

SYLLABUS

Physical Nature of Surfaces*

Fall Quarter 1984

MSE/BioEng/Pharmaceutics 751 (3 credits)

- Instructor: J. D. Andrade, Professor
Office: 2000 MEB
Phone: 581-6911
- Time/Place: Tuesday, Thursday
1:10 - 2:40
MEB 2047
- Teaching Assistant: Suzanne Winters
Office: 3372 MEB
Phone: 581-7730
- Text: Required: R. Aveyard and D. Haydon, Introduction to the Principles of Surface Chemistry, Cambridge U. Press, paperback, 1973.
Recommended: A. W. Adamson, Physical Chemistry of Surfaces, 4th Ed., 1982, Wiley.
- Readings: Handout Materials and Reserve books.
- Grading:
- | | |
|---|-----|
| Midterm Exam: November 8, 1984 (closed book): | 25% |
| Final Exam: December 13, 1984 (closed book): | 30% |
| Quizzes: (closed book) | 40% |
| Seminars** | 5% |
- **You are expected to attend a minimum of five surface-related seminars during the quarter and to submit a critical summary report on each seminar at the first class meeting following the seminar. Appropriate seminars will be announced in class.
- *This is a two quarter class sequence: MSE/Bioeng/Pharmaceutics 752: Polymer Surface Characterization and Modification, Four credits including lab; will be offered Winter Quarter, 1985.

Topic Assignment Schedule

9/25	Introduction/General Concepts/Significance/Applications
9/27	Interface Thermodynamics and Semantics
10/2	Intermolecular Interactions - General
10/4	Intermolecular Interactions - in aqueous Media -Quiz #1
10/9	Electric Potentials/Double Layers
10/11	Liquid Surfaces - Capillarity <u>Film?</u>
10/16	Adsorption - Gas Phase - Quiz #2
10/18	Adsorption - Liquid Phase/Monolayers
10/23	Solid Surfaces - Rigid
10/25	Polymer Surfaces - Dynamic - Quiz #3
10/30	Adsorption from Solution
11/1	Macromolecular Adsorption
11/6	Summary and Review
11/8	J. A. out of town - <u>Midterm</u>
11/13	Surface Analysis/Characterization
11/15	Intro. to Experimental Methods: Microscopy
11/20	Experimental Methods: Auger/ESCA/IR-
11/27	Depth Profiling -Quiz 4
11/29	Contact Angles/Calorimetry/Other
12/4, 6	Selected Applications: Catalysis/Chromatography Sensors/Photoactive Surfaces

Final Examination: Thursday, December 13, 1984, 7:45 - 9:45 a.m.

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751

Instructor Andrade Date 9-10-84 Dept. & Course No. 751
 Campus Address 2000 MEB Course Title _____
 Telephone Extension 6911 Estimated Number in Class 35
 Quarter(s) Circle (A)84(W)85 S Su Loan Period (Indicate in Column Below):

Call Number	AUTHOR	TITLE	Loan Period		To be filled in by Library Staff	
			2 hr.	24 hr.	C on Res.	Notes
QD 506 A3 1982	Adanson	Physical chemistry of surfaces	x			search 9-10-84
QD 506 A94	Aveyard & Haydon	Intro. Principles of surface chemistry	x			recall 9-10-84
QD 506 B49	Bikerman	Physical surfaces		x		recall 9-10-84
541.3453 D256i	Davies	Interfacial phenomena	x		1	
QD 381.8 C43	Clark & Feast	Polymer surfaces		x		search 9-10-84
533.1 B672d	deBoer	Dynamical character of adsorption, 2nd ed.		x		search 9-10-84
	Gaines	Insoluble monolayers		x		NIL
QD 506 K3	Kaelble	Physical chemistry of adhesion		x	1	
QD 506 S588	Somorjai	Chemistry in two dimensions: surfaces		x		recall 9-10-84
QD 549 V63 1983	Vold & Vold	Colloid & Interface Chemistry		x		recall 9-10-84
QD 381.8 W87 1982	Wu	Polymer Interface & Adhesion		x		search 9-10-84

KEY TO ABBREVIATIONS AND NOTES:

Bindery: Item is being bound & has been requested for
 C. on Res.: Number of copies on Reserve
 NIL: Library does not have this book (Not in Library)
 On Order: Book has been ordered
 OP: Out of Print
 Recalled: Book called in from borrower