

*Ollscoil na hÉireann, Gaillimh*  
*National University of Ireland, Galway*

**Semester II Examinations, 2003/2004**  
**Front Page Template**

Exam Code(s)	3BO2, 3BS9, 3BY1, 3BY2, 3CA3, 3ER3
Exam(s)	3 <sup>rd</sup> Science
Module Code(s)	PM 304
Module(s)	Basic Pharmacology
Paper No.	1
Repeat Paper	Special Paper
External Examiner(s)	Professor I. Campbell
Internal Examiner(s)	Dr. J.M. O'Donnell
	Dr. J.P. Kelly
	Dr. M. Greal

**Instructions:**

Answer 5 questions. Please use separate answer books for each question.

Duration	3 Hrs
No. of Answer books	5

**Requirements:**

Handout	
MCQ	
Statistical Tables	
Graph Paper	
Log Graph Paper	
Other Material	

No. of Pages	2
Department(s)	Pharmacology

## PM304 3rd year Pharmacology and M.Sc. Biomed module

1. Describe how a drug and a receptor interact to cause drug action, and show how the response of the target is related to the concentration of the drug. Show how the concept of *affinity* arises and describe how affinity may be experimentally measured and expressed quantitatively for a specific drug and receptor.
2. Discuss the use of the isolated clam heart in discovering the chemical structural features of acetylcholine which are essential to its *agonist* actions. How has this knowledge been used to design selective *antagonists* at cholinergic receptors?
3. What are the principal routes of drug administration ? Describe how the route of administration can influence drug absorption, metabolism and toxicity.
4. Describe the biosynthesis and the cellular mechanism of action of nitric oxide (NO). Outline the varied biological roles NO plays and the actions of drugs that modulate NO availability.
5. Write an essay on acetylcholine esterase and anti-cholinesterases.
6. Write an essay on agonists and antagonists of  $\beta$  adrenoceptors.
7. With the aid of diagrams, outline the biosynthetic pathways for prostanoids. Explain in detail the mechanisms of action of non-steroidal anti-inflammatory drugs.
8. Describe the drug development process, including both preclinical and clinical stages.