

| Module Details         |                                         |
|------------------------|-----------------------------------------|
| <b>Module Title:</b>   | Toxicology and Safety Pharmacology      |
| <b>Module Code:</b>    | INC7005-B                               |
| <b>Academic Year:</b>  | 2019-20                                 |
| <b>Credit Rating:</b>  | 20                                      |
| <b>School:</b>         | School of Pharmacy and Medical Sciences |
| <b>Subject Area:</b>   | Cancer Therapeutics                     |
| <b>FHEQ Level:</b>     | FHEQ Level 7 (Masters)                  |
| <b>Pre-requisites:</b> |                                         |
| <b>Co-requisites:</b>  |                                         |

| Contact Hours  |       |
|----------------|-------|
| Type           | Hours |
| Lectures       | 24    |
| Tutorials      | 6     |
| Laboratory     | 4     |
| Directed Study | 166   |

| Availability |                                                 |
|--------------|-------------------------------------------------|
| Occurrence   | Location / Period                               |
| BDA          | University of Bradford / Semester 1 (Sep - Jan) |

| Module Aims                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>To provide students with the opportunity to develop</p> <ul style="list-style-type: none"> <li>- Knowledge of the subject of toxicology and safety pharmacology</li> <li>- A systematic and critical understanding of this subject area</li> <li>- Understanding of the role of toxicology safety pharmacology in the context of drug development</li> <li>- The ability to effectively communicate scientific concepts</li> <li>- Relevant laboratory skills</li> </ul> |

## Outline Syllabus

There are two major themes within this module. The first is designed to inform students of current practise in Toxicology and will focus on the regulatory and experimental areas of the field, including Genotoxicity, Mutagenicity, Carcinogenicity, Reproductive Toxicology, Dermal Toxicology and Immunotoxicology. Principles of risk assessment and drug absorption, distribution and metabolism will also be covered. The second theme of this module will concentrate on the drug development process, with particular attention on the screening methods used, discovery toxicology and predictive toxicology screening. This will involve description of in silico, in vitro and other short term toxicity screening methods. In addition the need for in vivo screening tests will be discussed. Specific examples will be used to describe the process. Students will develop their ability to work both individually and in small groups during laboratory work. They will extend their literature searching, presentation and report writing skills in preparing a journal club, and preclinical drug safety report.

## Learning Outcomes

|    |                                                                                              |
|----|----------------------------------------------------------------------------------------------|
| 1  | Demonstrate a systematic understanding of toxicology and safety pharmacology subject areas.  |
| 2  | Describe current approaches to drug safety screening.                                        |
| 3  | Critically evaluate current scientific literature.                                           |
| 4  | Carry out and evaluate in vitro toxicology laboratory experiments.                           |
| 5  | Systematically gather, analyse, evaluate and report data gathered in laboratory experiments. |
| 6  | Demonstrate understanding of the relevant regulatory framework and international guidelines. |
| 7  | Develop integrated risk assessment and safety testing strategies.                            |
| 8  | Demonstrate the skills to present a discussion of a research paper or research theme.        |
| 9  | Critically analyse data and information.                                                     |
| 10 | Demonstrate generic literature skills for life-long learning.                                |

## Learning, Teaching and Assessment Strategy

A combination of lectures, invited seminar speakers, student-led seminars and laboratory investigation, plus student directed learning.

The student led seminars will consist of a journal club exercise where students will individually review and present a selected research paper. The laboratory investigation will include preparation of a detailed experimental report covering methods, data collection, data analysis and interpretation, conclusions. During directed study time you will make use of suggested resources for further reading, practice presentation skills and become familiar with key experimental calculations. In directed study you are responsible for monitoring and directing your own learning. Your knowledge base will be assessed by examination at the end of the semester.

## Mode of Assessment

| Type      | Method                    | Description                                                   | Length       | Weighting |
|-----------|---------------------------|---------------------------------------------------------------|--------------|-----------|
| Summative | Presentation              | Oral presentation - Scientific publication                    | 15 minutes   | 25%       |
| Summative | Examination - closed book | Examination (two essays to be answered from a choice of five) | 2 hours      | 50%       |
| Summative | Coursework                | Preclinical drug safety profile report                        | 0-2000 words | 25%       |

### Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>.

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*