

August 29, 2012

Physics 131

Prof. E. F. Redish

■ Theme Music: Bon Jovi

Starting all over again

■ Cartoon: Lynn Johnston

For Better or for Worse

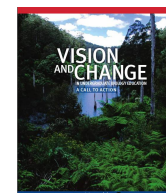
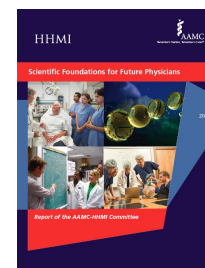


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- Over the past decade there have been increasing calls to modernize the education of biology and pre-med students.
- This class is part of a national project sponsored by the Howard Hughes Medical Institute and the National Science Foundation to respond to the *Scientific Foundations for Future Physicians Report* (2009)
- This report calls for multi-disciplinary competency-based science education to better prepare students for medical, pharmacy, and veterinary schools and also to better educate students who are studying the basic biological sciences.

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HHMI Project NEXUS

- The goal of this course is to provide you with the understanding of physics that you will need to help you understand advanced biology and (perhaps) medical school classes.
- It is in development so we will be seeking feedback from you to make sure that it works for you.
- Surveys
(one online, one in recitation this week)

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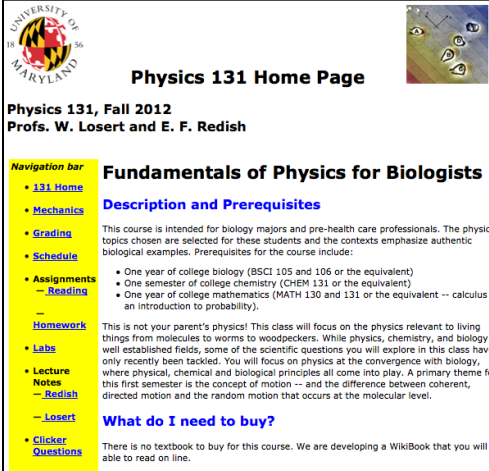
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The class structure: our web pages

- Home page
 - What to buy
- Class structure
 - What to do

<http://www.physics.umd.edu/courses/Phys131/fall2012/>

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The screenshot shows the 'Physics 131 Home Page' for the Fall 2012 semester, taught by Prof. W. Losert and E. F. Redish. The page features a navigation bar on the left with links to Home, Mechanics, Grading, Schedule, Assignments, Reading, Homework, Labs, Lecture Notes, Losert, and Clicker Questions. The main content area is titled 'Fundamentals of Physics for Biologists I' and includes a 'Description and Prerequisites' section. The description states the course is for biology majors and pre-health care professionals, emphasizing authentic biological examples. Prerequisites listed are one year of college biology (BSCI 105 and 106 or equivalent), one semester of college chemistry (CHEM 131 or equivalent), and one year of college mathematics (MATH 130 and 131 or equivalent -- calculus and an introduction to probability). A 'What do I need to buy?' section mentions a WikiBook and a lab manual.

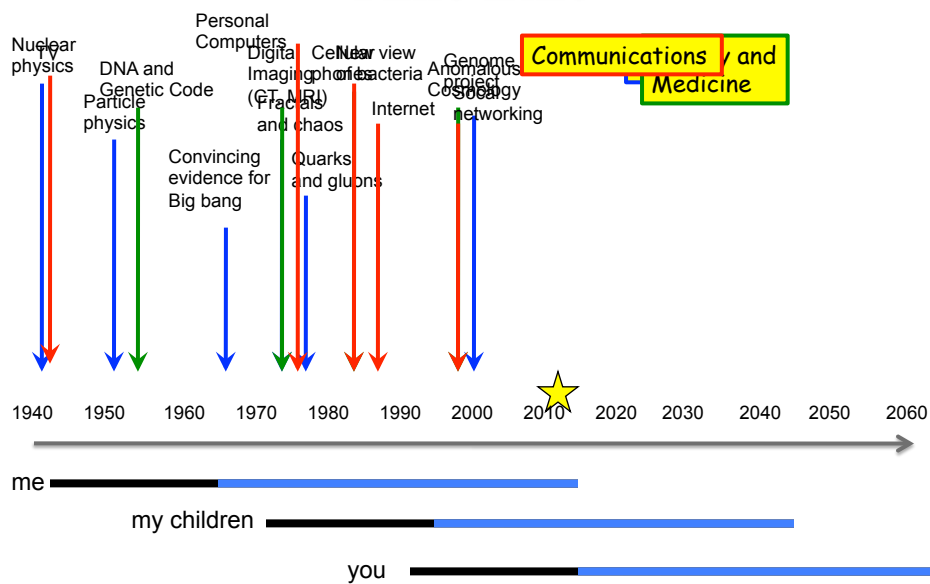
Lab/Recitation

- Go to your recitation and lab section next week to
 - do a pre-test survey
 - get your picture taken
 - MasteringPhysics
 - ImageJ
- Do the online survey.
- Labs begin on 9/11.

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Time Line



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Adaptive expertise

- The rapid pace of change in science implies that critical skills for scientists (and health-care professionals) in the next few decades will be
 - the ability to continue to learn
 - the ability to understand the implications of new discoveries
 - the ability to integrate new tools and knowledge into their practice of science.

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Learning to think scientifically

- Sometimes you're fighting your own brain!
 - We often assume an immediate recall (“one-step thinking”) is right – and the quicker and easier the recall the more we trust it!
 - We often don't pay attention to the right things!
 - We often assume our intuition is correct but don't check that it makes sense with what we see (or with other things we know)!

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