

## CHEM-ENG 590E - Microfluidics and Microscale Analysis in Materials and Biology

Prof. Sarah Perry

Class Schedule

| Week | Date | Topic   | Reading Assignment             | Comments, Deadlines  |
|------|------|---|--------------------------------|--|
| 1    | 1/22 | <b>Course Introduction</b><br>Syllabus, Literature & Design Assignments<br>Scaling: micro- vs. macro-fluidics |                                |  |
|      | 1/24 | <b>Microfabrication</b><br>Materials, Photolithography, Soft Lithography                                      | Wiki Textbook Chapters 1 and 2 | <b>Homework #1 Due</b><br>Introduction to Microfluidics and Wiki Page Selections |
| 2    | 1/29 | <b>Device Design</b><br>Adobe Illustrator - <b>Bring Laptop</b>   |                                |  |
|      | 1/31 | <b>Flow Control</b><br>Laminar Flow and Mixing, Droplet Microfluidics   | Wiki Textbook Chapter 4        | <b>Homework #2 Due</b><br>Safety Training and OWW Registration                   |
|      | 2/4  | <b>**Last day to add/drop with no record**</b>  |                                |  |
| 3    | 2/5  | <b>Valving Strategies</b>   | Wiki Textbook Chapter 5        |  |
|      | 2/7  | <b>Methods for Separation</b>   | Wiki Textbook Chapter 6        | <b>Homework #3 Due</b><br>Introduction to Illustrator, Microfluidic Mazes        |
| 4    | 2/12 | <b>Paperfuge Activity</b>   |                                |  |
|      | 2/14 | <b>Hands On</b><br>Team Time  |                                | <b>Homework Due</b><br>Outline of Design Project Plan                            |
| 5    | 2/19 | <b>**Monday Class Schedule**</b>  |                                |  |
|      | 2/21 | <b>Paper Microfluidics</b>  | Wiki Textbook Chapter 7        | <b>Homework Due</b><br>Preliminary Draft of Individual Wiki Pages                |
| 6    | 2/26 | <b>Hands On</b><br>Photolithography/Soft Lithography Training   |                                |  |
|      | 2/28 | <b>Hands On</b><br>Photolithography/Soft Lithography Training   |                                | <b>Homework Due</b><br>Preliminary Device Designs                                |
| 7    | 3/5  | <b>Hands On</b><br>Team Time  |                                |  |
|      | 3/7  | <b>Hands On</b><br>Team Time  |                                | <b>Homework Due</b><br>Device Designs  |
| 8    |      | <b>**Spring Break**</b>   |                                |  |

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|------|------|---|---|
| 9    | 3/19 | <b>** Last day to drop with DR - Grad Students**</b><br><b>**Last day to drop with "W" and select P/F**</b><br><b>Hands On</b><br>Team time |   |
|      | 3/21 | <b>Hands On</b><br>Team time  | <b>Homework Due</b><br>Design Project Update                |
| 10   | 3/26 | <b>TBD</b>  |   |
|      | 3/28 | <b>TBD</b>  |   |
| 11   | 4/2  | <b>Hands On</b><br>Team Time  |   |
|      | 4/4  | <b>Hands On</b><br>Team Time  |   |
| 12   | 4/9  | <b>TBD</b>  |   |
|      | 4/11 | <b>TBD</b>  | <b>Homework Due</b><br>Final Draft of Individual Wiki Pages |
| 13   | 4/16 | <b>TBD</b>  |   |
|      | 4/18 | <b>TBD</b>  | <b>Homework Due</b><br>Design Project Update                |
| 14   | 4/23 | <b>Hands On</b><br>Team Time  |   |
|      | 4/25 | <b>Hands On</b><br>Team Time  |   |
| 15   | 4/30 | <b>Last day of class</b>  |   |
|      | 5/3  | <b>(Final exams begin)</b>  | <b>Homework Due</b><br>Individual Reflection Paper          |
| 16   | TBD  | <b>Design Project Presentations</b>   | <b>Homework Due</b><br>Final Design Report                  |