

**Advanced Physiology & Pathophysiology****NUR 878: 3 credits****Mondays, 8:00 – 10:50 am, A-107 Life Sciences Building****Summer 2009**

**Catalog Course Description:** Homeostatic mechanisms in relation to anesthetic case management.

**Course Objectives:** At the completion of this course the student will be able to:

1. Analyze the basic physiologic and pathological concepts most relevant to clinical application for the advanced practice anesthesia nurse.
2. Synthesize knowledge of human physiology and pathophysiology to understanding the structure-function relationships of the human system.
3. Integrate physiologic and pathophysiologic principles and relationships to develop basic nurse anesthesia management strategies for maintaining homeostasis.

**Prerequisites:** NUR 877

**Standards Documents:** The curriculum is guided by the following documents:

1. The American Association of Colleges of Nursing (1996). *The Essentials of Masters Education for Advanced Practice Nursing*. Washington, D.C.
2. The American Nurses Association Code of Ethics (<http://www.nursingworld.org>)
3. Scope and Standards for Nurse Anesthesia Practice
4. Code of Ethics for the Certified Registered Nurse Anesthetist

**Course Faculty:** **Gayle Lourens, MS, BSN, CRNA**

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Office: A-121 Life Sciences

Office Hours: Variable – Appointments arranged usually; however, available as needed by students in the Nurse Anesthesia Program to accommodate student schedules.

**a. Required Texts:**

Guyton, A.C., Hall, J.E.; (2006) *Textbook of Medical Physiology, 11<sup>th</sup> ed.*, Philadelphia, Pennsylvania: Elsevier Saunders Publishing Company. ISBN: 0-7216-0240-1.

Morgan, G.E., Mikhail, M. S., Murray, M.J.; *Clinical Anesthesiology, 4<sup>th</sup> ed.*, New York, New York: McGraw Hill Medical Publishing Company. ISBN: 0-8385-1553-3.

Nagelhout, J.J., Plause, K. L.; *Nurse Anesthesia, 4<sup>th</sup> ed.*, Philadelphia, Pennsylvania: Elsevier Saunders Publishing Company. ISBN:0-7216-0363-7.

Stoelting, R.K., Dierdorf, S.F.; *Anesthesia and Co-existing Diseases, 5<sup>th</sup> ed.*, Philadelphia, Pennsylvania: Churchill Livingstone Publishing Company. ISBN: 0-443-06604-3.

### 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).

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.

- b. Required Resources, References, Supplies:** Calculator, computer access, power point access.

### Evaluation:

**a. Learning Assessments and Grading:**

Percentage	Grade
94 - 100	4.0
87 - 93	3.5
80 - 86	3.0 (passing)
75 - 79	2.5
70 - 74	2.0

### 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 for reviewing and acting 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>
- Academic Programs <http://www.reg.msu.edu/UCC/AcademicPrograms.asp>

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**NUR 878: 3 credits**  
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**Summer 2009**

**Additional Course Description:** NUR 878 – Principles through which the body maintains homeostatic control of bodily functions necessary for life as it relates to anesthetic case management.

**Additional Course Objectives:** At the completion of this course the student will be able to:

4. Identify and explain the pathophysiologic conditions that occur in systems and make application in the administration of anesthesia.
5. Synthesize knowledge of pulmonary, neurological, gastrointestinal, and endocrine physiology and pathophysiology in the management of anesthesia.
6. Critically examine the principles of pulmonary, neurological, gastrointestinal and endocrine physiology and pathophysiology and apply this information to the anesthetic case management of the surgical patient.
7. Evaluate the implications and effects that various disease states have on anesthesia selection and perioperative management of surgical patients.
8. Incorporate knowledge of the interrelatedness of pathophysiology on body systems to provide anesthesia care based on sound principles and evidence.

**Instruction:**

**a. Methodology:**

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

**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.

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 878 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.

J. 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.

**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 NUR878. 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:**(date of final examination, scheduled according to the *University final exam schedule*, and tentative dates of required assignments, quizzes, and tests, if applicable)

## 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: \_\_\_\_\_



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: \_\_\_\_\_

	<b>Content/Topic</b>	<b>Faculty</b>
<b>May 19, 2009</b>	Introduction to course, the RBC, anemias, polycythemia, sickle cell, thallemia, homeostasis (clotting)	<b>Lourens</b>
<b>May 26</b>	Immune system, allergic response, pulmonary anatomy pulmonary circulation, dynamics of pulmonary ventilation	<b>Lourens</b>
<b>June 2</b>	Principles of cellular gas exchange, gas transport in the blood, regulation of respiration	<b>Lourens</b>
<b>June 9</b>	<b>Exam I;</b> pulmonary functions testing, ABG interpretation	<b>Lourens</b>
<b>June 16</b>	Physiology of mechanical ventilation, pulmonary pathophysiology	<b>Lourens</b>
<b>June 23</b>	Pulmonary pathophysiology, introduction the to the nervous system	<b>Lourens</b>
<b>June 30</b>	Central nervous system, peripheral nervous system, neurotransmitters, sensory pathways (pain, temperature, pressure, touch, vibration, proprioception)	<b>Lourens</b>
<b>July 7</b>	<b>Exam 2;</b> Finish sensory pathways, motor pathways	<b>Lourens</b>
<b>July 14</b>	Autonomic function, consciousness, body temperature regulation	<b>Lourens</b>
<b>July 21</b>	Pituitary, thyroid, parathyroid physiology and pathophysiology	<b>Lourens</b>
<b>July 28</b>	<b>Exam 3;</b> Adenocorticoids, insulin, and glucagon physiology and pathophysiology	
<b>Aug 4</b>	GI and liver physiology and pathophysiology	<b>Lourens</b>
	<b>AANA - No Class</b>	
<b>Aug 18</b>	<b>Final Exam</b>	<b>Lourens</b>