

Virology and Parasitology; Code: PM 704C

A- Basic Information

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| Programme(s) on which the course is given: | Bachelor of Pharmacy (Pharm D clinical) |
| Department responsible for offering the course: | Department of Microbiology & Immunology |
| Department responsible for teaching the course: | Department of Microbiology & Immunology |
| Academic year: | Level four – fall semester (2023/2024) |
| Course title and code: | Virology and Parasitology, PM 704C |
| Prerequisite: | General Microbiology and Immunology |
| Credit hours: | Lectures: 2, Practical: 1, Total: 3 |
| Course Coordinator: | Dr. Amr Shaker |

B- Professional Information

1 - Overall Aim of the Course

Part of this course will provide students with the essential knowledge to recognize the epidemiology, mechanisms of pathogenesis, clinical picture, methods of laboratory diagnosis, treatment, prevention and control measures of RNA and DNA viral infections in humans. Different viral categories such as herpes viruses, papovaviruses adenoviruses, picornaviruses, arboviruses, myxoviruses, coronaviruses, reoviridae, retroviridae and hepatitis viruses will be covered in this part.

The other part of the course focuses on parasitic infections of humans. It concerns with different parasitological related diseases in in Egypt causing serious health problems, discussing medical helminthology, protozoology and entomology, their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection.

2 - Key Elements:

Domain 1: Fundamental knowledge

The students should be able to:

| Program key elements | Course learning outcomes |
|--|--|
| 1.1.1.1. Explain the basic knowledge of micro-organisms, infectious/non-infectious diseases, bioinformatics, biotechnology, and epigenetics. | 1.1.1.1. Understand the basis of virology and parasitology sciences. |
| 1.1.2.2. Integrate medical, pharmaceutical and pharmacological terms in pharmacy practice for effective scientific communication. | 1.1.2.2. Utilize the right pharmaceutical and medical terminology, abbreviations, and symbols in the domains of virology and parasitology, in pharmacy practice. |
| 1.1.5. Solve therapeutic problems using knowledge from basic sciences. | 1.1.5. Recall information in order to solve therapeutic issues caused by various viruses and parasites. |

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| 1.1.6.1. Make use of scientific literature to enhance professional decision in production of high-quality medicine | 1.1.6.1. Use scientific literature to improve professional decision-making. |
| 1.1.6.2. Collect and interpret data to enhance professional decision to save patient life and to prevent the spreading of infectious diseases. | 1.1.6.2. Collect and analyse virology and parasitology data to enhance professional decision-making . |

Domain 2: Professional and ethical practice

The student will be able to:

| Program key elements | Course learning outcomes |
|---|--|
| 2.1.3.1. Recognize personal and professional limitation. | 2.1.3.1. Acknowledge personal limits & endorse them professionally. |
| 2.1.3.2. Welcome the guidance from other members of health care team. | 2.1.3.2. Recognize rules & conditions regarding health care team members' guide. |
| 2.5.2. Restore, clarify & critically assess pharmaceutical information needed in pharmacy profession. | 2.5.2. Recall, explain, and critically evaluate evidence-based information needed in pharmacy profession in issues related to fields of virology and parasitology. |

Domain 3: Pharmaceutical care

The student will be able to:

| Program key elements | Course learning outcomes |
|--|---|
| 3.1.2.1. Follow the fundamentals of public health to select the proper method for infection control. | 3.1.2.1. Select and evaluate appropriate infection control measures using public health principles related to virology and parasitology. |
| 3.1.3. Detect and control microbial growth & perform lab tests to identify infections. | 3.1.3. Perform laboratory testing to diagnose viral and parasitic infections and illnesses. |
| 3.1.4.1. Relate the cause, spreading, pathological data and lab diagnosis of infections to pharmacotherapeutic approaches. | 3.1.4.1. Correlate the cause, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of viral and parasitic infections/diseases to their pharmacotherapeutic approaches |

Domain 4: Personal practice

The student will be able to:

| Program key elements | Course learning outcomes |
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| 4.1.2. Reclaim and critically analyze data, solve problems, and work efficiently in a team. | 4.1.2. Collect and evaluate data, identify and solve virology and parasitology problems, and work independently and efficiently in a team. |

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| 4.3.2. Develop self-learning skills for continuous professional improvement. | 4.3.2. Participate in self-directed learning as part of your ongoing professional development. |
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3- Course Contents

| Week | Lectures | | Practical | |
|------|---------------------------------|-----------------|----------------------------------|-----------------|
| | Topic | Credit hrs. (2) | Topics | Credit hrs. (1) |
| 1 | Virology (DNA viruses) (part 1) | 2 | | 1 |
| 2 | Virology (DNA viruses) (part 2) | 2 | Virology (part 1) | 1 |
| 3 | Virology(RNA viruses) (part 3) | 2 | Virology (part 2) | 1 |
| 4 | Virology (RNA viruses) (part 4) | 2 | Protozoa (part 1 & 2) | 1 |
| 5 | Midterm | | | |
| 6 | Virology (RNA viruses) (part 5) | 2 | Cestodes | 1 |
| 7 | Protozoa (part 1) | 2 | Trematodes | 1 |
| 8 | Protozoa (part 2) | 2 | Nematodes (part 1) | 1 |
| 9 | Cestodes | 2 | Nematodes (part 2) Arthropods | 1 |
| 10 | Trematodes | 2 | Data show spots' Revision | 1 |
| 11 | Nematodes (part 1) | 2 | Microscope spots' Revision | 1 |
| 12 | Nematodes (part 2) | 2 | Practical exam | |
| | Total hours | 22 | Total hours | 10 |

4- Teaching and Learning Methods:

- Lectures (Tools: board, overhead projector, data show).
- Practical Session (Tools: labs., boards, microscopes, slides).
- Tutorials in labs for the theoretical parts.
- E-learning and class Activities.

5- Student Assessment Methods:

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| Written Midterm exam | To assess | The ability of students to follow-up the course subjects. |
| Practical exam and assessment of semester work (class activities) | To assess | The ability of students to apply and practice scientific knowledge |
| Written final exam | To assess | The overall outcomes. |

Oral exam

To assess

The ability of students in expressing and presenting their knowledge clearly and in systematic approach.

Assessment Schedule

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|--------------|--------------------|---------|
| Assessment 1 | Periodic exams | Week 5 |
| Assessment 2 | Practical exam | Week 12 |
| Assessment 3 | Oral exam | Week 14 |
| Assessment 4 | Final written exam | Week 14 |

Weighting of Assessments

| | |
|----------------------------------|------------|
| Periodical examination | 20 |
| Final-term Examination | 75 |
| Oral Examination | 15 |
| Practical Examination | 40 |
| <u>Other types of assessment</u> | <u>---</u> |
| Total | 150 |

6- List of References

Course notes

- o Lecture notes of virology and parasitology prepared by instructors

Recommended books

- o Topley & Wilson Microbiology and Microbial Infections, 10th edition
- o Lippincott's illustrated reviews: Microbiology
- o Manson's Tropical Diseases; 19th edition; Eds.Manson-Bahr,P.E.C. & Bell, DR. (1996).
- o Parasite by Mira Grant; 2013.
- o Medical parasitology by Rohela Mahmud, Yvonne Ai Lian Lim & Amirah Amir; 2017

Periodicals, Web sites, etc

- o www.ncbi.nlm.nih.gov
- o pubmed.com
- o jmm.sgmjournals.org
- o dpd.cdc.gov
- o www.parasitology.com

7- Facilities Required for Teaching and Learning

Modern libraries, audiovisual tools, chemicals, cooperative assistants, glassware and instruments, lecture halls, datashow, internet.

Course Members:

Prof. Dr. Khaled Anwar Aboshanab
Assoc. Prof. Dr. Sarra Ebrahim Saleh
Dr. Amr Shaker
Dr. Masarra Sakr
Dr. Yomna Nagy

Course Coordinator: Dr. Masarra Sakr

Amr Shaker

Acting Head of Department: Assoc. Prof. Dr. Sarra Ebrahim Saleh

Sarra Saleh

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| Course name | Virology and Parasitology |
| Code | PM 704C |

Course Plan & Matrices

| Course Contents | | Program Key Elements | Course learning outcomes | Teaching and Learning Methods | Student Assessment Methods |
|-----------------|---|----------------------|--------------------------|--|-----------------------------|
| Week # 1 | Virology (part 1) | 1.1.1.1 | 1.1.1.1 | Lectures Practical | Periodic Written Oral |
| | | 1.1.2.2 | 1.1.2.2 | | |
| | | 1.1.5 | 1.1.5 | | |
| | | 1.1.6.1 | 1.1.6.1 | | |
| | | 1.1.6.2 | 1.1.6.2 | | |
| | | 2.1.3.1 | 2.1.3.1 | | |
| | | 2.1.3.2 | 2.1.3.2 | | |
| | | 2.5.2 | 2.5.2 | | |
| | | 3.1.2.1 | 3.1.2.1 | | |
| | | 3.1.3 | 3.1.3 | | |
| | | 3.1.4.1 | 3.1.4.1 | | |
| | | 4.1.2 | 4.1.2 | | |
| 4.3.2 | 4.3.2 | | | | |
| Week # 2 | Virology (part 2) P: Virology (part 1) | 1.1.2.2 | 1.1.2.2 | Lectures Practical | Periodic Written Oral |
| | | 1.1.5 | 1.1.5 | | |
| | | 1.1.6.1 | 1.1.6.1 | | |
| | | 1.1.6.2 | 1.1.6.2 | | |
| | | 2.1.3.1 | 2.1.3.1 | | |
| | | 2.1.3.2 | 2.1.3.2 | | |
| | | 2.5.2 | 2.5.2 | | |
| | | 3.1.2.1 | 3.1.2.1 | | |
| | | 3.1.3 | 3.1.3 | | |
| | | 3.1.4.1 | 3.1.4.1 | | |
| | | 4.1.2 | 4.1.2 | | |
| | | 4.3.2 | 4.3.2 | | |
| Week # 3 | Virology (part 3) P: Virology (part 2) | 1.1.2.2 | 1.1.2.2 | Lectures Open discussion Brain storming Practical | Periodic Written Oral |
| | | 1.1.5 | 1.1.5 | | |
| | | 1.1.6.1 | 1.1.6.1 | | |
| | | 1.1.6.2 | 1.1.6.2 | | |
| | | 2.1.3.1 | 2.1.3.1 | | |
| | | 2.1.3.2 | 2.1.3.2 | | |
| | | 2.5.2 | 2.5.2 | | |
| | | 3.1.2.1 | 3.1.2.1 | | |
| | | 3.1.3 | 3.1.3 | | |
| | | 3.1.4.1 | 3.1.4.1 | | |
| | | 4.1.2 | 4.1.2 | | |
| | | 4.3.2 | 4.3.2 | | |
| Week # 4 | Virology (part 4) | 1.1.2.2 | 1.1.2.2 | Lectures | Written Oral |
| | | 1.1.5 | 1.1.5 | | |
| | | 1.1.6.1 | 1.1.6.1 | | |
| | | 1.1.6.2 | 1.1.6.2 | | |
| | | 2.1.3.1 | 2.1.3.1 | | |
| | | 2.1.3.1 | 2.1.3.1 | | |

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| | | 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | Practical | Practical |
| Week # 5 | Midterm | | | | |
| Week # 6 | Virology Part 5 | 1.1.1.1 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | 1.1.1.1 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | Lectures | Written Oral |
| | P: Cestodes | 4.1.2 4.3.2 | 4.1.2 4.3.2 | Practical | Practical |
| Week # 7 | Protozoa (part 1) | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | Lectures Open discussion Self-learning | Written Oral |
| | P: Trematodes | 4.1.2 4.3.2 | 4.1.2 4.3.2 | Practical | Practical |
| Week # 8 | Protozoa (part 2) | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 | Lectures | Written Oral |
| | P: Nematodes (part 1) | 4.1.2 4.3.2 | 4.1.2 4.3.2 | Practical | Practical |
| Week # 9 | Cestodes | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 | Open discussion Brain storming | Written Oral |
| | P: | | | | |

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|------------------|--|--|--|--------------------------------|----------------------------------|
| | Nematodes (part 2) Arthropods | 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | Practical | Practical |
| Week # 10 | Trematodes P: Data show spots' Revision | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | Lectures Practical | Written Oral Practical |
| Week # 11 | Nematodes (part 1) P: Microscope spots' Revision | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | Lectures Practical | Written Oral Practical |
| Week # 12 | Nematodes (part 2) P: Practical exam | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | 1.1.2.2 1.1.5 1.1.6.1 1.1.6.2 2.1.3.1 2.1.3.2 2.5.2 3.1.2.1 3.1.3 3.1.4.1 4.1.2 4.3.2 | Lectures Open discussion | Written Oral |

In case of emergency or necessity, the study will be converted into recorded and interactive lectures.

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جلسة رقم (11) بتاريخ 31/8/2023