

PHARMACY ORIENTATION

FOR

PRE-PHARMACY YEAR

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Course Objectives

- **Definitions and pharmacy education**
- **Drug and dosage form**
- **Pharmacy and health care**
- **The pharmacy Profession**
- **Pharmacy Careers**
- **Clinical pharmacy**
- **Pharmacy organization**
- **Review and Seminar assessment**



CHAPTER 1: INTRODUCTION

DEFINITIONS AND

PHARMACY EDUCATION



Introduction

- **Definitions**
- **Pharmacy education**
- **Clinical pharmacist degree**
- **Departments of pharmacy college**
- **Pharmacy education fields**
- **New trends in pharmacy education**



Definitions

- **Pharmacy:**

The health science which deals with drug preparation and dispensing

- **Pharmacist (druggist):**

The person who is licensed to prepare and dispense drug.

"Pharmacist is the drug expert"


Definitions

Prescription:

The order of medication written by a physician, dentist or other medical practitioner

Drugs:

Any chemical compound (natural or synthesized) that may be used by human or **animal** as an aid in the **diagnosis**, treatment, or prevention of disease



Definitions

- **Clinical:**

Clinical means dealing with patients

- **Clinical pharmacy:**

Clinical pharmacy is the branch of pharmacy which provide patient care that optimizes the use of medication and promotes health, and disease prevention.

“Providing pharmaceutical care for patients”.

Pharmacist locations

- **Community pharmacy**

- **Hospital pharmacy**

- **Others:**

 - Pharmacy manufacturing**

 - Wholesale drug store**



Community pharmacy

- **Retail pharmacy or First line pharmacy
(Independent or chain pharmacy)**
- **The pharmacist serves as portal of entry into the health care system.**
- **The community pharmacist help assist these patients to find the best health specialty or deal himself with the problem for OTC (over the counter) drugs.**

Hospital pharmacy

- The practice of pharmacy in private or governmental hospital dealing with inpatients or even outpatients.
- The wide increase in hospital number make the requirement for hospital pharmacist is greater than before.

Pharmacy Education

- Goal :

Provide students with scientific fundamentals and support attitudes to adapt the pharmacists careers to changes in health care system



Pharmacy license requirement

-Bachelor of Pharmacy

or

**-Doctor of Pharmacy degree
(PharmD).**



Bachelor of Pharmacy

- The degree is an undergraduate academic degree in the field of pharmacy.
- The degree is the basic prerequisite for registration to practice as a pharmacist in Egypt

In some countries or universities, Doctor of Pharmacy (PharmD) degrees is added as a separate additional year.

Doctor of Pharmacy (Pharm.D.)

- In USA, it is a first professional degree, and a prerequisite for licensing to exercise the profession of Pharmacist.
- The Doctor of Pharmacy degree is a professional degree that prepares the graduate for Clinical pharmacy practice (Clinical pharmacist).

Doctor of Pharmacy (Pharm.D.)

- In Egypt, The PharmD degree program at Helwan University is a full-time 6-year course of study
- In Tanta and Alexandria University, PharmD degree program is separated after the bachelor degree taken in two years. The first year is theoretical bases and the second year is the practical part (clinical rounds).

Clinical pharmacist educational requirement

- Doctor of Pharmacy (Pharm.D.)
- Master of clinical pharmacy degree after getting bachelor of pharmacy
- The Board of Pharmacy Specialties (BPS) by APhA (American Pharmacists Association):
 - Board Certified Pharmacotherapy Specialist
 - Board Certified Oncology Pharmacist
 - Board Certified Nutrition Support Pharmacist
 - Board Certified Psychiatric Pharmacist

Pharmacy College Departments

- 1- Clinical pharmacy
- 2- Microbiology
- 3- Pharmaceutical chemistry
- 4- Pharmaceutics
- 5- Analytical chemistry
- 6- Pharmacology
- 7- Biochemistry
- 8- Pharmacognosy



Department of pharmacy colleges

Clinical pharmacy:

this deals with providing patients care, drug therapeutics, Prevention of drug interactions, Drug information service, Pharmacokinetics and therapeutic drug monitoring

Microbiology:

Microbiology (mīkros, "small"; bios, "life"; and logia is studying. The study of microscopic organisms.

Department of pharmacy colleges

Pharmaceutical chemistry (Medicinal chemistry) :

Medicinal chemistry is concerned with discovery, design, and chemical synthesis of drugs for market.

Pharmaceutics:

Pharmaceutics is the discipline of pharmacy that deals with the process of turning drug substance into a medication to be used safely and effectively by patients.

“the science of dosage form design”

Department of pharmacy colleges

Biochemistry:

Biochemistry or biological chemistry is the study of molecules and chemical processes within living organisms

Pharmacognosy:

Pharmacognosy is the study of drugs derived from natural sources.

Department of pharmacy colleges

Analytical (inorganic) chemistry :

The study of the separation, identification, and quantification of the chemical components of natural and artificial materials.

Pharmacology:

Pharmacology (pharmakon, "drug" and logia • "study of") is the branch of medicine concerned with the study of drug action at receptor site.

New trends in pharmacy education and research

Pharmacogenomics:

it is the study of the role of genetics in drug response

Pharmacoepidemiology:

this studies the patterns of drug effects, use and side effects in defined populations.



New trends in pharmacy education and research

Pharmacoeconomic:

it is study that evaluates the cost and effects of a pharmaceutical product.

Molecular biology:

The study of the molecular mechanisms by which genetic information encoded in DNA is able to result in the biological process.

New trends in pharmacy education and research

Pharmacovigilance :

The word "pharmacovigilance" are: pharmakon (Greek for drug) and vigilare (Latin for to keep watch).

the pharmacological science relating to the detection, assessment, monitoring, and prevention of adverse effects with pharmaceutical products

Pharmacy Education Fields

- Biomedical Science
- Pharmaceutical Science
- Behavioral, Social & Administrative
- Pharmacy practice
- Professional Experience
- Electives



Biomedical Science

- Anatomy
- Physiology
- histology
- Pathology
- Microbiology
- Biochemistry
- Organic Chemistry
- Analytical chemistry
- Botany



Pharmaceutical Sciences

- **Medicinal Chemistry**
- **Pharmacognosy**
- **Pharmacology**
- **Toxicology**
- **Biopharmaceutics**
- **Pharmacokinetics**



Behavioral, Social & Administrative Science

- **Computer science**
- **terminology**
- **English**
- **Pharmacy orientation**
- **psychology**
- **Pharmacy Laws**
- **Biostatistics**
- **sociology**



Pharmacy Practice

- **Pharmaceutical Formulation**
- **Clinical pharmacy**
- **Therapeutic**
- **Drug interaction**
- **Drug information**



Professional Experience

- Student training: 400 hrs training divided as following:

*200 hrs after the second year in community pharmacy

*200 hrs after the third year in hospital pharmacy



Electives

- **Marketing**
- **Pollution**
- **Hospital pharmacy**
- **Cosmetics**
- **Food chemistry**



Credit hours

- Every credit hour take 100 mark
- One hour from lecture equal to one credit hour
- Two hours from practice equal to one credit hour
- Example : "medicinal plants" takes 3 credit hour divided as lecture 2 hr and practice 2 hr.

Credit hours

- **Course classification:**
- Major courses which require 60% to pass in the exam (ex: Biology)
- Minor courses which require 50% to pass in the exam (ex: English)

Self assignment question:

- Describe in details (word report, powerpoint seminar)



- ❖ Pharmacoeconomic,
- ❖ Pharmacovigilance,
- ❖ Pharmacogenomics,
- ❖ Molecular biology,
- ❖ Pharmacoepidemiology?