Microfluidics, Lab-on-a-Chip

Schedule:

Week 1: Miniaturization of analytical measurement systems. μ-TAS.

Week 2: Design and fabrication of microfluidic chips (hard/soft techniques, lithography, layer processes, etching).

Week 3: Lab-on-a-chip technology. Analysis of picoliter–attoliter volumes (Bioanalyzer 2100).

Week 4: Automated chip-based systems for DNA, RNA, protein, and cell analysis.

Week 5: Flow injection–CE microfluidic implementations: sample prep/handling.

Week 6: Flow injection–CE microfluidic implementations: separations on chips, MS coupling.

Week 7: Flow injection–CE microfluidic implementations: MS coupling (continued).

Week 8: Single-cell analysis: viruses, bacteria, intracellular volume analysis.

Week 9: Use of biosensors in microfluidic chips.

Week 10: Design of chromatographic packings in microchips I.

Week 11: Design of chromatographic packings in microchips II.

Week 12: Structure of chip-LC/MS systems.

Week 13: Affinity electrophoresis in chips: binding constants by simulation & experiments.