Chemical Toolbox for Drug Discovery

Module Code: INC7016-B
Academic Year: 2018-19
Credit Rating: 20
School: School of Pharmacy and Medical Sciences
Subject Area: Cancer Therapeutics
FHEQ Level: FHEQ Level 7 (Masters)

Pre-requisites:
Co-requisites:

Contact Hours

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>24</td>
</tr>
<tr>
<td>Tutorials</td>
<td>4</td>
</tr>
<tr>
<td>Directed Study</td>
<td>172</td>
</tr>
</tbody>
</table>

Availability Periods

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Location/Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDA</td>
<td>University of Bradford / Semester 2 (Feb - May)</td>
</tr>
</tbody>
</table>

Module Aims
To provide students with a current and critical evaluation of methods, techniques and strategies used to prepare drug molecules. In particular, a specific aim is to provide students with an understanding of the reagents and conditions used for selective molecular transformations used in drug synthesis.

Outline Syllabus
Topics to be covered include: Survey of methods for the synthesis of drug molecules, Functional group interconversion, selective molecular transformations, protection/deprotection strategies, simple carbocyclic and heterocyclic synthesis, strategies for diversity oriented synthesis. Emphasis will be placed upon a practical means of obtaining
organic molecules that are relevant in drug discovery, therefore, many examples of synthesis of pharmaceutics will be presented.

**Module Learning Outcomes**

*On successful completion of this module, students will be able to...*

1. Identify appropriate common and generally used chemical reagent, as well as practical means, of obtaining organic molecules that are relevant in drug discovery.
3. Critically evaluate, in the contexts which are relevant to drug discovery such as diversity oriented synthesis, strategies and methods for multi-step construction of organic drug molecules.
4. Develop specific as well as generic literature skills for life-long learning (literature and databases).

**Learning, Teaching and Assessment Strategy**

The LO is achieved through lectures covering methods in synthetic chemistry used in the preparation of drug candidates and drug molecules. The emphasis is put on strategic decision making processes based on availability of chemical routes and methods. Lectures provide examples of problem solving in this approach. Furthermore, students gain experience of problem-solving through exercises they do from real examples in drug synthesis (part of the coursework).

The assessment is done through examination of the ability to design strategy for finding solutions and to solve specific problems by using their knowledge of chemical synthetic methods. Both from examples in lectures and through assessed coursework, students gain experience of such problem solving activities before the final exam.

**Mode of Assessment**

<table>
<thead>
<tr>
<th>Type</th>
<th>Method</th>
<th>Description</th>
<th>Length</th>
<th>Weighting</th>
<th>Final Assess'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summative</td>
<td>Examination - closed book</td>
<td>Comprising of a part A containing two questions of which both are answered, plus a part B containing four questions of which two are answered</td>
<td>2 hours</td>
<td>70%</td>
<td>Yes</td>
</tr>
<tr>
<td>Summative</td>
<td>Coursework</td>
<td>Four pieces of coursework (equally weighted), one</td>
<td></td>
<td>30%</td>
<td>No</td>
</tr>
</tbody>
</table>
from each
module lecturer

Legacy Code (if applicable)

Reading List
To view Reading List, please go to rebus:list.