

CHEMISTRY 727
Fall 2017
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,
Isotachophoresis.

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% (Oct. 19 and Nov. 16)

During the course students will be asked to complete a literature project regarding the method of analysis of a chosen group of environmentally or biologically important substances which utilize analytical separations. There are two parts of the project – 10 page (single spaced) description (plus figures) and the 15 minutes presentation (Nov. 30, 2017).