FUNCTION OF THE HUMAN BODY

Spring Semester 2026

Please read this syllabus – it has important information about course administration, goals, grading, and policies.

GENERAL DESCRIPTION: This course will cover all aspects of healthy human physiology. An understanding of healthy physiological processes is critical for diagnosing and treating pathological conditions. Therefore, relevant clinical correlates will be discussed in lectures and in small group problem solving session to prepare students for M2 coursework.

IMPORTANT COURSE POLICIES AND GUIDELINES

- **Attendance is required for ALL small group sessions, labs and simulations. Request for an excused absence must be made in writing to the Course Director and Dean of Student Affairs. Documentation will be required (see attendance section).**
- **Attendance is strongly encouraged for all lectures. Lectures are given in-person by the faculty and recorded. Lecture recordings will be posted within 24 hours following a scheduled lecture and are a great resource for reviewing material.**
- **There are 20 small group problem solving sessions. Students work with their assigned groups to complete the problem sets. Small group problem set answers will be posted within 24 hours following a small group session.**
- **READ the handouts provided by faculty. Each handout contains learning objectives and content knowledge that you should master for each session.**
- **There are 4 sectional exams. Grades are based on TOTAL POINTS achieved from all exams (see example calculation below). A passing grade on all sectional exams is 70%. Passing grade on the remediation exam is 70% (see grading section).**
- **A minimum final grade of at least 60% is required to qualify for an opportunity to remediate a course failure (see remediation section).**

COURSE ADMINISTRATION

Course Director: Dr. Toni Pak (tpak@luc.edu) office location CTRE #520
Assistant Course Director: Dr. Ivana Kuo (Ikuo@luc.edu) office location CTRE #518
Course Coordinator: Maureen Locklund (mlocklund@luc.edu), Medical Education office, Cuneo #310

INSTRUCTOR INFORMATION: This course is team taught by faculty members in the Cell and Molecular Physiology Department.

Block 1 Nerve, Muscle, Heart & Circulatory Physiology
Dr. Erika Piedras-Renteria, Dr. Seth Robia, Dr. Grace Muller

Block 2 Pulmonary, Renal & Acid-Base Physiology
Dr. Jordan Beach, Dr. Ivana Kuo

Block 3 Gastrointestinal, Metabolism
Dr. David Barefield, Dr. Aleksey Zima, Dr. Peter Kekenes-Huskey

Block 4 Endocrine & Reproductive Physiology
Dr. Toni Pak

Additional Faculty = Dr. Greg Ozark (conferences), Dr. Amy Kule (ultrasound)
Small group faculty facilitators = varied

LEARNING OUTCOMES AND COMPETENCIES for USMLE:

A. MEDICAL KNOWLEDGE (assessed using USMLE format MCQ exams)

a. Explain the fundamental cell biological, histological and physiological properties of the major organ systems including nervous system; cardiovascular and circulatory system with lymphatics and special circulations; pulmonary system; gastrointestinal system and metabolism; renal system; endocrine system; and male and female reproductive systems.
b. Describe the regulation of each of the major organ systems by neural, endocrine, paracrine, and autocrine mechanisms and the signal transduction mechanisms employed.
c. Explain the fundamental principles of positive and negative feedback and describe how manipulating feedback loops can be used in clinical diagnosis.
d. Explain the membrane properties and ionic current mechanisms of excitable cells, and the function of action potentials in different types of excitable cells, including neurotransmission and excitation-contraction coupling.
e. Discuss the autonomic nervous system and how it regulates the major organ systems.
f. Explain the impact of dysfunction of each major organ system on the other systems.
g. Explain the clinical tests commonly used to assess the normal function or pathology of the major organ systems, including blood tests, ECGs, biopsies, MRIs, spinal taps, respirometry, urinalysis, endocrine stimulation/suppression tests, pregnancy tests.
h. Describe the major macronutrients and critical minerals, compounds, amino acids and vitamins that are essential to balanced nutrition and whole-body energy balance, and the signs, symptoms, etiology and treatment/prevention recommendations for dietary deficiencies or excesses.

B. INTERPERSONAL AND COMMUNICATION SKILLS (assessed in small group settings and communication with faculty)

- Demonstrate the ability to effectively communicate and work collaboratively together with peers in the small group setting to successfully address problems of physiological significance.
- Contribute to the education of peers by actively engaging in small group discussion and problem-solving exercises.

C. PRACTICE-BASED LEARNING AND IMPROVEMENT (assessed through active participation in small groups)

- Critically self-evaluate performance in the course to identify strengths and personal limitations in either physiological knowledge or the ability to integrate physiological information to use in evaluation of cases; develop learning goals to address any deficiencies and actively seek out assistance from appropriate sources to successfully remediate these deficiencies.
- Participate in simulation sessions and self-evaluate performance and demonstrate ability to incorporate classroom knowledge of physiology into the clinical setting.

D. PROFESSIONALISM (assessed by Faculty and Course Director)

- Demonstrate professional behavior by completing all course requirements, including course evaluations, in a timely manner.
- Demonstrate professionalism by behaving in a professional, courteous, and respectful manner when engaged in course activities or interacting with course faculty and staff.
- Demonstrate responsibility and accountability by attending and being punctual at all required course activities.
- Demonstrate professional behavior by requesting any excused absence from required course activities well ahead of the scheduled date.
- Demonstrate professional behavior by responding to direct communication from the Course Director in a timely fashion, particularly in circumstances when a meeting is requested to discuss issues related to academic performance.
- Demonstrate professional and ethical behavior by honestly completing course examinations without attempting to seek an advantage by unfair means; and by reporting any unethical behavior of peers to the course administration.

CONFERENCES: Conferences are teaching sessions conducted in a live format. Conferences focus on specific topics in a mini-lecture, case study, and/or discussion format. These sessions are designed for more interactions between students and professors, offering students the opportunity to ask and answer questions. Conference handouts accompanying lecture notes allow students to prepare appropriately before attending these important sessions.

SIMULATIONS: We have a computer simulation designed to illustrate physiological principles and concepts in a dynamic and integrative format. These sessions are presented to the class together in a live format. Attendance is mandatory.

- **Cardiac Cycle and Heart Sound**: This computer simulation illustrates the dynamic changes in pressures and volumes of the heart and circulatory system during the normal cardiac cycle. We will also discuss the origins of heart sounds and cardiac murmurs.
- **Human Patient Simulator**: The Human Patient Simulator (Vince) will be used to illustrate the dynamic interactions of the heart and circulatory system under normal and pathological conditions.

TEXTBOOK RESOURCES (online at HSC library)

- ***Physiology*** (Berne, Levy, Koeppen & Stanton, 7th edition, 2018, Mosby)
- ***Cardiovascular Physiology*** (McGraw Hill-Lange, 8TH ed., Mohrman and Heller)
- ***Gastrointestinal Physiology*** (McGraw Hill-Lange, 2nd ed., Barrett)
- ***Respiratory Physiology – The Essentials*** (West, 9th ed., 2012, Lippincott)
- ***Vander's Renal Physiology*** (Eaton & Pooler, 7th ed., 2009, McGraw Hill)
- ***Textbook of Biochemistry with Clinical Correlations*** (Devlin, 7th ed., 2011, Wiley-Liss)
- ***Endocrine Physiology*** (McGraw Hill-Lange, 4th ed., 2013, Molina)

EXAMS AND GRADING:

- There will be an exam after each block section for a total of 4 exams.
- Exams are multiple choice and written in USMLE board format.
- Exams cover all content presented in the block including information in PowerPoints, handouts, reading assignments, small group cases, conferences, and simulations.
- Grading is pass/no pass. Students must earn 70% of total possible points are required to achieve a passing grade.
  - Example grading for hypothetical student: Exam 1 = 80/87 Exam 2 = 75/80 Exam 3 = 88/90 Exam 4 = 82/87
  - Total points achieved = 325; Total possible points = 344; Final grade = 325/344 = 94.48% = PASS

Note: Do not average the percentage from each exam because exams are not equally weighted.

Failure to achieve a passing grade of 70% on any individual block exam:
Students who score below 70% on any exam are highly encouraged to meet with the Course Director, Dr. Pak, or the Assistant Course Director, Dr. Kuo, to discuss study strategies. Appointments can also be made with the lecturing faculty to go over missed questions. **Important note: Missed exam questions on any given block exam cannot be reviewed once the next block exam has taken place.**

No Pass < 70% of total possible points: students who achieve at least 60% but less than 70% of the total possible points are eligible to take a remediation exam. Students who achieve <60% of the total possible points are not eligible to take the remediation exam. Eligibility will be determined by the Student Promotions Committee following a recommendation from the Course Director. Students who are not eligible to take the remediation exam will be required to repeat the course.

REMEDIATION EXAM:

- The remediation exam is a comprehensive exam that covers content from all 4 sections in FHB.
- The exam is prepared by the Course Director in collaboration with lecturing faculty. The exam is designed to be a rigorous, yet fair assessment to ensure that the student has achieved sufficient mastery of the course material to proceed to the next academic level.

- The remediation exam is the same exam for all students, and all remediating students take the exam on the same date/time – typically during the last two weeks of July.
- Students are **strongly encouraged to meet with individual faculty** and the Course Director in the weeks preceding the remediation exam.
- Those students achieving a score greater or equal to 70% on the remediation exam will have their F grade converted to a P*. Students who do not achieve the minimum passing score will be required to repeat the course in its entirety, or alternatively, may be subject to automatic administrative action by the SSOM, as outlined here in the academic policy manual.

ATTENDANCE: Required sessions are designed to foster interpersonal and communication skills within a healthcare team. Therefore, **attendance is mandatory** for all sessions noted by an * in the course schedule. Failure to attend and participate, as well as any unexcused absences will result in a "does not meet" for your professionalism grade.

NON-EMERGENT ABSENCES FROM REQUIRED ACTIVITIES (e.g. presenting at a scientific conference, jury duty, etc.): Absences for non-emergent reasons from activities in which attendance is mandatory (e.g., small groups, exams, etc.) must be submitted in writing to the Assistant Director for Student Affairs, **at least thirty days prior** to the start of the event for which the absence is requested. The Assistant Director for Student Affairs may decide to share the petition with the Course Director to determine if the excused absence may be granted. A student must have a serious reason for an excused absence or request for a change in an exam date/time. The petition must detail the nature of the conflict and available supporting documentation should be attached. **A petition for permission to be absent is a request that requires review and is not automatically approved simply by submission.** In granting permission, the logistics and feasibility of rescheduling the missed academic activity are weighed and the student is notified of the decision. **An examination cannot be rescheduled to a date earlier than the original exam date.**

EMERGENCY OR UNEXPECTED ABSENCES: We want students to be healthy when sitting for exams so that the assessment accurately reflects mastery of the concepts and knowledge presented in the course. Students who are very ill or have other extenuating circumstances (i.e. death in the family) must contact the Dean for Student Affairs and the Course Directors prior to missing an exam or other required activity to obtain an excused absence. Excused absences are granted according to university policy and proper documentation will be required.

ACADEMIC INTEGRITY POLICY
Academic standards, code of conduct, and potential sanctions for violation of the code can be found here on the Loyola website.

STUDENTS WITH DISABILITIES
Accommodations for ongoing or temporary physical or learning disabilities is coordinated through the Academic Center for Excellence and Accessibility. Information about requesting accommodations can be found here.

STUDENT WELLNESS
We understand that balancing coursework, clinical training, research, and other obligations can be overwhelming. It is important to take care of your physical and mental well-being so that you can learn and care for your patients. The Stritch School of Medicine has a comprehensive wellness center to help support student health. Details of the services provided can be found here.

COMMUNICATION: Lecturing faculty will respond to student emails within 24 hours. Students will also receive periodic announcements about the FHB course from the Course Director and/or Course Coordinator by direct emails to the entire class. Students should check their Loyola email accounts daily. Please be aware that emails sent from other email servers (i.e. gmail, yahoo, hotmail) might not be received by the intended faculty member due to Loyola spam filters. Clear and effective communications between faculty and students are not only necessary, but mandatory for fostering a positive learning experience.