The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

### 2016-2017

**Med Phys 3C03**

**OPERATIONAL HEALTH PHYSICS: LABORATORY & COMMUNICATION**

<table>
<thead>
<tr>
<th>(Term 1)</th>
<th>D.R. CHETTLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MON: 11:30 - 12:20, 13:30 - 14:20 GSB-B101</td>
<td>NRB-106</td>
</tr>
<tr>
<td>TUE, WED: 08:30 - 10:20 NRB-B117</td>
<td>E-mail: <a href="mailto:chettle@mcmaster.ca">chettle@mcmaster.ca</a></td>
</tr>
<tr>
<td>Tue: 14:30 - 16:20 NRB-B117</td>
<td>Ext.27340</td>
</tr>
</tbody>
</table>

**OBJECTIVE:** To provide students (1) with an opportunity to develop practical Health Physics measurement skills and (2) with experience in reporting findings in a clear concise manner that would be appropriate to radiation protection in the workplace.

There are six specific practical subsidiary objectives. Each of these will be addressed in a two week cycle. The first week will introduce the topic and will be given to the practical experience. The second week will have time set aside for reporting results and findings, along with discussion and feedback.

This course is under development, so the detailed content and delivery may well vary.

The six subsidiary objectives are:

1. **Survey Instruments** – Measurement, Source Checking and Calibration  
   a. Overview of Instrumentation;  
   b. Applications of survey meters and contamination meters;  
   c. Calibration Methods;  
   d. Interpreting measurements;  
   e. Counting system MDA determination;

2. **Field radiation surveys**  
   a. Surveys of radiation areas;  
   b. Locating a source;  
   c. Shielding evaluation;  
   d. Safety considerations;  
   e. Regulatory requirements for signs and postings;  
   f. Estimating personnel doses;

3. **Field contamination surveys**  
   a. Surveys of contaminated materials;  
   b. Quantification of activity;  
   c. Identifying isotopes via spectroscopy (beta, gamma);
d. Leak testing of sealed sources;
e. Decommissioning;
f. Waste characterization;

4. Air sampling for radioactivity using high volume air samplers
   a. Sampling for airborne radiation hazards;
   b. Determining activity concentration;
   c. Identification of samples;
   d. Hazard estimates;

5. Estimating doses and dosimetry
   a. OSL dosimetry;
   b. Estimating dose from routine activities;
   c. Determining dose consequences from personal contamination (internal and external);
   d. In-vivo monitoring (thyroid, whole body counting, urine bioassay);
   e. Biological compartments and models;
   f. ALARA and facility design;

6. Radiological Incident Response
   a. Incident simulation where students put into practice the entire spectrum of course materials;
   b. Surveys and contamination monitoring;
   c. Air sampling for releases;
   d. Dose estimation and hazard assessments;
   e. Spill response and source recovery;

Evaluation: Practical performance 30-40%
Report communication 30-40%
Quizzes 10-20%
Self-assessment 5%
Class feedback 5%
Participation 10%

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

The following illustrates only two forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work Copying or using unauthorized aids in tests and examinations.