

Physics 341 - Classical Physics I: Particle Mechanics - Fall 21

Instructor	Renate Wackerbauer, Office Location: REIC 106 phone: 474-6108 e-mail: rawackerbauer@alaska.edu		Welcome !! and have a great semester !!									
Open Office hours	Due to Covid19 there are no walk-in office hours unless the situation improves; discussions after class work well; meeting via zoom works; email is effective for straight-forward questions. additional recitation classes can be scheduled on request.											
Course Info	Phys341, 4 credits											
Prerequisites	Phys220, 301; or permission of instructor.											
Lectures	MWF 2:15 to 3:15 am, T 1:15-2:15, REIC 203 Lectures are face to face Due to the fluid situation with covid, the course modality can change throughout the semester. In the case of online course delivery, lectures would be offered synchronously (tablet with whiteboard), recorded, and uploaded into google classroom.											
Noyes Lab	Access to the Noyes Computer Lab (REIC 101) is provided to all students enrolled in a Physics course. Your polar express card lets you in.											
Text	<p><u>Required text:</u> <i>Classical Mechanics</i> by J.R. Taylor, University Science Books (1st edition, 2005)</p> <p><u>Supplementary readings:</u> <i>Classical dynamics of particles and systems</i>, by Marion, Thornton, Brooks/Cole (1995) - many examples and pictures <i>Mechanics</i> by K.R. Symon, Prentice Hall (3rd edition, 2001) - that's the book we have used before in phys311/312 <i>Introduction to Classical Mechanics</i>, by A. Ayra, Prentice Hall (1998) - not as complete as symon, but more examples <i>Classical Mechanics</i>, by H. Goldstein, Addison-Wesley (2002) - for advanced reading, usually at graduate level</p> <p><i>There are many books on introductory classical mechanics in the library that almost all cover the material presented in the lectures. Please explore them to see different approaches to our topics.</i></p>											
Course Content Tentative course calendar	Newtonian mechanics, conserved mechanical quantities, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, rigid body rotations, and Lagrangian mechanics.											
Course Goals	This course provides an introduction into the theoretical principles of classical mechanics. First we explore particle dynamics based on Newton's laws of motion. Then we discuss particle dynamics in terms of the Lagrangian concept, which is based on energy concepts.											
Student Learning Outcomes	Students learn, --how to describe and solve problems in theoretical classical mechanics --how to describe particle dynamics with Newton's and Lagrangian concepts --to critically compare Newton's concept and Lagrange's concept for certain physical problem											
Homework homework	Homework (10 assignments, each counting 100pts) will be assigned weekly via "google classroom" and will be due by 2:00 pm on the following Friday, unless explicitly altered at the time of assignment. Late homework will not be accepted. Finished homework should be uploaded as a pdf-file to "google classroom". You can earn 100 bonus points in the homework by giving a 10min presentation to class on a topic related to class, for example the life of a classical physicist, an application of classical mechanics, experiments on classical mechanics, etc. in case of issues with the homework link use: ffden-2.phys.uaf.edu/wacker/CLASS/341.html											
Examinations	Two one-hour in-term examinations and a two hour final examination will be held during the semester. In-term exams will be held in the classroom. Upon request, an additional review class may be scheduled before each exam. The exams will be closed books and closed notes. No calculators, computers, or communication devices are allowed.											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Exam 1 (in class)</td> <td style="width: 33%;">Friday, Oct 1</td> <td style="width: 33%;">Taylor: approx. chapt. 1-5</td> </tr> <tr> <td>Exam 2 (in class)</td> <td>Friday, Nov 5</td> <td>Taylor: approx. chapt. 6-8, 13</td> </tr> <tr> <td>Final Exam</td> <td style="color: red;">Wednesday, Dec 8, 1-3pm</td> <td>Taylor: approx. chapt. 1-10, 13, 14</td> </tr> </table>			Exam 1 (in class)	Friday, Oct 1	Taylor: approx. chapt. 1-5	Exam 2 (in class)	Friday, Nov 5	Taylor: approx. chapt. 6-8, 13	Final Exam	Wednesday, Dec 8, 1-3pm	Taylor: approx. chapt. 1-10, 13, 14
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Grading	The maximum score for each homework will be 100 points. A solution (homework, exam) that presents nothing more than a restatement of the problem will receive zero credit. <i>Illegible work will not be graded.</i> To pass the course with a grade higher than an "F", you need 40% of the total credits. Grades A to D are assigned equal weight for total credits between 40% and 100%. So, A+ (>97.5), A(>87.5), A-(>85), B+(>82.5), B(>72.5), B-(>70), C+(>67.5), C(>57.5), C-(>55), D+ (>52.5), D(>42.5), D-(>40). If this class is in your major you need at least a grade C- for passing the course and fulfilling prerequisites. For the final grade, homework, exams, etc. will be weighted as follows:											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Homework</td> <td style="width: 30%;">20%</td> </tr> <tr> <td>Exam 1</td> <td>25%</td> </tr> <tr> <td>Exam 2</td> <td>25%</td> </tr> <tr> <td>Final Exam</td> <td>30%</td> </tr> </table>			Homework	20%	Exam 1	25%	Exam 2	25%	Final Exam	30%	
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<p>Course policies</p>	<p>Attendance at lectures is expected. Active class participation, questions are extremely welcome in the lectures. A missed exam will receive 0 credit unless the instructor is notified by email, phone, etc before the exam starts. Make-up exams will be individually scheduled with the student.</p> <p>Your instructor follows the University of Alaska Fairbanks Incomplete Grade Policy: “The letter “I” (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C or better) the majority of work in a course but for personal reasons beyond the student’s control, such as sickness, has not been able to complete the course during the regular semester. Negligence or indifference are not acceptable reasons for an “I” grade.”</p>
<p>Student Obligations</p>	<p>As students of UAF, you are bound by the policies and regulations of the University of Alaska, UAF rules and procedures, and the Student Honor Code. You are obligated to make yourselves familiar with all conditions presented in the UAF Catalog. <i>Plagiarism on homework or on an exam will result in a failing grade.</i></p> <p><i>Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website.</i></p> <p><i>Further, students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.</i></p>
<p>Student Protection and Services Statement</p>	<p>Student protections statement: UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. Graduate teaching assistants do not share the same reporting obligations. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site: https://catalog.uaf.edu/academics-regulations/students-rights-responsibilities/.</p> <p>Disability services statement: I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.</p> <p>Student Academic Support: Speaking Center (907-474-5470, uaf-speakingcenter@alaska.edu, Gruening 507) Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 8th floor) UAF Math Services, uafmathstatlab@gmail.com, Chapman Building Developmental Math Lab, Gruening 406 The Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120, https://www.ctc.uaf.edu/student-services/student-success-center/) For more information and resources, please see the Academic Advising Resource List (https://www.uaf.edu/advising/lr/SKM_364e19011717281.pdf)</p> <p>Student Resources: Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208) Student Health & Counseling [6 free counseling sessions] (907-474-7043, https://www.uaf.edu/chc/appointments.php, Whitaker 203) Center for Student Rights and Responsibilities (907-474-7317, uaf-studentrights@alaska.edu, Eielson 110) Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.edu, Wood Center 119)</p> <p>Nondiscrimination statement: The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination. For more information, contact: UAF Department of Equity and Compliance, 355 Duckering Building, 907-474-7300, uaf-deo@alaska.edu</p>