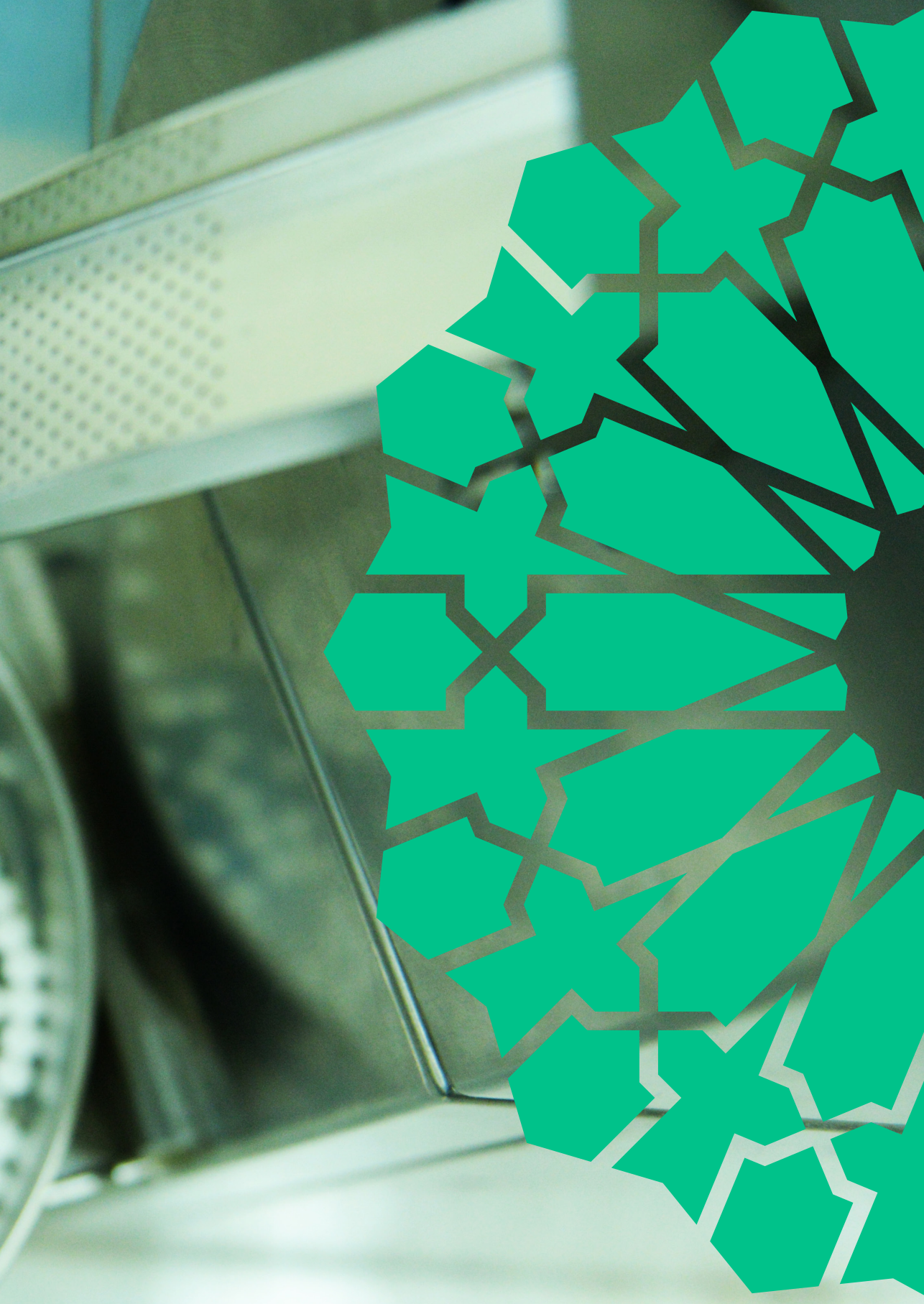

COLLEGE OF
PHARMACY



PHARMACEUTICS & PHARMACEUTICAL TECHNOLOGY DEPARTMENT

PHARMACEUTICS (A) LABORATORY

Location	Lab Staff in Charge	Contacts
M12-127	Faten Elgharib	065057437

INTRODUCTION

The goal of the Laboratory is to provide students with the necessary skills in performing pharmaceutical calculations and to promote students learning by performing full experimental work on physical pharmacy topics covered in this course such as partition phenomena, phase equilibria and solubility. This lab will provide the students with practical training in the formulation of oral liquid dosage forms such as syrups, effervescent solutions, infusions, decoctions, mouthwashes, elixirs and aromatic waters.

EQUIPMENT & INSTRUMENTS

- Pycnometer
- Separating Funnel
- Thermometers
- Water bath
- UV Spectrophotometer
- pH Meter
- Hot plate

EXPERIMENTS

- Pharmaceutical Calculations – Density, Specific Gravity and Specific Volume of Liquids.
- Preparation of Pharmaceutical Buffered Solutions and Determination of Buffer Capacity.
- Preparation of Simple Syrup, Effervescent Solutions and Drought.
- Preparation of Cough Syrup, Infusion of Senna.
- Preparation of Strong Iodine Solution (Lugol's Solution), Washes and Aromatic Waters.
- Determination of Critical Solution Temperature of Phenol/ Water System.
- Phase Diagram of Three-Component Mixture System.
- Determination of Partition Coefficient of Iodine between Two Immiscible Phases.
- Determination of the Effect of Temperature and Electrolytes on the Solubility of Benzoic Acid.

PHARMACEUTICS (B) LABORATORY

Location	Lab Staff in Charge	Contacts
M12-127	Faten Elgharib	065057437

INTRODUCTION

The goal of the Laboratory is to promote student's learning by performing full experimental work on physical pharmacy topics covered in this course such as determination of colligative properties of pharmaceutical solutions, measurement of surface and interfacial tension of disperse systems, use of surfactants in micellar solubilization, determination of rheological properties of pharmaceutical preparations and determining optical and electric properties of colloids.

EQUIPMENT & INSTRUMENTS

- Osmometer
- Stalagmometer
- Ostwald Viscometer
- Brookfield Viscometer
- Microscope

EXPERIMENTS

- Determination of Colligative Properties of Solutions – Osmotic Pressure.
- Effect of Adding Hypotonic or Hypertonic Solutions on Red Blood Cells.
- Determination of Colligative Properties of Solutions– Freezing Point and Boiling Point.
- Determination of Surface Tension and Interfacial Tension between Two Immiscible Phases.
- Determination of Critical Micelles Concentration of Surfactants.
- Micellar Solubilization of Water-Insoluble Drugs.
- Adsorption of Oxalic Acid on Charcoal.
- Preparation and Characterization of Colloids.
- Determination of Rheological Properties of Different Pharmaceutical Dosage Forms.

PHARMACEUTICS (1A) LABORATORY

Location	Lab Staff in Charge	Contacts
M12-024	Lama Abdul Moti	065057474

INTRODUCTION

The goal of the Laboratory is to provide students with practical training in formulating and preparing dosage forms such as suspensions, emulsions, microemulsions, gels, ointments and suppositories. Students will be able to interpret, calculate, extemporaneously prepare these dosage forms and apply basic scientific principles to the art and technology of formulation.

EQUIPMENT & INSTRUMENTS

- Brookfield Viscometer
- Conductometer
- Suppositories Molds
- Mortar & Pestle
- Thermometer
- Centrifuge
- Microscope
- Ice Maker
- Ointment tile

EXPERIMENTS

- Formulation and Characterization of Suspensions.
- Physical Stability Testing of Suspensions.
- Formulation and Characterization of Emulsions.
- Formulation of Microemulsions, Physical Stability of Emulsions.
- Formulation of Gels.
- Formulation of Cosmetic Creams.
- Formulation of Medicated Creams.
- Formulation of Ointments.
- Formulation of Suppositories (Oily Bases).
- Formulation and Characterization of Suppositories (Hydrophilic Bases).
- Formulation of Pessaries.

PHARMACEUTICS (1B) LABORATORY

Location	Lab Staff in Charge	Contacts
M12-024	Lama Abdul Moti	065057474

INTRODUCTION

The goal of the Laboratory is to provide students with practical training on how to formulate and characterize different solid dosage forms such as powders, tablets and capsules. The lab is designed to teach the students formulation principles where the physicochemical properties of the drug and excipients may influence the formulation, component compatibility, manufacturing, bioavailability and stability of the final dosage form.

EQUIPMENT AND INSTRUMENTS

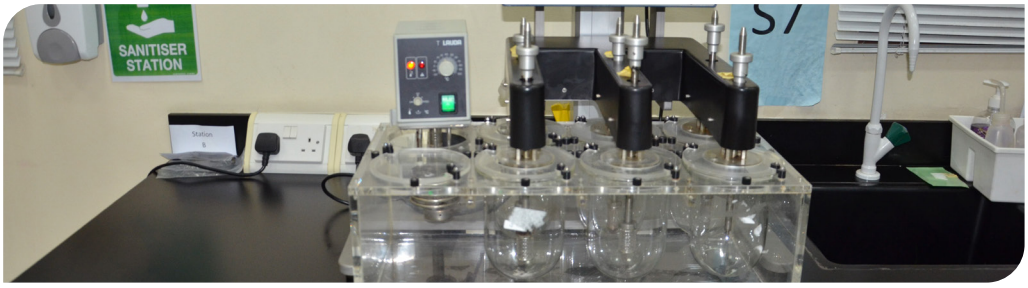
- Korsch Tablet Press Machine
- Kaleva Spray Coating Machine
- V-Blender
- Sieve Shakers/ Retsch Sieves
- Disintegration Testing Apparatus
- Dissolution Apparatus USP
- Friability Testing Apparatus
- Thickness and Hardness Apparatus
- Flow Meter
- Tapped Density Tester
- Capsule Filling Machine
- Lyophilizer
- Malvern Zeta Sizer
- Stability Chamber
- UV-Spectrophotometer
- Magnetic Hot Plate
- Desiccator
- Oven

- Centrifuge
- Weighing Scale
- Thermometer

EXPERIMENTS

- Determination of Powder Flow Properties.
- Determination and Characterization of Particle Size of Powders.
- Preparation and Quality Control Testing of Effervescent Granules.
- Formulation, Preparation and Quality Control Testing of Paracetamol Capsules.
- Formulation, Preparation and Quality Control Testing of Immediate Release Paracetamol Tablets.
- Formulation, Preparation and Quality Control Testing of Sustained Release Paracetamol Tablets.
- Formulation, Preparation and Quality Control Testing of Tablets Prepared by Wet Granulation.
- Testing of Enteric Coated Tablets.
- Effect of Compression Force on Tablet Properties.
- Tablet Coating using Spray Coating Technique.
- Detection and Characterization of Tablet Defects.

PHARMACEUTICS (2A) LABORATORY



Location	Lab Staff in Charge	Contacts
M12-024	Lama Abdul Moti	065057474

INTRODUCTION

The goal of the Laboratory/Tutorial is to provide students with practical training in performing bioequivalence studies. The lab offers hands on training on how to design, perform, analyze and interpret results and write reports of bioequivalence studies. The lab/tutorial also aims to complement the core course in providing essential knowledge regarding fundamental factors affecting pharmacokinetics parameters of drugs by using means of practice problems, computer simulation program and group project work.

EQUIPMENT AND INSTRUMENTS

- HPLC
- Centrifuge
- Vortex
- Centrifuge Tubes
- Bath Shaker
- UV Spectrophotometer
- USP Dissolution Tester
- Freezer
- WinNonlin/Phoenix Software
- SPSS Software

EXPERIMENTS

- Problem Solving Rates and Orders of Processes (Zero and First-order) using Phoenix Software, Excel and Graph Paper.
- Problem Solving Relative and Absolute Bioavailability.
- Problem Solving on One-Compartment IV Bolus Model using Phoenix Software, Excel and Graph.

- Bioequivalence (BE) Definition and Performance of BE studies and Introduction to the Group Project.
- Problem Solving on One-Compartment IV Infusion Model; using Phoenix Software, Excel and Graph.
- Compartmental and Non-Compartmental Analysis using Phoenix Software.
- Assessment of BE using Phoenix Software and Excel.
- Problem Solving on One-Compartment Extravascular Administration (Oral); using Phoenix Software, Excel and Graph.
- Problem Solving on Two-Compartment IV Bolus Model; using Phoenix Software, Excel and Graph.

PHARMACEUTICAL MICROBIOLOGY I LABORATORY

Location	Lab Staff in Charge	Contacts
M12-130	Manal Abbas	065057478

INTRODUCTION

The goal of the Laboratory is to provide students with the necessary skills in performing fundamentals of microbiology and microbiological concepts and the pathogenicity of microorganism in human being. The lab is designed to promote student›s learning by performing full experimental work on Pharmaceutical microbiology and the topics covered in this course such as proper use and care of microscope, preparation of culture media and transferring of bacteria in aseptic manner, identify the bacteria by gram staining and API-Rapid detection test, select a particular media and isolation of bacteria, check the factors affecting the optimal growth of bacteria, understand the immune response to microorganism, Antibiotic susceptibility test, bacterial transformation and finally detection of genetically modified DNA by PCR.

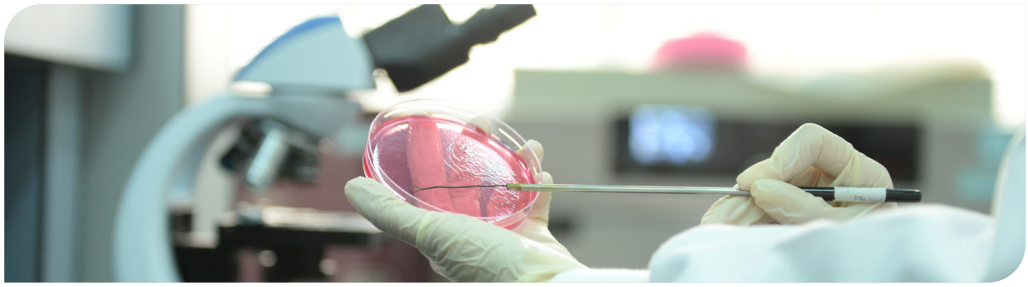
EQUIPMENT AND INSTRUMENTS

- Biosafety Cabinet II
- Light Microscope
- Autoclave
- Automated colony counter
- Manual colony counter
- Anaerobic jar
- Vortex
- Thermocycler
- Gel Electrophoresis
- Densichek
- Incubator
- Deep Freezer
- Microplate Reader

EXPERIMENTS

- Use and Care of the Microscope.
- Handling Bacteria: Preparation and Inoculation of Culture Media.
- Transfer of Bacteria: Aseptic Technique.
- Preparation of Smears, Simple Staining and Gram Staining.
- Cultivation of Bacteria, Isolation of Bacteria by Dilution Techniques.
- Special Media for Isolating Bacteria.
- Oxygen and the Growth of the Bacteria.
- Immunology- Antigen-Antibody Reactions.
- Antibiotic Susceptibility Test.
- Rapid Bacterial Identification-API.
- Bacterial Transformation.
- Detect the Genetically Modified Food by Polymerase Chain Reaction.

PHARMACEUTICAL MICROBIOLOGY II LABORATORY



Location	Lab Staff in Charge	Contacts
M12-130	Manal Abbas	065057478

INTRODUCTION

The goal of the Laboratory is to promote students with the necessary microbiological skills required in the production, handling, and managing of pharmaceutical sterile dosage forms. The lab is designed to nurture students learning by performing full experimental work especially on the microbiological aspect in manufacturing of pharmaceutical sterile dosage forms and the topics covered in this course such as sources of contamination, chemical and physical control of microorganism by disinfectant, antibiotics, heat and UV radiation, validation of sterilization, bioburden determination and finally LAL test for pyrogen.

EQUIPMENT AND INSTRUMENTS

- Incubator
- Biosafety Cabinet Class II
- Autoclave
- Hot air Oven
- Water bath
- Densichek
- UV Chamber
- Portable UV lamp
- Plate rotator
- Vortex
- Bunsen burner
- Portable air sampler
- Bowie dick tape
- Membrane filtration Unit

EXPERIMENTS

- Sources of Microbial Contamination.
- Chemical Methods of Control: Disinfectants and Antiseptics.
- Factors Affecting the Antimicrobial Activity of Disinfectants.
- Physical Methods of Microbial Growth: Heat & UV radiation.
- Validate the Sterilization Process- Biological and Chemical Indicator.
- Chemical Methods of Microbial Control- Antimicrobial Drugs.
- Traditional Gel Clot Limulus Amebocyte Lysate (LAL) Test-Test for Bacterial Endotoxin.
- Membrane Filtration Method-Test for Bioburden Determination.