Parasitology Course Specification

<table>
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<th>Basic Information</th>
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<tbody>
<tr>
<td><strong>Course Code</strong></td>
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<tr>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td><strong>Academic Year</strong></td>
</tr>
<tr>
<td><strong>Academic Program</strong></td>
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<tr>
<td><strong>Hours/week</strong></td>
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<td><strong>Term</strong></td>
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1. Course Aim

By the end of this course, students should have gained the basic concepts, principles and the essential practical skills in the field of Parasitology.

2. Intended Learning Outcomes

2.1. Knowledge and Understanding

On successful completion of this course, the student should be able to

2.1.1. Define the basic terms in the fields of General and Special Parasitology.

2.1.2. Identify different Phyla, Classes, Orders, Families and Species of Parasites.

2.1.3. Describe the general characteristics morphology of Parasites.

2.1.4. Discuss the basic principles of development of different Phyla.

2.1.5. Define the life cycles of some important Parasites.

2.1.6. Explain the different environmental aspects encourage the viability of parasites.

2.1.7. Express in brief the inter-relation between host and Parasites.

2.1.8. Clarify basic control measures.

2.2. Intellectual Skills

By the end of this course, the student should be able to

2.2.1. Evaluate the proper approach for Parasites and their life history.

2.2.2. Investigate reasons and sources of infection.

2.2.3. Interpret the environmental changes and incidence of Parasitic infection.

2.2.4. Manipulate the efficacy of control measures.

2.2.5. Clarify control measures in response to emerging and unexpected problems.

2.2.6. Design control systems to animal owners relevant to the socio–economics and resource availability.

2.3. Practical and Professional Skills

By the end of this course, the student should be able to

2.3.1. Carry out collection of samples from infected cases.

2.3.2. Practice of preparation of samples of parasites.

2.3.3. Evaluate examination of samples for parasitic infection by different methods.

2.3.4. Identify the recovered samples.
2.3.5. Measure the ability for making slide permanent mount and staining of different parasites.
2.3.6. Apply the complete identification of the parasitic samples.
2.3.7. Determine the infection with different parasitic species.
2.3.8. Practice description of parasites.
2.3.9. Writing of a report for parasitic infection.

2.4. General and Transferable Skills

By the end of this course, the student should be able to
2.4.1. Skills in editing and presentations.
2.4.2. Communication skills.
2.4.3. Adjusted him for continuous learning.
2.4.4. Write reports efficiently.
2.4.5. Search the web for a given course topic to build up a review

3. Course Contents

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<tr>
<td>HELMINTHOLOGY</td>
</tr>
<tr>
<td>Introduction to parasites and parasitism.</td>
</tr>
<tr>
<td>Phylum: Platyhelmenthes</td>
</tr>
<tr>
<td>*Classification</td>
</tr>
<tr>
<td>*Class: Trematoda</td>
</tr>
<tr>
<td>*Order: Digenea</td>
</tr>
<tr>
<td>*Classification and Morphology</td>
</tr>
<tr>
<td>*Development of Trematoda.</td>
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<tr>
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<tr>
<td>Genus: Echinocohasmaus</td>
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<tr>
<td>*Family: Schistosomatidae</td>
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<tr>
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<tr>
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<tr>
<td>Genus: Paramphistomum</td>
</tr>
<tr>
<td>Genus: Cotylophron</td>
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</tbody>
</table>
- Genus: Carmyerius
- Genus: Gastrodiscus
- *Common Digenetic trematodes among Egyptian freshwater fish:
  - *Family: Sangiunicolidae
  - Genus: Sanguinocola

- Class: Cestoidea
- *Classification and Morphology
- *Development of Cestodes
- *Subclass: Colyoda
- *Family: Diphyllobothriidae
  - Genus: Diphyllobothrium
  - Genus: Spirometra
  - Genus: Polyonchobothrium
  - *Family: Bothriocephalidae
  - Genus: Bothriocephalus

- *Subclass Eucestoda
- *Family: Taeniidae
  - Genus: Taenia
  - Genus: Echinococcus
  - *Family: Dilepididae
  - Genus: Dipylidium
  - *Family: Hymenolepididae
  - Genus: Hymenolepis

- Family: Anoplocephalidae
  - Genus: Anoplocephala
  - Genus: Paranoplocephala
  - Genus: Monezia
  - *Family: Thysanosomidae
  - Genus: Avitellina
  - Genus: Stilesia

- Family: Davainiidae
  - Genus: Davainea
  - Genus: Railliatina
  - Genus: Cotugnia
  - *Family: Proteocephalidae
  - Genus: Proteocephalus
  - *Family: Caryophyllidae
  - Genus: Caryophylleus
  - Genus: Wynionia
Phylum: Nemathelminthes
- *Class: Nematoda
- Morphology and development of Nematodes
- *Subclass: Phasimida
- *order: Ascaridida
- *Superfamily: Ascarididea
  - *Family: Ascaridae
  - Genus: Ascaris
  - Genus: Parascaris
  - Genus: Toxascaris
- *Family: Anisakidae
  - Genus: Toxocara
  - Genus: Anisakis
- *Superfamily: Heterakoidea
  - *Family: Heterakoidae
  - Genus: Heterakis
- *Superfamily: Oxyuroidea
  - *Family: Oxyuridae
  - Genus: Oxyuris
  - Genus: Entrobius
  - Genus: Passalurus
  - Genus: Sublura
- *Order: Rhabditia
  - *Superfamily: Rhabditoidea
  - *Family: Rhabditidae
  - *Family: Strongyloidiade
    - Genus: strongyloides
  - *Order: Strongylida
    - *Superfamily: Ancylostomatidea
      - *Family: Ancylostomatidae
      - Genus: Ancylostoma
      - Genus: Bunostomum
      - Genus: Necator
    - *Superfamily: Trichostrongylidea
      - *Family: Trichostrongyliideae
      - Genus: Trichostrongylus
      - Genus: Haemonchus
- Genus: Ostertagia
- Genus: Nematodirus
- *Family: Dictycaulidae
- Genus: Dictycaulus

- *Superfamily: Strongyloidea
- *Family: Strongylidae
- Genus: Strongylus
- *Family: Trichonematidae
- Genus: Triodonotophorus
- Genus: Trichonema
- Genus: Oesophagostomum
- *Family: Chabertidae
- Genus: Chabertia
- *Family: Syngamidae
- Genus: Syngamus
- *Family: Amidostomatidae
- Genus: Amidostoma
- *Superfamily: Metastrongylidea
- *Family: Metastrongylidae
- Genus: Metastrongylus
- Genus: Meullreius
- Genus: Protostrongylus

- Order: Spirurida
- *Superfamily: spirurtoidea
- *Family: Spiruridae
- Genus: Habronema
- Genus: Spirocerca
- *Family: Camallanidae
- Genus: Paracamellanus
- Genus: Camallanus
- *Family: Cucullanidae
- Genus: Cuculanus
- *Family: Acuaridae
- *Family: Tetrameridae
- *Superfamily: Filaroidea
- *Family: Filaridae
- *Family: Setaridae
- *Family: Onchocercidae
- *Superfamily: Dracanculoidea
- *Family: Dracanculidae
- *Subclass: Aphanida
- order: Enoplida
- *Superfamily: Trichuriodea
- *Family: Trichinillidae
- *Family: Trichuridae

- Fish parasites:
- *Phylum: Annelida
- *Class: Hirudinea (leeches)
- *Family: Psicicolidae
- Genus: Psicicola
- Genus: Hemichepsis
- Genus: Cystobranchialis
- *Phylum: Acanthocephala
- Genus: Acanthosentis
- Genus: Acanthocephalans
- *Family: Acanthostomidae
- Genus: Acanthostomum
- *Family: Allocreadida
- Genus: Orientocreadium
- *Family: Paramphistomatidae
- Genus: Sandonia sudanesis
- Genus: Deropristis mllaid
- *Order: Monogenea
- *Family: Dactylogyridae
- Genus: Dactylogyrus
- *Family: Gyrodactyldae
- Genus: Gyrodactylus
- *Encysted metacercariae infecte fish (Black spot disease, yellow grup disease).

- Total Teaching Hours 90 45 45

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**Second Semester**

<table>
<thead>
<tr>
<th>Topic</th>
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<th>Lectures (hr)</th>
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<tr>
<td><strong>PROTOZOOLOGY</strong></td>
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<tr>
<td>Parasitic Protozoa</td>
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<tr>
<td>*Introduction: structure and mechanism of performance of its vital functions.</td>
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<td>*Family: Eimeriidae</td>
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<td>*Family: Cryptosporidiida</td>
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- **Family: Sarcocystidae** - 6 3 3
- **Family: Plasmodiidae**
  - *Family: Babesiidae* - 6 3 3
  - *Family: Theileriidae*
- **Rickettsia infecting farm animals**
  - *Subphylum: Sarcomastigophora* - 6 3 3
  - *Family: Trypanosomatidae*
  - *Family: Bodonidae*
- **Family: Hexamitidae**
  - *Family: Trichomonadidae* - 6 3 3
  - *Family: Monocercomonadidae*
- **Subphylum: Sarcodina**
  - *Family: Entamoebidae*
  - *Subphylum: Ciliophora*
  - *Subphylum: Myxospora*
  - *Subphylum: Microspora*

**Veterinary Entomology**

- *Introduction*
- *Effect of arthropods on the health of animal and man.*
  - *Phylum: Arthropoda* - 6 3 3
  - *Morphology, development and life history*
  - *Classification of arthropods of veterinary and medical importance.*
- **Order: Diptera**
  - *Family: Culicidae* - 6 3 3
- **Family: Psychodidae**
  - *Family: Ceratopogonidae* - 6 3 3
  - *Family: Simulidae*
  - *Family: Tabanidae*
- **Family: Muscidae**
  - *Family: Sarcophagidae* - 6 3 3
- **Family: Calliphoridae**
  - *Family: Oestridae* - 6 3 3
- *Family: Hippoboscidae*
- **Order: Phthiraptera (lice)**
- **Order: Siphonaptera (fleas)** - 6 3 3
- **Order: Hemiptera (Bug)**
- Order : Coleoptera (Beetles)
- Order : Hymenoptera (Ants)
- Order : Orthoptera (Cockroaches)
- Class : Crustacea
- Order : Coleoptera (Beetles) 6 3 3
- Class: Arachnida
  - *Family: Ixodidae (Hard Ticks)
  - *Family: Argasidae (Soft Ticks)
  - *Family: Sarcoptidae (Mites)
  - *Family: Psoroptidae (Mites)
  - *Family: Demodicidae (Mites)
  - *Family: Dermanyssidae
- Class: Pentastomida
- Total 90 45 45

- Student activities
  - Field trips to commercial and governmental farms (group activity)
  - Mini reviews from the web and the library (individual activity)
  - Presentations and seminars (individual activity)
  - Illustrative posters (group activity)
- Total (2 semesters) 180 90 90

* Contents sharing in the achievement of the intended learning outcomes; KU (knowledge and understanding), IS (intellectual skills), PPS (practical and professional skills) and GT (general and transferable skills).
<table>
<thead>
<tr>
<th>Topics</th>
<th>Hours</th>
<th>Knowledge &amp; Understanding</th>
<th>Intellectual Skills</th>
<th>Practical &amp; Professional Skills</th>
<th>General &amp; Transferable Skills</th>
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<table>
<thead>
<tr>
<th>Topics</th>
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<td>Student activities</td>
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</table>
4. Teaching and Learning Methods

4.1. Lectures to gain knowledge and understanding skills.

4.2. Practical sessions for the students to gain practical skills.
4.3. Field trips to the animal production farms, for observation of the infected animals.

4.4. Self directed learning skills.
4.4.1. Analyze the results and reach specific conclusion.
4.4.2. Writing a review paper to gain the skills of self-learning and presentation.
4.4.3. Sample collection, preservation, examination and identification.

5. Teaching and Learning Methods for Students of Limited Capabilities

- Activating office hours.
- Additional revisions for previously taught and difficult topics.
- Providing a summary for previous chapter at the end of each one.
- Following up student feedbacks.

6. Student Assessment

<table>
<thead>
<tr>
<th>6.1. Methods</th>
<th>Intended Learning Outcomes Covered</th>
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<tbody>
<tr>
<td>Written exams</td>
<td>KU</td>
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<td>2.2.3/2.2.5/</td>
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<td>Oral exams</td>
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<tr>
<td>Student activities</td>
<td>2.4.1/2.4.2/2.4.3/2.4.4/</td>
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</table>

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

6.2. Exam Description

Written exams
- Short essays.
- Drawings.
- Multiple choice questions.
- True or false.
- Comparisons.
- Giving the scientific term/information.

**Practical exams**
- Slideshow exams.
- Record designs and evaluation.
- Practical case studies.
- Exams on animals of the faculty farm.

**Oral exams**
- The exam committee involves at least 2 examiners. Each evaluates the student by giving a separate score. The scores are then averaged.
- Examiners are provided with the course specification.
- The student randomly selects question cards.

**Student activities**
- Self-learning activities are evaluated throughout the semester. For details, refer to the section: “4. Teaching and Learning Methods”.

<table>
<thead>
<tr>
<th>6.3. Assessment Schedule</th>
<th>6.4. Weighing of Assessments</th>
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</thead>
<tbody>
<tr>
<td><strong>Exams and activities</strong></td>
<td><strong>Week (in each semester)</strong></td>
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<tr>
<td>Semester work exam</td>
<td>4th, 8th and 12th</td>
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<tr>
<td>Student activities</td>
<td>Throughout the semester</td>
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<td>Final written exam</td>
<td>16th</td>
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<td>Final Practical exam</td>
<td>16th</td>
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<td>Final oral exam</td>
<td>16th</td>
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</tr>
</tbody>
</table>

### 7. List of References

#### 7.1. Course Notes

- Departmental notes

#### 7.2. Essential Books

* Soulsby. 1986
* Foundation of parasitology
* Fundamental of parasitology


Bailiere, Tindall and Cox, London.

7.3. Recommended Books
- Keys to the trematoda.
- Keys to the cestoda.
- Keys to the nematode.

7.4. Periodicals, websites, etc.

Scientific Journals
- The Journal of Parasitology
- The Journal of Veterinary Parasitology.
- Parasitology Research
- Veterinary Parasitology
- Veterinary Parasitology: Regional Studies and Reports
- Experimental Parasitology
- Ata Tropica

Scientific websites
- http://www.cdc.org
- http://www.pubmed.org/
- http://www.sciencedirect.com/
- http://www.EKB.eg

Course coordinator: Prof. Dr. Mahmoud AbouLaila
Head of Department: Prof. Dr. Mahmoud AbouLaila