

Macao Polytechnic Institute
School of Health Sciences and Sports
Bachelor of Science in Biomedical Technology
(Pharmacy Technology)

Module Outline
Academic Year 2020 / 2021 Semester 2

Learning Module	Clinical Pharmacy II (臨床藥學 II)		Class Code	BSCP3102-321
Pre-requisite(s)	BSPY2101, BSPY2102			
Medium of Instruction	English / Cantonese		Credit	4
Lecture Hours	47 hrs	Lab/Practice Hours	13 hrs	Total Hours 60 hrs
Instructor	Lao Cheng Kin, Chatmann		E-mail	cklao@ipm.edu.mo
Office	Room M708, 7/F, Meng Tak Building, Main Campus		Telephone	8599-3473

Description

This 60-hour module is the second in a series of modules that train students in clinical pharmacy. The module systematically introduces clinical applications of drugs on various disorders. The pathophysiology, clinical presentation, diagnostic parameters of common diseases are focused. Emphasis is also placed on the mechanisms of action, pharmacological effects, clinical indications, pharmacokinetics, and relevant adverse effects of the drugs used for the corresponding diseases.

Learning Outcomes

After completing the learning module, students will be able to:

1. Discuss the common risk factors and pathophysiology of the presented diseases.
2. Identify patient factors that may influence drug selection for treating a given disease state.
3. Recommend an appropriate drug regimen for a specific disease state.
4. Recognize potential drug interactions, adverse drug reactions and adherence issues associated with certain drug therapies.
5. Describe the monitoring parameters and key counseling points of certain drug therapies.

Content

1. Gastrointestinal disorders (4 hours)
 - 1.1 Gastroesophageal reflux disorder (GERD)
 - 1.1.1 Epidemiology and pathophysiology of GERD
 - 1.1.2 Clinical features and diagnosis of GERD
 - 1.1.3 Treatments of GERD
 - 1.2 Peptic ulcer disease (PUD)
 - 1.2.1 Pathophysiology and risk factors of PUD
 - 1.2.2 Classification and diagnosis of PUD
 - 1.2.3 Treatments of PUD

2. Depression (4 hours)
 - 2.1 Introduction to psychiatry
 - 2.2 Depression
 - 2.2.1 Epidemiology
 - 2.2.2 Pathophysiology
 - 2.2.3 Clinical presentation and definition
 - 2.2.4 Treatment options
 - 2.2.5 Special populations: pediatrics and geriatrics

3. Schizophrenia (5 hours)
 - 3.1 Introduction to psychosis
 - 3.2 Epidemiology
 - 3.3 Clinical presentation
 - 3.4 Pathophysiology
 - 3.5 Management
 - 3.5.1 Typical antipsychotics
 - 3.5.2 Atypical antipsychotics
 - 3.6 Depot formulations of antipsychotics
 - 3.7 Acute psychosis and agitation

4. **Case study I (3 hours)**

5. Anxiety and sleep-wake disorders (4 hours)
 - 5.1 Anxiety disorders
 - 5.1.1 Pathophysiology of generalized anxiety disorder
 - 5.1.2 Management of generalized anxiety disorder
 - 5.2 Sleep-wake disorders
 - 5.2.1 Sleep stages
 - 5.2.2 Management of insomnia

6. Bipolar disorder (3 hours)
 - 6.1 Introduction to bipolar disorder
 - 6.2 Diagnosis of bipolar disorder
 - 6.3 Epidemiology of bipolar disorder
 - 6.4 Etiology of bipolar disorder
 - 6.5 Management of bipolar disorder

7. Alzheimer disease (active learning assignment)

8. Overview of antibiotic use (4 hours)
 - 8.1 Beta-lactams
 - 8.1.1 Cephalosporins
 - 8.1.2 Carbapenems
 - 8.1.3 Monobactams
 - 8.1.4 Penicillins
 - 8.2 Aminoglycosides
 - 8.3 Tetracyclines
 - 8.4 Macrolides
 - 8.5 Fluoroquinolones
 - 8.6 Antibiotics against anaerobes
 - 8.6.1 Metronidazole
 - 8.6.2 Clindamycin
 - 8.7 Antibiotics against healthcare-acquired MRSA
 - 8.8 Antimicrobial resistance

- 9. Midterm test (2 hours)**

10. Viral hepatitis (4.5 hours)
 - 10.1 Overview of viral hepatitis
 - 10.2 Management of hepatitis B virus (HBV) infection
 - 10.3 Management of hepatitis C virus (HCV) infection

11. Urinary tract infections (2 hours)
 - 11.1 Introduction to urinary tract infections
 - 11.2 Drug treatment options
 - 11.3 Uncomplicated & complicated cystitis
 - 11.4 Pyelonephritis
 - 11.5 Urinary tract infections in pregnancy
 - 11.6 Urinary tract infections in men

- 11.7 Prostatitis
- 11.8 Recurrent urinary tract infections

- 12. Respiratory tract infections (3.5 hours)
 - 12.1 Upper respiratory tract infections
 - 12.1.1 Common cold
 - 12.1.2 Influenza
 - 12.2 Lower respiratory tract infections
 - 12.2.1 Community-acquired pneumonia (CAP)

- 13. Fungal infections (2 hours)
 - 13.1 Overview of fungal infections
 - 13.2 Candidiasis
 - 13.2.1 Treatment options

- 14. HIV (5 hours)
 - 14.1 Introduction to Human Immunodeficiency Virus
 - 14.2 Current antiretroviral strategies
 - 14.2.1 When to start antiretroviral drugs
 - 14.2.2 Goals of therapy
 - 14.2.3 Recommended regimens for treatment-naïve patients
 - 14.3 Antiretroviral agents
 - 14.3.1 Common side effects
 - 14.3.2 Long-term drug toxicity
 - 14.4 Role of adherence and relationship to resistance

- 15. Case study II (2 hours)**

- 16. Cancer supportive care (2 hours)
 - 16.1 Introduction
 - 16.2 Overview of chemotherapy
 - 16.3 Chemotherapy-induced nausea and vomiting (CINV)

- 17. Group presentation +/- community service (8 hours)**

- 18. Final exam (2 hours)**

Teaching Method

Lectures, case studies, active learning topics, presentations, group discussion and/or community services.

Attendance

Attendance requirements are governed by the “Academic Regulations Governing Bachelor’s Degree Programmes of Macao Polytechnic Institute”. Students are not eligible to attend the final examination and re-sit examination if failure to meet the rules, moreover, an “F” will be given as the final grade to students who have less than the stated attendance for the enrolled module.

Assessment

This learning module is graded on a 100 point scale, with 100 being the highest possible score and 50 being the passing score. Any students scoring less than 35% of the total mark in the final examination will be given an “F” grade for the module even if the overall grade is 50% or higher. Also, students will need to take the re-sit examination if they miss the final examination due to unreasonable absence and their maximum final score will be 50. Students are allowed to take final examination only if their attendance rate in practical sessions of this module is over 90%.

	Item	Description	Percentage
1.	Case studies		6%
2.	Group presentation +/- community service		19%
3.	Midterm test		35%
4.	Final exam		40%

Teaching Material(s)

Textbook(s)

- DiPiro JT, Yee GC, Posey LM, et al. *Pharmacotherapy: a pathophysiologic approach*. 11th ed. New York: McGraw-Hill Medical; 2020. (Available at the AccessPharmacy database in the MPI Library website.)

Reference

Reference book(s)

- Zeind CS, Carvalho MG. *Applied therapeutics: the clinical use of drugs*. 11th ed. Philadelphia: Lippincott Williams & Wilkins; 2017.
- Lexicomp. *Drug information handbook: a clinically relevant resource for all healthcare professionals*. 29th ed. Lexi-Comp; 2020.
- Joint Formulary Committee. *British National Formulary 79*. Pharmaceutical Press; 2020.
- Gilbert DN, Chambers HF, Eliopoulos GM, et al. *The Sanford guide to antimicrobial therapy 2020*. 50th ed. Sperryville: Antimicrobial Therapy; 2020.
- Research articles and guidelines.