Fundamentals of Pharmacotherapy
Course blueprint
2nd year
2020
بسم الله الرحمن الرحيم
College of Medicine

Vision
Excellence in medical education which reconciles tradition and modernity.

Mission
Providing high quality environment for medical education that prepares competent and honest physicians. Moreover, to provide excellent medical care for Saudi society that is evidence-based and to enrich academic research.

Values
Professionalism * Commitment * Honesty
Sincerity * Competence * Development
Innovation
Table of contents
Course profile .............................................................................................................. 5
Course description ..................................................................................................... 6
Course objectives: ...................................................................................................... 6
Teaching and learning underpinnings ..................................................................... 7
Instructional design ................................................................................................. 9
Assessment goals and strategy .............................................................................. 10
Resources and references: ....................................................................................... 12
Support for faculty ................................................................................................. 12
Support provided by the Department of Medical Education (DME) ................. 12
Support provided by the assessment unit .............................................................. 12
Support provided by the Quality and Development Vice-Rectorship.................. 13
Support for students .............................................................................................. 13
Pharmacology Department support ...................................................................... 13
Academic advising unit .......................................................................................... 14
Course evaluation & improvement ....................................................................... 14
Course activities ..................................................................................................... 15
Interactive lectures: ................................................................................................. 15
Lecture 1: Introductory lecture to Fundamentals of Pharmacotherapy course: ... 15
Lecture 2: Pharmacokinetic Principles (1) .............................................................. 15
Lecture 5: Pharmacokinetic Principles (2) .............................................................. 16
Lecture #: Pharmacokinetic Principles (3) ............................................................ 17
Lecture #: Pharmacokinetic Principles (4) ............................................................ 17
Lecture #: Pharmacokinetic Principles (5) ............................................................ 17
Lecture #: Pharmacokinetic Principles (6) ............................................................ 17
PBL 1: ..................................................................................................................... 17
Lecture 7: Pharmacodynamics (1) ........................................................................ 17
Lecture #: Pharmacodynamics (2) ....................................................................... 18
Lecture #: Pharmacodynamics (3) ....................................................................... 18
Lecture #: Pharmacodynamics (4) ....................................................................... 18
Lecture #: Pharmacodynamics (5) ....................................................................... 18
PBL 2: ..................................................................................................................... 18
Lab 1: ...................................................................................................................... 18
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (1) ... 18
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (2) ... 18
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (3) ... 19
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (4) ... 20
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (5) ... 21
PBL 3: ..................................................................................................................... 21
Lab 2: ...................................................................................................................... 21
Lecture #: Drugs acting on the Autonomic Nervous System (1) ......................... 21
Lecture #: Drugs acting on the Autonomic Nervous system (2) ......................... 22
Lecture #: Drugs acting on the Autonomic Nervous System (3) ......................... 22
Lab 3: ...................................................................................................................... 24
Lecture #: Basic & Principle of Toxicology ........................................................... 24
Lecture 23: Basic & Principle of Chemotherapy Agents (1) ............................... 24
Lecture #: Basic & Principle of Chemotherapy Agents (2) ............................... 25
Lecture 25: Basic & Principle of Chemotherapy Agents (3) ............................. 26
Lecture 26: Basic & Principle of Chemotherapy Agents (4)................................................................. 26
PBL 5:............................................................................................................................................ 26
Lab 4:................................................................................................................................................. 26
Lecture 23: Antimicrobials (1)............................................................................................................. 26
Lecture 24: Antimicrobials (2)............................................................................................................. 26
Lecture #: Antimicrobials (3).............................................................................................................. 27
Lecture #: Antimicrobials (4).............................................................................................................. 29
Lecture #: Antimicrobials (5).............................................................................................................. 29
PBL 6:................................................................................................................................................. 29
Lab 5:................................................................................................................................................. 29
Lecture #: Antimicrobials (6).............................................................................................................. 29
Lecture #: Antimicrobials (7).............................................................................................................. 29
Lecture #: Antimicrobials (8).............................................................................................................. 29
Lecture #: Antimicrobials (9).............................................................................................................. 29
Lecture #: Antimicrobials (10)........................................................................................................... 29
PBL 7:................................................................................................................................................... 29
Lab 6:.................................................................................................................................................. 29
Rubric for Grading Problem-Based Learning..................................................................................... 1
# Course profile

<table>
<thead>
<tr>
<th>Program</th>
<th>Bachelor of Medicine, Bachelors of Surgery (MBBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course name</td>
<td>Fundamentals of Pharmacotherapy</td>
</tr>
<tr>
<td>Credit hours</td>
<td>4</td>
</tr>
<tr>
<td>Course code</td>
<td>THER 210</td>
</tr>
<tr>
<td>Department</td>
<td>Pharmacology</td>
</tr>
<tr>
<td>Course type</td>
<td>Core/Block</td>
</tr>
<tr>
<td>Level/year</td>
<td>3rd level/ 2nd year</td>
</tr>
<tr>
<td>Pre-requisites</td>
<td>Inapplicable</td>
</tr>
<tr>
<td>Co-requisites</td>
<td>None</td>
</tr>
</tbody>
</table>
Course description

To prepare learners for the role as a medical practitioner, this course introduces learners to the fundamentals of Pharmacotherapy. As part of the spiral curriculum’s iterative process, students revisit some of what they have learned in other courses. However, in this course the depth in which the selected topics are visited increases.

This block aligns with the mission of the College of Medicine. It aims to provide a high-quality environment for Medical Education and contribute to the growth of competent and honest physicians, as well as prepare physicians who provide excellent medical care for Saudi society and enrich academic research. Moreover, the course is rooted in the College of Medicine’s institutional values: commitment, honesty, sincerity, professionalism, competence, and innovation.

Course objectives:

The course learning outcomes (CLOs):

1. Describe the fundamental scientific principles of drug action and the various mechanisms by which drugs can mediate their pharmacological effect.

2. Describe the fundamental principles of pharmacokinetics that underlay the absorption, distribution, metabolism and elimination of drugs in the body and thereby affect drug effectiveness.

3. Describe the biochemical reactions that result in the metabolism of drugs within the body.

4. Explain the rationale behind designing different dosing regimens of drugs in specific patient populations.
5. Explain the specific patient characteristics and genetics can affect the response to a class of drugs.

6. Recognize the scientific basis underlying how two different drugs can interact within the body and can have undesirable effects either on drug concentrations or drug clinical effects.

7. Categorize drugs.

8. Explore other modalities of treatments.

Teaching and learning underpinnings

Like other courses the Fundamentals of Pharmacotherapy block is guided by a set of beliefs (theoretical paradigms) that guide the way we do things. For this block, we draw on principles of cognitivism, social constructionism, and behaviorism. Cognitivism is a theory that states that the most complex material, if well-structured and presented can be understood and utilized by the learner. The Spiral MBBS curriculum at the College of Medicine is based on Cognitivism theory. The spiral curriculum is known best for the following principles: 1) The learner revisits topics and themes at different time intervals; 2) The topic increases in complexity with each visit; 3) There is a relationship between topic and previous learning.

Indeed, in the Gastrointestinal System, students will revisit topics, however in increasing complexity, and in a manner, that aligns with previous learning. The benefit
of this form of curriculum is to 1) Reinforce knowledge with each visitation; 2) Logical progression from simple ideas to complex ideas; and 3) Learners are encouraged to link previous learning to current and future learning.

The second theory is social constructionism, a widely-used theory of knowledge that examines the development of co-constructed understandings that come to form the basis for shared assumptions about the world. For this block, students are encouraged to articulate their experiences and beliefs, and to come to a shared meaning with their fellow students and facilitators. In this blueprint, the reader will notice the developed course objectives, activity learning outcomes, and aligned proposed instructional strategy provide an orientation and learning environment that encourages learners to make meaning of their experiences, all the while, becoming reacquainted with familiar concepts.

Finally, Behaviorism, a theory of knowledge that states that behaviors can be reinforced by continual feedback and assessment. Behaviorism is used in the design and development of classroom/session management, mainly through attendance and evaluation forms. Moreover, in the formative and summative assessment approaches.
Instructional design

Topics may be given in the form of interactive lectures and PBL sessions. Each topic has designated activity learning outcomes mapped to the appropriate Bloom’s taxonomy level, mode of instruction, needed resources and material, as well as assessment method. The assessment method includes both formative and summative assessment strategies.
Assessment goals and strategy

The goal of assessment is to ascertain whether the students are competent and have met the course learning outcomes, and as a result are able to move to the next block or course. In this block students will be assessed using formative and summative assessment. Formative assessment is used to monitor student’s learning and to provide ongoing feedback, it can be used by facilitators to improve students’ learning. Formative assessment is not graded, rather it is an opportunity to give students feedback and to prepare them for summative assessment.

Summative assessment is used to evaluate student’s learning at a specific time, usually at the end of the course, and to compare their performance against some standard or benchmark. The following table illustrates how students will be assessed during the block.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Type</th>
<th>Time</th>
<th>Frequency</th>
<th>% of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formative</td>
<td>During lectures, simulation sessions, and hospital.</td>
<td>throughout</td>
<td>Not graded</td>
<td></td>
</tr>
<tr>
<td>Summative (during block)</td>
<td>Quiz &amp; Midterm exam (MCQs)</td>
<td></td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PBL, OSPE, and Quizzes</td>
<td></td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Summative (end of block)</td>
<td>Written examination (MCQs)</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Resources and references:

Resources:

1. Pharmacology, Lippincott's Illustrated Reviews, 7 The edition, by R. A. Harvey and P. C. Champe
3. Pharmacological Reviews, Black Well, N.Y.

Support for faculty

Support provided by the Department of Medical Education (DME)

The Department of Medical Education provides consultation and services to faculty members, course planners, and the leadership of the department. Faculty members are encouraged to consult the DME for the following issues:

- Development of educational instrument unique to the course (e.g. generation of CBL cases).
- Providing best medical education practices guidelines (e.g. How to conduct PBL sessions).

and for the following services:

- Training opportunities for faculty as requested by the department.
- Interpretation of medical education research (e.g. course feedback)
- Generation of research ideas in relationship to course and department activities.

Support provided by the assessment unit

The assessment unit provides support to the department and its faculty regarding summative assessment. The unit’s responsibilities include:
- Item development
- Item analysis
- Assessment security measures

**Support provided by the Quality and Development Vice-Rectorship**

The quality and development vice-rectorship is meant to ensure educational quality measures are met. Quality assurance is a continuous process and it is aligned with NCAAA expectations and requirements. Departments are expected to fill out designated forms, and to provide course specifications and evaluations on an annual basis. The Department commits to this process of quality assurance.

**Support for students**

**Pharmacology Department support**

The Pharmacology Department provides guidance to matriculating students by first introducing them to the course and outlining the course learning outcomes during the first lecture. The department will also provide students with a syllabus that contains the course description, course learning outcomes, topics, resources and references.

The department will also provide support to students with regards to logistical issues and coordination of teaching and learning activities. As well as where to find necessary references. Further, the department will provide ongoing support in terms of the content given. Students are encouraged to contact faculty members when in need.
Academic advising unit
The academic advising unit provides cognitive, academic and professional support to students. Some of the services provided are:

- Registration assistance
- Interpreting degree evaluations (progress toward degree completion)
- Negotiating student/professor conflicts
- Committee on transportation and Financial Aids.
- Academic support for students on probation.
- Transfer student information
- Referrals to support services
- Notifying department or emergency of extended illnesses or emergencies
- Contact underperforming and missing students

Course evaluation & improvement
Like other courses, the Fundamentals of Pharmacotherapy block must be continuously evaluated and improved. First, the course should align with developments in the field of Pharmacology. Second, the block should be continuously developed as the MBBS curriculum is developed and changed. Finally, the block should also be aligned with development within the College of Medicine. The Fundamentals of Pharmacotherapy block should be evaluated annually, based on student and faculty feedback.
Course activities

Interactive lectures:
Lecture 1: Introductory lecture to Fundamentals of Pharmacotherapy course:
1. Outline the importance of the course.
2. Describe the mode of instruction.
3. Describe the teaching activities.
4. Outline the assessment approach.
5. Discuss expectations and ground rules.
7. Differentiate between Pharmacokinetics and Pharmacodynamics.
10. Differentiate between drug and poison.
11. Define Side effects.
12. Define Toxic effects.
13. List the sources of drugs.
15. Define Prototype drugs.

Lecture 2: Pharmacokinetic Principles (1)
1. List the two major areas of Pharmacology application.
2. List the 7 aspects of drug therapy in regard to patient care.
3. Define Baseline data.
4. List the predisposing factors of a high-risk patient.
5. List the basic guidelines to help ensure correct drug administration.
8. Define promoting compliance.
9. Explain how to minimize adverse effects.
10. Explain how to minimize adverse Interaction.
11. Define PRN decisions.
12. Explain how to apply Pharmacology in Patient Education.
13. List the 4 aspects of Drug Therapy in regard to Patient Education.
15. List Examples of Nursing Diagnosis.
16. List the factors affecting drug administration.

**Lecture 5: Pharmacokinetic Principles (2)**
1. Define Drug administration.
2. Define the local effects of drug administration
3. Define the systemic effects of drug administration.
4. List the routes of Drug Administration.
5. Define Parenteral administration.
7. Define Bioavailability.
8. List the factors affecting Bioavailability.
10. List the factors affecting drug distribution.
11. Define Drug Metabolism.
12. Define Phase II reactions.
14. List the factors affecting Drug metabolism.
15. Define Drug Elimination.
16. List the routes of drug excretion.
17. Define Tubular secretion.
18. List the Clinical cases that influence renal clearance.
19. Define hepatic elimination.
20. Describe the general hepatic extraction of drugs.

Lecture #: Pharmacokinetic Principles (3)
Lecture #: Pharmacokinetic Principles (4)
Lecture #: Pharmacokinetic Principles (5)
Lecture #: Pharmacokinetic Principles (6)
PBL 1:

Lecture 7: Pharmacodynamics (1)
1. Define Pharmacodynamics.
2. Identify the importance of Pharmacodynamics.
3. Define Dose-response relationships.
4. Define Maximal Efficacy.
5. Define Relative Potency.
7. List the Properties of receptors and Drug-Receptor Interactions.
8. List the Four Primary Receptor Families.
11. Explain Modified Occupancy theory.
13. Provide examples of Drug Responses that do not involve Receptors.
15. Explain Measurement of Interpatient Variability.
16. Describe the Clinical Implications of Interpatient Variability.
17. Define the therapeutic index.
Lecture #: Pharmacodynamics (2)
Lecture # Pharmacodynamics (3)
Lecture #: Pharmacodynamics (4)
Lecture #: Pharmacodynamics (5)
PBL 2:
Lab 1:
Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (1)
1. List the effects of drugs on the CNS.
2. Identify the components of the CNS.
3. Identify the components of the Cerebrum.
4. Define the Sub-cortial region.
5. Explain the CNS organization.
6. List the cells that support the Neurons.
7. Define Ion channels & Neurotransmitter receptors.
8. Define the synapse & Synaptic potentials.
9. List the toxins that are used to characterize ion channels.
11. Explain the components that are involved in Neural impulse.
12. Define Excitatory postsynaptic potentials.
14. Explain Chemical Signaling in the CNS.

Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (2)
1. Define Neurochemical transmission.
2. Define Cellular organization.
3. Explain Long tracts neuronal organization.
4. Define Local Circuit neuronal organization.
5. Describe Single source divergent neuronal.
6. Describe drug action in the CNS.
7. List the multiple sites of CNS drug action.
8. Explain adaptation to drug use.
9. Define tolerance.
10. Define CNS barriers.
11. Define the BBB proper.
12. Define The blood–CSF barrier.
13. Define The arachnoid barrier.
14. Describe the structure of BBB tight junctions.
15. Describe the main permeation mechanisms in the brain.
16. Describe the routes of transport across the BBB.
17. Provide examples of transcytosis.
18. Define Blood–brain barrier regulation
19. List the factors that influence drug entry through BBB.
20. List the factors determining drug entry in the brain.
21. Explain the Potential Solutions to the Blood-Brain Barrier Problem.

Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (3)
1. Describe the signal transduction at synapses.
2. Define Ionotropic receptors.
3. Define Metabotropic receptors.
4. Define Postsynaptic potential.
5. Define Excitatory synapses.
6. Define Inhibitory synapses.
7. Explain how IPSPs are Grade Potentials.
8. Define Acetylcholine.
10. List the Nicotinic effects on Acetylcholine.
11. List the muscarinic effects on Acetylcholine.
13. Define Dopamine.
14. Define Dopamine receptors.
15. Define Norepinephrine.
17. Define Epinephrine.
18. Define Noradrenaline.
19. List the Drugs linked to the noradrenergic pathway.
20. Define Histamine.
21. List the effects of Histamine on the body.
22. Define Serotonin.
23. Define 5-hydroxytryptaime.
24. List the effects of serotonin on the body.
25. Define Amino Acid Neurotransmitters.
27. Identify Glutamate Receptors.
29. Define γ-aminobutyric acid.
30. Define γ-aminobutyric acid receptors.
31. Define Neuropeptides.
32. Define Purins.
33. Define Miscellaneous neurotransmitter.

Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (4)
1. List the Neurodegenerative disease.
2. Describe Neurotransmission in the CNS.
3. Describe Synaptic potentials.
4. Define Excitatory pathways.
5. Define Inhibitory pathways.
6. Define combined effect of Epsp and Ipsp.
7. List the Psychomotor stimulants.
8. List the adverse effects of psychomotor stimulants.
10. Explain who Amphetamine effects the CNS.
11. Define Methylphenidate
12. Define Hallucinogens.

Lecture #: Basic Principle of Drugs Affecting the Central Nervous System (5)
1. Define Nausea.
2. Define Vomiting.
3. List the causes of Nausea and vomiting.
4. Define Anti-emetic drugs.
5. Define D2 receptor blocker.
7. Define Substituted Benzamides.
8. Define Butyrophenones.
10. Define 5-HT3 Receptor Blockers.
11. Define Palonosetron.
12. Define Benzodiazepines.
15. Define NK1 Receptor Blocker.

PBL 3:
Lab 2:
Lecture #: Drugs acting on the Autonomic Nervous System(1)
1. Define Cholinergic drugs.
2. Define ACH- Receptors Subtypes.
3. Describe the Synthesis and release of ACh.
4. Define Neuromodulation.
5. Define Cholinergic Receptors.
6. List the drugs that influence Cholinergic transmission.
7. List adverse effects of ACh actions.
8. Define Bethanecol.
10. Define Pilocarpine.
11. Define Central Effect.
15. Define Myasthenia Gravis.

**Lecture #: Drugs acting on the Autonomic Nervous System (2)**
1. Define Cholinergic Antagonists.
2. Define Antimuscarinic Agents.
3. Define Atropine.
4. Explain how Atropine effects Eye.
5. Explain how Atropine effects GIT.
6. Explain how ACh effects Urinary system.
7. Explain how ACh effects secretion.
8. Explain how ACh effects the cardiovascular system.
9. Explain how ACh effects the CNS.
10. List the therapeutic uses of ACh.
11. List the Adverse Effects of ACh.

**Lecture #: Drugs acting on the Autonomic Nervous System (3)**
1. Define Adrenergic Drugs.
3. Explain the synthesis of Tyrosine.
4. Define Adrenoceptors.
5. Define α Receptors.
6. Define β Receptors.
7. Explain Responses by adrenoceptors.
8. List the characteristics of Adrenergic agonists.
9. Define Dopamine.
10. Define Dobutamine.
11. Explain Indirect-Acting Agonists.
13. List the adverse effects of Adrenergic Agonists.
15. List Adrenergic Blockers.
17. Describe Epinephrine Reversal.
18. List Therapeutic Uses Epinephrine Reversal.
21. Define Selective α1 Antagonists.
22. Define Yohimbine.
23. Define β Blockers.
24. Define Propranolol.
25. Define Peripheral Vasoconstriction.
27. List the adverse effects of Bronchoconstriction.
28. List the Non Selective Blocker.
29. List the Selective Blocker.
30. List the Blockers with Partial Agonistic Activity.
Lab 3:
Lecture #: Basic & Principle of Toxicology
Lecture 23: Basic & Principle of Chemotherapy Agents (1)
1. Define the Etiology of cancer.
2. Define Carcinogenesis.
3. Describe the genetic alteration of cancer.
4. Define Oncogenes.
5. Describe tumor suppressor genes.
6. Define Epigenetic Alterations.
7. Explain the Pathology of cancer.
8. Explain the Cell cycle of cancer.
9. Describe the defense systems of cancer cells.
10. Explain the stages of cancer growth.
11. Define Angiogenesis.
15. Define Resisting Cell Death.
17. Define Activating Invasion & Metastasis.
18. Describe the diagnosis of cancer.
19. Define staging.
22. Define Chemotherapy.
23. Define Antimetabolites.
24. Define Pyrimidine Analogs.
27. Define Microtubule.
28. Define Topoisomerase Inhibitors.
29. Define Alkylating Agents.
31. Define Endocrine Therapies.
32. List the types of Antitumor antibiotics.
33. List the targeted drugs.
34. Define BRAF inhibitors.
35. Define CDK inhibitor.
36. Define DNA Methyltransferase Inhibitors.
37. Define EGFR Inhibitors.
38. Define Multikinase Inhibitors.
39. List the Biologic Therapies.
40. Define Monoclonal Antibodies.
41. Define HER2 Inhibitors.
42. Define VEGF Inhibitors.

**Lecture # Basic & Principle of Chemotherapy Agents (2)**
1. Define DNA repair genes.
2. Identify the importance of genes identification.
3. Describe the cell cycle of a cancer cell.
4. Describe the defense system of the body to defend against cancer.
5. Describe cancer growth in the body.
6. Define Angiogenesis.
7. Describe treatment modalities.
8. Explain the combined modality treatment.
9. Define Chemotherapy.
10. Define Antimetabolites.
11. Define Pyrimidine Analogs.
12. Define Folate.
14. Define Topoisomerase Inhibitors.
15. Define Alkylating Agents.
17. Describe the Endocrine therapies used for cancer treatments.
18. List the drugs used in cancer treatment.
20. List the HER2 Inhibitors.
21. List the VEGF Inhibitors.

Lecture 25: Basic & Principle of Chemotherapy Agents (3)

Lecture 26: Basic & Principle of Chemotherapy Agents (4)
PBL 5:
Lab 4:
Lecture 23: Antimicrobials (1)
  1. List the different types of microorganisms
  2. Identify The classification of different antibiotics
  3. List The different types of antimicrobials
  4. Provide an Overview of antibiotics including spectrum, pharmacokinetic
     and pharmacodynamic parameters and clinical use.
  5. List the Principles of antimicrobial therapy in a case- based approach.

Lecture 24: Antimicrobials (2)
  1. List the types of Antifungals.
  2. Describe the Mechanism of Action of a fungal cell.
  3. Define polyenes.
  4. Define Amphotericin B.
  5. List the alternative formulations to decrease toxicity.
  6. Define 5-Fluorocytosine.
  7. Define Azoles.
8. Define Echinocandins.
10. Define Triazoles.
11. Define Ketoconazole.
12. Define Imidazoles.
13. Provide examples of other Antifungal agents.
14. Define Antiviral drugs.
15. List the possible sites of action of antiviral agents.
17. Define Acyclovir.
18. Define Famciclovir.
22. List the Hepatitis B Agents.
23. Define Interferons.
24. Define Interferons Alfa.
25. List the Interferon Alfa adverse effects.
27. Define Oseltamivir.

Lecture # : Antimicrobials (3)
1. Define Beta – lactams
2. List the characteristics of Beta- lactams characteristics.
3. List the adverse effects of Beta lactams.
4. Define Natural Penicillin.
5. Define Penicillinase.
6. Define Aminopenicillins.
7. Define Carboxypenicillins.
8. Define Ureidopenicillins.


10. Define Penicillin pearls.

11. Classify Activity of Cephalosporins.

12. Define Cephalosporins.

13. Define Carbapenems.


15. Define Fluoroquinolones.

16. Define FQs Spectrum of Activity.

17. List the adverse effects of Fluoroquinolones.

18. Define Macrolides.

19. Describe the Macrolides spectrum of activity.

20. Explain the Drug Interactions of Macrolides.


22. Explain the Mechanism of Action of Vancomycin.

23. Describe the Spectrum of Activity of Vancomycin.

24. List the clinical uses of Vancomycin.

25. List the Adverse Effects of Vancomycin.

26. Define Oxazolidinones.

27. Define Linezolid.

28. List the Adverse Effects of Linezolid.

29. Explain how Linezolid interacts with food.

30. Define Clindamycin.

31. Describe the Spectrum of Activity of Clindamycin.

32. List the Adverse Effects of Clindamycin.

33. Define Tigecycline.

34. Describe the Spectrum of Activity of Tigecycline.

35. List the Adverse Effects of Tigecycline.

36. Define Daptomycin.
37. Describe the Spectrum of Activity of Daptomycin.
38. List the Adverse Effects of Daptomycin.

Lecture #: Antimicrobials (4)
Lecture #: Antimicrobials (5)
PBL 6:
Lab 5:
Lecture #: Antimicrobials (6)
Lecture #: Antimicrobials (7)
Lecture #: Antimicrobials (8)
Lecture #: Antimicrobials (9)
Lecture #: Antimicrobials (10)
PBL 7:
Lab 6:
Ground rules:

1. Respect yourself and others. Share your viewpoint and allow others to share theirs.
2. Don’t generalize and make blanket statements. There are other experiences other than your own.
3. Listen actively and attentively.
4. Ask for clarification before judging opinions.
5. Do not interrupt others.
6. Critique ideas, not people.
7. Do not offer opinions without supporting evidence.
8. Avoid put-downs (even humorous ones).
9. Take responsibility for the quality of the discussion.
10. Work with others towards shared understanding.
11. Always have your book, readings, Ipad on-hand.
# Rubric for Grading Problem-Based Learning (2nd Year)

<table>
<thead>
<tr>
<th>Item</th>
<th>4 = Excellent</th>
<th>3 = Above Average</th>
<th>2 = Average</th>
<th>1 = Below Average</th>
<th>Mark</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem recognition</strong></td>
<td>Demonstrates the ability to identify problems.</td>
<td>Demonstrates the ability to identify problems with some assistance from peers</td>
<td>Demonstrates the ability to identify problems with a great deal of assistance from facilitator.</td>
<td>Not able to identify any problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Organization, Structure, &amp; Understanding of the Topic</strong></td>
<td>All arguments were clearly tied to an idea and organized in a logical fashion. Demonstrates an in-depth, high-level understanding of the topic and issues.</td>
<td>Most arguments were clearly tied to an idea and organized in a logical fashion. Demonstrates an understanding of the topic and issues.</td>
<td>All arguments were clearly tied to an idea but the organization was sometimes not clear or logical. Demonstrates a low level of understanding of the topic and issues.</td>
<td>Arguments were not clearly tied to an idea. Fails to demonstrate an understanding of the topic and issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Argument</strong></td>
<td>All information presented in the argument was clear, accurate and thorough.</td>
<td>Most information presented in the argument was clear, accurate and thorough.</td>
<td>Most information presented in the argument was clear and accurate, but was not thorough.</td>
<td>Information had several inaccuracies or was usually not clear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Counter-Argument</strong></td>
<td>All counter-arguments were accurate, relevant and strong.</td>
<td>Most counter-arguments were accurate, relevant, and strong.</td>
<td>Some counter-arguments were accurate and relevant, but several were weak.</td>
<td>Counter-arguments were not accurate and/or relevant.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome</strong></td>
<td>Demonstrates an understanding of information that is relevant, fosters higher-level thinking, and clearly relates to the skills and content in the curriculum.</td>
<td>Demonstrates an understanding of information that is semi-relevant, fosters higher-level thinking, and begins to relate to the skills and content in the curriculum.</td>
<td>Demonstrates an understanding of information that touches on relevant information, displays lower-level thinking, and begins to relate to the skills and content in the curriculum.</td>
<td>Demonstrates an understanding of information that is not relevant, discourages higher-level thinking, and fails to relate to the skills and content in the curriculum.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**  _____ / out of 20
تم بحمد الله