

Instructor: Robert C. Wetherhold TA: None site: <http://www.eng.buffalo.edu/Courses/mae482/>
606 Furnas, (716) 645-2593 x2241 mecrcw@acsu.buffalo.edu
Office hours: 3-4:30 MW *and by appointment* (meant to be encouraging, not discouraging)

Text: P.K. Mallick, Fiber-Reinforced Composites, Materials, Manufacturing and Design - 2nd ed., Marcel Dekker, Inc., 1993; plus other occasional notes (given out or at Makin' Copies). For HW solutions, test solutions, notes, and other information, check: <http://www.eng.buffalo.edu/Courses/mae482>

Objective: To provide a basic understanding of the mechanical and physical properties of polymeric, metallic, and ceramic composites. Topics include: behavior of unidirectional and short fiber composites; analysis of laminated composites; durability, including fracture, fatigue, creep; manufacturing and materials science considerations; experimental characterization; joining; other subjects as time permits.

Grading: 3 tests 85% (equally weighted)
HW, classroom 15% the HW may include computer exercises - you must have access to a pc/the web; grad students will present problems for the class.

Graduate students in this course will do more advanced work for 20% of their grade (Total = 120). See attached Project Description.

Late homework is not accepted. Missed tests receive a zero; if you are ill, obtain a physician's note. You are responsible for obtaining copies of all hand-outs, even if you miss class.

Grading will be on a curve, with the class average equating to a B-/C+ grade; test averages are typically ~ 70%.

Schedule: Class meets 9:00 to 9:50 MWF, 101 Baldy from 8/30 through 12/10, except for holidays and rescheduled days.

Planned test dates are*: #1 October 7 *Test outside of class (in evening)!*
#2 November 10 *Test outside of class (in evening)!*
#3 on schedule day during finals (finals end 12/20)

References: O.M. Daniel, O. Ishai, Engineering Mechanics of Composite Materials, Oxford Press, 1994.
B.D. Agarwal, L.J. Broutman, Analysis and Performance of Fiber Composites, 2nd ed., J. Wiley (1990)

Planned Outline*: (may include additional hand-outs)

<u>Chapter</u>	<u>Sections</u>
1 Introduction	all
2 Materials (easy on Chemistry)	all
3 Mechanics	1-3; summarize 4
4 Mechanical Properties	1-7 (some summarized)
5 Manufacturing	1-7 (summarize); handout notes
6 Design	1-3; summarize 4,5

*Subject to change on 1 week notice.