

# Syllabus, Information & Policies

**Soft Condensed Matter Physics Phys 7430 (Graduate, 3 credits), Fall 2022**

**Where: DUANE G1B35**

**When: Tuesdays & Thursdays, 2:00 PM - 3:15 PM**

**Web page: <https://spot.colorado.edu/~bose6241/SoftMatter/>**

## **Prof. Ivan I. Smalyukh, Instructor**

*Office: Gamow Tower, F-521*

*Email: [ivan.smalyukh@colorado.edu](mailto:ivan.smalyukh@colorado.edu)*

*Telephone: 303-492-7277 (office)*

*Office hours: **Fridays, 2:00-3:00 PM online & by appointment**, Gamow Tower office F-521*

### **Course Goals:**

"Soft Condensed Matter Physics" is a course about fundamentals of liquid crystals, polymers, biological membranes, biopolymers, block copolymers, molecular monolayers, colloids, nanoparticle suspensions, emulsions, foams, gels, elastomers, and other soft materials. Soft materials are attractive not only because of the richness of observed physics phenomena but also because of technological applications and because of their biological significance. The constituent molecules (or particles and other building blocks) of soft matter interact via many different types of interactions, ranging from van der Waals interactions, to screened electrostatic and steric interactions, and to specific chemical binding. These relatively fragile forms of matter are of great interest because they easily respond to mechanical stresses, electric and magnetic fields, temperature variations, presence of ions, focused laser beams, etc. The course is intended for doctoral candidates, geared toward the students interested in conducting research in soft condensed matter. For students who do not intend to continue in Soft Matter research, this course will provide insights into how our world works on a microscopic scale.

### **Prerequisites:**

The course is geared toward undergraduate and graduate students with diverse preparation backgrounds, including students from Departments of Physics, Chemistry & Biochemistry, MCDB, Chemical and Biological Engineering, Electrical and Computer Engineering, Mechanical Engineering, etc. The instructor will overview concepts, techniques, and approaches needed in this course.

### **Textbooks:**

No textbook is required for this course. Students will be provided with all lecture notes and handouts needed in this course. The lecture notes will also be made available on the course web pages. When needed, the instructor will post suggested reading assignments on the course website.

## GRADING

<b>Exam # 1</b>	<b>30%</b>	<b>Midterm</b>
<b>Exam # 2 (Finals week)</b>	<b>40%</b>	<b>Final Exam</b>
<b>HW's</b>	<b>30%</b>	<b>7-10</b>
<b>TOTAL</b>	<b>100%</b>	

There will be different exam & HW problem sets for undergraduate & graduate students taking the course.

## Homeworks

There will be 7-9 homework assignments. The HWs should be submitted online via GoogleDrive folders. Graded HWs will be returned via GoogleDrive. Many of the exam problems will be based on or similar to the homework problems - so if you do the homework, you will be able to do well in the exams.

## Disabilities Policy

If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu). If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) and discuss your needs with your professor.

## Policy on Religious Observances

See Professor Smalyukh at beginning of semester if you will be absent from class during a valid religious observance so that reasonable accommodation can be considered. Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance.

See [campus policy regarding religious observances](#) for full details.

## Policy on Cheating

All students of the University of Colorado at Boulder are responsible for knowing and adhering to [the academic integrity policy](#) of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council ([honor@colorado.edu](mailto:honor@colorado.edu); 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Additional information regarding the [Honor Code policy can be found online](#) and at the [Honor Code Office](#).

## Behavior Issues

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the [policies on classroom behavior](#) and [the student code](#). The University of Colorado Boulder (CU-Boulder) is committed to maintaining a

positive learning, working, and living environment. CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been discriminated against should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or the Office of Student Conduct and Conflict Resolution (OSC) at 303-492-5550. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be found at the [OIEC website](#). The [full policy on discrimination and harassment](#) contains additional information.

### **Other Information/Policies**

**Homework/exam answer sheets:** Answer sheets will be posted in the CU Google Drive folder created for this course.

**Show your work:** You will not get credit for simply stating a word or number for your answer. You must show your reasoning, calculations, and write a paragraph for full credit. If you are asked to make a drawing, be NEAT. Label parts of your diagrams.

### **Disclaimer**

Any information in this syllabus is as accurate as is possible at the time of writing. Changes will be made via e-mail notifications as well as in class and on the web page, taking precedence over this syllabus. You are responsible to be aware of the announcements made in class (whether or not you are in attendance), via e-mail, as well as in class and on the web page.