

Welcome to PM208 Fundamental Concepts in Pharmacology!

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Aim of the course: This module introduces students to core concepts in Pharmacology. These include Pharmacokinetics: how drugs are administered, absorbed, distributed around the body, metabolized and excreted; and Pharmacodynamics: how drugs act on their targets in the body, for instance activating or inhibiting proteins, effects of increasing dose, and the clinical consequences of both drug pharmacodynamics and pharmacokinetics. A combination of lectures, on-line self-directed exercises and assignments will be used. The assignments are designed to integrate with the lectures, and improve your skills in deriving and interpreting pharmacokinetic and pharmacodynamic data.

Learning Outcomes:

On successful completion of this module the learner should be able to:

- describe the main drug targets
- interpret dose response curves for agonists, antagonists, inverse agonists
- calculate molarities, concentrations, volumes required in making solutions
- access and critically analyse and interpret pharmacological data
- describe the processes of absorption, distribution, metabolism and excretion for specific drugs
- explain the effects of different routes of administration on absorption of drugs, and effects of food and drug interactions on drug disposition
- derive pharmacokinetic data and use them to predict clinical properties of drugs

Lectures: Lectures take place on Wednesday (IT250), Thursday (Fottrell/AM200) and Friday (Fottrell/AM200), from 1 – 2pm.

Assessment:

Written Exam (70%): A 2-hour end of semester written examination. There will be 4 questions, each incorporating theory and data interpretation sections. Questions will be short-answer format. A sample exam paper will be available.

Please note that there will be NO CHOICE on the exam paper. In order to do well in the exam you will need to attend all lectures, complete the practice exercises (before the assignment session), and attend and complete assignments and MCQs. The course and the examination are integrated, with both theory and practical aspects intertwined.

- The course runs from Week 1 to Week 6 (inclusive) of Semester I.
- Study week is the week commencing 1st December 2014.
- The Semester I exam period will take place between 8th and 19th December 2014.

Coursework (30%): There will be four assignments (weeks 2-5 inclusive) worth 20% in total or 5% each, and two MCQs worth 5% each.

N.B. For each assignment a worked example, together with a practise exercise (with answer provided) will be available on Blackboard on the Friday before the assignment is due. I will also go through the assignment in Friday's lecture. You are expected to attend at IT106 for one hour on Tuesday afternoons (slot to be assigned in week 1) or at the Pharmacology classroom on Monday 2-3 pm for 3rd Biotech students. Students will complete and hand up an assignment (similar to the worked example and practise exercise) at this time. These assignments will be marked and go towards your coursework mark.

Course Information:

During the year, information will be available on the web via “Blackboard”. You will need to access this for up to date announcements and to see lecture and practical material, and to conduct the interim MCQ’s.

<http://blackboard.nuigalway.ie>

Lecture content**Fundamentals of Pharmacology**

Naming and classification of drugs, drugs targets, drug-receptor interactions, chemical transmission, Drug-receptor binding, dose-response curves, agonists, antagonists, therapeutic index.

8 Lectures Prof John Kelly

Pharmacokinetics

Drug movement across biological membranes, routes of administration, drug distribution, metabolism and excretion, variations in pharmacokinetic response and inter-individual variation.

8 Lectures Prof John Kelly

Recommended Textbooks:

If you intend continuing with Pharmacology you should have a detailed textbook. The lecture content is largely drawn from Rang and Dale, and Golan to a lesser extent. Harvey is a less detailed text suitable for students not continuing with Pharmacology after second year. Copies of textbooks are also available in the Library. Students should consult textbooks in addition to lecture notes in order to understand the material. Lecture notes are good indicators of the main or most important points on a topic.

Rang, H.P., Dale, Ritter, Flower & Henderson (2011): Pharmacology, 7th Edition. Churchill Livingstone. ISBN 978-0-7020-3471-8.

Golan, D.E., et al., (2011) Principles of Pharmacology 3rd edition. LWW. ISBN 9781451118056

Harvey, R.A., (2011) Lippincott’s Illustrated Reviews Pharmacology, 5th Edition. LWW. ISBN 9781451143201

PM208 Timetable: 2014-2015

Lectures

Day	Date	Lecture Title	Venue	Time	Lecturer
<i>Pharmacodynamics</i>					
Wed	10/9/14	Introduction	IT250	1-2	JK
Thur	11/9/14	Drug Targets	AM200	1-2	JK
Fri	12/9/14	Drug Receptor interactions	AM200	1-2	JK
Wed	17/9/14	Receptor Types	IT250	1-2	JK
Thur	18/9/14	Receptor I	AM200	1-2	JK
Fri	19/9/14	Receptor II	AM200	1-2	JK
Wed	24/9/14	Receptor III	IT250	1-2	JK
Thur	25/9/14	Dose Response I	AM200	1-2	JK
Fri	26/9/14	Dose Response II	AM200	1-2	JK
<i>Pharmacokinetics</i>					
Wed	01/10/14	Absorption	IT250	1-2	JK
Thur	02/10/14	Routes of Administration	AM200	1-2	JK
Fri	03/10/14	OPEN DAY (No lecture)			
Wed	08/10/14	Distribution	IT250	1-2	JK
Thur	09/10/14	Metabolism I	AM200	1-2	JK
Fri	10/10/14	Metabolism II	AM200	1-2	JK
Wed	15/10/14	Elimination	IT250	1-2	JK
Thur	16/10/14	Pharmacokinetic Variation I	AM200	1-2	JK
Fri	17/10/14	Pharmacokinetic Variation I	AM200	1-2	JK

JK = Prof. John Kelly

Coursework and MCQs

Tues	16/9/14	Activity I
Tues	23/9/14	Activity II
Tues	30/9/14	Pharmacodynamics MCQ
Tues	07/10/14	Activity III
Tues	14/10/14	Activity IV
Tues	21/10/14	Pharmacokinetics MCQ

NB: These sessions will take place in various Computer Suites (Finnegan Computer Suite, and IT106 or the Pharmacology classroom (3rd year Biotech students).

You will be informed in advance of the Computer Suite to attend.