BME 701 – Fall 2018
Biomedical Engineering Core I

Course Objective: An Introduction to biomedical engineering. The biological, chemical, electrical, and mechanical principles involved in the design and operation of medical devices and bioprocesses. The engineering research themes of the School of Biomedical Engineering are emphasized: mechanical engineering, biomedical imaging, bioinstrumentation, biomedical technology (e.g. biophotonics and medical robotics) and neurotechnology.

Instructors: Dr. Greg Wohl (ETB 411, ext. 21195) wohlg@mcmaster.ca
Dr. Tom Doyle (ETB 106, ext. 26139) doylet@mcmaster.ca
Dr. Qiyin Fang (ETB 411, ext. 24227) qiyin@mcmaster.ca
Dr. Tohid Didar (JHE-308A, ext. 20413) didart@mcmaster.ca
Dr. Mike Noseworthy (ETB 406 ext. 23727) nosewor@mcmaster.ca
Dr. Jim Reilly (ITB-A211) reilly@mail.ece.mcmaster.ca

TA: Alejandro Santos Diaz

Lecture Hours: Thursdays (Starting September 6th), 2:30-5:30 pm

Lecture Room: CNH-223

Assessment: Section Evaluations (e.g., quiz, assignment, paper) 60 %
(one evaluation per segment, to be assigned by the instructor)

Project 40 %
Oral PowerPoint presentation (12 min) followed by Q and A session (8 min)

Policy Reminder: The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as the problem occurs.
**McMaster University Statement on Academic Dishonesty**

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at: [http://www.mcmaster.ca/senate/academic/ac_integrity.htm](http://www.mcmaster.ca/senate/academic/ac_integrity.htm)

**Lecture Schedule**

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<tr>
<th>Date</th>
<th>Lecturer</th>
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<tbody>
<tr>
<td>Sept. 6, 20</td>
<td>Dr. Qiyin Fang (Optical)</td>
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<td>Sept. 13</td>
<td>Dr. Jim Reilly (Machine Learning)</td>
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<td>Sept. 27, Oct 4</td>
<td>Dr. Greg Wohl (Mech Engineering)</td>
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<td><strong>(NOTE Oct. 11)</strong></td>
<td><strong>Fall reading week: no class).</strong></td>
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<td>Oct. 18, 25,</td>
<td>Dr. Tohid Didar (Bio-functional interfaces, Lab/organ-on-chip)</td>
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<td>Nov. 1, 8, 15</td>
<td>Dr. Tom Doyle (Instrumentation and Microcontrollers)</td>
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<tr>
<td>Nov. 22, 29, Dec 6</td>
<td>Dr. Mike Noseworthy (Medical Imaging)</td>
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Thursday Dec 13\textsuperscript{th}  Student final presentations (**full day**)  

Some segments will include some exposure to research laboratories.
Final presentation requirements

For the final evaluation of the course, you have to prepare a 12-15 minutes (+ 5 minutes for discussion) presentation about a self-chosen topic related to the field of Biomedical Engineering. This topic has to be COMPLETELY OUT of your research area and the format of the presentation is also free, however you must answer the following questions.

1. What is the health problem (disease) related to my topic? (You must give an overview of the anatomy/physiology/biology of the problem including updated statistical information about morbidity/mortality)
2. Where within the field of BME does my topic fit?
3. How does my topic address the health problem?
4. What are the engineering principles behind the topic/device/method?
5. What alternatives to my topic/device/method exist to address the problem?
6. What are the advantages/disadvantages of my topic/device/method compared to others?

IMPORTANT NOTES

1). Your topic topic/device/method can be commercially available or “on-going” research. In any case it has to be approved by the TA of the course.

2). In order to avoid repeated topics, a “first come, first served” scheme will be used so the suggestion is that you choose your topic as soon as possible.

In case you have any additional questions please email the TA.