

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Graduate Programs	UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Physics College Charles E. Schmidt College of Science	
Current Course Prefix and Number PHY 6536	Current Course Title Statistical Mechanics	
<i>Syllabus must be attached for ANY changes to current course details. See <u>Guidelines</u>. Please consult and list departments that may be affected by the changes; attach documentation.</i> (none)		
Change title to: Change prefix From: To: Change course number From: To: Change credits* From: 4 To: 3 Change grading From: To: <small>*Review <u>Provost Memorandum</u></small>	Change description to: Change prerequisites/minimum grades to: (none) Change corequisites to: Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.	
Effective Term/Year for Changes: Fall 2019	Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Chris Beetle <cbeetle@fau.edu> 7-4612		
Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	<small>Digitally signed by Robert W. Stackman Jr DN: cn=Robert W. Stackman Jr, o.ou, email=stackma@fau.edu, c=US Date: 2019.03.13 08:29:03 -0500</small>	Date 3/13/19 3/13/19 3/27/2019 3/27/19 3/27/2019

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting. **GRADUATE COLLEGE**

MAR 13 2019

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Syllabus

Course title: Statistical Mechanics

Course number: PHY 6536

Credit Hours: 3

Pre-requisites:

Term: Spring 2020

Class Location and Time: SE 101, TR 10:00 - 11:50 AM

Instructor: Dr. Andy Lau

Office: SE 442

Office Hours: TR 12:30- 2:00 pm

Telephone: 297-3380

E-mail: alau@fau.edu

Course Description: Statistical Mechanics describes the collective behavior of 10^{23} number of particles. This course is a survey of the ideas and application of classical and quantum statistical physics.

Course Objectives: After completion of the course, a student should have developed a clear understanding of the physical principles and a mastery of the mathematical techniques in solving statistical physics problems. In addition, he or she is expected to gain the necessary competence in doing research.

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Course Topical Outline:

Week 1: Review of Thermodynamics

Week 2-4: Probability theory

Week 5-7: Classical Statistical mechanics

Week 7-9: Interacting particles

Week 10-11: Quantum statistical mechanics

Week 12-14: Ideal quantum gases

Week 15: Fluctuations

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Method of Instruction: The format of the course will be lectures, reading assignments, and homework assignments.

Grading Procedure: Final grade will be decided from (1) scores from 5-6 homework assignments [20%], (2) a midterm exam [20%], (3) a cumulative final exam [20%], and (4) a 20 minutes presentation (during the end of the semester) on a topic of student's choice, but it must be related to statistical physics [40%].

Grading: A: 100-93% A-:92-89% B+: 88-85% B: 84-80% B-: 79-76 %
C+:75-72% C: 71-68% C-:67-65% D+:64-60% D: 59-56%
D- : 55-50% F: <50%.

Policy on make-up tests and late work: If a student cannot attend an exam or hand in homework on time because of a legitimate problem, for example, because of a significant health, he or she can make up the respective assignment.

Required Texts: A large portion of the course material is covered in the book by R.K. Patheria and Paul D. Beale, *Statistical Mechanics*, 3rd Edition (Elsevier , New York, 2011.) If supplementary material is needed, this will be distributed in class.

Supplementary Texts:

P.M. Chaikin and T.C. Lubensky, *Principles of condensed matter physics* (Cambridge university press, New York, 2000.)

Mehran Kardar, *Statistical physics of particles*, Cambridge (2007).

James P. Sethna, *Statistical Mechanics, Entropy, Order Parameters, and Complexity*, Oxford (2006) .

Classroom etiquette policy: University policy on the use of electronic devices states: “In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.”

Attendance Policy Statement

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student’s responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student’s final course grade as a direct result of such absence.

Disability Policy Statement: In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

Code of Academic Integrity policy statement: Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf