



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

1	Course title	<b>Genitourinary System</b>
2	Course number	<b>500361</b>
3	<b>Credit hours (theory, practical)</b>	<b>6 credit hours</b>
	<b>Contact hours (theory, practical)</b>	<b>72 hours (65,7 )</b>
4	Prerequisites/corequisites	
5	Program title	<b>Bachelor of Medicine and Surgery</b>
6	Program code	
7	Awarding institution	<b>University of Jordan</b>
8	Faculty	<b>Faculty of Medicine</b>
9	Department	<b>Multidisciplinary</b>
10	Level of course	<b>Bachelor</b>
11	Year of study and semester (s)	<b>3<sup>rd</sup> year medical students- second semester</b>
12	Final Qualification	
13	Other department (s) involved in teaching the course	Anatomy, Physiology, Pathology, Microbiology, Biochemistry, Pharmacology, Internal medicine, Obstetrics & gynecology.
14	Language of Instruction	<b>English</b>
15	Date of production/revision	<b>2019</b>

#### 16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

**Dr. Nisreen Abu Shahin**  
Associate professor of Pathology

**Office number:** Pathology Department, 3<sup>rd</sup> floor, Outpatient clinic building, Jordan University Hospital

**Office hours:** Sunday 10-12, Tuesday 10-12

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**Email addresses:** [n.abushahin@ju.edu.jo](mailto:n.abushahin@ju.edu.jo)

#### 17. Other instructors:

Lecturers office numbers, office hours, phone numbers, and email addresses are listed.

Name	Topic	Office number	Office hours	Phone number	Email
Ahmed Salman	Anatomy	118	2-4 Th	23429	<a href="mailto:Ahmed.salman@ju.edu.jo">Ahmed.salman@ju.edu.jo</a>
Saleem Khresha	Physiology	112	1-3 S, T	23474	

Yanal shafagoj	physiology	113	1-3, S,T	23475	<a href="mailto:yanals@ju.edu.jo">yanals@ju.edu.jo</a>
Anas Abu Hmeidan	Microbiology	212	10-12 daily	23495	<a href="mailto:abuhumaidan86@gmail.com">abuhumaidan86@gmail.com</a>
Nisreen Abu Shahin	Pathology	JUH	10-12 S, T	23500	<a href="mailto:n.abushahin@ju.edu.jo">n.abushahin@ju.edu.jo</a>
Suhail zmeili	Pharmacology	307	11-12 T	23456	<a href="mailto:suheilzmeili@ju.edu.jo">suheilzmeili@ju.edu.jo</a>
Ayman Qataweh	Clinical	JUH	12-1 S, T	23453	<a href="mailto:aymenfida@yahoo.com">aymenfida@yahoo.com</a>

## 18. Course Description:

This course covers the study of the urogenital organ systems, which include the kidneys, lower urinary tract, male genital system, and female genital systems.

The course encompasses anatomy and histology of the mentioned organs; along with the physiology of fluid and electrolyte balance, as well as the physiology of reproductive functions of the male and female genital organs.

Pharmacology sessions will cover therapeutics of renal filtration and sex hormonal regulation and therapeutics.

Moreover, the pathology section is concerned with the study of the renal diseases including disturbances of glomerular function, tubular disorders, various types of infections and neoplastic disorders that affect each of the above mentioned organs. Sessions covering genital pathology will encompass a description of various neoplastic and non-neoplastic disorders that affect female and male genital tracts, as well as the breast.

The part of microbiology of genitourinary system will focus on major infections that affect the genitourinary organs.

The course also covers the clinical aspects of nephrology, urology, and obstetrics and gynecology; including brief introduction to major signs and symptoms and hot topics.

The contact hours and course contents are summarized in the table below:

Topic	Hours (theory, practical,& e-learning):
Anatomy and histology	22
Physiology	19
Pathology	14
Microbiology	6
Pharmacology	9
Clinical Aspects	2
Total	72

## Course aims and outcomes:

### A- Aims:

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

- 1- identify the external and internal gross anatomical and micro-anatomical features of each organ of the urinary system
- 2- describe the arterial supply, venous drainage, lymphatic drainage and nerve supply of each organ
- 3- identify the external and internal gross anatomical features of each organ of the Male and female Reproductive Systems and their blood and nerve supply.
- 4- describe the functional anatomy of the kidney. Role of the renal system in homeostasis.
- 5- Describe Glomerular filtration and its relations in term of (rate, compositions, dynamics, control, and measurements etc.
- 6- Define tubular re-absorption and secretion (The concept of clearance by the kidney and its interpretations). Understand tubular re-absorption and secretion for  $\text{Na}^+$ ,  $\text{K}^+$ , and  $\text{H}^+$ .
- 7- describe how germ cells (Spermatozoa and oocyte) are formed and the regulation of their production.
- 8- mention variation in sex hormones formation(at different age periods), regulation, metabolism and specific function of each one.
- 9- describe menstrual cyclic and its disorders.
- 10- mention the optimum period of fertility, early pregnancy and implantation
- 11- explain the concept of positive and negative feedback mechanism and hypothalamic pituitary gonadal axis.
- 12- describe the hormonal changes of pregnancy with emphasis on early stage.
- 13- describe breast development, milk production and secretion
- 14- describe Puberty, menopause / andropause, meaning of terms and endocrinology of these stages.
- 15- mention the pathologic basis and clinical manifestations of diseases affecting the female and male genital tracts and mammary glands.
- 16- describe the pathologic basis and clinical manifestations of renal diseases and collecting system.
- 17- describe the major causative agents, transmission and antimicrobial treatment of urinary tract infection and sexually transmitted diseases in males and females.
- 18- mention laboratory methods used in isolation and identification of causative agents leading to urinary tract infection and sexually transmitted diseases.
- 19- list risk factors of sexually transmitted diseases, their prevalence, control and prevention.
- 20- describe the pathogenesis and manifestations of the immunological diseases affecting the urogenital system of the males and females.
- 21- list drugs used for the treatment of urinary and genital tract disorders, their pharmacological actions, their mechanism of action, their clinical uses, their major side effects and drug-drug interactions.
- 22- mention major clinical manifestations of urological, renal and genital diseases
- 23- take proper history and conduct comprehensive physical examination of the urogenital system in males and females

**B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...**

**1- Anatomy and histology ILOs by Dr. Ahmed Salman:**

1. understand the general concepts of Gross Anatomy of the Urinary System (Kidneys, Urinary tract, bladder)
2. understand the general concepts of Gross Anatomy of Male Reproductive System (Testis, Epididymis, Vas deferens and Spermatic Cord, Seminal Vesicles, Prostate and Penis)
3. grasp the details about Gross Anatomy of Female Reproductive System (Uterus, Uterine tubes, Ovaries, Vagina, and Mammary gland)
4. recognize major aspects of Histology of urinary tract: kidney, urinary system
5. recognize major aspects of Histology of Male Reproductive System
6. recognize major aspects of Histology of Female Reproductive System

**2- Physiology ILOs (Dr. Yanal Shafagoj)**

1. 1. understand major concepts of Renal Physiology
2. 2. recognize methods for Assessment of renal function. Glomerular filtration Rate (Tubular load: Measurements: Dynamics: Control). Regulation of Renal Blood Flow
3. 3. identify concepts of Tubular function I: General concepts: The micropuncture technique.
4. Different forms of transport. Clearance (definition, usages & interpretations).
5. 4- identify concepts of Tubular function II. Reabsorption and secretion. Absorptive capabilities of different tubule segments (Transport maximum ( $T_m$ ) and Glucose Titration curve).
6. 5- identify concepts of Tubular function III. Reabsorption and secretion of  $\text{Na}^+$ ,  $\text{K}^+$  &  $\text{H}^+$ . Concentration and dilution of urine. The Countercurrent Mechanism. The minimum obligatory urine output. Why we

need to make diluted or concentrated urine. Understand and describe the renal handling of urea;  
Specific Gravity versus osmolality

7. 6- comprehend the function of diuretics and their mechanism of action
8. 7. understand the general concepts of Acid base balance I. Acidosis. Alkalosis. Defense Against Changes in hydrogen ion concentration  $[H^+]$ . (buffers: Lungs: Kidneys). Volatile acid and non-volatile acid. Henderson-Hasselbalch Equation.
9. 8. understand the general concepts of Acid base balance II. Renal Control of Acid-Base Balance
10. The three major goals of the kidney in Acid-Base Balance
9. understand the general concepts of Acid-Base Imbalance III. Acidosis Vs Alkalosis. Metabolic Vs Respiratory. Compensation

3- Physiology of the reproductive system ILOs:

1. understand the general concepts of Spermatogenesis: Hormonal factors regulating initiation, maintenance of spermatogenesis; Function of sex organs
2. recognize physiological aspects of Androgens. Regulation of secretion. Mechanism of action, metabolism. Chronological pattern of secretion
3. understand the general concepts of Oogenesis, Follicular recruitment and development. Monthly follicular and hormonal changes and subsequent endometrial changes.
4. grasp details about Ovulation, fertility period, Corpus luteum (CL) formation, life span endocrine function, regression and consequences. Changes in the female following ovulation. CL of pregnancy Extended function of CL
5. understand the general concepts of Female hormones, regulation of secretion and different functions. Hypothalamic pituitary gonadal (testis and ovaries) regulation. Positive and negative feedback; Other hormones as prolactin.
- 6- recognize Early stage of embryo development and implantation in the maternal endometrium. Pregnancy hormones (hCG, Somatomammotropin) secretion and importance of such hormones). Materno-feto-placental hormone secretion
7. understand the general concepts of Breast development. Hormonal interaction. Milk synthesis and secretion; Milk letdown reflex
8. understand the general concepts of Puberty (male and female), menopause, andropause physiological changes.
9. understand the general physiological aspect of infertility.

4- ILOs of female genital system and breast pathology course ( by Dr. Nisreen Abu Shahin):

1. Recognize the common infections of the vulva & vagina
2. Understand the pathogenesis of common vulvar and vaginal tumors
3. Comprehend common infections of the cervix
4. Grasp the details of HPV associated cervical carcinogenesis and the successful screening program
5. Recognize and understand common uterine diseases and its clinicopathological features (endometritis, adenomyosis, endometriosis, abnormal uterine bleeding)
6. Absorb the common benign proliferative & neoplastic uterine diseases (leiomyoma, polyps, endometrial hyperplasia).
7. Recognize common endometrial malignancies and its pathogenesis (endometrial carcinoma, leiomyosarcoma & MMT)
8. Recognize the pathology of ovarian and fallopian tube cysts and its diagnostic features
9. Understand the clinicopathological characteristics of polycystic ovarian syndrome
10. Identify common ovarian tumors and recognize their clinicopathological features.

5- Pathology of the kidney and its collecting system (ILOs by Dr. Nisreen Abu Shahin):

1. identify major Clinical manifestations of renal diseases
2. recognise major glomerular diseases: Pathogenesis; immune complex nephritis; Other mechanisms of glomerular injury
3. understand The nephrotic syndrome and its major causes: Minimal change disease; Focal segmental glomerulosclerosis; Membranoproliferative glomerulonephritis
4. understand The nephritic syndrome and recognise major causes: Acute proliferative glomerulonephritis; Rapidly progressive glomerulonephritis (Crescentic ); IgA nephropathy (Berger's disease )
5. identify the concept of Hereditary nephritis; and Chronic glomerulonephritis

6. grasp the details about major tubulointerstitial disease: Tubulointerstitial nephritis; Acute pyelonephritis; Chronic pyelonephritis and reflux nephropathy
7. recognise the concepts of Drug - induced interstitial nephritis; Acute tubular necrosis
8. comprehend blood vessel disorders: Benign nephrosclerosis; Malignant hypertension and malignant nephrosclerosis; Thrombotic microangiopathies
9. understand Cystic diseases of kidney: Simple cysts; Autosomal dominant (adult) polycystic kidney disease; Autosomal recessive (Childhood ) polycystic kidney disease
10. grasp the concept of Urinary outflow obstruction: Renal stones; Hydronephrosis
11. recognise the different types of Renal tumors: Renal cell carcinoma; Wilms' tumor
12. recognise Tumors of the urinary bladder and collecting system.

**6- ILOs of THE MALE GENITAL SYSTEM: (Dr. Nisreen Abu Shahin):**

1. grasp concepts and identify different types of Testicular Neoplasms
2. recognise major clinicopathological aspects of Prostate diseases: Nodular hyperplasia of the prostate; Carcinoma of the prostate.

**7- ILOs for Microbiology of the genital system: (Dr. Anas Abu Hmeidan)**

1. recognize major aspects of Urinary tract infections (UTI )
  1. Understand the Definition of UTI
  2. Being able to Classify UTIs appropriately
  3. Able to list and understand the differences between the common bacteria causing UTI, including pathogenesis and host factors: E. Coli ; Enterococcus; Pseudomonas; Klebsiella; Proteus Staph saprophyticus; Candida
  4. Define the major types of urinary tract infections such as: pyelonephritis, cystitis, urethritis, and asymptomatic bacteriuria
  5. Describe the signs and symptoms
  6. Understand the necessary lab. Investigation including sample taking, storage and analysis.
  7. List the common classes of antimicrobials used to treat urinary tract infections.

**2. recognize major aspects of N. gonorrhea and Chlamydia**

1. Understand the morphological and structural properties of the bacteria
2. Understanding pathogenesis including route of infection and host organism interactions
3. The student should be able to assess the importance of clinical and laboratory tools for diagnosis
4. Understanding the importance having a high index of suspicion in diagnosing asymptomatic cases
5. Explaining main methods of prevention

**3. recognize major aspects of Syphilis :**

1. Describe the morphology, taxonomy, and growth conditions.
2. Identify the four stages of syphilis (i.e., primary, secondary, latent, and tertiary) according to clinical symptoms, antibody production, transmission, and infectivity.
3. Explain congenital syphilis, including transmission and clinical manifestations.
4. Define main diagnostic methods
5. Differentiate reagin and treponemal antibodies, including specificity and association with disease.
6. Identify the various serologic methods that utilize specific treponemal or nonspecific nontreponemal antigens.

**4. recognize major aspects of Viral infections (Human papilloma virus, genital herpes)**

identify the main properties of different viruses associated with GUM infections

**8- ILOs for Renal pharmacology: (Dr.Suheil Zmeli)**

1. recognize major aspects of Diuretics; Antidiuretic hormone
2. understand major aspects of Pharmacology of the reproductive system
3. recognize major aspects of Drugs acting on the uterus
4. recognize major aspects of Pharmacology of GnRH, LH, FSH in males
5. recognize major aspects of Pharmacology of GnRH, LH, FSH in females
6. grasp details of Pharmacology of androgens and antiandrogens
7. grasp details of Pharmacology of estrogens, progestins and oral contraceptive pills

**9- ILOs of Clinical aspects of the genitourinary system (Gynecology and Nephrology)**

1. grasp details of Introduction to history, physical examination and clinical manifestations of gynecological disorders
2. recognize major concepts of Urology: Introduction to history, physical examination and clinical manifestations of urological disorders.
3. recognize major concepts of Nephrology: Introduction to history, physical examination and clinical manifestations of renal disorders.

## 20. Topic Outline and Schedule:

11.					
Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Anatomy and histology	Weeks 1-3	Dr. Ahmed Salman	1	Written & practical exam	1
Physiology	Weeks 1,2 and 5,6	Drs, Yanal shafagoj, Salem khresha	2-3	Written & practical exam	2
Pathology	Weeks 3-7	Dr. Nisreen Abu shahin	3, 4, 5, and 6	Written & practical exam	3
Microbiology	Weeks 1-4	Dr. Anas Abuhmeidan	7	Written & practical exam	6
Pharmacology		Dr. Suhil Zmeili	8	Written exam	4
Clinical Aspects	Week 5,7	Dr. Ayamn Qatawneh; Nephrology	9	Written exam	

## 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following **teaching and learning methods**:

Lectures; color images; video and audio files; data show presentations; laboratory sessions; practical sessions at morgue; On line material; Classroom discussions; and PBL- lectures.

## 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following **assessment methods and requirements**:

Midterm (30%)  
 Practical exam (14%)  
 Attendance (10%)  
 Final Exam (46%)

## 23. Course Policies:

A- Attendance policies:

is granted 10 marks at the end of the course.

B- Absences from exams and handing in assignments on time:

Make up exams are held for students who did not attend regular exams if they present acceptable reasons to relevant committee.

**C- Health and safety procedures:**

we call the student emergency clinic or civil defense office for emergency cases

**D- Honesty policy regarding cheating, plagiarism, misbehavior:**

Students who do misconducts such as cheating, plagiarism, misbehavior are reported to the dean office for an interrogation committee

**E- Grading policy:**

46% final exam, 30% midterm exam, 14% practical exam, 10% attendance

**F- Available university services that support achievement in the course:**

Faculty members website uploaded course material, power point exhibits, gross specimens, color pictures, videos and audio files.

**24. Required equipment:**

Data show, laboratories facilities, e-learning website, internet facilities, you-tube and other websites.

**25. References:****A- Required book (s), assigned reading and audio-visuals:****B- Recommended books, materials, and media:**

1. Snell, R.: Clinical Anatomy, 7<sup>th</sup> edition, 2002  
Lippincott, Williams & Wilkins.
2. Guyton & Hall: Textbook of Medical physiology, 10<sup>th</sup> edition  
Saunders, 2002.
3. Kumar, Cotran, Robins: Basic Pathology 9<sup>th</sup> edition, 2013 Saunders.
4. Craig, CR. & Stitzel, RE: Modern Pharmacology  
with clinical applications 6<sup>th</sup> edition 2004
5. Devlin K: Textbook of Biochemistry with clinical applications 5<sup>th</sup> edition  
Willey liss
6. JAWETZ, Melnick & Adelberg: Medical Microbiology. 5<sup>th</sup> edition, LANGE

Name of Course Coordinator: **-Dr. Nisreen Abu Shahin.** Signature: ----- Date: 1/5/2019.

Head of curriculum committee/Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----

Copy to:

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