

PHYS 235

Engineering Physics

Bowdoin College – Spring 2012

Meeting Times:

(LECTURE) Searles 313, MWF 10:30a – 11:25a

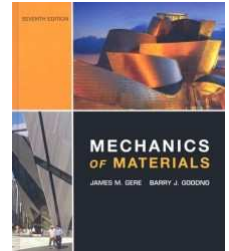
Instructor: Rob Salgado Visiting Assistant Professor of Physics Office: Searles 303 Voice: (207)-725-3170	Email (the <u>best</u> way to contact me): rsalgado@bowdoin.edu Instant-Messengers: AOL, WindowsLive[hotmail], Yahoo, Google, Skype: robowphy (IM only... <i>do not</i> email here—I won't read it)	Office hours: -tentatively MON 4-5 THU 3-4 or by appt.
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Departmental Coordinator: **Dominica Lord-Wood** (dlord@bowdoin.edu) (M-F 9:30-5:00), Searles 319 (207)-725-3308

Catalog Description:

PHYS 235 – Engineering Physics

Examines the physics of materials from an engineering viewpoint, with attention to the concepts of stress, strain, shear, torsion, bending moments, deformation of materials, and other applications of physics to real materials, with an emphasis on their structural properties. Also covers recent advances, such as applying these physics concepts to ultra-small materials in nano-machines. Intended for physics majors and architecture students with an interest in civil or mechanical engineering or applied materials science.



Required Materials:

“**Mechanics Of Materials**” 7th edition (2009) (ISBN 978-0534553975)

by **J.M. Gere & B.J. Goodno**

[You may use an alternate edition. However, the assignments will be drawn from this version.]

Electronic Materials:

I will maintain a Blackboard website (<http://blackboard.bowdoin.edu/>) that links to homework assignments, electronic-whiteboard notes, and handouts. (These materials are not a substitute for regular attendance, participation, and problem-solving.)

Homework and Exams:

(30%) Weekly Homework (generally due on Friday). You are encouraged to collaborate on homework, providing proper credit when using another student’s work or idea. However, final solutions should be written independently. [Submission of practically identical work are forbidden.] You can always ask me for help after you have made an honest effort. You are always welcome to stop by my office hours or to send an email or an IM.

(2 × 20%) Midterm Exams (Open-text, open-notes, but no other resources).

The first exam begins on Wed, Feb 29. At the start of the normal class time (10:30a), you will pick up a copy of the exam, and return it completed to my office (Searles 303) by Thu, Mar 1 at 11am. There will be no class on that Wednesday.

The second exam will be scheduled for early-to-mid April.

(30%) The Final Exam is scheduled for Wed, May 16, 2012 at 2pm. Make sure that all of your travel plans are consistent with this schedule, and that anyone coordinated with your travel plans at the end of the semester understands this.

Rough schedule of topics: (roughly 5 class meetings per chapter)	Mo	We	Fr	
Ch 1 Tension, Compression, and Shear				
Ch 2 Axially Loaded Members	23	25	27	JAN
Ch 3 Torsion	30	1	3	FEB
Ch 4 Shear Forces and Bending Moments			10	AAPT 5-9
Ch 5 Stresses in Beams (Basic Topics)	13	15	17	
Ch 7 Analysis of Stress and Strain	20	22	24	
Ch 9 Deflections of Beams	27	29	2	MAR
	5	7	9	
	12---BREAK---			
	-----BREAK--23			
	26	28	30	
	2	4	6	APR
	9	11	13	Easter 8
	16	18	20	
	23	25	27	
	30	2	4	MAY
	7	9		
		16		