

Physics 303
Classical Mechanics

- Class: MW 9:00 - 10:15 am, D-208
- Professor: G.P.Gilfoyle; Office: Gottwald Science Center, D-110 ;phone: 289-8255; electronic mail: ggilfoyl@richmond.edu; Office hours: MF 3:30-4:30 pm; T 9:00-10:00 am, 2:00-3:00 pm. Other times are when you catch me.
- Objective: To gain a deeper understanding of natural phenomena using Newton's Laws and related methods.
- Textbook: **Classical Mechanics: A Modern Perspective** by Barger and Olsson; **Mathematical Handbook** by M.R.Spiegel, Schaum's Outline Series (recommended); **Physics for Scientists and Engineers** by R.D. Knight (recommended).
- Software: *Mathematica*, (required) (to download go to <http://is.richmond.edu/hardware-software/software/specialty/mathematica.html>).
- Webpage: <https://facultystaff.richmond.edu/~ggilfoyl/cm.html>
- Prerequisites: Physics 301 or permission of the instructor.
- Course Work: Each class meeting will consist of lecture, demonstration, and lab work (see SCHEDULE).
- Attendance: Attendance at all classes is expected for the entire period. Unexcused absences will result in a grade of zero for any missed activity. Excessive absences will lower the final grade. An excused absence is one given by the dean, a doctor, a department, or the instructor for what is deemed to be sufficient reason provided there is adequate advanced warning (one day). A student is responsible for all work missed during an absence.
- Grading: Grades will be computed on the following basis:
- | | |
|---------------------|-------------------------------|
| Written Assignments | 30% |
| Tests | 40% (20% for each of 2 tests) |
| Final Exam | 30% |
- Make-up tests will not be administered. If a test is missed because of an excused absence the next test will count more to make up the loss. Unexcused absences will result in a grade of zero for the missed activity.
- Homework: Homework will be assigned regularly, but only a fraction will be collected. Exams are based on these assignments. Unexcused late homeworks will be reduced by one point if not handed in during the appropriate class. An additional point will be subtracted for each subsequent day late. Once solutions are posted no homeworks will be accepted. Late submissions will be excused only at the discretion of the instructor.
- Homework assignments will be listed on the course webpage (see above).
- You are encouraged to discuss the homework with others, but any work handed in must be entirely your own to receive full credit.
- Exams: Exams will consist of short-answer questions and problems.

Physics 303 Schedule

Spring, 2022

Date	Topic (Chapter)	Date	Topic (Chapter)
Jan 10	Free Fall (1)	Mar 7	Spring Break
12	"	9	"
17	MLK Day	14	Nuclear Sizes (5)
19	Biosensor (1)	16	"
24	"	21	"
26	Molecular Vibrations (2,3)	23	Extra-Solar Planets (6)
31	"	28	Test 2
Feb 2	CO ₂ Vibrations (2,3)	30	Extra-Solar Planets (6)
7	"	Apr 4	"
9	"	6	Cosmology (9)
14	"	11	"
16	Test 1	13	"
21	Collisions	18	Dark Matter (9)
23	"	20	"
28	Nuclear Sizes (5)		
Mar 2	"		

Final Exam: 9 am - 12 noon, Tuesday, April 26.

Physics 303

Course Safety Rules, Procedures, and Educational Requirements

Holding face-to-face meetings during a pandemic can be a little challenging. To reduce the chaos and maintain your health, safety, and sanity along with the integrity of your education here at Richmond, I list here rules and requirements to make this semester go a bit more smoothly.

- Maintain social distancing at all times in our meetings. This requirement is your responsibility. If you fail to maintain social distancing you will have to leave. More details will be discussed in our first meeting and as the semester progresses.
- Masks may be required as conditions evolve. You may be required at other times to wear gloves and/or face shields.
- You can pick where you sit in the laboratory, but you have to stay in that seat for each meeting. This is a University requirement to aid recording attendance and contact tracing. If you want to change seats, let me know and we will work something out.
- Bring your laptops to each meeting. Sharing screens via *Zoom* is the safest way for me to monitor your progress.
- If we need to use *Zoom* I will send out a *Zoom* invitation with a link to our class/lab meeting.
- Some quizzes and tests may be handed in electronically by taking photographs with your phone. To receive full credit, the entire quiz or test must be a single document in PDF format and be uploaded to the appropriate folder on *Box*. At this time the app *CamScanner* for taking photographs is recommended. When you upload the document the name of the file should begin with your last name followed by the date in year-month-day format, *e.g.* smith-20-oct-21.pdf. The *Box* folder is *Physics309* and there will be another folder inside *Physics309* named for the event, *e.g.*, quiz2.
- Given the unique conditions we face this spring, I will be attempting different methods to create a safe, rigorous, congenial, and professional learning environment. I will, at times, request feedback and it's important to respond clearly and seriously as we navigate the pandemic. We're all in this together.

SYLLABUS INSERT REGARDING ACADEMIC AND PERSONAL SUPPORT SERVICES
Hope N. Walton, Director Academic Skills

Below is a boxed statement that describes the services available from a myriad of resources. We recommend that you consider including this boxed statement in your course syllabus, on Blackboard, or perhaps on a separate handout. Of course, other support services that relate specifically to your course can also be added.

Staff members from the resources below are available for consultations about concerns related to students as well as issues related to services.

If you experience difficulties in this course, do not hesitate to consult with me. There are also other resources that can support you in your efforts to meet course requirements.

Academic Skills Center (asc.richmond.edu): Assists students in assessing their academic strengths and weaknesses; honing their academic skills through teaching effective test preparation, critical reading and thinking, information conceptualization, concentration, and related techniques; working on specific subject areas (e.g., calculus, chemistry, accounting, etc.); and encouraging campus and community involvement. Tutors will be available virtually. The on-call peer-tutors available for these appointments are listed in the Box file: [On-Call Online Tutors](#) (<https://richmond.box.com/s/dpe37chr2zodr3o1amtj8omjk72v2ktb>). Email [Roger Mancastroppa](mailto:Rmancast@richmond.edu) ([rmancast@richmond.edu](mailto:Rmancast@richmond.edu)) and [Hope Walton](mailto:Hwalton@richmond.edu) ([hwalton@richmond.edu](mailto:Hwalton@richmond.edu)) for appointments in academic and life skills to request a Zoom conference.

Boatwright Library Research Librarians: (library.richmond.edu/help/ask/ or 289-8876): Research librarians help students with all steps of their research, from identifying or narrowing a topic, to locating, accessing, evaluating, and citing information resources. Librarians support students in their classes across the curriculum and provide library instruction, tutorials, research guides, and individual help. All research support will be provided online or by appointment and students can contact a librarian for help via email (library@richmond.edu), text (804-277-9ASK), chat, or Zoom (by appointment).

Career Services: (careerservices.richmond.edu or 289-8547): Can assist you in exploring your interests and abilities, choosing a major or course of study, connecting with internships and jobs, and investigating graduate and professional school options. We encourage you to schedule an appointment with a career advisor early in your time at UR.

Counseling and Psychological Services (caps.richmond.edu or 289-8119): Assists currently enrolled, full-time, degree-seeking students in improving their mental health and well-being, and in handling challenges that may impede their growth and development. Services include brief consultations, short-term counseling and psychotherapy, skills-building classes, crisis intervention, psychiatric consultation, and related services.

Disability Services (disability.richmond.edu) The Office of Disability Services works to ensure that qualified students with a disability (whether incoming or current) are provided with reasonable accommodations that enable students to participate fully in activities, programs, services and benefits provided to all students. Please let your professors know as soon as possible if you have an accommodation that requires academic coordination and planning.

Speech Center (speech.richmond.edu or 289-6409): Assists with preparation and practice in the pursuit of excellence in public expression. Recording, playback, coaching and critique sessions offered by teams of student consultants trained to assist in developing ideas, arranging key points for more effective organization, improving style and delivery, and handling multimedia aids for individual and group presentations. Remote practice sessions can be arranged; we look forward to meeting your public speaking needs.

Writing Center (writing.richmond.edu or 289-8263): Assists writers at all levels of experience, across all majors. Students can schedule appointments with trained writing consultants who offer friendly critiques of written work.