

SYLLABUS

MECHANICS II

SPRING SEMESTER 2026

https://www.phys.uconn.edu/~rozman/Courses/P3102_26S/

Last modified: October 18, 2025

Course description: *Physics 3102, Mechanics II* focuses primarily on the physics of continuous media.

Continuum physics describes the macroscopic physical world. While a course in classical (analytical) mechanics is standard for a physicist's education, physics of continuous media is often harder to find. The enormous progress of quantum physics has reduced the focus on macroscopic phenomena in physics curriculum. Nonetheless, research in engineering, materials science, and biology increasingly demands a strong command of the physics of continuous media.

This course offers a modern, unified introduction to the basic concepts and phenomenology of continuous macroscopic systems. We place equal emphasis on intuition and formalism, using examples from fields such as geophysics, astrophysics, and engineering.

Course website: https://www.phys.uconn.edu/~rozman/Courses/P3102_26S/

Lectures: TuTh 5:00PM – 6:15PM, in GS-119

Instructor: Michael Rozman

email: michael.rozman@uconn.edu

office hours: TuTh 6:15 PM – 7:00 PM in GS-119, and by appointment

Textbook: No required textbook. Handouts for the lectures will be provided.

Exams: Three midterm exams, no final. Parts of the exams may be substituted by take-home projects.

Grading scheme: The course grade will be calculated using the following scheme.

| | |
|----------------------|-----|
| Homework assignments | 40% |
| 3 Midterms | 60% |

Course grade = $0.4*HW + 0.2*(M1 + M2 + M3)$, rounded to the nearest integer (with ties rounded to the nearest even integer) and capped at 100%.

The percent grades are converted to the letter grades as following.

| Percent grade | Letter grade |
|---------------|--------------|
| 94+ | A |
| 90-93 | A- |
| 87-89 | B+ |
| 83-86 | B |
| 80-82 | B- |
| 77-79 | C+ |
| 73-76 | C |
| 70-72 | C- |

Mid-semester progress: the percent grade is calculated using the rule $0.5*HW + 0.5*M1$, correctly rounded to an integer and capped at 100%.

Honors conversion:

Students interested in honors conversion should contact the instructor during the *second* week of classes.

Class schedule:

| Week(s) | Subject |
|----------------------------------|-----------------------------|
| 1 | Stress |
| 2 | Strain |
| 3 | Hooke's law |
| 4-6 | Elastostatics. Slender rods |
| Midterm I - Thu, Feb 19 | |
| 7-8 | Continuum dynamics |
| 9 | Spring recess |
| 10 | Ideal flow |
| Midterm II - Thu, Mar 26 | |
| 11-12 | Viscosity |
| 13 | Gravity waves |
| 14 | Subsonic flights |
| 15 | Turbulence |
| Midterm III - Thu, Apr 30 | |

For updates to the schedule consult the online *Course Calendar* at https://www.phys.uconn.edu/~rozman/Courses/P3102_26S/downloads/calendar.pdf

Homework: Homework assignments typically consist of several components, including online and on-paper parts. The date of the submission is the date when the last component of the assignment is submitted to the instructor.

Homework assignments submitted on time may be returned (at the discretion of the instructor) for corrections with a followup re-grading.

Homework assignments are not accepted after the solutions had been discussed in class, and/or had been posted online, and/or graded assignments returned. Individual emergencies can be accommodated by extra credit assignments.

Collaboration is welcome and encouraged for understanding the concepts and prob-

lems in this course. Nevertheless, all submitted work must be an individual effort. Specifically, you must complete all calculations yourself and communicate and explain your results using your own words.

Requirements for written on-paper assignments:

- Use letter-size paper.
- **Box** your final answer(s) and important intermediate results.
- Use only one side of each sheet, **staple** your notes together with the assignment cover page.

Assignments that are hard to understand are also difficult to grade correctly. To ensure your work is clear:

- supplement your equations with words and pictures.
- your presentation must progress logically down the page. If your solution is nonlinear or messy, recopy it neatly.

Communications: talking in person (including videoconferencing) is the preferred method to communicate with the instructor; email is an option to schedule an appointment or to ask/answer a short question.

- use your UConn email address for class communications.
- include the tag “[phys3102]” (without quotes) in the subject of your email, e.g. “[phys3102] midterm II review”.
- for an email subject line, be specific and informative so the recipient can prioritize your message without opening it. Avoid vague terms like “urgent”, “important”, “a question”. Your name is already visible in the sender field, so there is no need to include it in the subject.
- do not send emails with attachments or embedded graphics unless requested by the instructor.
- do not include commercial advertising into your emails

Student responsibilities and academic policies: Students at the University of Connecticut are held to certain standards and academic policies. Review these important standards and policies — [the links are provided on the Office of the Provost website](#).