

# Physics 201

## Modern Topics In Physics and Astronomy

### Fall Term 2015

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<b>Type</b>	—	Seminar (1 credit hour)
<b>Time</b>	—	Friday 2:30 PM–3:20 PM
<b>Location</b>	—	JH 110
<b>Instructor</b>	—	Ken Bloom, JH 258E, 472-6093, kenbloom@unl.edu
<b>Assistant</b>	—	Molly Seeger, molly.seeger@yahoo.com
<b>Information</b>	—	blackboard.unl.edu

**Overview:** This one-credit seminar course is designed to introduce students to exciting topics in physics and to acquaint students with the research and faculty members in the UNL Department of Physics and Astronomy.

#### Course requirements for students:

1. Attendance is required and counts toward the semester grade as shown in the table below.
2. During this course, department faculty will give seminars on their respective research areas or more general scientific topics.
3. Students will write **2 essays of 3-4 pages each**, each of which summarizes one of the presented seminars given in the course and expands on it. Students can choose which presentations to summarize. We recommend that you contact a presenter of your choice to clarify what was presented and to ensure the accuracy of your reports. Each report will be due **no later than 2 weeks after the class session when that seminar is given**. However, the first essay must be turned in by **October 30**, and the second by **December 16**. Beyond a summary of the presentation, questions that could be addressed in these essays include:
  - What is the significance of this topic in the field of physics and astronomy?
  - What did you find most interesting about the topic, and why?
  - What are the most significant open physics questions on this topic?
  - What are the most significant technical challenges which researchers in this field face?

**Grading:** Final grade will be based on the following weighting:

Attendance .....	20 %
Lecture Essays .....	80 %

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#### Students with Disabilities:

Students with disabilities are encouraged to contact one of the instructors for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

**Schedule:** This is a **tentative** schedule; topics and dates may change.

<b>Date</b>	<b>Speaker</b>	<b>Title</b>
August 28	Ken Bloom	Introduction to Physics and Astronomy
September 4	Tim Gay	Why Isn't God Ambidextrous?
September 11	Axel Enders	Scanning tunneling microscopy - our eyes and hands into the nanoworld
September 18	Donald Umstadter	Interactions of extreme laser photons with matter
September 25	Xiaoshan Xu	Advanced thin film growth: arranging atoms for functionalities
October 2	Christian Binck	Voltage-controlled magnetism in magnetic thin film heterostructures
October 9	Steve Ducharme	Molecular ferroelectric materials
October 16	TBA	Women in Physics Conference speaker
October 23	TBA	
October 30	Shireen Adenwalla	
November 6	Xia Hong	Tailoring Charge and Lattice at the Nanoscale and Low Dimensions: The Expected and Unexpected
November 13	TBA	Career Services/Education Abroad speakers
November 20	Alexey Kovalev	
November 27	Thanksgiving	No class
December 4	Ilya Kravchenko	Fundamental particle research at UNL: collider physics and astrophysics
December 11	Martin Centurion	Ultrafast imaging of molecules