

**THIRD YEAR
INTAKE 2006
(Academic Year 2008/2009)**

UNITCODE: PHR 3107* **UNIT TITLE:** PHARMACY PRACTICE III

TYPE

Lectures, seminars, practicals and tutorials, placement

NUMBER OF ECTS CREDITS: 8

LEARNING OBJECTIVES

To provide students with examples of knowledge required to practice disease management. To reinforce amongst students an awareness that they are to become members of a prestigious profession and to develop further within them a professional attitude, a sense of responsibility and a comprehensive knowledge of the requirements for an efficient and accurate pharmaceutical service. Opportunities are given for the students to interact with patients, to assess and identify a problem and to give advice to patients. Practical experience in community pharmacy.

CONTENT

Designing and Recommending a Pharmacist's Care Plan
Pharmacist Prescribing
Quality Standards in pharmacy practice
Cardiovascular Disorders:
 Testing for Cardiovascular Disorders, Hypertension, Hyperlipidemia, Congestive Heart Failure, Ischaemic Heart Disease, Thrombosis
Dispensing Drugs acting on the Autonomic Nervous System:
 Cholinergic Drugs & Cholinergic Blocking agents
 Adrenergic and Adrenergic Blocking agents
Skin Disorders:
 Allergy and drug-induced skin disease
 Acne and Psoriasis
Histamine and Antihistamine drugs
Dementia and Alzheimer's Disease
Psychiatric Disorders:
 Schizophrenia, Mood disorders, Anxiety disorders, Sleep disorders, Obesity and Eating disorders
Obstetrics, Gynaecology and Genito-urinary Disorders:
 Hormone Replacement Therapy, Menstrual disorders, Contraception and infertility problems, Drugs for genito-urinary disorders
Infectious diseases:
 HIV, Hepatitis
Formulary Systems:
 Introduction to policies and procedures involved in running a formulary
Medication Errors
Pharmacy Practice Research: Observational Methods, Surveys, Questionnaire construction
Qualitative research, Secondary data analysis, Data preparation, Statistical methods,
Participation at the yearly symposium, Practical experience in a community pharmacy and practical attachment

ASSESSMENT

Assessment is aimed to evaluate students' knowledge and understanding of topics that form the core of knowledge required for effective professional practice.

- Written test (Duration of 2 hours) 95%
- 14 compulsory short questions (5 marks each)

3 questions (10 marks each)

No marks will be allocated to partially correct answers.

Held at the end of the second semester.

Log Book 5%. The marks obtained from all practical sessions presented will be considered for the assessment. +

RESULT

Percentage mark and grade

LECTURERS/DEMONSTRATORS

Lilian M. Azzopardi (Co-ordinator)
Michael Calleja
Marie Claire Zammit

Anthony Serracino Inglott
Daniel Calleja

GENERAL BIBLIOGRAPHY FOR PHARMACY PRACTICE MODULE

- The British National Formulary. Pharmaceutical Press: London. latest edn.
- Medical Dictionary
- MARTINDALE, W. The Extra Pharmacopoeia,. Pharmaceutical Press: UK
- ASHP. Medication Teaching Manual: The Guide to Patient Information. Bethesda: ASHP. latest edn
- British Medical Association and Royal Pharmaceutical Society of Great Britain. British National Formulary. London, recent edn.
- Monthly Index of Medical Specialties (MIMS) Haymarket Medical Ltd: London (latest edn)
- Royal Pharmaceutical Society of Great Britain. Medicines, ethics and practice - a guide for pharmacists. RPSGB: London. latest ed.
- Code of Ethics, Pharmacy Board, Malta.
- ABPI: Data Sheet Compendium, Walker G. Datapharm Publication: UK (latest ed.)

READING LIST

- RANDALL MD, Neil KE. Disease management. 2004. London: Pharmaceutical Press.
- WALKER, R, EDWARDS, C. Clinical pharmacy and therapeutics. 1999. Edinburgh: Churchill Livingstone.
- GREENE, RJ, HARRIS, N. Pathology and therapeutics for pharmacists. 2000. London: Pharmaceutical Press.
- SHANNON, MT, WILSON, B, STANG, CL. Appleton & Lange's Drug Guide: Health professionals edition. 1999. Stamford, Connecticut: Appleton & Lange.
- SHANKIE S. Hypertension in focus. 2001.London: Pharmaceutical Press.
- CIPOLLE, RJ, STRAND, LM, MORLEY PC. Pharmaceutical care practice. 1998. USA: McGraw-Hill.
- AZZOPARDI, L. Validation instruments for community pharmacy: Pharmaceutical care for the third millennium. 2000. Birminghamton, USA: Pharmaceutical Products Press.
- MCKAY, AB, HEPLER, CD, KNAPP, DA. How to evaluate progressive pharmaceutical services. 1987. Bethesda: ASHP.
- BROWN, TR. ed. Handbook of institutional pharmacy practice. 1992. Bethesda: ASHP.
- DIPIRO, J.T., TALBERT, R.L., HAYES, P.E., YEE, G.C., MATZKE, G.R., POSEY, L.M. Pharmacotherapy: a pathophysiologic approach. 1993, Connecticut: Appleton and Lange.
- HERFINDAL E.T. , GOURLEY,D.R., HART, L.L. Clinical pharmacy and therapeutics. 1992, Baltimore: Williams & Wilkins.

- SPEIGHT, TM, HOLFORD, NHG ed. Avery's drug treatment. 1997. New Zealand: Adis Int.
- PANTON, R, CHAPMAN, S. Medicines management. 1998. London: BMJ books & Pharmaceutical Press.
- LONGE, RL, CALVERT, JC., YOUNG, YL. Physical assessment: a guide for evaluating drug therapy. 1994. Vancouver: Applied Therapeutics Inc.
- YOUNG, LY. KODA-KIMBLE, MA. Handbook of applied therapeutics. 1996. Vancouver: Applied Therapeutics Inc.
- DODDS, L. ed. Drugs in use. 1996. London. The Pharmaceutical Press.
- HOPE RA, LONGMORE JM. Oxford handbook of clinical medicine. Oxford: Oxford medical Publications.
- MORGAN, M, CALNAN, M, MANNING, N. Sociological approaches to health and medicine. 1993. London & New York: Routledge.

+ Refer to *Guidelines for Community Pharmacy Practice*

* *Pre-requisites: PHR 1101 and PHR 2103.*

UNITCODE: PHR 3108 **UNIT TITLE:** PHARMACOTHERAPEUTICS

TYPE

Lectures, practicals and seminars

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

To provide information on the aetiology, clinical signs and symptoms, investigations and principles of treatment of diseases important to pharmacists in their development of a patient-oriented practice. Particular emphasis is given to the selection of appropriate drug treatment regimens, a balance of benefits to risks for patients under treatment and patient monitoring. Problem solving is carried out using case studies.

To enable the student to extract relevant information from clinical case notes and to identify and discuss pharmaceutical care issues.

CONTENT

Clinical investigations:

Renal function tests, liver function tests, blood tests

Serum electrolytes, acid base balance, cardiac enzymes, electrocardiograms

Therapeutic principles of selected disease states:

Respiratory disorders: asthma, chronic obstructive airways disease

Cardiovascular disorders: hypertension, angina, myocardial infarction, cardiac failure, atrial fibrillation, stroke

GI disorders: peptic ulceration, Crohn's disease, ulcerative colitis

Clinical case studies on the ward:

Understanding case notes, medical terminology, medical abbreviations, patient profiling, case presentation format

Familiarization with clinical case notes of a selected patient and compilation of patient profile

Interaction with multidisciplinary health care team and patients during ward round

Oral presentation of clinical case study

ASSESSMENT

- | | | |
|--------------------------|--------------------------|-----|
| <input type="checkbox"/> | Written test of 2 hours: | 80% |
| <input type="checkbox"/> | Case presentation | 20% |

RESULT

Percentage mark and grade

LECTURERS/DEMONSTRATORS

Lilian M. Azzopardi (Co-ordinator)

Marise Gauci

Angela Borg Barthet

Ann Camilleri

Angelo Psaila

Anthony Serracino Inglott

Lilian Wismayer

Aaron Camilleri

Simone Caruana

Elaine Vella

READING LIST

- WALKER R, EDWARDS C. Clinical pharmacy and therapeutics. Churchill Livingstone.

- GREENE RJ, HARRIS N. Pathology and therapeutics for pharmacists. Pharmaceutical Press.
- DIPIRO JT, TALBERT RL, HAYES PE, YEE GC, MATZKE GR, POSEY LM. Pharmacotherapy: a pathophysiologic approach. McGraw-Hill.
- YOUNG LY, KODA-KIMBLE MA. Handbook of applied therapeutics. Lippincott Williams & Wilkins.
- DODDS L. Drugs in use. The Pharmaceutical Press.
- HOPE RA, LONGMORE JM. Oxford handbook of clinical medicine. Oxford Medical Publications.

UNIT CODE: PHR 3115***UNIT TITLE:** PHARMACY PRACTICE
PROJECT II**TYPE**
Project**NUMBER OF ECTS CREDITS:** 6**LEARNING OBJECTIVES**

This unit introduces the student to research methodology, applying the knowledge from previous units with special reference to planning, selection of data and following a protocol

CONTENT

Protocol feasibility, discussion and approval
Starting of field work

ASSESSMENT

<input type="checkbox"/>	Protocol	50%
<input type="checkbox"/>	Poster presentation	30%
<input type="checkbox"/>	Participation at project presentations	20%

RESULT

Percentage mark and grade

LECTURERS

Anthony Serracino Inglott (Co-ordinator)
Lilian M. Azzopardi
Claire Shoemake

Maurice Zarb Adami
Francesca Wirth

READING LIST

- STUART MC. The complete guide to medical writing. 2007 London: Pharmaceutical Press.
- FRANKFORT-NACHMIAS C., NACHMIAS D. ed. Research Methods in the Social Sciences. London: Edward Arnold. 1992.
- PINK, A. The Survey Kit. Thousand Oaks: Sage Publications. 1995.
- KNAPP, T.R. Quantitative Nursing Research, Thousand Oaks: Sage Publications. 1995.
- PATTON, M.Q. Qualitative evaluation and research methods. Thousand Oaks: Sage Publications. 1990.
- SMITH F. Research methods in pharmacy practice. 2002. London: Pharmaceutical Press.
- JONES DS. Pharmaceutical statistics. 2002. London: Pharmaceutical Press.

* *Pre-requisite: PHR 2018.*

UNITCODE: PHR 3205* **UNIT TITLE:** PHARMACEUTICAL ANALYSIS AND MEDICINAL CHEMISTRY II

TYPE

Lectures and seminars

NUMBER OF ECTS CREDITS: 6**LEARNING OBJECTIVES**

To review legislative aspects behind the running of analytical laboratories.

To introduce further principles applied to drug design in various drug classes.

CONTENT

This Unit will deal with the Medicinal Chemistry (including the Structure – Activity relationships (SAR) of:

Tricyclic and related psychotherapeutic drugs; atypical antipsychotics; pro-drug approach to depot antipsychotics.

Monoamine Oxidase Inhibitors (MAOIs) and reversible MAOIs; Selective Serotonin reuptake inhibitors (SSRIs) and other antidepressants.

Benzodiazepines and the first benzodiazepine competitive antagonist. Buspirone, zolpidem.

Antibacterial drugs including tetracyclines, aminoglycosides, macrolides, sulphonamides, quinolones

Drugs acting on the cardiovascular system

Drugs acting on the endocrine system

Steroids including cutaneous applications

ASSESSMENT

- | | | |
|--------------------------|--------------------------|-----|
| <input type="checkbox"/> | Written test of 3 hours: | 95% |
| <input type="checkbox"/> | Assignment: | 5% |

RESULT

Percentage mark and grade

LECTURERS

Claire Shoemake (Co-ordinator)

Mary Ann Sant-Fournier

READING LIST

- WILLIG SH. Good Manufacturing Practices for Pharmaceuticals - a plan for total quality control, 3rd edn. Stoker, ed. Marcel Dekker Inc., Switzerland, ISBN 0-8247-8594-0
- BRYANT R. The Pharmaceutical Quality Control Handbook, 1989. Aster Publications Corp., USA
- GOLDBERGER F. Pharmaceutical Manufacturing, Quality Management in the Industry. The Pharmaceutical Press, London
- Publications of the Pharmaceutical Inspection Convention (PIC). EFTA, Switzerland
- Publications of the Commission of the European Communities. Luxembourg
- AKERS MJ. Parenteral Quality Control: Sterility, Pyrogen, Particulate and Package Integrity Testing. Marcel Dekker Inc., New York, ISBN 0-8247-9088-X

- BECKETT AH, STENLAKE JB. Practical Pharmaceutical Chemistry, Part I & II, 4th edn. Humanities Press International, Inc., ISBN 0-485-11323-6
- The Pharmaceutical Codex (incorporating The British Pharmaceutical Codex), 11th edn. The Pharmaceutical Press 1979, ISBN 0-85369-129-0
- LEMKE TL. Review of organic Functional Groups: Introduction to Medicinal Organic Chemistry, 3rd edn. Williams & Wilkins 1991, ISBN 0-8121-1428-0
- FOYE WO. Principles of Medicinal Chemistry, 3rd edn. Williams & Wilkins 1988, ISBN 0-8121-1098-6
- SMITH HJ AND WILLIAMS H. Eds. Introduction to the Principles of Drug Design, Wright PSG Boston, 1983.
- ADRIEN ALBERT, selective Toxicity: The Physico-chemical basis of Therapy 6th Edn Chapman & Hall (1979) ISBN 0-412-1555650-4
- SOUIDIJN W. The Role of Medicinal Chemistry in Drug Research, Pharmaceutische Weekblad, Scientific Edition 1991; 13(4): 161-6
- Burger's Medicinal Chemistry & Drug Discovery Part I-III, 3rd edn., Wolff ed. John Wiley and Sons, ISBN 0-471-57556-9

* *Pre-requisites: PHR 2203 and PHR 2026.*

UNIT CODE: PHR 3307* **UNIT TITLE:** PHARMACEUTICAL FORMULATIONS

TYPE

Lectures and practicals

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

To expose the student to the various aspects which have to be considered when formulating preparations for use as medicines, how these aspects of formulation are influenced by the proposed route of administration, as well as how these same aspects effect the therapeutic profile of the drugs in use.

To expose the student to the hands on application of principles of pharmaceutical formulation.

To consider special features of controlled release dosage forms and factors influencing their formulation.

CONTENT

Sterilised products

Total parenteral nutrition

Sterilisation processes and methods

Controlled release dosage forms

Relevant calculations

Demonstration of hands-on application of principles underlying bulk properties of powders, dry granulation and angle of repose, flow factor, grinding and sieving, microscopical methods and the Andreason pipette method to determine particle size.

ASSESSMENT

- | | | |
|--------------------------|---------------------------|------|
| <input type="checkbox"/> | Written test of 1.5 hours | 75 % |
| <input type="checkbox"/> | Practicals | 25 % |

RESULT

Percentage mark and grade

LECTURER/DEMONSTRATORS

Maurice Zarb Adami (Co-Ordinator)

Clarissa Captur

Mark Mercieca

Renata Cutajar

Marie Claire Zammit

READING LIST

- AULTON, M. *Pharmaceutics: The Science of Dosage Form Design*. 2001. Churchill Livingstone. ISBN 0443055173
- GENNARO, A. *Remington: The Science and Practice of Pharmacy*. 1997. Mack Publishing Company. (18th edition). ISBN 0912734051.

**Pre-requisites: PHR 1301 and PHR 2304*

UNIT CODE: CPH 3011* **UNIT TITLE:** PHARMACOLOGY D

TYPE

Lectures and seminars

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

- i. to understand the basic pharmacology and mode of action of drugs used in immunopharmacology, oncology and hormones
- ii. to present an overview of the molecular pharmacology of specific drugs, and to discuss the molecular-based research methodology and tools.

CONTENT

Cell differentiation and Antigen presenting cells
Immune defence mechanisms: T cells and B cells
Cytokines and Methods of immunosuppression
Basic principles of chemotherapy and drugs used in oncology
Oral and injectable hypoglycaemic agents
Thyroid hormones
Male and female sex hormones, contraceptives, HRT
Vitamin D and parathyroid hormone and Calcitonin
Recombinant drugs and Gene therapy
Bioinformatics, online databases, data mining
Specific receptor subtypes e.g. opioid receptors, histamine receptors, insulin receptor, cytokine receptors
Molecular modes of action of enzyme modifiers e.g. COX-inhibitors, cholinesterase inhibitors
Molecular aspects of discovery of novel drugs and drug targets: The Human Genome database
Research tools for studying pharmacological actions and pathways: overview of laboratory tools including PCR, electrophoresis, sequencing, genotyping, molecular cloning, cell culturing, transfections, expression analysis, microarray technology, transgenic animals

ASSESSMENT

Written test of 2 hours held at end of study unit.

RESULT

Percentage mark and grade

LECTURERS

Roger Ellul Micallef
J J Borg
Frederick Fenech

Janet Mifsud
Anthony Fenech
Mark Micallef

READING LIST

- SHARGEL AND YU. Applied Biopharmaceutics. McGraw-Hill
- BRODY, LARNER, MINNEMAN. Human Pharmacology - Molecular to Clinical.
- MOSBY, HARDMAN, LIMBIRD, MOLINOFF, RUDDEN and GILMAN (Eds). Goodman and Gilman's The Pharmacological Basis of Therapeutics, Pergamon Press.
- LAURENCE AND BENNETT. Clinical Pharmacology. Churchill Livingstone
- RANG, DALE AND RITTER. Pharmacology. Churchill Livingstone.
- ROWLAND AND TOZER. Clinical Pharmacokinetics: concepts and applications. Lippincott, Williams & Wilkins.

* *Pre-requisites: CPH 2010, CPH 2011 and CPH 3010*

UNIT CODE: PHR 3208 **UNIT TITLE:** PHARMACOGNOSY AND NATURAL PRODUCTS

TYPE

Lectures

NUMBER OF ECTS CREDITS: 4**LEARNING OBJECTIVES**

To impart biological, biochemical and agronomic background information relating to natural drugs and to introduce the student to the locally available crude drugs.

CONTENT

An introduction to the history of the utilization of medicinal plants
The principles and applications of Ethnobotany and Ethnopharmacology
A comprehensive introduction to secondary metabolites mainly terpenoids, alkaloids, flavonoids, tannins, coumarins, glycosides
In vitro and *in vivo* testing of secondary metabolites from Plants
Phytomedicines used in Modern Therapies
Alternative medicine: Herbal Medicine, Aromatherapy, Apitherapy and Homeopathy
Nutraceuticals
Legislation: Medicine or Food?
Poisonous Plants

ASSESSMENT

- | | | |
|--------------------------|------------------------|-----|
| <input type="checkbox"/> | Written test of 1 hour | 60% |
| <input type="checkbox"/> | Assignment | 40% |

RESULT

Percentage mark and grade

LECTURERS

Maurice Zarb Adami (Co-ordinator)
Everaldo Attard

READING LIST

- HEINRICH, BARNES, GIBBONS, WILLIAMSON. Fundamentals of Pharmacognosy and Phytotherapy, Churchill Livingstone, London 2003
- LECTURE NOTES: <http://staff.um.edu.mt/eatt1/pharmacy.html>

UNIT NO: CHE 3141 **UNIT TITLE:** SEPARATION TECHNIQUES

TYPE

Lectures

NUMBER OF ECTS: 2

LEARNING OBJECTIVES

Identify traditional and modern methods of separation
Distinguish between techniques for analysis and preparation
Apply the techniques for qualitative and quantitative purposes
Be able to select the appropriate technique for specific pharmaceutical laboratory measurements

CONTENT

Principles and Introduction: Solvent Extraction, Column Chromatography Partition and Absorption; Thin Layer and Paper; Ion Exchange Chromatography.

Gas Chromatography: Separation efficiency and resolution; Instrumentation Columns and stationary phases; Universal detectors; Applications.

Liquid Chromatography: Instrumentation; The mobile phase; Columns and stationary phases; Universal detectors; Applications.

ASSESSMENT

The mode of assessment for the unit was based on an open book session of written questions to be answered in an hour.

LECTURER

Claire Shoemake (Co-ordinator)
George Peplow

READING LIST (recommended)

- Analytical Chemistry - Approved Text to the Federation of European Chemical Society Curriculum Society Curriculum, Ed. Robert Kellner. Pub I: Wiley-VCH (1998).
- Analytical Chemistry by Gray D. Christian 5th Edn., Wiley (1994).

Supplementary reading

- Analytical Chemistry by Douglas A Skoog and Donald M West. 6th Edn.

UNIT CODE: PAT 3322* **UNIT TITLE:** GENERAL AND
PHARMACEUTICAL
MICROBIOLOGY III

TYPE
Lectures

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

To continue to deal with systematic microbiology where the biological characteristics of the major genera and species are described, together with the clinical infections that these organisms cause.

To describe the theoretical and practical aspects of active and passive immunisation against infectious diseases. Particular attention will be paid to locally endemic infections and to vaccination programmes.

The basic principles of infection control in the hospital setting are also covered.

CONTENT

This study covers:

Immunisation (Bacterial Preparations) – Prof. Paul Cuschieri (PVC)

Immunisation (Viral Preparations) – Dr Christopher Barbara (CB)

Infection control – Dr Michael A. Borg (MB)

Lectures:

Invasive pneumococcal disease and pneumococcal vaccines

Typhoid and typhoid vaccines

Meningococcal disease and meningococcal vaccines

Invasive *Haemophilus influenzae* capsular type b infections and HIB vaccines

Diphtheria and diphtheria toxoid preparations

Tetanus and tetanus toxoid preparations

Whooping cough and *Bordetella pertussis* vaccines

The routine immunisation schedule

Hepatitis A vaccine

Hepatitis B vaccine

Measles vaccines

Mumps vaccines

Rubella vaccines

Principles of transmission of infectious diseases

Infection control – methods and cost effectiveness

Hand hygiene

Multiresistant organisms and their control

Prevention of multiresistance & judicious use of antibiotics in hospitals

Prevention of travel associated infections

ASSESSMENT

Written test of 2 hours held at the end of the first semester.

RESULT

Percentage mark and grade

LECTURERS

Paul Cuschieri (Co-ordinator)

Christopher Barbara

Michael Borg

READING LIST

- Medical Microbiology by David Greenwood et al; 17th Ed. 2007, ISBN04443102090, Churchill Livingstone

**Pre-requisites: PAT 1322 and PAT 2322.*

UNIT CODE: CPH 3010* **UNIT TITLE:** PHARMACOLOGY C

TYPE

Lectures and seminars

NUMBER OF ECTS: 4

LEARNING OBJECTIVES

- I. To understand the disposition of drugs in the body and the effects of drug metabolising enzymes, and organ clearance mechanisms in PK/PD
- II. To understand the basic pharmacology and mode of action of drugs used to treat neurological and respiratory disorders; pharmacology of steroids

CONTENT

Multi compartment models
Metabolism and biotransformation : Phase I and phase II reactions
Physiological models in pharmacokinetics: Hepatic and renal clearance
Pharmacokinetic principles in oral multiple dosage drug regimens
Infusion drug regimens pharmacokinetics
Basic principles in epilepsy and classification in epilepsy
Traditional antiepileptic drugs and new antiepileptic drugs
Pharmacokinetic principles in prescribing antiepileptic drugs
Drugs used in other chronic neurological and movement disorders;
Parkinson's disease and Alzheimer's disease
Drugs affecting the Nitric Oxide pathways
Inflammatory processes in asthma
Drugs used in asthma: beta-adrenergic receptor agonists, anticholinergic agents, methylxanthines, antileukotriene agents
Drugs used in allergies
Glucocorticoids: models of action at cellular level, regulation of synthesis,
Structure activity relationships, adverse effects

ASSESSMENT

Written test of 2 hours held at end of study unit.

RESULT

Percentage mark and grade

LECTURERS

Roger Ellul-Micallef
Anthony Fenech

Janet Mifsud
Charles Scerri

READING LIST

- BRODY, LARNER, MINNEMAN. Human Pharmacology - Molecular to Clinical.
- MOSBY, HARDMAN, LIMBIRD, MOLINOFF, RUDDEN and GILMAN (Eds). Goodman and Gilman's The Pharmacological Basis of Therapeutics, Pergamon Press.
- LAURENCE AND BENNETT. Clinical Pharmacology. Churchill Livingstone
- RANG, DALE AND RITTER. Pharmacology. Churchill Livingstone.

- ROWLAND AND TOZER. Clinical Pharmacokinetics: concepts and applications. Lippincott, Williams & Wilkins.
- SHARGEL AND YU. Applied Biopharmaceutics. McGraw-Hill.

* *Pre-requisites: CPH 2010 and CPH 2011.*

UNIT NO: PHR 3030 **UNIT TITLE:** TOTAL QUALITY SYSTEMS I

TYPE

Lectures

NUMBER OF ECTS: 2

LEARNING OBJECTIVES

To provide the student with the ability to formulate strategies for assessing the performance of processes and the conformance of food to specifications and legislation and to contribute directly to quality assurance to ensure that production of food conforms with legal requirements. On successful completion the student will be able to participate in the development and management of quality assurance systems in the food industry; assess the value of the various techniques used in quality assurance; participate in the application of total quality systems; and establish appropriate controls for assessing the conformance of products to specifications and the performance of production processes.

CONTENT

Introduction to quality control- Definition of quality, Inspection, Quality Assurance, Quality Control, Design Requirements, Correction of Quality Deficiencies, Quality Data, Quality Audits, Total Quality Management. Cost of Quality- Quality Costs, Minimum Overall Cost, Zero Defects, Manufacturing Cost & Quality, Customer Service. Quality of Design- Quality of Manufactured Part, Quality of Design, Quality of Conformance, Designers' Responsibility for Quality, Variable and Attributes, Routine Checking of Inspection & Test Equipment, Non-Visual Standards, Critical, Major & minor Defects. Control of Incoming Material- Vendor Appraisal, Principles of Material Control, Buying Specifications, Sources of Supply, Quality Audits.

ASSESSMENT

- Written test held at the end of the second semester

LECTURERS

Claire Shoemake (Co-ordinator)
Stephen Ferrito

UNIT CODE: PHR 3306* **UNIT TITLE:** PHARMACEUTICS III

TYPE

Lectures

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

To describe tablet and capsule formulation and manufacturing processes needed to produce tablets and capsules of high standard in accordance with the specifications laid down by the BP, USP etc. Problems arising during manufacture and storage will be discussed.

To highlight value of the dissolution test as a method of tablet quality control, including the effect of various formulation and processing parameters on the dissolution of tablets. The students will learn the effect of various formulation and processing parameters on the dissolution of tablets. The unit will also introduce the student to the rationale behind pharmaceutical quality assurance.

Introducing Good Manufacturing Practice

CONTENT

Tablet and Capsule Manufacturing

Tablet formulation: diluents, adsorbants, binding agents, disintegrants, colouring and flavouring

Granulation: dry granulation, slugging, moist granulation, granule drying, lubricants and glidants

Tablet design: route of administration, dose uniformity, stability and storage, acceptability, excipients, interactions

Compressed tablets: types of tablets, manufacture of tablets - direct compression, problems associated with the manufacture of tablets, tablet strength, capping, prevention of capping, tablet standards - Pharmacopoeial considerations

Coating: reasons for coating tablets, sugar coating, problems of sugar coating, film coating, problems associated with film coating, fluid bed coating, sustained release coating, enteric coating

Capsules: raw material, hard gelatin capsules, soft gelatin capsules, advantages of soft gelatin capsules, formulation, bioavailability aspect

Dissolution and Quality Control

Physical process of dissolution, Fick's laws, mathematical description of dissolution, test parameters.

Effect of processing parameters (compression, mixing, coating) and formulation parameters (diluents, glidants, disintegrants) on tablet dissolution.

Introducing Good Manufacturing Practice: The importance of Quality Control. Quality assurance in the pharmaceutical industry.

ASSESSMENT

Written test of 2 hours held at the end of the second semester.

RESULT

Percentage mark and grade

LECTURERS

Maurice Zarb-Adami (Co-ordinator)

Edwina Brejza

READING LIST

- The British Pharmacopoeia Vols I & II. The Stationery Office. ISBN 0113222580.
- European Department for the Quality of Medicines, Council of Europe. The European Pharmacopoeia 3rd edition. 1996. ISBN 9287129916.
- LUND W. The Pharmaceutical Codex: Principles and Practice of Pharmaceutics. 1994: Pharmaceutical Press (12th edition) ISBN 0853692904.
- British Medical Association and Royal Pharmaceutical Society of Great Britain. The British National Formulary, No. 45. 2003. Pharmaceutical Press: London. ISBN 0853695555.
- MARTINDALE, W. The Extra Pharmacopoeia. 1996. Pharmaceutical Press: UK (31st edition). ISBN 0853693420.
- COLLETT, D., AULTON, M. Pharmaceutical Practice. 1998. Churchill Livingstone. ISBN 044305729X.
- GENNARO, A. Remington: The Science and Practice of Pharmacy. 1997. Mack Publishing Company. (18th edition). ISBN 0912734051.
- MARTIN, A., BUSTAMENTE, P., CHUN A.H.C. Physical Pharmacy: Physical Chemical Principles in the Pharmaceutical Sciences. 1993. Lea & Febiger. (4th edition). ISBN 0812114388.
- AULTON, M. Pharmaceutics: The Science of Dosage Form Design. 2001. Churchill Livingstone. ISBN 0443055173.

* *Pre-requisites: PHR 1301 and PHR 2304.*

UNIT CODE: PAT 3323* **UNIT TITLE:** ANTIMICROBIAL
CHEMOTHERAPY I

TYPE
Lectures

NUMBER OF ECTS CREDITS: 4

LEARNING OBJECTIVES

These credits are intended to outline the properties of the major groups of antimicrobial agents on key drugs, discuss their indications, understand antibiotic selectivity by identifying enzymes, modes of action and apply the principles underlying their correct usage in treatment and prophylaxis.

CONTENT

This study unit covers Antibiotics.

Lectures:

Introduction: definitions; historical perspectives; properties of therapeutically useful antibiotics; classification of antibiotics
Drug combinations, isobolograms
Fusidanes
Nitroimidazoles – metronidazole
Sulphonamides and the diaminopyrimidines
Aminoglycosides
Lincosamides
Macrolides
Tetracyclines
Chloramphenicol

ASSESSMENT

Written test of 2 hours held at the end of the second semester.

RESULT

Percentage mark and grade

LECTURERS

Paul Cuschieri (Co-ordinator)

Paul Caruana

READING LIST

- Medical Microbiology by David Greenwood et al; 17th Ed. 2007, ISBN04443102090, Churchill Livingstone
- Goodman and Gillman's The Pharmacological Basis of Therapeutics
Laurence L. Brunton et al, 11th Ed, 2006 ISBN 0071422803

**Pre-requisites: PAT 1322, PAT 2322 and PAT 3322*

UNIT CODE: PHR 1121 **UNIT TITLE** STUDIES IN PHARMACEUTICAL SERVICES IN THE MIDDLE EAST

TYPE

Practicals, seminars and tutorials

NUMBER OF ECTS CREDITS: 2

OFFERED IN SEMESTER 1 AND AGAIN IN SEMESTER 2

LEARNING OBJECTIVES

To familiarize students with the pharmaceutical aspects of the use of medicines in Middle Eastern countries and North African countries.

CONTENT

Students will have to concentrate on a specified country. The areas covered will include manufacturing, importation, registration, distribution aspects and health care aspects.

ASSESSMENT

Assignment

RESULT

Percentage mark and grade

LECTURER

Anthony Serracino-Inglott (Co-ordinator)
Maurice Zarb-Adami
Lilian Wismayer

UNIT CODE: PHR 3120* **UNIT TITLE:** PHARMACY SPECIAL TOPICS III

TYPE

Practicals, seminars and tutorials

NUMBER OF ECTS CREDITS: 2

LEARNING OBJECTIVES

To introduce students to special topics dealing with pharmacy as it is developing today.

CONTENT

Students may either continue PHR 2120 Pharmacy Special Topics II or work on a new project.

ASSESSMENT

Assignment

RESULT

Percentage mark and grade

LECTURERS/DEMONSTRATORS

Anthony Serracino-Inglott (Co-ordinator)
Lilian M. Azzopardi
Lilian Wismayer
Gordon Zammit

Maurice Zarb-Adami
Imelda Serracino-Inglott

* *Pre-requisites: PHR 1120 and PHR 2120.*