Module Title: Pharmacology and Prescribing Science
Level of Learning: 8 NAQI
Pre-requisite course: None
ECTS Credits: 10
Module Coordinator: Dr. Steve Kerrigan

Rationale of Module
The Pharmacology module provides an introduction to the scientific discipline of Pharmacology. Students will cover the basis of neurotransmission and drug action from both a physiological and pharmacological point of view. Students will build upon fundamental pharmacology principles to gain detailed knowledge of the mechanism of action, side effects and indications of the major therapeutic drugs classes used to treat disorders of the coagulation system, cardiovascular disease, psychiatric and Neurological disorders, Cancer, Infectious disease, Endocrine, Gastrointestinal and respiratory disorders. Students will also learn about the physiological basis of pain and identify pharmacological targets for its therapeutic management and current treatment options.

Module Aims
In this module the student will develop an in-depth understanding of the key core principles of pharmacology. The relationship between drugs and receptors and the link to intracellular processes will be examined. The effects of drugs in the body will be considered with reference to the route of administration, its distribution, metabolism and excretion.

Learning Outcomes
On successful completion of this module, the student will be able to:

1. Compare the action of drugs on specific receptors and how they operate at a molecular level. Define dose response relationships and describe how these are used for measuring the effects of drugs on their receptors. Calculate and define pharmacokinetic parameters such as the volume of distribution, half life and bioavailability of a drug.

2. Categorise the different forms of ischaemic heart disease, arrhythmia’s and explain the pathophysiology, aetiology and pharmacological management of these conditions. Outline the clinical importance of the management of hyperlipidaemia and classify how by pharmacological management it may be treated.

3. Summarise the neurological dysfunctions which explains the underlying pathology of the following neurological disorders (Alzheimer’s Disease,
Parkinson’s Disease, Epilepsy, Stroke) and identify suitable classes of pharmacological agents, explaining their mechanism of action which may be utilised in the management of these conditions.

4. Describe the pathophysiology of psychiatric disorders (Depression, OCD, Anxiety and Sleep Disorders, Schizophrenia) and their therapeutic management focusing on mechanism of action.

5. Explain the physiological basis of pain and identify where opioid and non-opioid analgesics act to modify pain perception with reference to mode of action and potential side-effects.

6. Recognise the extent of the diabetes epidemic worldwide and appreciate the increased health problems associated with the disease. Outline the clinical importance of the management of diabetes and classify how by pharmacological management it may be treated.

7. Select an appropriate pharmacological treatment for the management and/or prevention of infectious disease, taking account of the specific nature of the infectious agent; bacterial, fungal, viral or parasitic and the mechanism of action of the pharmacological agent.

8. Explain the pharmacology of histamine receptor antagonist

Indicative Syllabus

Unit 1: Principles of Pharmacology
- Pharmacodynamics
- Pharmacokinetics
- Drug Interactions
- Adverse Drug Reactions
- Pharmacotherapeutics
- Using the BNF

Unit 2: Prescribing for Specific Patient Groups
- Prescribing in the elderly
- Prescribing in children
- Prescribing in the renal impaired patient
- Prescribing in the pregnant patient

Unit 3: Prescribing for
- Cardiovascular Conditions
- Respiratory Conditions
- Gastro Intestinal Conditions
- Genitourinary Conditions
- Central Nervous System Conditions
- Pain
- Oncology
- Diabetes
• Bacterial, Fungal and Viral Infections
• Topical Conditions

### Teaching Learning Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Face to Face Contact Hours</td>
<td>18</td>
</tr>
<tr>
<td>Online Contact Hours</td>
<td>49</td>
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<tr>
<td>Independent Learning Time</td>
<td>136</td>
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<tr>
<td>Course Work Preparation</td>
<td>47</td>
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<td><strong>Total</strong></td>
<td><strong>250</strong></td>
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#### Description of teaching activities

**Classroom hours:** Didactic teaching, question & answers, Socratic questioning, class discussions, group work, case study review, role play and scenarios and debates.

**Online Contact Hours:** The following teaching methodologies are incorporated into the classroom based hours: Voice recorded Lecture notes (Camtasia), required supplemental reading to support the voice recorded material, discussion on the online discussion forum, questions & answers and appraisal and critique of the literature via the forum.

### Examination/Assessment Method

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<thead>
<tr>
<th>Examination/Assessment Method</th>
<th>Type of Assessment (Continuous/Terminal)</th>
<th>Weighting</th>
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<tbody>
<tr>
<td>Written Examination</td>
<td>Terminal</td>
<td>100%</td>
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### Indicative Reading


### Articles from the following Journals:

- Nurse Prescribing Journal of Advanced Nursing
- Journal of Clinical Nursing

### Recommended Websites:

- [www.dohc.ie](http://www.dohc.ie)
- [www.imb.ie](http://www.imb.ie)
- [www.ipha.ie](http://www.ipha.ie)
- [www.medicines.ie](http://www.medicines.ie)

Individual Lecturers will provide additional reading material