CL912 Occupational Health and Toxicology

Module Code: CL912 | Module Title: Occupational Health and Toxicology

Module Registrar: Dr Iain Beverland

Other Lecturers Involved: Prof R Willey; Prof H Grant

Credit Weighting: 10 | Semester: 2

Compulsory/optional/elective class: Compulsory | Academic Level: 5

Prerequisites:

Module Format and Delivery (hours):

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Tutorial</th>
<th>Assignments</th>
<th>Laboratories</th>
<th>Private Study</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>6</td>
<td>20</td>
<td></td>
<td>50</td>
<td>100</td>
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</tbody>
</table>

General Aims

To provide students with an understanding of the influence of the workplace environment on health.
To introduce hazard analysis & risk assessment in relation to workplace exposures.
To provide an introduction to toxicological sciences.
The different sections of the class are underpinned by cross cutting public health principles implemented through population-based methods in occupational and environmental epidemiological and toxicological sciences.

Specific Learning Outcomes

Occupational Hygiene
- Knowledge & skills about the process of risk assessment in relation to hazards met in occupational settings.
- Insight into exposure assessment in the context of occupational hygiene.

Introduction to Toxicology
- Knowledge of the basic principles of toxicology.
- Knowledge of some of the mechanisms by which environmental contaminants affect human beings.

Syllabus

Occupational Hygiene:
Introduction.
Hazards & their identification.
- Risk Assessment:
  - Legislation
  - Control & Hierarchies
  - Semi-quantitative Assessments
  - In individuals, organisations and society.
Risk Management.
Sources of Information.
Dose response relationships.
Measurement techniques:
- gases and vapours
- dusts and particulates.
Asbestos.
Personal Protection Equipment.
Sick Building Syndrome & Humidifier Fever.

The lecture sessions for the first half of the class are complemented by industrial case studies in contemporary occupational health and safety practice.

Introduction to Toxicology:
1. Types of toxic interactions; Quantification of the toxic response
2. Modes of entry of chemicals into the body; Metabolism of foreign chemicals; Factors affecting the toxic response
3. Mechanisms of toxicity, & cellular protection mechanisms; Apoptosis & necrosis as mechanisms of cell death.
4. Immunotoxicity and carcinogenesis
5. Metal toxicity – lead, chromium and mercury.
6. Hormone modifiers in the environment – reproductive toxicity
Assessment Method(s) Including Percentage Breakdown and Duration of Exams

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Duration</th>
<th>Weighting %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination S2</td>
<td>2 hours</td>
<td>70%</td>
</tr>
<tr>
<td>Coursework S2</td>
<td>1</td>
<td>30%</td>
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</tbody>
</table>

Coursework / Submission deadlines

<table>
<thead>
<tr>
<th>Coursework Title</th>
<th>Submission Date</th>
<th>Weighting %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicology – Assignment</td>
<td>Week 12</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Semester 2</td>
<td></td>
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</tbody>
</table>

PLEASE NOTE:
Students need to gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. Resits will consist entirely of examination.

Recommended Reading

<table>
<thead>
<tr>
<th>Book Title</th>
<th>Publisher</th>
<th>ISBN Number</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Introduction to Toxicology</td>
<td>Taylor &amp; Francis</td>
<td>0-415-24762-4</td>
<td>Library already has several copies of the 2nd edition.</td>
</tr>
<tr>
<td>Introduction to Immunotoxicology</td>
<td>Taylor &amp; Francis</td>
<td>0-7484-0307-8</td>
<td>Library copy.</td>
</tr>
<tr>
<td>Endocrine Disrupting Chemicals</td>
<td>Royal Society of Chemistry</td>
<td>0-85404-255-5</td>
<td></td>
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<tr>
<td>Occupational Toxicology</td>
<td>Taylor and Francis</td>
<td>0-7484-0917-3</td>
<td>Library copy</td>
</tr>
<tr>
<td>Occupational Hygiene</td>
<td>Harrington JM and Gardiner K</td>
<td>0-632-03734-2</td>
<td>This has useful sections on the nature, properties and health impacts of airborne contaminants found in workplaces; and shorter sections on noise, vibration, thermal environment, ionising &amp; non-ionising radiation. There are generalist chapters on biological monitoring and sampling strategies.</td>
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Date of Last Modifications: June 2012