Course Number and Title: GNUR 442 Advanced Physiology/Pathophysiology for Clinical Practice

Number of credits: 3 Semester hours

Meeting Schedule: On-line lectures, in class exams (online exams are only for Hematology/Oncology out of state students) on Mondays (as stated on course schedule) at Marcella Niehoff School of Nursing

Faculty: Michael Egan, DNP, APN/FNP

Faculty Contact Information: Dr. Egan: megan2@luc.edu, office hours by appointment. Email questions are welcome. Phone: 773-304-6763 cell phone (prefer weekday days if needed) and 708-988-2089, pager (if necessary).

Important: You must use your LUC.EDU email address. Please check this email address very frequently for class announcements and individual messages.

Prerequisites: Undergraduate Anatomy and Physiology

Co-requisites: N401, N450

Course Description:
This course presents contemporary principles of physiology that underlie the normal function of the human body and serve as a basis for clinical practice in a variety of settings. The content is taught within the context of key molecular processes, cellular and organ system function, and interactions among organ systems. Select clinical cases and exemplars are used to illustrate physiologic concepts and to facilitate the application of physiologic principles to understand the body’s homeostatic processes in health and disease. Emphasis is on normal physiology but approaches are used to bridge physiological science with clinical application to common clinical disorders. The educational experience consists of three hours of classroom or on-line instruction per week, independent readings, case analyses, web-based applications, and classroom and/or course platform-supported discussion.

Course Outcomes:
Upon successful completion of the course, the student will be able to:
1. Explain the physiologic processes that underlie the normal function of the human body.
2. Achieve an understanding of the dynamic interactions of organs and organ systems that promote homeostasis.
3. Interpret and analyze physiologic data within the context of select clinical disorders.
4. Apply the principles of physiology to the understanding of the body’s response to threats to homeostasis.
5. Appreciate physiological research aimed at health promotion and the prevention and management of disease.
**Teaching Methods:**
Students are given learning objectives and reading assignments for each week’s content. Think of this course as ‘meeting’ on Mondays. Each week the lectures and readings should be completed by Monday morning so that a new unit can then begin. Students are given learning objectives and reading assignments for each week’s content. Case studies and a genomics assignment questions are used to help develop critical thinking skills. Students submit cases and answers to the genomics’ assignment on the due dates and times specified.

There will be 2 types of assignments for this course: two case studies and genomics assignment.  
1. There will be 2 individual case study assignments during the semester. Case studies should be submitted as a Word document attachment via Blackboard using the assignment button by 9 am on the assignment due date. Faculty will review, evaluate, and respond with individual feedback for each assignment. There is a 10% penalty for each day that the assignment is late. **If the assignment is greater than 7 days late, a grade of 0 will be assigned.** See the “Guidelines for Case Study Assignment” in this syllabus.

2. There will be one genomics assignment during the semester. This assignment should be submitted as a Word document attachment via Blackboard using the assignment button by 9 am on the assignment due date. Faculty will review, evaluate, and respond with individual feedback for each assignment. There is a 10% penalty for each day that the assignment is late. **If the assignment is greater than 7 days late, a grade of 0 will be assigned.** See the “Guidelines for Case Study Assignment” in this syllabus.

**Evaluation:** The 442 course covers material essential to advanced practice, and requires a minimum of a B- grade. Students earning less than a B- must repeat the course before progressing in their APN specialty program.

**EVALUATION:**
- Test #1 25%
- Test #2 25%
- Test #3 25%
- Case Studies (2) 10% (each)
- Genomics Assignment 5%

**GRADE SCALE**
- A 94-100, A- 92-93, B+ 89-91, B 86-88, B- 84-85
- C+ 80-83, C 77-79, C- 75-76, D+ 72-74, D 69-71, F 68 and below

The 442 course covers material essential to advanced practice, and requires a B- or better grade. Students receiving a grade lower than a B- must repeat the course before progressing in their program.
Extra Credit (Optional): There will be three case studies that will be posted for each block of content. Responses can be posted in the Forums section of Sakai. 0.5% will be added for each completed response (a maximum of 1.5% extra credit for the term). The extra credit assignment will be available until the start of following exam, and no later (i.e. extra credit one will be available until exam one, extra credit two will be available until exam two, and extra credit three will be available until exam three).

Required Textbooks, Readings, and Assignments
- Additional readings will be assigned as appropriate certain learning modules.
- Internet resources will be assigned as appropriate.

Course Evaluation Expectation: It is a professional expectation that all students participate in course evaluations to guide ongoing program improvement.

Academic integrity statement: Academic honesty is an expression of an ethic of interpersonal justice, responsibility and care applicable to Loyola University faculty, students and staff, which demands that the pursuit of knowledge in the university community be carried out with sincerity and integrity. Refer to the MSN/DNP Handbook located in the Blackboard Organization "Information for MSN/DNP Students" for a description of the Academic Integrity Policy.

Course Policies
1. Students are required to take exams on campus on the dates/times scheduled on the course calendar.
2. Students who are in the Hematology/Oncology Advance Practice Nursing Program and live out of state will take the exams online but need to take the exams on the dates and times specified.
3. Students are required to submit assignments on the dates/times assigned on the course calendar. Late submission of assignments will result in lowering of the grade for that assignment by 10 points for each day that the assignment is late. If the assignment is greater than 7 days late, a grade of 0 will be assigned unless special arrangements are made in advance between the student and faculty.

Course Organization: This course is arranged in 10 modules. Each module varies in length. Each module will be available on Blackboard prior to the week specified on the course schedule. See the course calendar at the end of this syllabus.
Content Outline:
Cell Physiology
  Ionic Equilibria
  Resting Membrane Potentials
  Action Potentials
  Synaptic Transmission
The Nervous System
  Organization & Higher Functions
  Motor System Structure and Function
  Sensory System Structure and Function
Respiratory Physiology
  Mechanics of Lung Function
  Diffusion of Gases
  Regulation of Respiration
  Ventilation/Perfusion, Oxygen-Hemoglobin Relationship, Transport of Gases, Muscle
Physiology
  Skeletal Muscle Structure and Function
  Cardiac Muscle Structure and Function
  Smooth Muscle Structure and Function
Cardiac Physiology
  Coronary Circulation
  Blood Clotting Mechanisms and Thrombosis
  Electrical Activity of the Heart, Cardiac Cycle; Cardiac Contraction; Control of Cardiac Function
  Hemodynamics and Regulation of the Circulation
Host Defense Inflammation and Immunity
  Overview
  Humoral and Cell Mediated Immunity
Renal Function
  Control of Fluid and Electrolytes
  Acid-Base Balance
  Metabolism
Endocrine Physiology
  Hormone Structure and Function
  Hypothalamus and Pituitary Gland
  Thyroid Gland
  Parathyroid Gland
  Pancreas
  Adrenal Gland
Gastrointestinal Function
  Regulation of Food Intake and Storage
Reproductive Physiology