
Professor John Yelton

Email
phy2049@phys.ufl.edu (use this email for all communications with instructors)

Office hours
Office hours for the instructors and discussion section leaders are detailed on the course Canvas page. (This will be posted during the first week of classes.)

Category
Natural sciences (see General Education State Core).
General education areas satisfied by the course: Physical Sciences (see General Education Subject Area Objectives).

Course objectives and goals
PHY2049 is a calculus-based introduction to general physics, Part II. Topics covered include electric charge as a fundamental property of matter, electrostatics (Coulomb's Law, electric field, electric potential), EMF, capacitors, currents, resistors, electric circuits, magnetic fields due to currents, magnetic forces, inductors, Maxwell's equations, electromagnetic waves, optics, interference. Our goal at all times is to help you understand the basic physical principles so that you can develop a deeper vision of the real world around you. In addition to providing the basic theoretical underpinnings to the subject, we use many examples, "concept questions", physical and virtual demonstrations. We also show many examples of everyday tools and advanced instruments that utilize these principles.

Student Learning Outcomes (SLOs)
At the end of this course, students will be expected to have achieved the General Education learning outcomes as follows:
Content: Students demonstrate competence in the terminology, concepts, theories and methodologies used within the discipline(s).
• Identify, describe, and explain the physics of electricity and magnetism, including electrostatics forces, Gauss' law, the magnetic field due to current carry wires, magnetic forces, Faraday's law, DC and AC circuits with resistors, capacitors and inductors, Maxwell's equations, electromagnetic waves, and optics. (P). Assessments: Homework problems, quizzes, and exams.
• Identify, describe, and explain how the scientific theories apply to real world situations and can be tested. (P). Assessments: questions relating to experimental demonstrations done in class given via iClicker and on exams.
Critical Thinking: Students carefully and logically analyze information from multiple perspectives and develop reasoned solutions to problems within the discipline(s).
• Critically analyze, evaluate, and synthesize information in a problem using physics knowledge to develop a solution strategy and eventually a solution to the problem. (P). Assessments: Homework, quizzes, exams. Communication: Students communicate knowledge, ideas and reasoning clearly and effectively in written and oral forms appropriate to the discipline(s).

• Develop and present in writing quantitative and qualitative arguments for physics problem solutions using step by step logical reasoning. (P). Assessments: Hand graded quizzes.

Prerequisites
- PHY2048 (Physics I with calculus) or similar.
- Algebra, Trigonometry, Analytic Geometry, Vectors
- Calculus 1
- Calculus 2 (co-requisite)

The course will rely heavily on the following level of math (see textbook Appendix E for details). If you are not competent at this level you should take the appropriate refresher course(s) before taking this class; otherwise, you are bound to fail.

Required material
The following material should be acquired as soon as possible
• WileyPlus homework passcode which includes access to the electronic text book
   The textbook for the course is *Fundamentals of Physics* by Halliday, Resnick, Walker (Wiley, 12th Edition). *The electronic version is included with the HW access code.* The homework in this course is done online using the WileyPLUS system. Access to the online homework system requires a WileyPLUS access code. Details on how to purchase access to Wiley can be found on the course Canvas page.
• iClicker software installed

Class attendance, make-up exams, etc...
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
Further details of the conditions for make-ups are described on the course Canvas page.

Accommodations for students with disabilities
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://disability.ufl.edu/) by providing appropriate documentation. Once registered, students will receive an accommodation document that must be sent to phy2049@phys.ufl.edu when requesting accommodation. Students should follow this procedure as early as possible in the semester.

Grading
Please visit the course Canvas page for a complete description of the grading policy for exams, homework, quizzes, and iClicker questions. Homework and iClicker questions will not have makeups – a forgiveness factor will be supplied instead.

Your final score (100 points max) is the sum of the following:
• 3 exams: up to 25 points each, 75 points total
• 13 approx. weekly HW assignments: 5 points combined
• 10 approx. weekly discussion session quizzes: 20 points combined
• iClicker/participation points during lectures: 5 **bonus** points

In case of cancellation of classes due to unforeseen circumstances, the number of HW and quiz assignments might be adjusted, while the maximum number of points earned in each category stays the same.

We will not be giving any extra-credit work at the end of the semester. However, we do offer a way to earn extra bonus points by participating in quick iClicker quizzes during the lectures.

Course schedule

The complete course schedule is available on the Canvas page.

Mon	Tue	Wed	Thu	Fri	Sat	Sun
Aug 19	Aug 20	Aug 21 **Intro**	Aug 22	Aug 23 **Ch. 21**	Aug 24	Aug 25
Aug 26 **Ch. 21**	Aug 27 **HW Trial (math)**	Aug 28 **Ch. 22** **Quiz Trial**	Aug 29 **Quiz Trial**	Aug 30 **Ch. 22** **Quiz Trial**	Aug 31	Sep 1
Sep 2 **Labor Day**	Sep 3 **HW 1 (Ch. 21-22)**	Sep 4 **Ch. 23** **Quiz 1**	Sep 5 **Quiz 1**	Sep 6 **Ch. 23** **Quiz 1**	Sep 7	Sep 8
Sep 9 **Ch. 23**	Sep 10 **HW 2 (Ch. 23)**	Sep 11 **Ch. 24** **Quiz 2**	Sep 12 **Quiz 2**	Sep 13 **Ch. 24** **Quiz 2**	Sep 14	Sep 15
Sep 16 **Ch. 25**	Sep 17 **HW 3 (Ch. 23-24)**	Sep 18 **Ch. 25** **Quiz 3**	Sep 19 **Quiz 3**	Sep 20 **Ch. 26** **Quiz 3**	Sep 21	Sep 22
Sep 23 **Ch. 26**	Sep 24 **HW 4 (Ch. 25-26)**	Sep 25 **Ch. 27** **Quiz 4**	Sep 26 **Quiz 4**	Sep 27 **Ch. 27** **Quiz 4**	Sep 28	Sep 29
Sep 30 **Ch. 27** Review 1	Oct 1 **HW 5 (Ch. 26-27)** **EXAM 1**	Oct 2 **Ch. 28**	Oct 3	Oct 4	Oct 5	Oct 6
Oct 7 **Ch. 28**	Oct 8 **HW 6 (Ch. 27-28)**	Oct 9 **Ch. 28** **Quiz 6**	Oct 10 **Quiz 6**	Oct 11 **Ch. 29** **Quiz 6**	Oct 12	Oct 13
Oct 14 **Ch. 29**	Oct 15 **HW 7 (Ch. 28-29)**	Oct 16 **Ch. 29** **Quiz 7**	Oct 17 **Quiz 7**	Oct 18 **Ch. 30** **Quiz 7**	Oct 19	Oct 20
Oct 21 **Ch. 30**	Oct 22 **HW 8 (Ch. 29-30)**	Oct 23 **Ch. 30** **Quiz 8**	Oct 24 **Quiz 8**	Oct 25 **Ch. 31** **Quiz 8**	Oct 26	Oct 27
Oct 28 **Ch. 31**	Oct 29 **HW 9 (Ch. 30-31)**	Oct 30 **Ch. 31** **Quiz 9**	Oct 31 **Quiz 9**	Nov 1 **Ch. 32** **Quiz 9** Review 2	Nov 2	Nov 3
Nov 4 **Ch. 32** EXAM2	Nov 5 **HW 10 (Ch. 31-32)**	Nov 6 **Ch. 33**	Nov 7	Nov 8 **Ch. 33**	Nov 9	Nov 10
Nov 11 **Veterans Day**	Nov 12 **HW 11 (Ch. 32-33)**	Nov 13 **Ch. 33** **Quiz 11**	Nov 14 **Quiz 11**	Nov 15 **Ch. 34** **Quiz 11**	Nov 16	Nov 17
Nov 18 **Ch. 34**	Nov 19 **HW 12 (Ch. 33-34)**	Nov 20 **Ch. 34**	Nov 21 **Ch. 35** **Quiz 12**	Nov 22 **Quiz 12**	Nov 23	Nov 24
Nov 25	Nov 26	Nov 27 **Ch. 35** **Quiz 12**	Nov 28 **Thanksgiving**	Nov 29 **Ch. 35**	Nov 30	Dec 1
Dec 2	Dec 3 **HW 13 (Ch. 34-35)**	Dec 4 **Ch. 36**	Dec 5	Dec 6 Review 3	Dec 7	Dec 8
Dec 9	Dec 10 **FinalsWeek**	Dec 11 **FinalsWeek**	Dec 12 **FinalsWeek**	Dec 13	Dec 14	Dec 15

Total minimal scores ensuring a particular letter-grade are shown below. In other words, if everyone gets 85 or more, everyone gets an "A". *Do not expect scores to be curved.*

A   ≥85
A-   ≥80
B+   ≥75
B   ≥70
B-   ≥65
C+   ≥60
C   ≥55
C-   ≥50
D+   ≥45

UF grading policies

Information on current UF grading policies for assigning grade points can be found here: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

Online course evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at: https://ufl.bluera.com/ufl/. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://gatorevals.aa.ufl.edu/public-results/.

The Honor Pledge

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment".

The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class."

Counseling and Wellness Center

Counseling and Wellness Center: https://counseling.ufl.edu, 352-392-1575
For emergencies, University Police Department (352-392-1111) or 911.

Diversity and Inclusion

Physics is practiced and advanced by a scientific community of individuals with diverse backgrounds and identities and is open and welcoming to everyone. The instructional team recognizes the value in diversity, equity and inclusion in all aspects of this course. This includes, but is not limited to differences in race, ethnicity, gender identity, gender expression, sexual orientation, age, socioeconomic status, religion and disability. Students may have opportunities to work together in this course. We expect respectful student collaborations such as attentive listening and responding to the contributions of all teammates.

Physics, like all human endeavors, is something that is learned. Our aim is to foster an atmosphere of learning that is based on inclusion, transparency and respect for all participants. We acknowledge the different needs and perspectives we bring to our common learning space and strive to provide everyone with equal access. All students meeting the course prerequisites belong here and are well positioned for success.