BE 727 Principle and Application of Tissue Engineering Labs

**Overview**

In BE726 labs, we learned techniques in biomaterial synthesis and characterization. The focus was on the material itself. In BE727 labs, we will learn techniques in mammalian cell culture and characterization. The focus is on material-tissue interactions. In Lab 1, we will study how protein deposition on the material surface can affect cell adhesion. In Lab 2, we will go through the procedures of soft lithography and generate a simple micro-fluidic device. In Lab 3, we will learn a simple method of drug encapsulation and evaluate the rate of drug release.

**Lab Syllabus**

<table>
<thead>
<tr>
<th>Week of</th>
<th>Lab title</th>
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<tbody>
<tr>
<td>Jan 25</td>
<td>Lab 1 Material Surfaces and Cell Adhesion I</td>
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<tr>
<td>Feb 1</td>
<td>Lab 1 Material Surfaces and Cell Adhesion II</td>
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<tr>
<td>Feb 8</td>
<td>Lab 1 Material Surfaces and Cell Adhesion III</td>
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<tr>
<td>Feb 15</td>
<td>No Lab</td>
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<tr>
<td>Feb 22</td>
<td>Lab 2 Photolithography and Microfluidics I</td>
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<td>Feb 29</td>
<td>Lab 2 Photolithography and Microfluidics II</td>
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<td>March 7</td>
<td>Spring Break</td>
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<td>March 14</td>
<td>Lab 3 Controlled Drug Release I</td>
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<td>March 21</td>
<td>Lab 3 Controlled Drug Release II</td>
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<td>March 28</td>
<td>Lab 3 Controlled Drug Release III</td>
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**When, where and who**

Time: TBD  
Location: ERB B06 and B08  
Instructor: Dr. Xin Brown (xinq@bu.edu)

**Laboratory Information**

**Attendance**

Laboratories will commence on time and are expected to take three hours to complete. You will need the full three hours to adequately complete the lab exercise. Therefore, you are expected to be prepared by reading the appropriate chapters in the textbook and the laboratory manual.

You are expected to be punctual to every laboratory meeting. This is to ensure minimal disruption of the class, your preparedness for the day's activities and your safety. Because the instructor reviews safety procedures at the start of the class, you are a safety hazard to yourself and your classmates if you miss these instructions because you are late.

Attendance in laboratory is required. You may turn in lab report pertaining only to the laboratories for which you are present. Makeup labs are at instructor’s discretion.

**Safety**

Because of chemical and biological hazards encountered in the laboratory, you are expected to wear pants or long skirts and closed-toed shoes in this class. Students not properly dressed may be asked to leave the laboratory at the instructor’s discretion.

If you have a medical condition that requires special precautionary measures in the laboratory, notify your instructor as soon as possible so that alternative arrangements can be made.
Eating, drinking, smoking, inserting or removing contact lenses and applying makeup are not permitted in the laboratories.

Cell phones, radios, CD and cassette players are not permitted in the laboratory.

**Maintenance**
You are responsible for keeping your bench neat and clean. At the end of every laboratory:
- Place dirty glassware and utensils in the grey plastic tray
- Wipe down the bench and discard trash
- Turn off any equipment at your bench
- Label and arrange your samples in an orderly fashion
- Follow any other directions from the instructor

**Assignments**
All lab reports should be written according to the Lab Report Guideline.

**Late Work Policy**
All lab reports must be turned in first day of the next lab. Late assignments will be penalized 10% per day late. The lab report will not be accepted 5 days after the due date.

**Academic Conduct Policy**
The assignments are designed to help you understanding the material and practice for scientific writing. It is expected that you will work independently on the completion of all written assignments. We encourage you to collaborate with your classmates in brainstorming ideas, but the written work must be your own.

**Final Laboratory Grades**
You must have a passing grade in the laboratory (60%) in order to pass the course. Your lab report grade will be 25% of the final course grade.