

COURSE SYLLABUS

Materials Science in Pharmacy

Pharmacy/Materials Science/Bioengineering 509
Winter 1981 3 credit hours

Instructor: Dr. J.D. Andrade, Professor of Pharmacy, Bioengineering, and
Materials Science & Engineering

Office: 2059 Merrill Engineering Building

Phone: 581-8509 (office); 277-1259 (home)

Location/Time: T Th 2:15 - 3:40 p.m., 104 Skaggs Hall

Textbook: None - extensive course notes and handouts will be provided.
Reserve readings will be required.

Grading: Midterm
Final
Quizzes and homework
Class participation

Note: Pharmacy/MSE/Bioeng 510 will not be offered this Spring

Reserve Books and Readings:

*indicates on reserve in Medical Library under Pharmacy 509
**indicates on reserve in Marriott Library under Bioengineering 509.

- * 1. E.W. Martin, ed., Dispensing of Medication, Mack Publ. Co., 1971,
7th ed.
- * 2. J. Autian, "New Field of Plastics Toxicology," CRC Critical Reviews
in Toxicology, June 1973.
- *,** 3. F.W. Billmeyer, Textbook of Polymer Science, 2nd ed., 1971, Wiley.
QD 381B52 1971.
- *,** 4. L. Van Vlack, Materials Science for Engineers, Addison-Wesley, 1970.
TA 403 V46.
- *,** 5. L. Van Vlack, Physical Ceramics for Engineers, Addison-Wesley, 1964. TA 430.
- * 6. R. Lefaux, Practical Toxicology of Plastics, CRC Press, 1968.
- * 7. J. Cooper, Plastic Containers for Pharmaceuticals, World Health Organiz-
tion, 1974.
- ** 8. Van Krevelan, Properties of Polymers, 2nd ed. TA 455 P58 K74.
- * 9. Modern Plastics Encyclopedia
- *10. A.N. Martin, Physical Pharmacy
- *11. E.W. Martin, ed., Remington's Pharmaceutical Sciences, Mack Publ. Co.

COURSE OUTLINE

1. Role in Materials in Pharmacy.
2. Nature of Solid Materials - Packing and Structures.
3. Polymers - General Aspects.
4. Polymer Chemistry, Synthesis, and Common Polymers.
5. Polymer Solutions, Molecular Weights, Solubility Behavior.
6. Polymer Solids - Physical and Chemical Properties.
7. Additives and Impurities in Polymer.
8. Polymer Processing and Fabrication.
9. Water Soluble Polymers, Thickeners, Binders and Gels.
10. Glass and Metals.
11. Sterilization of Materials.
12. Toxicity and Pyrogen Testing.
13. Drug/Materials Interactions.
14. Pharmaceutical Packaging Materials.
15. Introduction to Advanced Topics.
16. Synopsis - Final Exam