

## Specification for Parasitology (B) course 2025/2026

### 1-Basic information

|                                                                                                       |                                       |   |           |      |       |   |       |      |
|-------------------------------------------------------------------------------------------------------|---------------------------------------|---|-----------|------|-------|---|-------|------|
| Course title                                                                                          | Parasitology (B)                      |   |           |      |       |   |       |      |
| Course code                                                                                           | PAR.325                               |   |           |      |       |   |       |      |
| Department offering the course                                                                        | Parasitology                          |   |           |      |       |   |       |      |
| Level                                                                                                 | 3 <sup>rd</sup> year                  |   |           |      |       |   |       |      |
| Semester                                                                                              | Spring                                |   |           |      |       |   |       |      |
| Number of units/credit hours                                                                          | Theoretical                           | 2 | Practical | 1(2) | Other | 0 | Total | 3(4) |
| Course Type                                                                                           | √ Obligatory Elective                 |   |           |      |       |   |       |      |
| Academic program                                                                                      | Bachelor of Veterinary Medicine (BVM) |   |           |      |       |   |       |      |
| University                                                                                            | Benha University                      |   |           |      |       |   |       |      |
| Faculty                                                                                               | Veterinary medicine                   |   |           |      |       |   |       |      |
| Name of course coordinator                                                                            | Prof. Dr. Reham S. El Maadawy         |   |           |      |       |   |       |      |
| Course Specification Approval Date                                                                    | Faculty council/ 27-8-2025            |   |           |      |       |   |       |      |
| Course Specification Approval (Attach the decision/minutes of the department /committee/council ....) | Department council/ 8/7/2025          |   |           |      |       |   |       |      |

### 2-Course overview

- Course contents written in the program bylaw:

Protozoology (structure, function and classification of protozoa; morphological characters and diagnosis). Entomology (Anatomy and function of arthropods of medical and veterinary importance, classification, transmission of

diseases, life cycle, their role in transmitting disease to animals and man);  
Control of arthropods.

• **3- Intended learning outcomes of the course (ILOs):**

|                             | NARS ILOS |                                                                                                                              | Course ILOS |                                                                                                                                                                                           |
|-----------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             | Code      | Text                                                                                                                         | Code        | Text                                                                                                                                                                                      |
| Knowledge and understanding | 2.7       | Various causes of animal diseases, their pathogenesis, macro- and microscopic pathological lesions, and laboratory diagnosis | a1          | Recognize the medical importance of arthropods, archnida and protozoa                                                                                                                     |
|                             |           |                                                                                                                              | a2          | Classify and list insect, crustacea, archnida and protozoa of veterinary medical importance.                                                                                              |
|                             |           |                                                                                                                              | a3          | Illustrate the morphological characters and life cycle of important                                                                                                                       |
|                             |           |                                                                                                                              | a4          | Mention the medical importance of arthropods, archnida and protozoa, and methods for diagnosis and control                                                                                |
| Intellectual skills         | 4.3       | Inculcate a rigorous approach to problem identification and solving.                                                         | b1          | Identify insect, crustacea, archnida and protozoa with their stages.                                                                                                                      |
|                             | 4.5       | Remain committed to life – long learning and updating / upgrading their biochemical sense and clinical skills.               | b2          | Differentiate between the clinical and pathogenesis signs with parasitic infections.                                                                                                      |
|                             |           |                                                                                                                              | b3          | Compare the morphology, life cycle, pathogenesis, diagnosis, control, immunity and treatment of most important insect, crustacea, archnida and protozoa affecting animals, birds and fish |
|                             |           |                                                                                                                              |             |                                                                                                                                                                                           |
|                             |           |                                                                                                                              |             |                                                                                                                                                                                           |
| Practical skills            | 3.4       | Perform clinical                                                                                                             | c1          | Identify fixed samples of insect,                                                                                                                                                         |

|                |     |                                                            |     |                                                                                               |
|----------------|-----|------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------|
|                |     | examination of diseased cases and collect relevant samples |     | crustacea, archnida parts on slide microscope and TV monitor.                                 |
|                |     |                                                            | c2  | Identify the morphology of arthropods preserved in boxes.                                     |
|                |     |                                                            | c3  | c-Identify fixed samples of protozoa on slide microscope and TV monitor.                      |
|                |     |                                                            | c4  | Identify the different larval stages of arthropods and protozoan                              |
|                |     |                                                            | c.5 | Identify the clinical symptoms and pathogenesis of insects , arachnid and protozoan parasites |
| General skills | 5.1 | Work under pressure and / or contradictory conditions.     | d1  | Searching skill.                                                                              |
|                | 5.5 | Communicate appropriately verbally and non-verbally.       | d2  | - Communication skill                                                                         |
|                | 5.6 | Utilize computer and internet skills.                      | d3  | -Working in team                                                                              |

| 4- Teaching and learning methods |   |                      |   |                |   |
|----------------------------------|---|----------------------|---|----------------|---|
| Lectures                         | √ | Discussion & seminar | √ | Practical      | √ |
| Presentation & movies            | √ | Problem solving      | √ | Brain storming | √ |
| Others                           |   |                      |   |                |   |

**- Course Schedule:**

| Number of the Week | Scientific content of the course<br>(Course Topics)                            | Total Weekly Hours | Expected number of the Learning Hours                     |                                       |                                                    |                          |
|--------------------|--------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------|---------------------------------------|----------------------------------------------------|--------------------------|
|                    |                                                                                |                    | Theoretical teaching (lectures /discussion groups/ .....) | Training (Practical/Clinical / .....) | Self-learning (Tasks / Assignments/ Projects/ ...) | Other (to be determined) |
|                    |                                                                                |                    |                                                           |                                       |                                                    |                          |
| <b>W1</b>          | Introduction to Entomology<br>-Diptera(mosquitoes and relatives                | 3(4)               | 2                                                         | 1(2)                                  |                                                    | 0                        |
| <b>W2</b>          | Orthoptera, Coleoptera,<br>Hymenoptera,Hemiptera,<br>-Flies(Tabanidae,Muscidae | 3(4)               | 2                                                         | 1(2)                                  |                                                    | 0                        |
| <b>W3</b>          | Anopleura, Mallophaga, Siphonaptera<br>-Calliphoridae                          | 3(4)               | 2                                                         | 1(2)                                  | Formative quiz                                     | 0                        |
| <b>W4</b>          | Diptera(mosquitoes and relatives, flies<br>-Glossinidae,Hippoboscidae          | 3(4)               | 2                                                         | 1(2)                                  |                                                    | 0                        |
| <b>W5</b>          | Arachnids(hard and soft tick) M<br>yiasis                                      | 3(4)               | 2                                                         | 1(2)                                  |                                                    | 0                        |
| <b>W6</b>          | Sarcoptidae,psoroptidae,demodicidae<br>Sarcoptidae,Psoroptidae,<br>demodicidae | 3(4)               | 2                                                         | 2(4)                                  | Formative quiz                                     | 0                        |
| <b>W7</b>          | Semester work (one hour exam)                                                  | -                  | -                                                         | -                                     |                                                    | -                        |

|     |                                                                                                                 |      |   |      |                |   |
|-----|-----------------------------------------------------------------------------------------------------------------|------|---|------|----------------|---|
| W8  | Fish crustacean, Immunity for Arthropods<br>-Hard tick,soft tick                                                | 3(4) | 2 | 1(2) |                | 0 |
| W9  | Introduction to Protozoa, Flagellates, Entamoeba<br>Siphonaptera(Fleaze)<br>Anoplura(lice),Cimicidae,Reduviidae | 3(4) | 2 | 1(2) |                | 0 |
| W10 | Apicomplexa(F:Eimeridae)<br>F:Eimeridae                                                                         | 3(4) | 2 | 1(2) | Formative quiz | 0 |
| W11 | Sarcocystidae,cryptosporididae<br>-Sarcocystidae,cryptosporididae                                               | 3(4) | 2 | 1(2) |                | 0 |
| W12 | Babesiidae,theileriidae,<br>Haemospororina<br>-Flagellates,<br>Babesiidae,theileriidae<br>Haemospororina,       | 3(4) | 2 | 1(2) |                | 0 |
| W13 | Fish protozoa<br>-Entamoeba,Blantidium coli                                                                     | 3(4) | 2 | 1(2) |                | 0 |
| W14 | Immunity of protozoa<br>-Fish parasites                                                                         | 3(4) | 2 | 1(2) | Formative quiz | 0 |
| W15 | Practical exam                                                                                                  | -    | - | -    |                | - |

### 5- Assessment timing and grading:

#### a- Assessment methods (summative and formative)

1. **Formative assessment:** including (weekly quizzes, homework assignments and surveys).
2. **Summative assessment** including (quizzes, class activities, semester work, practical exam, oral exams and final written exams).

### b- Assessment schedule and weight

| Assessment method                         | Timing                  | Grade | Percent |
|-------------------------------------------|-------------------------|-------|---------|
| Semester work and midterm                 | 7 <sup>th</sup> week    | 10    | 10%     |
| Formative assessment                      | Throughout the semester | ----- | -----   |
| Practical exam                            | 15 <sup>th</sup> week   | 30    | 30%     |
| oral exam                                 | End of semester         | 10    | 10%     |
| Written exam                              | End of semester         | 50    | 50%     |
| Assignments / Project /Portfolio/ Logbook | -----                   | ----- | -----   |
| Field training                            | -----                   | ----- | -----   |
| Other (Mention)                           | -----                   | ----- | -----   |
| Total                                     |                         | 100   | 100%    |

### 6- Learning resources and supportive facilities:

|                           |                                     |                                                                                                                                                                                                                                               |
|---------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Learning resources</b> | <b>Main reference</b>               | <b>Student handbook:</b> Entomology and Protozoology and Practical Entomology and Protozoology<br>Edit by Staff members                                                                                                                       |
|                           | <b>Essential books (text books)</b> | <ul style="list-style-type: none"> <li>Bow man D. D (2014) Parasitology for veterinarians</li> <li>Larrys. Roberts (2013) Foundations of Parasitology.</li> <li>K.D.Chatterjee (2011) parasitology protozoology and helminthology.</li> </ul> |
|                           | <b>Recommended books</b>            | <ul style="list-style-type: none"> <li>Course note.</li> <li>Larrys. Roberts (2013) Foundations of Parasitology.</li> <li>.D.Chatterjee (2011) parasitology protozoology and</li> </ul>                                                       |

|                       |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                   | helminthology.                                                                                                                                                                                                                                                                                                                                                                                                                |
|                       | Periodicals, Web sites, . . . etc | <ul style="list-style-type: none"> <li>Veterinary parasitology.</li> <li>www.ekb.eg</li> </ul>                                                                                                                                                                                                                                                                                                                                |
|                       | Learning platform                 | Thingy                                                                                                                                                                                                                                                                                                                                                                                                                        |
| supportive facilities | Devices & instruments             | <p>Devices:</p> <ul style="list-style-type: none"> <li>Microscope</li> <li>Dissecting Microscope</li> <li>Centrifuge</li> <li>Incubator</li> <li>Magnetic stirrer</li> <li>Camera</li> <li>Water bath</li> <li>Digital balance</li> <li>Sockcelet apparatus</li> </ul> <p>Instruments:</p> <ul style="list-style-type: none"> <li>Slides</li> <li>Cover slides</li> <li>Jars</li> <li>Pipettes</li> <li>Petri dish</li> </ul> |
|                       |                                   | 1-Data show.                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                       |                                   | 2-White board.                                                                                                                                                                                                                                                                                                                                                                                                                |
|                       |                                   | 3-Parasitology lab.<br>4-Posters                                                                                                                                                                                                                                                                                                                                                                                              |

|  |  |                      |
|--|--|----------------------|
|  |  | 5-Department library |
|--|--|----------------------|

## Matrices:

### **A- Content and ILOs matrix:**

| Topic                                 | A)<br>Knowledge and<br>understanding | B) Intellectual<br>skills | C)<br>Professional and<br>practical skills | D)<br>General and<br>transferable skills |
|---------------------------------------|--------------------------------------|---------------------------|--------------------------------------------|------------------------------------------|
| <b>Introduction to<br/>Entomology</b> | a1                                   | b1                        | -                                          | -                                        |
| <b>Insects</b>                        | a1, a2, a3, a4                       | b1, b2                    | c1, c2                                     | d1, d2                                   |
| <b>Arachnids</b>                      | a1, a2, a3, a4                       | b1, b2, b3                | c1, c2                                     | d1, d2                                   |
| <b>Fish crustacean</b>                | a1, a2                               | b1, b2                    | c1, c2, c3, c5                             | d1, d2, d3                               |
| <b>Immunity for<br/>Arthropods</b>    | a4                                   | -                         | -                                          | -                                        |
| <b>Introduction to<br/>Protozoa</b>   | a1                                   | b1                        | -                                          | -                                        |
| <b>Flagellates</b>                    | a1, a2                               | b1, b2, b3                | c1, c2, c3, c4                             | d1, d2, d3                               |
| <b>Entamoeba</b>                      | a1, a2, a3                           | b1, b2, b3                | c1, c2, c3, c4                             | d1, d2, d3                               |
| <b>Apicomplexa</b>                    | a1, a2, a3                           | b1, b2                    | c1, c5                                     | d1, d2, d3                               |
| <b>Fish protozoa</b>                  | a1, a2, a3, a4                       | b1, b2, b3                | c1, c4, c5                                 | d1, d2, d3                               |
| <b>Immunity of<br/>protozoa</b>       | a4                                   | -                         | -                                          | d3                                       |

### B- Teaching and learning methods and ILOs matrix:

| ILOs                              |    | Teaching and Learning methods |     |   |   |    |    |
|-----------------------------------|----|-------------------------------|-----|---|---|----|----|
|                                   |    | L                             | P&M | D | P | Ps | Bs |
| Knowledge and understanding       | a1 | √                             | √   | √ |   |    | √  |
|                                   | a2 | √                             | √   | √ |   |    | √  |
|                                   | a3 | √                             | √   | √ |   |    | √  |
|                                   | a4 | √                             | √   | √ |   |    | √  |
| Intellectual skills               | b1 | √                             | √   | √ |   |    | √  |
|                                   | b2 | √                             | √   | √ | √ | √  | √  |
|                                   | b3 | √                             | √   | √ | √ | √  | √  |
| Professional and practical skills | c1 |                               | √   | √ | √ | √  |    |
|                                   | c2 |                               | √   | √ | √ | √  |    |
|                                   | c3 |                               | √   | √ | √ | √  |    |
|                                   | c4 |                               | √   | √ | √ | √  |    |
|                                   | c5 |                               | √   | √ | √ | √  |    |
| General skills                    | d1 | √                             | √   |   |   |    | √  |
|                                   | d2 | √                             |     |   |   |    | √  |
|                                   | d3 |                               |     | √ | √ |    |    |

**L: Lecture, P&M: Presentations & Movies, D&S: Discussions & Seminars P: Practical Ps: Problem solving, Bs: Brain storming**

### C- Assessment methods and ILOs matrix:

| ILOs                              |    | assessment method    |          |      |           |         |
|-----------------------------------|----|----------------------|----------|------|-----------|---------|
|                                   |    | Formative assessment | semester | oral | Practical | Written |
| Knowledge and understanding       | a1 | √                    | √        | √    |           |         |
|                                   | a2 | √                    | √        | √    |           |         |
|                                   | a3 | √                    | √        | √    |           |         |
|                                   | a4 | √                    | √        | √    |           |         |
| Intellectual skills               | b1 |                      | √        | √    |           |         |
|                                   | b2 |                      | √        | √    |           |         |
|                                   | b3 |                      | √        | √    |           |         |
| Professional and practical skills | c1 |                      |          |      | √         |         |
|                                   | c2 |                      |          |      | √         |         |
|                                   | c3 |                      |          |      | √         |         |
|                                   | c4 |                      |          |      | √         |         |
|                                   | c5 |                      |          |      | √         |         |
| General skills                    | d1 |                      |          | √    |           |         |
|                                   | d2 |                      |          | √    |           |         |
|                                   | d3 |                      |          | √    |           |         |

**-Course coordinator:**

**Prof. Dr. Prof. Dr. Reham S. El Maadawy**

**-Program coordinator: Prof. Dr. Mahmoud Abouelroos**

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