

ECH 6726
Interfacial Phenomena I: Fall 2009
Course 2 Credits (ECH 6726); Class Schedule; TBD
Instructor: Dr. Brij Moudgil, bmoudgil@perc.ufl.edu
T/A: Dr. Georgios Pyrgiotakis, gpyrgiotakis@perc.ufl.edu (352) 273-1244

Pre-recorded lectures will be available online at the class website:
<http://perc.ufl.edu/courses/intephen01/default.asp>

At this website you will find also:

- Class notes
- Homework assignments and their solutions
- Quizzes and their solutions
- Additional supporting material (interesting papers, articles and supplementary lecture material)

NOTE: Since there is no textbook available to cover the whole course material, the students are advised to frequently review the lectures.

For any time conflicts, inability to attend an exam or any other class related problems please contact Dr. Pyrgiotakis.

Suggested Reference Books:

- 1) "Surfactants and Interfacial Phenomena, 3rd Edition," Milton J. Rosen, Wiley-Interscience; ISBN: 0471478180
- 2) "Physical Chemistry of Surfaces, 6th Edition," Arthur W. Adamson & Alice P. Gast, Wiley-Interscience; ISBN: 0471148733
- 3) "Surfaces, Interfaces and Colloids: Principles and Applications, 2nd Edition," Drew Myers, Wiley-VCH; ISBN: 0471330604
- 4) "Intermolecular & Surface Forces, 2nd Edition," Jacob N. Israelachvili, Academic Press; ISBN: 0123751810
- 5) "Foundations of Colloid Science, 2nd Edition," Robert J. Hunter, Oxford University Press; ISBN: 0198505027

Exams and Grading ECH6726:

Homework assignments/Labs	10%
Quizzes (2)	20%
Team presentation on a selected topic	35%
Final Quiz (Comprehensive)	35%

ECH 6726 - Team Presentations:

At the beginning of the semester several topics will be suggested by the instructor. The students will be asked to indicate their preference. Based on your selections you will be assigned a topic to organize disciplinary diverse teams, as appropriate.

In the middle of the semester (TBA) the teams will be asked to present to the class the problem and suggested strategy for possible solutions. Each team will prepare a comprehensive presentation for the end of the semester and will in detail explain the methodology and science to be followed.

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Important: The syllabus for the quizzes is cumulative. Questions for the surprise and final quiz can include material from both mid semester and final team presentations respectively.

Tentative Lecture Schedule

<u>Week</u>	<u>Discussion Topic</u>
1	Introduction, Scope, Exams, Homework Grades Surfaces, Interfaces, Surface Tension, Methods to Measure Surface Tension and IFT
2, 3	Surfactants (Anionic, Cationic, Nonionic, Zwitterionic), Biosurfactants, Micellization, Hydrophobic Bond, Equilibrium Properties, Dynamic Properties, Solution Chemistry and Surfactants
4	Equation of State for Monolayers, Gibbs Adsorption Equation
5	Micellar Kinetics
6	Electrical Double Layer Foams
7	Emulsions
8	Foam
9	Detergency
10	Microemulsions
11	Aerosols
12	Anti Microbial Agents