



# Course Specifications

<b>Course Title:</b>	<b>Assisted Reproductive Techniques</b>
<b>Course Code:</b>	<b>373415-2</b>
<b>Program:</b>	<b>Bachelor's in Clinical Laboratory Sciences (Level-7)</b>
<b>Department:</b>	<b>Clinical Laboratory Sciences</b>
<b>College:</b>	<b>Applied Medical Sciences</b>
<b>Institution:</b>	<b>Taif University</b>



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## A. Course Identification

<b>1. Credit hours: 2 hours</b>			
<b>2. Course type</b>			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
<b>3. Level/year at which this course is offered: Level 7 / Fourth Year</b>			
<b>4. Pre-requisites for this course (if any): None</b>			
<b>5. Co-requisites for this course (if any): None</b>			

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours/week= 45 hours/semester	100%
2	Blended	None	0%
3	E-learning	None	0%
4	Correspondence	None	0%
5	Other	None	0%

### 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture	15
2	Laboratory/Studio	30
3	Tutorial	None
4	Others (specify)	None
	<b>Total</b>	<b>45</b>
<b>Other Learning Hours*</b>		
1	Study	21
2	Assignments	6
3	Library	None
4	Projects/Research Essays/Theses	None
5	Others(specify)	8
	<b>Total</b>	<b>35</b>

\*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

## B. Course Objectives and Learning Outcomes

### 1. Course Description

This course provides a combination of theory and practical experience in the study of human reproduction. In addition to a review of male and female reproductive endocrinology, it addresses the causes of infertility, basic diagnostic tests for assessing the most common causes of infertility, and their interpretation. Furthermore, it focuses on various types of assisted reproductive technologies (ART) procedures and their clinical indications including in vitro fertilization (IVF), embryo transfer techniques, intrauterine insemination (IUI) intracytoplasmic sperm injection (ICSI), and cryopreservation of sperm, ova an embryo. A review of genetics includes information about preimplantation genetic diagnosis (PGD).

### 2. Course Main Objective

The purpose of this course is to allow students to develop an in-depth understanding of reproductive endocrinology and infertility; recognize the role of ART in inducing pregnancy and interpret clinical data in relation to embryology and semenology.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge:</b>	
1.1	Describe the male and female reproductive endocrine functions.	K1
1.2	Recognize laboratory methods used in assessment of male and female reproductive functions.	K2
1.3	Recognize techniques for the collection of samples for hormone assay and the principles of their storage, handling and analysis.	K2
2	<b>Skills :</b>	
2.1	Interpret hormonal assay reports and recognize its correlation with infertility.	S2
3	<b>Competence:</b>	
3.1	Work effectively in a group and demonstrate professional way of completing tasks within deadlines.	C2
3.2	Demonstrate competency in communicating concepts, principles and information effectively.	C3

### C (a) Course Content(Theory)

No	List of Topics	Contact Hours
1	Gonadal maturation in male <ul style="list-style-type: none"> <li>- Hormones affecting male maturation and its disorders:</li> <li>- FSH</li> <li>- LH</li> </ul>	1

	- Androgen	
2	Gonadal maturation in female: - Hormones affecting female maturation and its disorders: - LH - FSH - Estrogen - Progesterone and bHCG.	1
3	Menstrual cycle - Maturation of follicle - Ovulation - Fertilization	1
4	Infertility: - Definition - Causes of infertility in male - Lab. diagnosis of infertility in male and semen analysis - Causes of infertility in female - Lab. diagnosis of infertility in female	2
5	Intrauterine insemination (IUI): - Definition and history - Aim of IUI and its indication - Stimulation protocol of IUI in male and female - Lab. discipline and requirements - Donor screening - IUI technique	2
.6	Cryopreservation: - Definition and history - Cryopreservation of sperm - Cryopreservation of oocyte - Cryopreservation of embryo - Methods - Verification technique	2
7	In vitro fertilization: - Definition and history - Indication - Stimulation of IVF in male and female - Lab. requirements - Steps - Monitoring - Preimplantation Genetic Diagnosis (PGD)	2
8	Intracytoplasmic sperm injection (ICSI): - Definition and history - Indication - Surgical method of sperm retrieval - Non-surgical method of sperm retrieval	2
9	Embryo transfer: - Introduction - Procedure	1

10	Ethical dilemmas in ART	1
<b>Total</b>		<b>15</b>

### **(b) Course Content (Practical)**

No	List of Topics	Contact Hours
1	Samples type required in IVF and its collection: - Venous blood - Semen	1
2	Measurement of gonadotropic hormones (LH and FSH)	1
3	Measurement of androgen	1
4	Measurement of estrogen, progesterone,	1
5	Semen analysis (part 1): Macroscopic tests	1
6	Semen analysis (part 2): Microscopic tests	2
7	Measurement of urinary hCGH	1
8	Collection of semen and ova for IVF and its precaution	1
9	Intrauterine insemination (IUI)	1
10	Cryopreservation:	1
11	In vitro fertilization:	2
12	Intracytoplasmic sperm injection (ICSI):	1
13	Embryo transfer:	1
<b>Total</b>		<b>15</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Describe the male and female reproductive endocrine functions.	- Lectures	- Exams
1.2	Recognize laboratory methods used in assessment of male and female reproductive functions.	- Lectures - Practical sessions	- Exams - Lab reports
1.3	Recognize techniques for the collection of samples for hormone assay and the principles of their storage, handling and analysis.	- Lectures - Practical sessions	- Exams - Lab reports
<b>2.0</b>	<b>Skills</b>		
2.1	Interpret hormonal assay reports and recognize its correlation with infertility.	- Lectures - Practical sessions - Problem based learning	- Exams - OSPE
<b>3.0</b>	<b>Competence</b>		
3.1	Work effectively in a group and demonstrate professional way of completing tasks within deadlines.	- Lectures - Research activities	- Exams -Assessment of scientific activities
3.2	Demonstrate competency in communicating concepts, principles and information effectively.	- Group discussions - Lectures - Practical sessions	- Exams -Assessment of scientific activities

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	8 <sup>th</sup> Week	15%
2	Activity	Throughout the semester	5%
3	Practical Report	Throughout the semester	10%
4	Final Practical Exam	16 <sup>th</sup> Week	20%
5	Final Exam	17 <sup>th</sup> /18 <sup>th</sup> Week	50%
<b>Total</b>			<b>100%</b>

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
  
- Each student at the department of Clinical Laboratory Sciences has an academic adviser who is available for individual consultation and guidance. Appointments can be made in person with the instructor through email etc. Days and time availability of each adviser are posted on their doors. The academic adviser can provide support with time management, exam preparation, clarification of subject requirements, feedback on performance and dealing with personal issues as well.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Textbook of Assisted Reproductive Technology: Laboratory Perspective, 4th Edition, Volume 1, 2012; Gardner, Weisman, Howles and Shoham.
<b>Essential References Materials</b>	None
<b>Electronic Materials</b>	None
<b>Other Learning Materials</b>	Journals, Scientific Magazines and Articles.

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Microscope, centrifuge, ELISA washer and reader.



## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching and quality of courses.	Students	Indirect: Questionnaire Survey at the end of each semester.
Alignment map of course ILOs with that of program ILOs.	Development and accreditation committee	Direct: Student's Performance.
Availability of learning resources, facilities and equipments related to each course.	Students and faculty	Indirect: Questionnaire Survey at the end of each semester.
Evaluation of teaching	Peer evaluators	Direct: Peer evaluation
Standard of student achievement	Examination Committee	Direct: Students grades
Periodical review of course effectiveness and planning for its improvement.	Teaching staff/ Development and accreditation committee and	Indirect: Review by Department Committee

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

Council / Committee	Department Meeting
Reference No.	Meeting No.10
Date	10-9-1440

