

**Course title:** Introductory Physics: Waves

**Meeting time:** TuTh, 9:30-10:45, Phys. 1410; F 10:00-10:50, ESJ 2208. Physics 273h students must attend their assigned weekly meeting, W 10-10:50 or Th 3:30-4:20, Phys. 1364.

**Professor:** Chris Lobb, 1364 Physics Building, Center for Nanophysics and Advanced Materials (Entrance is in the plaza between the Math and Physics buildings.)  
[lobb@physics.umd.edu](mailto:lobb@physics.umd.edu)  
Office phone: (301) 405-6130  
Home phone: (202) 601-7789 (Call between 9:30 am and 9:30 pm. Leave a message and phone number if I'm not in; I will return your call.)

**Teaching Assistants:** TBA

**Office Hours:** Lobb 1-2 Mondays and 11-12 Tuesdays, 1364 Physics.

**Required Texts:** 1. *Introduction to Vibrations and Waves*, by H. J. Pain and Patricia Rankin, paperback ISBN: 978-1-118-44108-4, 2015 edition (about \$65). Do *not* buy an earlier version by H. J. Pain alone.

2. *Vibrations and Waves*, by A. P. French, paperback ISBN: 978-0-393-09936-2 (about \$45). There is a less expensive edition of French available, but *caveat emptor*; I've seen complaints on line about the quality of the cheaper edition (about \$13).

**Recommended Texts:** The introductory books that you used in Physics 171 and 272.

**Web Site:** [www.elms.umd.edu](http://www.elms.umd.edu)

### Homework

Assignments will be posted on ELMS approximately weekly, due in one week, hardcopy in class. Late homework is not accepted, but your lowest homework grade will be dropped.

### Exams

*Quizzes:* Every one or two weeks. Your lowest quiz grade will be dropped, so there will be no make-ups.

*Hour exams:* There will be two hour exams, on March 6 and April 9. If the university is closed either day, the exam will be on the next class day that the university is open.

*Final:* TBA

### Grading

Homework: 15%  
Quizzes: 30%  
Mid-terms: 15% each  
Final: 25%

**Tentative course outline:** 1. Simple and Damped Harmonic Motion, Introduction to Complex Variables [Ch. 1 and 2 ]; Driven Harmonic Motion and AC Circuits [Ch. 3]; Transverse Waves [Ch. 5]; Longitudinal Waves [Ch. 7]; Waves on Transmission Lines [Ch. 8]; Electromagnetic Waves [Ch. 9]; Fourier Methods [Ch. 11]; Wave Optics [Ch. 12 and 13].

**Advice:** Learning is not a spectator sport. You become a physicist by doing physics, not by watching a professor. Keep up with class, do derivations yourself, do homework, and ask questions. Avoid the moral hazard of online solutions. And, while it is useful for some people to compare their work to others, solve the problems first on your own. *You learn physics by solving problems, not by copying them.*

---

“...I haven’t got brains enough to be a physicist; and if I had I wouldn’t have strength to carry them around, unless I went on crutches.’

‘Now drop that! When I say I’ll learn you physics, I mean it. And you can depend on it, I’ll learn you or kill you!’”

-With apologies to Mark Twain, *Life on the Mississippi*