

CHEMISTRY 727

ANALYTICAL SEPARATIONS

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Material to be covered will be drawn from the topics outlined below:

SEPARATIONS IN ENGINEERING AND ANALYTICAL PROCESSES

UNIT PROCESSES:

(Distillation, Extraction, Membrane Separation, Intermolecular Interactions)

SAMPLE PREPARATION TECHNIQUES: LLE, SPE, SPME, SFE

MEMBRANE SEPARATIONS

CHROMATOGRAPHIC TECHNIQUES

Gas (GLC, GSC); Liquid (LLC, LSC, GPC, IEC, Affinity);

Supercritical Fluid Chromatography(SFC)

PHYSIOCHEMICAL APPLICATION OF CHROMATOGRAPHY

ELECTROPHORESIS TECHNIQUES:

Gel, Capillary, Moving Boundary, Zone, Isotachopheresis

CAPILLARY SEPARATIONS

DETECTION METHODS

GC-MS, LC/MS, CE/MS

MULTIDIMENSIONAL SEPARATIONS

FLOW FIELD FRACTIONATION

Course Evaluation

Assignments	10%
Quizzes	10%
Project Report	40% (Paper and Presentation)
MIDTERMS	40%

During the course students will be asked to complete a literature project regarding chosen separation technique or the method of analysis of a chosen group of environmentally or biologically important substances that utilize analytical separations

References:

Analytical Chemistry	PER TP 1.I615
Journal of Chromatography	PER QD 271.J64
Journal of Chromatographic Science	PER QD 271.J66
Journal of Separation Science	
Separation Science Technology	PER TP 156. S45S4