

PHYS 8011: CLASSICAL MECHANICS S-22

Instructor: K. Nakayama, Room 219

Text: *Notes on Analytical Mechanics*, K. Nakayama, December 23 (2021).

Text: *Classical Mechanics*, H. Goldstein, C. Poole, and J. Safko, 3rd Ed. (2002).

Additional refs. : *Mechanics*, L. D. Landau and E. M. Lifshitz, Third ed. (1978), reprinted 2002;

Analytical Mechanics, L. N. Hand and J. D. Finch, Cambridge University Press (1998).

A. Sommerfeld, *Mechanics, Lectures on Theoretical Physics*, vol.I, New York, p.28 (1952);

Office Hours: **12:30pm-01:30pm**, Thursdays, or by appointment (using zoom).

Homework: Problems will be collected and selected problems graded.

Grade: Total Grade = equally weighted average of Homework + Midterm Exam + Final Exam. If you miss the Midterm Exam due to a valid reason (such as illness), it will be replaced by the Final Exam.

The letter grade will be assigned as:

$$\begin{aligned} A &\equiv [90, 100] & A- &\equiv [87, 90) \\ B+ &\equiv [80, 87) & B &\equiv [75, 80) & B- &\equiv [70, 75) \\ C+ &\equiv [65, 70) & C &\equiv [60, 65) & C- &\equiv [55, 60) \\ D &\equiv [50, 55) & F &\equiv [0, 50) \end{aligned}$$

Standard rounding will be used for the final numerical grade. For example, 89.4999 will be 89 and A-, but 89.5 will be 90 and A. There are no exception to these letter grade assignments. All withdrawal will be processed in accordance with University policy as stated in the undergraduate bulletin. For withdrawals before the midpoint, a grade of "W" will be assigned for all cases.

Tentative Topics

Below is a tentative list of topics to be covered. Any change to it will be announced in class. You are responsible to keep track on such changes by attending class.

1. Newtonian Mechanics: a brief review
2. Lagrangian Formalism
3. One-dimensional systems
4. Two-body systems
5. Non-inertial coordinate systems
6. Rigid Body
7. Systems with many degrees-of-freedom
8. Continuous Mechanics: waves
9. Hamiltonian Formalism
10. Hamilton-Jacob Formalism
11. Classical and Quantum Mechanics: a unified view

Coronavirus Information for Students

Face Coverings:

Effective July 15, 2020, the University of Georgia - along with all University System of Georgia (USG) institutions -requires all faculty, staff, students and visitors to wear an appropriate face covering while inside campus facilities/buildings where six feet social distancing may not always be possible. Face covering use is in addition to and is not a substitute for social distancing. Anyone not using a face covering when required will be asked to wear one or must leave the area. Reasonable accommodations may be made for those who are unable to wear a face covering for documented health reasons. Students seeking an accommodation related to face coverings should contact Disability Services at <https://drc.uga.edu/>.

DawgCheck:

Please perform a quick symptom check each weekday on DawgCheck - on the UGA app or website - whether you feel sick or not. It will help health providers monitor the health situation on campus: <https://dawgcheck.uga.edu/>

What do I do if I have symptoms?

Students showing symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5 p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see <https://www.uhs.uga.edu/info/emergencies>.

What do I do if I am notified that I have been exposed?

Students who learn they have been directly exposed to COVID-19 but are not showing symptoms should self-quarantine for 14 days consistent with Department of Public Health (DPH) and Centers for Disease Control and Prevention (CDC) guidelines. Please correspond with your instructor via email, with a cc: to Student Care & Outreach at sco@uga.edu, to coordinate continuing your coursework while self-quarantined. If you develop symptoms, you should contact the University Health Center to make an appointment to be tested. You should continue to monitor your symptoms daily on DawgCheck.

How do I get a test?

Students who are demonstrating symptoms of COVID-19 should call the University Health Center. UHC is offering testing by appointment for students; appointments may be booked by calling 706-542-1162.

UGA will also be recruiting asymptomatic students to participate in surveillance tests. Students living in residence halls, Greek housing and off-campus apartment complexes are encouraged to participate.

What do I do if I test positive?

Any student with a positive COVID-19 test is required to report the test in DawgCheck and should self-isolate immediately. Students should not attend classes in-person until the isolation period is completed. Once you report the positive test through DawgCheck, UGA Student Care and Outreach will follow up with you.