Texas A & M University – Corpus Christi  
Department of Nursing Graduate Program

NURSING 5326. ADVANCED PHYSIOLOGY, WITH  
PATHOPHYSIOLOGICAL APPLICATIONS (BLACKBOARD)  
Spring 2014

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COURSE OVERVIEW

Credits: 3 semester hours

Course Description: The study of normal physiology and pathologic mechanisms of disease across the lifespan that will serve as the foundation for clinical assessment, decision making, and client health management in advanced practice nursing.

Prerequisite: graduate standing

Course Objectives: The graduate nursing student, through physiological and pathophysiological study of sub-cellular mechanisms, cells, tissues and organ systems should be able to:

1. develop critical thinking skills using the physiological parameters that determine cellular and organ system function and dysfunction
2. develop skills necessary to make objective clinical decisions based on the best available evidence from disciplined research to direct complex health care decisions in nursing practice.
3. interpret current research in the field of advanced physiology and pathophysiology to improve health care for their clients
4. integrate theoretical and research based physiology and pathophysiology concepts into modern nursing practice
5. develop a pathophysiological rationale for advanced level nursing management of acute and chronic conditions
6. develop a physiological basis for health care within diverse populations across the life span, through advanced knowledge of alterations found in common disease states within those populations and age groups.
6.1 participate in the creation of a positive learning experience using the new technologies
6.2 evaluate her/his own progress toward achievement of long term goals within the discipline of nursing
6.3 develop a more sophisticated practice paradigm based on physiological and pathophysiological concepts
6.4 demonstrate responsibility for class preparation, student group assignments, and active participation in the on-line discussion forums and chat sessions.

**General Information**

**Lecture Location:** TAMUCC online Courses
http://islandonline.tamucc.edu

**Class Time:** This section of NURS 5326 is web-based and the principals of distance learning apply for all students. The online week runs from Wednesday to Tuesday. That means that all students should be prepared to discuss any topic that is assigned on the Wednesday designated on the class schedule. Topics for the week are noted on the class schedule according to date and content. All assignments are due on the day indicated in the Course Schedule (usually Wednesday due date). Four mandatory (real time) chats will be conducted during the course of the semester. These are times that students should arrange to be present. Assigned chat times will be posted in advance in the course schedule.

**Exam dates are noted on your course schedule.**

**Exams will be offered on Tuesdays.**

***EXAMS WILL BE AVAILABLE FROM 11 AM – 5 PM
EXAM TIMES ARE NON-NEGOTIABLE, SO PLEASE ARRANGE YOUR SCHEDULE SO THAT YOU CAN TAKE THE EXAM DURING THE SCHEDULED TIME...***

**Required Textbook**


**OPTIONAL** (but very useful)


**Other Required Reading** : documents found on Blackboard
Word documents and PowerPoint presentations found within each of the ten modules will serve as study guides and provide study questions, discussion topics and vocabulary. These will be downloadable.

Further readings may be provided during the course

**Learning Experiences and Teaching Methods**

Assigned reading material will be used to promote learning and critical thinking skills. Participation in web-based discussions is an integral part of the learning process. **Chat sessions will be** used from time to time as scheduled throughout the semester. **Collaborative work** with student colleagues (Group Assignments) will be done in small groups to encourage group learning. Other collaborative work will include **Discussions** which will take place in the **Main discussion forum** or the **Student Group Discussion Sites** and can be found under Communications on the Homepage. Private communication is available through the students e-mail address within the course. Each student is required to check course and private e-mails at least every 48 hours. 

**OUTLINE OF COURSE CONTENT**

**Week 1:** : **Demonstration of Blackboard understanding:** STUDENTS MUST DEMONSTRATE THEIR ABILITY TO NAVIGATE THE BLACKBOARD COURSEWARE. The purpose of this exercise is to familiarize students with **Blackboard** and its various tools. If you are experienced with **Blackboard**, use this exercise to learn something new about the many features. After completing a review or learning a new function, EVERY STUDENT must send an email to the course instructor to inform her which review or new functions you used and what **Blackboard** tools you tested. This should be received by the instructor by THE END OF WEEK 1.

*YOU WILL RECEIVE NO CREDIT* for this assignment but **no other work** will be accepted for grading until you have completed this activity.

**Requirement:** You must email the instructor after you read this syllabus indicating whether or not you agree with the content of the syllabus. **No other work** will be accepted for grading until you have completed this activity.

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**NURSING 5326. Essential Physiology and Pathophysiology Content**

**Unit 1:** **Cell physiology**

- A. Cellular anatomy and physiology
- B. Genes, DNA, RNA and protein synthesis
- C. Cellular communication
- D. Movement across cell membranes (transporters)
- E. Enzymes

Pathophysiology
Cell changes in neoplasm
Differentiation and dedifferentiation of cells: premalignant and malignant changes
Cholera
Mechanism of disease (general)
Mechanism of cell death
Carcinogens

**Unit 2: The immune/inflammatory system**

A. cells and cell markers
B. immunoglobulins
C. hypersensitivity
D. T-cells and B-cells
E. Cytokines

**Unit 3: Central Nervous System**

A. review of anatomy and physiology
B. dopamine and serotonin systems
C. neurotransmitters
D. parts of brain and their function
E. physiology of pain

Pathophysiology

cerebrovascular disease
multiple sclerosis
myasthenial gravis
Parkinson’s disease
Depression
Acute pain
Chronic pain

**Unit 4: Endocrine system**

A. definitions of hormones
B. circadian rhythms
C. thyroid
D. parathyroid
E. adrenal
F. pancreas
G. pituitary (anterior and posterior)
H. role of the hypothalamus

Pathophysiology

acromegaly
addisons
cushing’s disease
diabetes insipidus
diabetes mellitus
hyperthyroidism and hypothyroidism
osteoporosis
diseases of the parathyroid
Unit 5: Respiratory/Pulmonary System

A. functional anatomy of airways, alveoli and lung support  
B. pulmonary mechanics  
C. Gas transport  
D. Pulmonary vasculature  
E. Ventilation and perfusion of lungs  
F. Acid/Base balance and respiratory control

Pathophysiology

Asthma  
Chronic bronchitis  
Emphysema – obstructive and restrictive lung diseases  
Pulmonary inflammation and fibrosis  
Respiratory failure

Unit 6: Cardiovascular system

A. Review of cardiac anatomy  
B. Coronary arteries, vessels, and EKG  
C. Vasomotor control of vessels  
D. Excitable membranes - Generation of action potentials, myoneural junction  
E. Muscle contraction

Pathophysiology

Coronary ischemia  
Acute coronary occlusion  
Congestive Heart Failure  
Hypertension/hypotension  
Ischemia and infarction  
Shock syndromes

Unit 7: Gastrointestinal System and Hepatobiliary system

A. functional anatomy  
B. motility  
C. nutrients and the digestion of food  
D. exocrine pancreas  
E. liver and gall bladder function

Pathophysiology

Crohns disease and Ulcerative colitis  
Dietary imbalance – obesity and starvation  
Hepatitis C  
Hepatic failure  
Disorders of motility  
Eating disorders  
Peptic disease  
Pancreatitis
Unit 8: Renal System

A. functional anatomy
B. countercurrent mechanism
C. renal function and electrolyte balance
D. Renin/Angiotensin system

Pathophysiology

acute renal failure
chronic renal failure
renal function tests

Unit 9 Hematology (The circulating cells)

A. Red Blood Cells
B. White Blood Cells
C. Stem Cells
D. Platelets

Pathophysiology

Anemias
Coagulation disorders
Sickle cell disease
Disorders of hemostasis
Disorders of WBCs, RBCs and platelets

Pathophysiology

Acquired immune deficiency syndromes, including HIV
Autoimmune disorders
Hypersensitivity and anaphylaxis
Organ transplantation
Septicemia and multiple organ failure

Unit 10: Fluid, Electrolyte and Acid/Base Balance

A. buffer systems of the blood
B. arterial blood gases
C. ventilatory contributions to A/B balance
D. fluid and electrolyte control
E. renal contributions to A/B balance

Pathophysiology

acidosis
alkalosis
mixed A/B disturbance

Course Requirements and Grading
Evaluation methods:

Examination grades: (three exams) 60%
Student Group Assignments grades: (four assignments) 20%
Two assigned Discussion topics: 10%
Class participation (determined by the instructor): 10%

Exam schedule: Exams will be focused on the stated course objectives. The exams will be administered online on the dates indicated on the course schedule. Three exams will be given.

Exam construction: Exams will be based on the course content. Current theories on the etiology, pathogenesis, physiology and pathophysiology which are covered in the course content will be the focus. Critical thinking skills will be needed to choose correct answers from a multiple choice format. Material on biochemistry and physics presented in the course will not be included on exams unless so indicated by the instructor.

*make up exams will not be permitted. Students are advised that there is ample time to take the test when it is scheduled. Students are further advised that waiting until late in the testing period to take the test may result in difficulties with time. PLEASE DO NOT WAIT UNTIL THE LAST MINUTE TO TAKE THE TESTS.

GROUP ASSIGNMENTS: Case Studies/Sets of Questions

FOUR GROUP ASSIGNMENTS IN THE FORM OF CASE STUDIES AND/OR SETS OF QUESTIONS will be assigned during the semester. Students will work in small groups to evaluate each posted assignment’s given information and questions, collaborate in researching the problem and the possible answers, and turn in the assignments in a timely fashion. One student will be selected from each group to turn in the group’s written assignment. This student “scribe” will change with each assignment. No one student may be responsible for acting as scribe more than once in the semester. Students will be assigned to a group during the first week of the semester. Each group will have a number which will correspond to the group number found within the Communication icon under Discussions.

Group Assignments: Grading criteria

1. Physiology/Pathophysiology of the questions stated............................40 pts

2. The answer is clearly and concisely stated .................................... 40 pts
Be careful to answer the questions

3. Evidence of Literature search (references other than the text).................10 pts
4. APA format ........................................................................................................................................10 pts
   *Double spacing
   *Times new roman font, size 12
   *Referenced
   *Title page with running head and
   with each group member’s name
   *Reasonable length - **the body of the paper should not exceed 5 pages. The
   cover page and the list of references are not included in the 5 page requirement.

5. Total possible points.........................................................................................................................100

**GROUP ASSIGNMENTS** submitted after the due date and time will be subject to a
10% grade reduction for each day late. Submission 48 hours or more after the due
date will not be accepted and will receive a grade of 0.

*Each member of the group will receive the same grade for each submitted
assignment; therefore each member of the group is responsible to all other
members of the group. If a group member is late with their portion of the
assignment, their lack of participation will impact all other group members. The
course instructor will be a member of all the student groups and will be able to
monitor activities within the group discussion area. Students who are holding
back other members of the group will be noted.

***Students who consistently do not make adequate contribution to the group
assignments will receive a separate grade for this activity which will be based on
their particular contribution. This grade will be at the discretion of the
instructor.

**Course Grade Components**

1. **Exam grades.** Each exam will count for 20% (total 60%) of the final course
grade. Student responses to exam questions will be analyzed and items with poor
discrimination will be considered for exclusion from the exam. Grades will then be
adjusted accordingly. The instructor reserves the right to curve exam grades if felt
appropriate.

2. **Class Discussions:** two major discussion topics will be assigned during the
semester. Students will be asked to contribute to these discussion topics within their
student group Discussion site.
Each discussion will count for 5% (total 10%) of the final grade.

3. **Group Assignments.** Four group assignments are assigned during the semester.
Each group assignment will count for 5% (total 20%) of the final course grade.
Each member of a student group will receive the same grade on each case study, and
equal participation in the case study is expected from all students.

4. **Level of Class Participation:** general participation will count for 10% of the final
grade. The final decision regarding the level of participation will be determined by
the instructor. Grades will not be determined by attendance; however absence prohibits participation and therefore could influence the final course grade.  

Course Discussions Participation: Course participation is important. Students are **expected** to contribute to all online discussions concerning the group assignments. Students will need to enter the discussion forum during the week to contribute to their student group.  

**“Constructively contribute”** means the demonstration of critical thinking about topics assigned to be discussed, as well as collaboration in the discussions for the group assignments. **A log will be kept of all contributions to group discussions, so each participant’s contribution will be noted.**  

*No “extra-Credit” work will be permitted  

Grading:  
The college of nursing letter grading scales for all programs consists of the following:  

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>83-89</td>
</tr>
<tr>
<td>C</td>
<td>75-82</td>
</tr>
<tr>
<td>D</td>
<td>70-74</td>
</tr>
<tr>
<td>F</td>
<td>69 and below</td>
</tr>
</tbody>
</table>

Please consult the University Catalog for explanation of University grading policies. Graduate students must maintain a 3.0 GPA on a 4 point scale  

Academic Advising:  
The College of Nursing and Health Sciences require that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair.  

Students with Disabilities  
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office at 361.825.5816 or visit the office in Driftwood 101.  

Academic Honesty  
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to a penalty includes all forms of cheating, such as illicit possession of
examination materials, forgery, or plagiarism (Plagiarism is the presentation of the work of another as one’s own work).

**Grade Appeal Process**

As stated in the College of Nursing and Health Sciences (CONHS) Handbook under section V11 Policies and Procedures, a student that believes they have an academic grade appeal is encouraged to go through the CONHS academic review process prior to pursuing University Grade Appeal. See the handbook for the process.

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.20.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html

For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

**Syllabus Disclaimer:** While the provisions of this syllabus are as accurate and complete as possible, the faculty reserves the right to change non-critical aspects of the course to accommodate emergencies, unexpected technical problems, or any unforeseen circumstances. Such changes will be announced as soon as feasible and will be communicated by course email or announcements via Blackboard. *It is the STUDENT'S responsibility to keep abreast of course announcements.* Questions regarding course requirements should be addressed when the syllabus is received, within the first week of the course.

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