

Kingsborough Community College of the City University of New York
Department of Nursing
2017 Course Syllabus

Course Name:	Pharmacology - ST 45
Course Credits:	3 hour credits.
Class Time:	Online Hybrid Format, class meets on select days, Monday 11:30-12:30
Instructor:	Nancy Rowland, CST
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Office Hours:	Monday: TBA

Catalogue Description

This course is intended for individuals of any background who desire information regarding safe use of prescription and non-prescription drugs. Emphasis will be placed on the impact of safe drug use in promoting and maintaining health. This course will also examine how drugs affect the body by changing many of its normal mechanisms and thereby contributing to health problems.

Course Overview

This course will present basic concepts of pharmacology with emphasis on the biological factors affecting the action of drugs, factors that modify the drug response and drug interactions. Dosage calculations will also be covered.

Student Learning Outcomes

Assessment Measures

Students will be able to define terminology related to the use of drugs, including actions, abbreviations and units of measurement, discuss federal and state roles in regulating drugs, and describe the role of the surgical technologist in medication administration.	The student will be able to recall all required medication terminology to ensure patient safety and effectively assist with a surgical procedure. The student will also identify and express the proper method of transferring and positioning the surgical patient in all positions. The student will be able to apply all of the discussed theories, vocabulary and practical uses of medications in the operating room and successfully answer questions upon examination.
Define terminology and symbols used for mathematical calculations of drug dosages, perform dosage calculations.	Students will be able to perform simple mathematical drug calculations relevant to the practice of Surgical Technology and will successfully demonstrate their skills
Identify the purpose and give examples of preoperative medications, describe the importance of fluid and blood administration to the surgical patient, consider local anesthesia administration and monitoring devices, examine the purpose of antibiotics, anticoagulants, ophthalmic medication, diuretics, chemotherapeutic agents, contrast media, explain monitored anesthesia care and regional anesthesia, as well as discuss the administration techniques and agents used for general anesthesia.	After recalling general terminology regarding medications frequently used in the operating room, the student will discuss and successfully answer questions upon examination in regard to the usage, care and handling of pharmacological agents on the surgical field using aseptic principles.
Discuss anesthetic emergency situations and appropriate responses by the surgical team.	Through dramatization and open forum discussion, the students will employ the use of the lab mannequins and equipment to simulate responses in the event of an emergency situation related to medications in the Operating Room. The student will be able to apply all of the theories of patient safety and successfully answer questions upon examination.

Topical Outline:

- Unit I - Introduction to Pharmacology and Drug Nomenclature
- Unit II - Medication Development, Regulation and Resources
- Unit III - Principles of Drug Administration
- Unit IV - Basic Math and Drug Calculations
- Unit V - Preoperative Medications
- Unit VI - Blood and Fluid Administration
- Unit VII - Intraoperative Anesthesia
- Unit VIII- Emergency Situations
- Unit IX - Antibiotics and Diagnostic Agents
- Unit X - Coagulants and Anticoagulants
- Unit XI - Ophthalmic Drugs
- Unit XII - Diuretics, Chemotherapeutics, and Hormones

Course Requirements

Required Textbooks

Snyder, K. and Keegan, C. *Pharmacology for the Surgical Technologist, 4th Edition*, Saunders Elsevier, 2017

Grading Scheme

Grades will be calculated according to college and departmental policy as follows:

A+ 98-100	B+ 88-89	C+ 78-79	D+ 68-69	F 59 and below
A 95-97	B 85-87	C 75-77	D 65-67	W Withdrew without penalty
A- 90-94	B- 80-84	C- 70-74	D- 60-64	WU Unofficial Withdrawal

Assessment Criteria

Grades will be determined as described below:

#	Assessment Type	% of Grade
5	Unit Exams: (on-campus)	50%
2	Calculation Quiz	10%
12	Homework assignments	10%
12	Discussion Boards	10%
1	Final Exam (on campus)	20%

Course Policies:

Behavioral Standards: It is the student's responsibility to act ethically in the online class, as it would be in a classroom. Students must know the importance of ethics, respect and morality during online interactions to ensure that students have a safe online classroom environment to work in. For example, if a message within the discussion board is perceived as threatening or hostile, the instructor has the responsibility to address it right away with that student and should the problem continue the instructor shall file a Student Code of Conduct violation and report to the program Director. Students should refer directly to the Surgical Technologist Student Handbook as well as the Lab/Clinical Surgical Technologist Handbook or KBCC catalog for behavioral standard policies.

Makeup Policy: Students are expected to take all tests when scheduled. For unforeseen circumstances exceptions will be made and faculty must know in advance. Students who do not take a test on the scheduled date are required to take a makeup test. All makeup tests will be given at the end of the semester. Students who fail to take the scheduled exams or makeup will receive a grade of zero for that test.

Attendance: During the online class format, attendance will be determined weekly through email. In order to allow the instructor to enter official attendance for the week, be sure to communicate via email at least once per week before Friday. This will be in the form of submitting a homework assignment or participating in a discussion board posting. A student is deemed excessively absent when he or she has been absent 15% of the number of contact hours a class meets during a semester. When a student is excessively absent, a grade of "WU" will be assigned as described in the college catalog.

COURSE CALENDAR

Dates are subject to change

UNIT I – Introduction to Pharmacology and Drug Sources and Regulation			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit, the student will be able to define terminology related to the use of drugs, including actions, abbreviations and units of measurement.	Drug Sources Drug Classifications Medication Orders Drug Distribution Systems Drug Administration Routes Pharmacokinetics Pharmacodynamics Medication Regulations Drug Development	WEEK 1 Reading Assignment: Snyder and Keegan, Chapters: 1, 2	HOMEWORK & DISCUSSION Assignment #1 Due Monday Discussion Board
UNIT II – Medication Development, Regulation and Resources, Principles of Drug Administration			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit the student will be able to: <ol style="list-style-type: none"> 1. Discuss federal and state roles in regulating drugs. 2. Define medication development and testing. 3. Describe the role of the surgical technologist in medication administration 	Medication References ST Roles in Meds Administration 6 Rights of Drug Administration Medication Identification Delivery to the Sterile Field Medication Labeling Handling Meds & Supplies	WEEK 2 Reading Assignment: Snyder and Keegan, Chapters: 4	HOMEWORK & DISCUSSION Assignment #2 Due Sunday Discussion Board PREPARE FOR EXAM # 1
UNIT III – Basic Math and Drug Calculation			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit the student will be able to <ol style="list-style-type: none"> 1. Define terminology and symbols used for mathematical calculations of drug dosages. 2. Perform dosage calculations. 	Military time Fractions Decimals Percentages, ratios and proportions Temperature Conversion Measurement Systems	WEEK 3 Reading Assignment: Snyder and Keegan, Chapter 3	HOMEWORK & DISCUSSION Assignment #3 Due Sunday Discussion Board EXAM #1: Monday Ch.: 1, 2, 3, & 4
UNIT IV – Microbiology and Antibiotics, Diagnostic Agents			
Learner Objectives	Content	Related Learning Experiences	Assessment

<p>Upon completion of the unit the student will be able to:</p> <ol style="list-style-type: none"> 1. Discuss the purpose of antibiotic use during the perioperative period. 2. Describe the multiple antimicrobial actions 3. Identify and discuss diagnostic agents. 4. Define contrast media, dyes and staining agents. 	<p>Microbiology review Antimicrobial action Antibiotic agents: Aminoglycosides Cephalosporin's Macrolides Penicillin's Diagnostic agents Contrast Media Dyes Staining agents</p>	<p>WEEK 4 Reading Assignment: Snyder and Keegan, Chapters: 5, 6</p>	<p>HOMEWORK & DISCUSSION Assignment #4 Due Sunday Discussion Board</p> <p>CALCULATIONS QUIZ # 1</p> <p>PREPARE FOR EXAM # 2</p>
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UNIT V – Fluids Administration, Electrolytes, Blood Components & Irrigation Solutions

Learner Objectives	Content	Related Learning Experiences	Assessment
<p>Upon completion of the unit the student will be able to:</p> <ol style="list-style-type: none"> 1. Describe the renal and urinary system anatomy. 2. Discuss administration of diuretics during surgery. 3. Describe the importance of fluid and blood administration to the surgical patient. 4. Identify and discuss the multiple electrolytes management during surgery. 	<p>Fluid and Electrolyte Management Intravenous fluids Blood components and transfusion Irrigation Fluids</p>	<p>WEEK 5 Reading Assignment: Snyder and Keegan, Chapters: 11</p>	<p>HOMEWORK & DISCUSSION Assignment #5 Due Sunday Discussion Board</p> <p>EXAM #2 Monday Ch.: 3, 5, 6</p>

UNIT VI –Medication Agents that affect Blood Coagulation, Anticoagulants

Learner Objectives	Content	Related Learning Experiences	Assessment
<p>Upon completion of the unit, the student will be able to</p> <ol style="list-style-type: none"> 1. Describe the physiology of blood clot formation. 2. Identify and discuss the administration of hemostatic agents. 3. Compare and contrast administration route, an action for each medication that affects coagulation. 	<p>Physiology of clot formation Coagulants Blood coagulation factors Surgical hemostatic agents Anticoagulants Parenteral anticoagulants Oral coagulants Thrombolytics Anticoagulants therapy: short and long term</p>	<p>WEEK 6 Reading Assignment: Snyder and Keegan, Chapter: 9</p>	<p>HOMEWORK & DISCUSSION Assignment #6 Due Sunday Discussion Board</p> <p>CALCULATIONS QUIZ # 2</p> <p>PREPARE FOR EXAM # 3</p>

UNIT VII – Patient Monitoring, Local, Regional & General Anesthesia			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit the student will be able to <ol style="list-style-type: none"> 1. Discuss local anesthesia administration and monitoring devices. 2. Define monitored anesthesia care and regional anesthesia. 3. Discuss the administration techniques and agents used for general anesthesia. 	Patient monitoring Local and regional anesthetics Pharmacokinetics of local anesthetics Regional Anesthesia, types Adverse effects of local anesthetics Dosage, concentrations Epinephrine General Anesthesia Components and administration Phases Agents used	WEEK 7 Reading Assignment: Snyder and Keegan, Chapter 14 & 15	HOMEWORK & DISCUSSION Assignment #7 Due Sunday, Discussion Board EXAM #3: Monday Ch.: 7, 9, 11
UNIT VIII – Preoperative Medications, Emergency Situations			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit, the student will be able to: <ol style="list-style-type: none"> 1. Define terminology related to preoperative medication and purpose 2. List of sources of patient information used for evaluation 3. Discuss anesthetics during emergencies 4. Appropriate responses of the surgical team, role of the ST during MH 5. Outline the basic course of MH and medication administration protocol 	Preoperative evaluation Preoperative medications Hypertension medicines Respiratory Emergencies Bronchospasm/Laryngospasm Anaphylaxis Hemolytic Reaction Cardiac Arrest Malignant Hyperthermia (MH) Protocol	WEEK 8 Reading Assignment: Snyder and Keegan, Chapter 13, 16	HOMEWORK & DISCUSSION Assignment #8&9 Due on Sunday Discussion Board PREPARE FOR EXAM # 4
UNIT IX – Diuretics			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit the student will be able to: <ol style="list-style-type: none"> 1. Discuss the purpose of diuretics 2. Describe the physiology of the kidney 3. List diseases that require diuretics 4. List most common diuretics used in surgery. 	Review of Renal Physiology Diuretics agents Classification and treatments	WEEK 9 Reading Assignment: Snyder and Keegan, Chapter 7	HOMEWORK & DISCUSSION Assignment #8&9 Due on Sunday. Discussion Board EXAM #4: Monday Ch. 13, 14, 15, 16
UNIT X – Hormones			
Learner Objectives	Content	Related Learning Experiences	Assessment
Upon completion of the unit the student will be able to: <ol style="list-style-type: none"> 1. Identify terminology related to endocrine system 2. State the purpose for hormone administration 3. Describe medical and surgical use of hormones 	Endocrine system review Endocrine glands Epinephrine, steroids, estrogens Classification of hormones Treatment options Hyper and hypothyroidism Hyper and hypoparathyroidism	WEEK 10 Reading Assignment: Snyder and Keegan, Chapter 8	HOMEWORK & DISCUSSION Assignment #10 Due Sunday Discussion Board

UNIT XI – Ophthalmic Drugs			
Learner Objectives	Content	Related Learning Experiences	Assessment
<p>Upon completion of the unit the student will be able to</p> <ol style="list-style-type: none"> 1. Discuss the purpose of ophthalmic medications 2. Describe how they are used in surgery 3. List ophthalmic agents used in surgery 4. Identify categories of medications used to treat eye diseases 	<p>Enzymes Irrigation Solutions Viscoelastic Miotic's Mydriatics Cycloplegics Lubricants Antiglaucoma medications Anti-inflammatories</p>	<p>WEEK 11</p> <p>Reading Assignment: Snyder and Keegan, Chapter 10</p>	<p>HOMEWORK & DISCUSSION Assignment #11 Due Sunday Discussion Board</p>
UNIT XII – Neoplastics, Chemotherapy Agents			
Learner Objectives	Content	Related Learning Experiences	Assessment
<p>Upon completion of the unit the student will be able to:</p> <ol style="list-style-type: none"> 1. Discuss the use of chemotherapeutics for the surgical patient. 2. Discuss types of abnormal cell growth 3. Define targeted cancer therapy 4. Identify the different antineoplastic agents 	<p>Chemotherapy agents Targeted therapy Biologic response modifiers Gene therapy Search for cure Tumor classification Nanorobots</p>	<p>WEEK 12 (extended for Thanksgiving)</p> <p>Reading Assignment: Snyder and Keegan, Chapter 12</p>	<p>HOMEWORK & DISCUSSION Assignment #12 Due Wednesday Discussion Board</p> <p>EXAM #5: Ch.: 7, 8, 10, 12</p>