

## Specification for artificial insemination and embryo transfer course 2025/2026

### 1-Basic information

1.	Course title	Theriogenology (artificial insemination and embryo transfer)							
2.	Course code	510 (B) IV							
3.	Department offering the course	Theriogenology							
4.	Number of hours	Theoretical	2	Practical	3	Other	0	Total	5
5.	Course Type	√ Obligatory Elective							
6.	Level	5 <sup>th</sup> year							
7.	Semester	Second semester							
8.	Academic program	Bachelor Veterinary medicine (BVM)							
9.	Faculty	Faculty of Veterinary medicine							
10.	University	Benha University							
11.	Name of course coordinator	Prof. dr. Mahmoud Abouelroos							
12.	Course Specification Approval Date	Faculty council/ 27-8-2025							
13.	Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	Department council/							

### 2-Course overview

- Course contents written in the program bylaw:  
Semen collection, semen evaluation, semen dilution and storage, deep frozen semen, insemination technique, management of artificial insemination, IVF and embryo transfer.

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

	(NARS) outcomes		Course outcomes	
	Code	Text	Code	Text
Knowledge and Understanding	2.10	Toxicology and forensic medicine, animal medicine, theriogenology and veterinary surgery.	a1	Know the techniques of semen collection, evaluation, processing and handling.
			a2	Learn the technique of

				insemination and evaluation of the breeding policy
			<b>a3</b>	Recognize the techniques of IVE, ET, cloning and sexing
<b>Intellectual skills</b>	<b>4.3</b>	Inculcate a rigorous approach to problem identification and solving.	<b>b1</b>	Assess good utilization of reproductive biotechnologies
	<b>4.5.</b>	Remain committed to life – long learning and updating / upgrading their biochemical sense and clinical skills.	<b>b2</b>	Interpret good handling with a problem
			<b>b3</b>	Invention good breeding policy
<b>Practical and professional skills</b>	<b>3.7</b>	Assess and advise about animal management, nutrition under conditions of health and disease, and reproductive efficiency	<b>c1</b>	Recognize how to handle improve fertility and fertilizing capacity
	<b>3.8.</b>	Skillfully and appropriately gain and use new information remain current with the emerging biomedical knowledge and therapeutic options.	<b>c2</b>	Distinguish how to control and infertility problem
	<b>3.9.</b>	Conduct evidence-based problem-solving of field presented problems tasks.	<b>c3</b>	Identify how to maximize a herd reproductive potential
<b>General and Transferable Skills</b>	<b>5.1</b>	Work under pressure and / or contradictory conditions	<b>d1</b>	Work under pressure and Problem-solving skills
	<b>5.2</b>	Function in a multidisciplinary team	<b>d2</b>	Working in a team, Self-learning during lecture.
	<b>5.3</b>	Communicate appropriately verbally and nonverbally	<b>d3</b>	Communicate effectively with lab collage
	<b>5.5</b>	Search for new information and technology as well as adopt life-long self learning ethics	<b>d4</b>	Searching skill and Self-learning during lecture related to his research project.

4- Teaching and learning methods					
Lectures	√	Discussion & seminar (self-learning)	√	Practical	√
Presentation & movies	√	Problem solving	√	Brain storming	√
Others	Field training				

**- Course contents:**

Number of the Week	Scientific content of the course  (Course Topics)	Expected number of the Learning Hours				
		Total Weekly hours	Theoretical teaching (lectures/disc ussion groups/ .....)	Training (Practical/ Clinical/ .....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other
W1	Semen collection 1	5	2	0		0
	Semen collection 1		0	3		0
W2	Semen collection 2	5	2	0		0
	Semen collection 2		0	3		0
W3	Semen collection 3	5	2	0	Formative quiz(self- learning)	0
	Semen collection 3		0	3		0
W4	Semen evaluation 1	5	2	0		0
	Semen evaluation 1		0	3		0
W5	Semen evaluation 2	5	2	0		0
	Semen evaluation 2		0	3		0
W6	Semen dilution & storage 1	5	2	0	Formative quiz(self- learning)	0
	Semen dilution & storage 1		0	3		0
W7	Semester works and Mid-term exam					
W8	Semen dilution & storage 2	5	2	0		0
	Semen dilution & storage 2		0	3		0
W9	Deep frozen semen 1	5	2	0		0
	Deep frozen semen 1		0	3		0

W10	Deep frozen semen 2	5	2	0	Formative quiz(self-learning)	0
	Deep frozen semen 2		0	3		0
W11	Insemination technique	5	2	0		0
	Insemination technique		0	3		0
W12	Management of artificial insemination	5	2	0		0
	Management of artificial insemination		0	3		0
W13	IVF & Embryo transfer 1	5	2	0	Formative quiz(self-learning)	0
	IVF & Embryo transfer 1		0	3		0
W14	IVF & Embryo transfer 2	5	2	0		0
	IVF & Embryo transfer 2		0	3		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 activates, Mid-term exam, practical exam, oral exams and final written exams).

### b- Assessment schedule and weight

Assessment method	Timing	Grade	Percent
<b>Mid-term exam</b>	7 <sup>th</sup> week	15	15%
<b>Formative assessment</b>	Throughout semester	-	-
<b>Practical exam</b>	15 <sup>th</sup> week	20	20%
<b>oral exam</b>	End of semester	15	15%
<b>Written exam</b>	End of semester	50	50%
<b>Total</b>		100	100

## 6- Learning resources and supportive facilities:

<b>Learning resources</b>	<b>Main reference</b>	<b>Student handbook</b>
	<b>Essential books (text books)</b>	<ul style="list-style-type: none"> <li>• M.S. Saxena (2012) Veterinary andrology ,Artificial Insemination.</li> <li>• Wolfgang Jochle (2010) Control of Reproductive Functions in Domestic Animals</li> </ul>

		<ul style="list-style-type: none"> <li>Suresh S. Honnappagol (2010) Artificial insemination and treatment of infertility in dairy animals.</li> <li>Current therapy in theriogenology, D.A. Morrow</li> </ul>
	Periodicals, Web sites, . . . etc	<ul style="list-style-type: none"> <li>J. Animal reproduction &amp; Fertility.</li> <li>J. Fertility &amp; Sterility.</li> <li>www.arabvet.com</li> <li>www.ekb.eg</li> </ul>
	Learning platform	Thinqi
Supportive facilities	Devices & instruments	As listing in device guideline
		<ul style="list-style-type: none"> <li>Equipped teaching hall.</li> <li>Equipped Laboratory.</li> <li>Faculty teaching farm</li> <li>Faculty teaching hospital</li> </ul>

### Matrices:

#### A- Content and ILOs matrix:

Topic	A) Knowledge and understanding	B) Intellectual skills	C) Professional and practical skills	D) General and transferable skills
Semen collection	a1, a2	b1, b2,b3	c1c3	d2 d3,d4
Semen evaluation	a1, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3,d4
Semen dilution & storage	a1, a3	b1, ,b3,	c1, c2 , c3	d1,d3,d4
Deep frozen semen	a1, a2, a3	b1, b3	c1, c2 , c3	d3,d4
Insemination technique	a1, a3	b1, b2	c1,c3	d3,d4
Management of artificial insemination	a1, a2	b1,b3	c1	d1, d2,d3
IVF & Embryo transfer	a1, a2	b1,b3	c1, c2 , c3	d1, d2,d3,d4

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

Course ILOs		Teaching and Learning methods						
		L	P&M	D&s	P(TPL)	Ps	Bs	FTP
Knowledge & understanding	a1	√	√	√			√	
	a2	√	√	√			√	
	a3	√	√	√			√	
Intellectual	b1	√	√	√		√	√	√

skills	b2	√	√	√		√	√	√
	b3	√	√	√		√	√	√
Professional and practical skills	c1		√	√	√	√		√
	c2		√	√	√	√		√
	c3		√	√	√	√		√
General skills	d1	√		√		√		√
	d2	√		√	√			√
	d3			√	√			√
	d4		√	√				√

**L:** Lecture, **P&M:** Presentations & Movies, **D&S:** Discussions & Seminars (self-learning),  
**P(TPL):** Practical, **Ps:** Problem solving, **Bs:** Brain storming, **FTP:** field trip, Training, Project

### C- Assessment methods and ILOs matrix:

Course ILOs		Assessment method				
		Formative assessment	Mid-term exam	Oral	Practical	Written
Knowledge & understanding	a1	√	√	√		√
	a2	√	√	√		√
	a3	√	√	√		√
Intellectual skills	b1	√	√	√		√
	b2	√	√	√		√
	b3	√	√	√		√
Professional and practical skills	c1	√			√	
	c2	√			√	
	c3	√			√	
General skills	d1	√				
	d2	√				
	d3	√		√		
	d4	√				

Name and Signature  
Course Coordinator

Prof. Dr. Mahmoud Abouelroos

Name and Signature  
Program Coordinator

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