Anesthesia Physiology & Pathophysiology
NUR 877, 3 Credits
Mondays, 12:30 – 2:50 am, Room A-107 Life Sciences
Spring 2012

Catalog Course Description: Physiological principles and pathophysiological relationships of body systems. Evaluation of co-existing pathophysiology.

Additional Course Description: NUR 877 is a graduate level course designed to provide the nurse anesthesia students a conceptual basis for understanding the physiological principles and pathophysiological relationships of body systems. The basic principles of human anatomy, physiology, and pathophysiology will be emphasized within the context of nurse anesthesia practice.

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 applications for the advances practice anesthesia nurse.
2. Synthesize knowledge of human physiology and pathophysiology to understanding the structure-function relationships of human system.
3. Integrate physiologic and pathophysiologic principles and relationships to develop basic nurse anesthesia management strategies for maintaining homeostasis.

Prerequisites: Acceptance into the Nurse Anesthesia Program

Co-requisites: None

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


Faculty Contact Information:

Gayle Lourens, BSN, MS, CRNA
gayle.lourens@hc.msu.edu
Office: 517-432-8163
121 Life Sciences

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

a. Methodology: Classroom discussion, lectures, weekly anesthesia related assignments, textbook readings, exams, self-evaluation and student/faculty conferences.

b. Required Texts


c. Optional Texts:

None

d. Required Resources, References, Supplies:

ANGEL Help Line
1.800.500.1554 (24 hrs, 7 days/week)
517.355.2345 (24 hrs, 7 days/week)
www.angel.msu.edu  (ANGEL Help link in upper right corner)
Always check with the ANGEL Help Line first!
e. Course Grading Requirement:

The following grading scale will be used in this class:

<table>
<thead>
<tr>
<th>%</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>94 – 100</td>
<td>4.0</td>
</tr>
<tr>
<td>87 – 93</td>
<td>3.5</td>
</tr>
<tr>
<td>80 – 86</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>(Minimum passing grade)</td>
</tr>
<tr>
<td>75 – 79</td>
<td>2.5</td>
</tr>
<tr>
<td>70 – 74</td>
<td>2.0</td>
</tr>
<tr>
<td>65 – 69</td>
<td>1.5</td>
</tr>
<tr>
<td>60 – 64</td>
<td>1.0</td>
</tr>
<tr>
<td>Below 60</td>
<td>0.0</td>
</tr>
</tbody>
</table>

f. Percent Allocation by Assignment:

<table>
<thead>
<tr>
<th>Exam / Assignment</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 3</td>
<td>20%</td>
</tr>
<tr>
<td>Cumulative Final</td>
<td>25%</td>
</tr>
<tr>
<td>Pre-tests and Self Assessments</td>
<td>5%</td>
</tr>
<tr>
<td>Weekly Assignment Worksheets</td>
<td>10%</td>
</tr>
</tbody>
</table>
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: __________________

MSU is an Affirmative Action/Equal Opportunity Institution
Professionalism:

A. General Statement


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 is 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 877 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 and discussed in class, posted on the College of Nursing email or on ANGEL. 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.

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](http://nursing.msu.edu/handbooks.asp)
- Information for Current Students—including Rights, Responsibilities and Regulations for Students [http://www.msu.edu/current/index.html](http://www.msu.edu/current/index.html)
- Academic Programs [http://www.reg.msu.edu/UCC/AcademicPrograms.asp](http://www.reg.msu.edu/UCC/AcademicPrograms.asp)

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 Nurse Anesthesia Program 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). 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 Web site to complete any course work in NUR877. 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](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:** The course calendar, reading assignments and test dates will be provided the first day of class. The instructor reserves the right to adjust the calendar according to the needs of the class. The date of the cumulative final exam is based on the University final exam schedule.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 (Jan 9)</td>
<td>Internal Environment; The Cell; Movement of Substances Across Membranes</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 2 (Jan 16)</td>
<td><strong>Martin Luther King Holiday – No Class</strong></td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 3 (Jan 23)</td>
<td>Genetic Control; Introduction to Genetic Disease Identification; Membrane Potentials</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 4 (Jan 30)</td>
<td>Skeletal Muscle; Skeletal Muscle Pathophysiology; Second Messenger Systems</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 5 (Feb 6)</td>
<td><strong>Exam I (1.5 hours)</strong>; Smooth Muscle</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 6 (Feb 13)</td>
<td>Vascular Distensibility; Local and Humoral Control of Blood Flow through Tissue;</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 7 (Feb 20)</td>
<td>Microcirculation and Lymph; Introduction to Physics Associated with Vascular and Cardiac Dynamics</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 8 (Feb 27)</td>
<td>Cardiac Muscle Action Potentials</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 9 (March 5)</td>
<td><strong>Spring Break – No Class</strong></td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 10 (Mar 12)</td>
<td><strong>Exam II (1.5 hours)</strong>; The Heart as a Pump</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 11 (Mar 19)</td>
<td>The Heart as a Pump; The ECG; Cardiac Pathophysiology</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 12 (Mar 26)</td>
<td>Cardiac Pathophysiology</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 13 (Apr 2)</td>
<td>The Kidney</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 14 (Apr 9)</td>
<td>The Kidney /Electrolyte Control</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 15 (Apr 16)</td>
<td><strong>Exam III (1.5 hours)</strong>; pH</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 16 (Apr 25)</td>
<td>Renal Pathophysiology /Introduction to Hemostasis, Clotting Cascade</td>
<td>Lourens</td>
</tr>
<tr>
<td>Week 17 (May 17)</td>
<td><strong>FINALS – DATE TBA</strong></td>
<td>Lourens</td>
</tr>
</tbody>
</table>

**Worksheets:**

Each week (with the exception of scheduled test weeks), a worksheet will be assigned. The purpose of the worksheet is to:

1. Familiarize the student to the layout and content in the required anesthesia texts
2. Develop the student’s critical thinking skills (at a Master's level)
3. Compare normal physiology and pathophysiological conditions
4. Integrate physiology and pathophysiology with introductory anesthetic concepts