

**PHARMACOLOGY FOR ANESTHESIA****NUR 887 Section 001****3 Credits****Thursday and Friday, 11:00 am – 1:00 pm****A-107 Life Sciences Building****Fall 2009**

**Catalog Course Description:** Pharmacology and its applications to clinical anesthesia practice.

**Course Objectives:** At the end of this course, students will:

1. Discuss general pharmacological principles.
2. Explain the mechanism of drug receptor sites binding and drug interactions.
3. Discuss the effects of drugs on the nervous system.
4. Integrate the principles of pharmacodynamics and pharmacokinetics to anesthesia practice.
5. Identify the general signs and stages of Anesthesia.

**Prerequisites:** Acceptance into the Nurse Anesthesia Program

**Co-requisites:** None.

**Professional Standards & Guidelines:** The curriculum is guided by the following documents:

1. American Association of Colleges of Nursing. (1996). *The essentials of master's education for advanced practice nursing*. Washington, DC: Author.
2. American Nurses Association. (2001). *Code of ethics for nurses with interpretive statements*. Silver Spring, MA: nursesbooks.org.
3. AANA (2007). *Scope and Standards for Nurse Anesthesia Practice*. Park Ridge, IL.
4. Professional Practice Documents (2006). *Code of ethics for Certified Registered Nurse Anesthetist*. Park Ridge, IL.
5. Professional Practice Documents (2006). *Post Anesthesia Care Standards for the Certified Registered Nurse Anesthesia*. Park Ridge, IL.

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Office Hours: Variable- appointments arranged usually.

**Note:** Times can be arranged to accommodate student schedules.

**Instruction:**

a. Methodology:

Independent study, classroom activities, lectures, assignments, exams, internet assignments, self-evaluation, computer-aided instruction and student/faculty conferences.

b. Required Texts:

Cote, C.J., Todres, I.D.; (2001) *A Practice of Anesthesia for Infants and Children, 3<sup>rd</sup> ed.*, Philadelphia, Pennsylvania: W.B. Saunders Company. ISBN: 0-7216-7286-8.

Hughes, S.C., Levinson, G.; (2002) *Anesthesia for Obstetrics, 4<sup>th</sup> ed.*, Philadelphia, Pennsylvania: Lippincott Williams and Wilkins Publishing Company. ISBN: 0-683-30665-0.

Nagelhout, J.J., Plaus, K. L.; *Nurse Anesthesia, 4<sup>th</sup> ed.*, Philadelphia, Pennsylvania: Elsevier Saunders Publishing Company. ISBN: 978-1-4160-5025-4.

Nagelhout, J.J., Plaus, K. L.; *Handbook of Nurse Anesthesia, 3<sup>rd</sup> ed.* Philadelphia, Pennsylvania: Elsevier Saunders Publishing Company. ISBN: 978-7216-0362-9.

Stoelting, R.K., Hillier, S.C.; (2006) *Pharmacology and Physiology in Anesthetic Practice, 4<sup>th</sup> ed.* Baltimore, Maryland: Lippincott, Williams and Wilkins Publishing Company. ISBN: 0-7817-5469-0.

c. Optional Texts:

Miller, R.D.; (2005) *Miller's Anesthesia, 6<sup>th</sup> ed.* Philadelphia, Pennsylvania: Elsevier Saunders Publishing Company. ISBN: 0-443-06618-3 (set).

**Evaluation:**

- a. Learning Assessments and Grading:

**Professionalism:****A. General Statement**

The student is held accountable and responsible for the all policies in the most current version of The Michigan State University Student Handbook and Resources Guide (The Spartan Life: <http://www.vps.msu.edu/SpLife/acfree.htm>), The College of Nursing Handbook (<http://nursing.msu.edu>), and the Nurse Anesthesia Program Supplement.

**B. Testing**

All materials brought into a test, except for number 2 pencils with an eraser and calculator must be left in the front of the classroom. Students may not wear coats or jackets during the examination.

Students may not leave the room until all students have completed their exams.

If the instructor suspects any sharing during an exam, all students involved will receive a 0 on that exam, and will face all consequences of academic dishonesty according to the MSU College of Nursing Student Handbook.

Students must use MSU College of Nursing approved calculator for examinations. Students may not borrow calculators from other students during the examination.

Any student who is absent from an examination must notify faculty prior to the examination. The student will be given the opportunity to make-up the missed exam with the faculty member during office hours. Only one test can be missed and the student given a chance to take a make-up examination during this course. Any other missed exams will be assigned a grade of zero.

**C. Calculators**

Calculators are permitted; however, cellular telephone calculators and PDA calculators will not be used. No sharing of calculators will be permitted during exams. If calculators are forgotten, students must calculate the answers manually.

**D. Electronic Communication Devices**

All cellular telephones are to be placed in the vibration mode or turned off during class. Beepers should be placed in the vibration mode during class. No cellular phones or beepers will be permitted on the student's person during examinations.

**E. Children in the Classroom**

Because of the intensity of these courses, faculty are unable to provide an environment conducive to learning and testing with children present. Students are expected to make child care arrangements in advance.

**F. Appeal of Test Question/Grades**

Appeals of test questions must be made within 5 days after the date of the examination. All appeals will be evaluated individually and must be made on the "Appeal of Test Question" form (attached).

According to the policies of The Michigan State University College of Nursing, grades may be appealed only for reasons of discrimination. All appeals must be made in writing. See the current Student Handbook for the appropriate form. The appeal must be made to the faculty member and course coordinator within one week. The appeal must be accompanied by a legible copy of all student work in the course at the occurrence/failure.

After appealing to the faculty and course chair, the student may appeal to the MSU College of Nursing Student Services Office. Grade appeals must be made in writing to the Director of Student Services and to the Associate Dean of Academic Affairs with 5 working days after appealing to the faculty and course chair.

The third level of appeal may be made in writing to the Dean of the MSU College of Nursing. The last level of appeal is at the university level. Students are referred to The MSU Student Handbook for this process of grade appeal.

**G. Progression in the Major**

NUR 887 is a required course in the nurse anesthesia curriculum. In order to progress, a student must pass this course with a grade of “B” or better

**H. Change in Calendar**

The faculty reserves the right to alter the calendar as circumstances may dictate. All changes will be announced in class, posted on the College of Nursing website, or via College of Nursing email. Students not present in class are responsible for obtaining this information.

**I. Official Means of Written Communication-Electronic Mail**

Keeping up with changes or news from Michigan State University and the College of Nursing is the responsibility of the student. Electronic mail or e-mail is an official means of written communication for all students, faculty, and staff.

**b. Course Grading Scale:**

94-100%	4.0
93-89%	3.5
88-84%	3.0
83-79%	2.5
78-75%	2.0
74-70%	1.5
69-65%	1.0
≤64%	0

## Appeal of Test Question

*All inquiries/appeals concerning a disputed answer on an examination must be made on this form. No appeal will be accepted unless received within five (5) days of the examination. All appeals will be evaluated individually.*

Student Name: \_\_\_\_\_

Exam Number: \_\_\_\_\_ Date of Exam: \_\_\_\_\_ Date Submitted: \_\_\_\_\_

Submitted to: \_\_\_\_\_

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1. Write the test number and question as it was written on the exam.

\_\_\_\_\_

2. What was the *correct answer* according to the test key? \_\_\_\_\_

3. What answer did you select? \_\_\_\_\_

4. What concern do you have regarding the question and answer?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Cite *Three References* that support your rationale for the answer you selected over the answer on the answer key. References cannot be cited from the internet.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

Additional comments may be attached to this form.

**Faculty Response to Appeal:**                      **Accept** \_\_\_\_\_                      **Reject** \_\_\_\_\_

Rationale:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Faculty Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## University & College Policies:

The College of Nursing expects that students will demonstrate professional behavior in all situations. Specific expectations for clinical and other professional venues can be found in the appropriate handbook. You are responsible to review and act in accordance with the policies and procedures found in the following sources, including the following topics: Professionalism, Academic Integrity, Accommodations for Students with Disabilities, Disruptive Behavior, Attendance, Compliance, and Progression.

- CON Student handbook <http://nursing.msu.edu/handbooks.asp>
- MSU Spartan Life Student Handbook and Resource Guide  
<http://www.vps.msu.edu/SpLife/index.htm>
- Information for Current Students—including Rights, Responsibilities and Regulations for Students <http://www.msu.edu/current/index.html>

**PHARMACOLOGY FOR ANESTHESIA I****NUR 887 Section 001****3 Credits****Thursday and Friday, 11:00 am – 1:00 pm****A-107 Life Sciences Building****Fall 2009****Additional Course Information****Additional Course Objectives:**

**GENERAL LEARNING OUTCOMES:** This course is designed to provide the student with a thorough understanding of the basic science of pharmacology. The primary focus will be on those topics which are an integral part of modern anesthesia practice. These include pharmacodynamics, pharmacokinetics, pharmacotherapeutics, pharmacogenetics, pharmacy and toxicology.

**SPECIFIC LEARNING OUTCOMES:** In an effort to build a foundation for the use of sound pharmacologic principles in the practice of anesthesia a specific format has been developed. This format will be used throughout this course. The rationale for the use of this format are two-fold:

1. To facilitate the student's ability to learn the subject matter presented.
2. To provide a rational approach to pharmacology which the student can use throughout their career when evaluating new drugs and the current literature in pharmacology and anesthesia.

The student will be responsible for the following parameters for all classes of drugs presented:

1. classification
2. history
3. structure activity relationships
4. pharmacokinetics
5. preparations and dosages
6. pharmacology (to include)
  - a) mechanism of action
  - b) dose-effect relationships
7. The effects of the drug on the following physiologic compartments:
  - a) central and autonomic nervous system
  - b) cardiovascular
  - c) respiratory
  - d) renal
  - e) gastro-intestinal
  - f) endocrine, biochemistry and genetics
8. Obstetric and pediatric uses.

9. Toxicity (to include):
  - a) acute side effects
  - b) chronic side effects
  - c) contraindications
  - d) drug-drug interactions
10. Treatment of adverse reactions.
11. Clinical experience and current anesthetic uses

### **Course Policies:**

**Academic Integrity:** Article 2.3.3 of the [Academic Freedom Report](#) states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the (insert name of unit offering course) adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See [Spartan Life: Student Handbook and Resource Guide](#) and/or the MSU Web site: [www.msu.edu](http://www.msu.edu)). Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the [www.allmsu.com](http://www.allmsu.com) Web site to complete any course work in NUR 887. Students who violate MSU rules may receive a penalty grade, including--but not limited to--a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also <http://www.msu.edu/unit/ombud/honestylinks.html>)

**Accommodations for Students with Disabilities:** Students with disabilities should contact the Resource Center for Persons with Disabilities to establish reasonable accommodations. For an appointment with a disability specialist, call 353-9642 (voice), 355-1293 (TTY), or visit [MyProfile.rcpd.msu.edu](http://MyProfile.rcpd.msu.edu).

**Disruptive Behavior:** Article 2.3.5 of the [Academic Freedom Report](#) (AFR) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.3.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." [General Student Regulation 5.02](#) states: "No student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process.

**Attendance:** Students whose names do not appear on the official class list for this course may not attend this class. Students who fail to attend the first four class sessions or class by the fifth day of the semester, whichever occurs first, may be dropped from the course.

## Course Calendar:

<u>Date</u>	<u>Topic</u>
Th 9/10	Introduction to Anesthetic Pharmacology
Fr 9/11	General Principles of Drug Action
Th 9/17	Introduction to Anesthetic Pharmacology
Fr 9/18	General Principles of Drug Action
Th 9/24	Signs and Stages of Anesthesia
Fr 9/25	Uptake and Distribution of Inhalation Agents
Th 9/24	Uptake and Distribution of Inhalation Agents
Fr 9/25	Uptake and Distribution of Inhalation Agents
Th 10/01	Introduction to Inhalation Anesthetics
Fr 10/02	EXAM 1 ( <b>No Videoconference</b> )
Th 10/08	Inhalation Anesthetics
Fr 10/09	Inhalation Anesthetics
Th 10/15	Inhalation Anesthetics
Fr 10/16	Inhalation Anesthetics
Th 10/22	Introduction to Induction drugs
Fr 10/23	Anesthesia Induction Drugs – Propofol/ Barbiturates
Th 10/29	Etomidate/Ketamine/Benzodiazepines
Fr 10/30	Anesthesia Induction Drugs
Th 11/05	Anesthesia Induction Drugs
Fr 11/06	Opiate Agonists/Antagonists/Non-narcotic Analgesics
Th 11/12	Opiate Agonists/Antagonists/Non-narcotic Analgesics
Fr 11/13	Exam II ( <b>No Videoconference</b> )
Th 11/19	Review ( <b>No Videoconference</b> )
Fr 11/20	Review ( <b>No Videoconference</b> )
Th 11/26	Thanksgiving ( <b>No Videoconference</b> )
Fr 11/27	Thanksgiving ( <b>No Videoconference</b> )
Th 12/03	Relaxant Preview
Fr 12/04	<b>Exam III (No Videoconference)</b>
	<b>Final Exam (date to be announced)</b>