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Spring 1-2016

### AHST 154.01: Surgical Pharmacology

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## **SURGICAL TECHNOLOGY PROGRAM**

### **COURSE SYLLABUS**

**COURSE NUMBER AND TITLE:** AHST 154 Surgical Pharmacology

**DATE REVISED:** Spring 2016

**SEMESTER CREDITS:** 3

**CONTACT HOURS PER SEMESTER:** 45

**PREREQUISITE COURSES:** Acceptance into the program with satisfactory completion of the following, or their equivalency :

CAPP 120  
BIOH 201N/202N  
WRIT 121 or WRIT 101  
M 105  
AHMS 144  
PSYX 100S

**INSTRUCTOR NAME:** Erika Klika, CST, BS  
Debbie Fillmore, ME, BSN/RN, CST Program Director

**E-MAIL ADDRESS:** [erika.klika@mso.umt.edu](mailto:erika.klika@mso.umt.edu)  
[Debbie.fillmore@mso.umt.edu](mailto:Debbie.fillmore@mso.umt.edu)

**CONTACT INFORMATION:** Erika Klika: [erika.klika@mso.umt.edu](mailto:erika.klika@mso.umt.edu)  
Debbie Fillmore, Program Director: 406-243-7860  
Maryann Dunbar, Administrative Associate: 406-243-7868

**OFFICE LOCATION:** Room: AD 07, Administration Building, Missoula College-East Campus

**OFFICE HOURS:** By appointment

#### **RELATIONSHIP TO PROGRAM:**

AHST 154, Surgical Pharmacology, is presented in the beginning semester of the student's Surgical Technology curriculum. It accompanies other introductory courses such as the Introduction of Surgical Technology and the lab course emphasizing basic (entry-level) skills. The purpose of the course is to assist the student in learning this new, and often, unfamiliar but essential material.

## COURSE DESCRIPTION:

Upon completion of this course, the student will have learned a framework of pharmacologic principles to apply in surgical situations. The student will become familiar with commonly used medications, by category, and be able to describe actual surgical applications. A review of basic math skills is included in the course outline. Basic anesthesia concepts, along with patient monitoring, are discussed in detail in AHST 200 Operating Room Techniques and are not included in the AHST 154 course.

## STUDENT PERFORMANCE OUTCOMES:

Upon completion of this course, the student will:

1. Calculate medication conversions and dosages.
2. Apply general terminology to medication use.
3. Discuss preparation and management of medications and solutions.
4. Demonstrate medication safe handling in the campus lab courses, AHST Surgical Lab I and II.

## STUDENT PERFORMANCE ASSESSMENT METHODS AND GRADING PROCEDURES:

Student grades are determined after careful judgement of each assignment against a set of criteria, as indicated, for each assignment. The majority of your final grade will be determined from unit exams, but you may also be asked to do student presentations and written assignments.

Written assignments will be double-spaced and typed or printed on a letter-quality printer and are due during class on the assigned day. Note that each written assignment includes careful evaluation of the quality of writing.

The evaluation process includes:

Unit Exams	60%
Final Exam	30%
Misc. Assignments	5%
Email and Professionalism*	5%

\*Based on the Student Conduct Code (UM and ST).

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Excellent work earns a point value between:	93-100	A Grade
Good work earns a point value between:	86-92	B Grade
Fair work earns a point value between:	80-85	C Grade

**Any final grade determination of less than 80% will result in failure of course.**

**A Surgical Technology student must pass all required AHST courses (with traditional grading of A-F) with an 80% or will not *be allowed to continue in the program and will need to re-apply for program admission*. All curriculum courses, other than AHST, must be passed with a grade of "C" (2.0). A student may take a course a total of two (2) times.**

## ATTENDANCE POLICY:

- Attendance and participation are valued in this course. **Students are expected to notify the professor prior to class if unable to attend or if student will be arriving late. Failure to do so may result in a student not being able to make up exam. Students are to notify faculty by phone, not email or text.** Attendance will be taken each day. Attendance and participation will be reflected in your professionalism grade.
- Students may be asked to furnish a physician's statement regarding an absence. The student is responsible for gathering any information or course materials he or she may have missed due to absence or tardiness.
- Repeated absences will result in completion of a "Student Contract". A student's final grade may be decreased 1 percentage point for each absence.  
(Example: final grade = 94% (A); student has two absences; final grade = 92% (B))
- Disruptive or rude behavior may initiate a "Student Contract". Each time a contract is initiated may result in a **5 point** deduction of the final grade.
- If a student misses an exam, arrangements must be made with your site faculty.

**If the instructor has not been notified prior to the absence, the instructor may not allow a make-up exam to be administered.**

- Final exams will only be administered on the scheduled day. **Exams may not be taken early.**
- Chronic car problems, finances, jobs or job interviews are not valid excuses for missing classes or assignments.
- Tardiness will not be tolerated. It is disruptive to fellow students. Repeated tardiness will result in completion of a "Student Contract". The student's final grade may be decreased 1 percentage point for each tardy attendance.
- **It is expected that cell phones, or any electronic devices, will be off during class time, unless student has prior approval from instructor.**
- Your course of instruction should be your highest priority.
- Each student situation is considered by the instructor on an individual basis. It is up to the discretion of the instructor whether or not a student is meeting course objectives.

## ACADEMIC INTEGRITY:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by The University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at [http://www.umt.edu/vpsa/policies/student\\_conduct.php](http://www.umt.edu/vpsa/policies/student_conduct.php)

Academic misconduct is defined as all forms of academic dishonesty, including but not limited to:

1. Plagiarism
2. Misconduct during an examination or academic exercise
3. Unauthorized possession of examination or other course materials
4. Tampering with course materials
5. Submitting false information
6. Submitted work previously presented in another course
7. Improperly influencing conduct
8. Substituting, or arranging substitution, for another student during an examination or other academic exercise
9. Facilitating academic dishonesty
10. Altering transcripts, grades, examinations or other academically related documents

**Exams are the property of the program. Any attempt to copy exam content in any manner will result in a violation of the Student Conduct Code.**

## DISABILITY ACCOMMODATION:

Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely way. Please speak with me after class or in my office. Please be prepared to provide a letter from your DSS Coordinator. For more information, visit the Disabilities Services website at <http://www.umt.edu/dss/> or call 406-243-2243 (voice/text).

**Note: Instructor reserves the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances.**

## REQUIRED TEXTS:

Pharmacology for the Surgical Technologist

Author: Snyder

Publisher: Saunders

## OTHER COURSE MATERIALS:

- Three ring notebook to accommodate course materials
- Access to a computer to download course materials

## AHST 154 – Surgical Pharmacology

### COURSE OUTLINE:

- I. Basic Pharmacology
  - A. Terms and abbreviations
  - B. Sources of drugs
  - C. Drug classification subcategories
  - D. Medication orders (and parts of an order) used in surgery
  - E. Drug distribution systems used in hospitals
  - F. Types of drug forms
  - G. Medication administration routes used in surgery
  - H. Four processes of pharmacokinetics
  - I. Aspects of pharmacokinetics
- II. Medication Development, Regulation and Resources
  - A. International, federal and state roles in regulating drugs
  - B. Medication development and testing
  - C. Pharmacogenetics and pharmacogenomics
  - D. Brand, generic and chemical medication names
  - E. Medication label information
  - F. Medication information from pharmacology resources
- III. Pharmacology Math
  - A. Conversion of civilian time to military time
  - B. Terminology, abbreviations and symbols used in basic mathematics and measurement systems
  - C. Fraction usage in conversions and calculations
  - D. Correct decimal usage
  - E. Percentages definition
  - F. Symbols of measurement and their equivalents
  - G. Systems of measurement and their medical applications
- IV. Medication Administration
  - A. The role of the Surgical Technologist in medication administration
  - B. Five rights of medication administration
  - C. Steps of medication identification
  - D. Aseptic technique in delivery of medication to the sterile field
  - E. Procedure for labeling medications on the sterile back table
  - F. Supplies used in medication administration in surgery
- V. Antibiotics
  - A. Terminology related to antimicrobial therapy
  - B. Purpose of antibiotic therapy in surgery
  - C. Ways in which antimicrobials work
  - D. Antibiotic resistance
  - E. Categories of antibiotics used in surgery
  - F. Category of various antibiotics
- VI. Diagnostic Agents
  - A. Contrast media, dyes and staining agents
  - B. Use of contrast media in radiographic studies in surgery
  - C. Use of dyes in surgery
  - D. Use of staining agents in surgery

- VII. Diuretics
- A. Purpose of diuretics
  - B. Kidney physiology
  - C. Nephron anatomic structures
  - D. Diuretic use in various disease processes
  - E. Impact of long-term diuretic therapy and the surgical patient
  - F. Type of surgical patient on long-term diuretic therapy
  - G. Short-term versus long-term diuretic therapy
  - H. Common intraoperative diuretic use
- VIII. Hormones
- A. Terminology related to endocrine system
  - B. Endocrine glands and hormones secreted by each
  - C. Purpose of hormone administration
  - D. Medical and surgical uses for hormones
  - E. Hormones administered from the sterile field.
  - F. Surgical procedures requiring hormone administration from the sterile field
  - G. Safety issues regarding the use of epinephrine from the sterile field
- IX. Medications that Affect Coagulation
- A. Terms related to blood coagulation and medications affecting coagulation
  - B. Physiology of blood clot formation
  - C. Agents (by category) affecting coagulation
  - D. Action of medications affecting coagulation
  - E. Uses, routes of administration, side effects and contraindications for agents affecting coagulation
  - F. Impact of surgical procedures in which agents that affect coagulation may be administered
  - G. Purpose of parenteral and oral anticoagulants
  - H. Administration routes for medications affecting coagulation
  - I. Heparin dosage aspects
- X. Ophthalmic Agents
- A. Eye anatomy
  - B. Ophthalmic medication terminology
  - C. Ophthalmic medication categories
  - D. Ophthalmic medication use in surgery
  - E. Categories of ophthalmic medications used to treat glaucoma
- XI. Fluids and Irrigation Solutions
- A. Physiology of fluid loss
  - B. Fluid electrolyte function in relation to homeostasis
  - C. Fluid replacement
  - D. Parental fluid therapy in surgery
  - E. Common intravenous (IV) solutions and their purpose in surgery
  - F. Supplies needed to start an intravenous (IV) line
  - G. Basic functions and types of blood
  - H. Circulating volume of blood, hemoglobin and hematocrit values in an average adult
  - I. Formed elements in blood
  - J. Terms and abbreviations related to blood
  - K. Antigen and antibody interactions in blood types
  - L. Indications for blood replacement in the surgical patient
  - M. Options for blood replacement

- N. Autologous and homologous blood donation
- O. Process of intraoperative autotransfusion
- P. Volume expanders solutions used in surgery]
- Q. Oxygen therapeutics
- R. Donor blood and the blood bank
- S. Fluids used as irrigation solutions in surgery
- T. Supplies and equipment for irrigation

XII. Antineoplastic Chemotherapy Agents

- A. Terms and statistics related to cancer
- B. Types of abnormal cell growth
- C. Antineoplastic agent classification
- D. Targeted cancer therapy
- E. Biologic response modifiers
- F. Gene therapy in treatment/prevention of diseases
- G. Epidemiology of cancer; the most prevalent carcinogen in the United States
- H. Nanotechnology and its application in medicine and pharmacology
- I. New types of agent research for cancer therapy

XIII. Preoperative Medications

- A. Terminology related to preoperative medications
- B. Purpose of preoperative anesthesia evaluation
- C. Sources of patient information for evaluation
- D. Components of preoperative evaluation
- E. Classification of preoperative medications
- F. Purpose of preoperative medications

XIV. Emergency Situations

- A. Terminology related to emergency situations
- B. Emergency situations associated with anesthesia
- C. Medications used in emergency situations
- D. Purpose of drugs used in emergency situations
- E. Category of specified emergency medications
- F. Role of the Surgical Technologist during a cardiac emergency in surgery
- G. Clinical signs of malignant hyperthermia
- H. Course of treatment for malignant hyperthermia
- I. Role of the Surgical Technologist in a malignant hyperthermia crisis



I have read, understand and agree to the contents of the syllabus for course AHST 154, Surgical Pharmacology. I have had the opportunity to ask questions regarding course requirements.

Student Signature \_\_\_\_\_

Date\_\_\_\_\_