Main Text: *Optics*, 4th ed. by Hecht
We will follow the general sequence of this text.

Additional references and resources: *Physics of Light and Optics*, by Peatross and Ware, available from [http://optics.byu.edu/textbook.aspx](http://optics.byu.edu/textbook.aspx)
*Principles of Optics*, by Born and Wolf.

Course content: This course will be survey topics on light, its interaction with and manipulation by matter. While we will discuss geometric (ray) optics along the way, much of the emphasis will be on physical (wave) optics.

- Review of the mathematics of waves, electromagnetic fields as waves;
- Light propagation - scattering, reflection, and refraction by matter;
- Geometric optics - lenses, mirrors, optical instruments;
- Physical optics - superposition, polarization, interference, diffraction;
- Selected topics, as time permits drawn from coherence, ‘quantum’ optics, non-linear effects.

Grading: Course grades will be based on three contributions:

- Assignments 40%
- Mid-term exam(s) 30%
- Final exam 30% (scheduled for Wednesday, December 14, at 2 pm)

(Approximate letter grade scale: > 88% \(\rightarrow\) \{A-, A\}; > 76% \(\rightarrow\) \{B-, B, B+\}; > 64% \(\rightarrow\) \{C-, C, C+\}; > 55% \(\rightarrow\) \{D, D+\})

Satisfactory homework problem solutions must include complete development of the mathematical aspects and brief English explanations of the reasoning that guides your method of solution. While explaining the overall reasoning in this way is sometimes challenging, it is a useful learning tool: you need to step back and understand in the larger context exactly what it is you are doing, and why.

 Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor at the start of the semester. Adaptation of methods, materials, or testing may be made as possible to provide for equitable participation. Please contact the Office of Disability Resources to discuss and arrange reasonable accommodations. (KSC 258, 218-726-6130, or visit the DR website at [www.d.umn.edu/access](http://www.d.umn.edu/access) for more information.)

Miscellaneous policies The information in this syllabus is intended as a guide. The instructor may adjust course requirements and policies outlined here as deemed necessary. Such changes will be posted. The following University policies are also applicable: Student Conduct Code, Teaching and Learning Responsibilities, Academic Integrity, Excused Absences, Final Exams, Appropriate Use of Course Materials, or visit [http://www.d.umn.edu/vcaa/SyllabusStatements.html](http://www.d.umn.edu/vcaa/SyllabusStatements.html) for links to these policies.