ChE 642 - Applied Surface Chemistry
Fall Semester 2000

Catalog Description:

ChE 642: Applied Surface Chemistry. Credit 3. Factors underlying interfacial phenomena, with emphasis on thermodynamics of surfaces, structural aspects, and electrical phenomena. Application to areas such as emulsification, foaming, detergency, sedimentation, nucleation, wetting, adhesion and flotation. Please note: this is a survey-type course, in that lots of topics will be covered.

Topics Covered in Course:

1. Thermodynamics of surfaces
2. Capillarity
3. Surface active agents
4. Films and monolayers
5. Liquid-solid interfaces
6. Emulsions
7. Microencapsulation
8. Foams
9. Adsorption and catalysis
10. Nucleation and crystal growth
11. Membranes
12. Electrical effects
13. Biological applications

Instructor
J. L. Gainer. Phone: (804) 924-6277, FAX: (804) 982-2658, e-mail: jlg@virginia.edu

Textbook:

Grading:
2 Quizzes 45%
Final Exam 35%
Homework 10%
Paper 10%
100%

*The paper is due near the end of the semester. It is to be a critical review of some article in the literature that deals with some aspect of surface chemistry.

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John L. Gainer

John Gainer has been at the University of Virginia for the past 30 years, where he is Professor of Chemical Engineering. He has taught this course numerous times, including several times on TV. Most of his research is in the area of biochemical/biomedical engineering, although he has consulted on surface chemistry problems also.