

# University of Kansas School of Medicine

## Cardiopulmonary

### Module Director and Co-Directors

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### MODULE SUMMARY AND OBJECTIVES

Cardiopulmonary is an 8-week, multidisciplinary course taught by faculty members from basic science and clinical departments. The module integrates materials from the traditional disciplines of anatomy, biochemistry, histology, physiology, pathology, epidemiology, behavioral science, and clinical and preventive medicine.

### MODULE OBJECTIVES:

In relation to the Cardiopulmonary System, at the end of the Cardiopulmonary Module the first year medical student should be able to:

1. Describe normal and abnormal embryonic development of those systems.
2. Identify and describe normal and abnormal structures using information from several scientific disciplines.
3. Explain the rationale for using the solutions commonly used for intravenous administration and calculate the changes the infusions have on body fluid and electrolyte balance.
4. Identify and describe normal and abnormal electrophysiology and ECGs using information from several scientific disciplines.
5. Explain the mechanisms involved in normal cardiopulmonary function.
6. Describe the pathogenesis, morphological and clinical manifestations of common cardiopulmonary diseases.
7. Describe major threats to and behavioral determinants of cardiopulmonary health.
8. List and describe the mechanism of action of pharmacological agents commonly used to treat abnormal cardiopulmonary function and/or diseases of the cardiopulmonary system.

9. Demonstrate the components of normal exams for heart and lung and explain the rationale for the components of the exam.
10. Identify normal and abnormal values of arterial blood gases and lung function parameters obtained via pulmonary function test.
11. Identify common abnormalities related to the heart and lung exam.
12. Conduct a medical history with a (standardized) patient; measure and interpret vital signs with a (standardized) patient; evaluate basic laboratory data; assess current health status.
13. Describe behavior modifications that can improve cardiopulmonary health and/or reduce the risk of cardiopulmonary disease.
14. Explain the rationale for diagnostic tests to assess normal and abnormal cardiopulmonary function, as well as the basis for surgical approaches to treat cardiopulmonary disease.
15. Effectively retrieve information from medical literature or other data basis and interpret the information in order to draw valid conclusions in relation to selected clinical case scenarios related to cardiopulmonary medicine.
16. Communicate accurately and effectively information to professional colleagues, patients, and to the public in lay terms.

### **TEACHING FACULTY AND GROUP FACILITATORS**

All teaching faculty and group learning facilitators may be contacted by e-mail regarding content. A student who wishes to meet with a faculty member should request an appointment by e-mail. The faculty person responsible for each learning activity is listed on the overview document describing that activity, found on JayDocs.

### **CALENDAR**

The official module calendar is posted on JayDocs. It is the student's responsibility to check this calendar for each day's learning activities. Students will be informed of any last-minute changes by e-mail (Outlook) and announcement (JayDocs). While most mornings are devoted to lectures, between 9:00 and 12:00, each student should have at least two afternoons each week that are free of formal learning activities.

### **TEXTBOOKS**

With few exceptions, texts used in this module are available electronically via AccessMedicine or ClinicalKey in the databases at Dykes Library website – <http://library.kumc.edu/database-list.xml>

**The following hard-copy texts listed below are required and may be purchased at the KU Medical Center Bookstore or elsewhere:**

- *Clinically Oriented Anatomy*, K. Moore, A Dalley, A.M.R. Agur 7th ed., Lippincott, Williams & Wilkins, 2014 (\$~85 hard or electronic copy; used or 5<sup>th</sup> or 6<sup>th</sup> editions are OK)
- *Langman's Medical Embryology*, T.W. Sadler, 12th ed, Lippincott, Williams & Wilkins, 2011 (\$~70 hard or electronic copy; used or 10<sup>th</sup> or 11<sup>th</sup> editions are OK )

- *Grant's Dissector*, 15<sup>th</sup> Ed. Patrick W. Tank, Lippincott, Williams & Wilkins, 2013 (\$~60)

**Atlases (just one is needed; personal preference):**

*Atlas of Human Anatomy*, F. Netter, 6th ed, Saunders Elsevier, 2014 (\$~70)

*Color Atlas of Anatomy*, Rohen, Yokochi, & Lütjen-Drecoll 7th ed., Lippincott, Williams & Wilkins, 2010 -photographs of cadavers (especially recommended for struggling students) (\$~82)

*Grant's Atlas of Anatomy*, A. Agur, A. F. Dalley 13th ed., Lippincott, Williams & Wilkins, 2012 - line-Drawings (\$~80)

*Anatomy, A regional Atlas of the Human Body*, Carmine D. Clemente, 6th ed. Lippincott, Williams & Wilkins, 2010 -drawings, photographs, and tables (\$~75)

*Atlas of Anatomy* A. M. Gilroy, B. R. MacPherson, L. M. Ross, 2<sup>nd</sup> ed; Thieme , 2012 (~\$80)

In January 2015, students are required to provide their own gloves and lab coats/scrubs while dissecting in the gross lab. You do not need to buy dissection equipment.

Other resources associated with learning activities include overviews (brief description of activity), Word documents, PowerPoint slides, Aperio system (digital slide images), articles from the basic science and clinical literature (pdf files), movies and animations, review sessions, study questions, and weekly practice exams.

**LEARNING ACTIVITIES**

A variety of learning activities (described below) will be made available to you throughout the module.

**LECTURES:** Traditional lectures will be the principal learning format in the curriculum.

**GROUP LEARNING ACTIVITIES:** These include small group case studies, problem-based learning (PBL) case sessions, and laboratories (clinical skills, anatomical dissection, and histopathology labs). Assignments to specific groups have been made, with this information being available on JayDocs. **You are assigned to the same groups as in the previous modules.**

**eLearning ASSIGNMENTS:** These consist of four Pharmacology Tutorials (topics listed below) and 12 Clinical Case studies (topics listed below).

The pharmacology tutorials are presented as assessments that can be found via the WebCAI link in JayDocs.

Documents (pdf) related to each clinical case are available in JayDocs (eLearning assignments). Each document presents the case description followed by a series of questions related to the case. Following the questions, the answer to each question with feedback is then provided. These case studies are designed to reinforce the clinical relevance of concepts covered in lecture.

**PHARMACOLOGY TUTORIALS (WebCAI link on JayDocs):**

1. Antiarrhythmic Drugs
2. Antihypertensive Drugs
3. Treatment of Coronary Vasculature Disease and Heart Failure
4. Drugs used to Treat Pulmonary Disorders

**CLINICAL CASE STUDIES (ELEARNING ASSIGNMENTS on JayDocs):** 1) Hyponatremia in an Infant, 2) Cardiac Electrophysiology in Hyperkalemia, 3) Cardiac Biomarkers of Myocardial Infarction, 4) Exercise is Medicine: Cardiovascular, 5) Acid-Base Case 1, 6) Acid-Base Case 2, 7) Adult Respiratory Distress Syndrome, 8) Lung Carcinoma, 9) Bronchial Asthma, 10) Introduction to Medical Imaging, and 11) Exercise is Medicine: Pulmonary.

Questions related to each of the tutorials and case studies will appear on the summative exams (1 through 4 above on the cardiovascular summative exams and 5 through 11 on the pulmonary summative exams).

**CLINICAL CORRELATION/PATIENT PANEL:** One clinical correlation is scheduled, during which time a clinician presents a patient(s) (and, perhaps, a family member as well) who shares her/his experiences with living with a chronic health problem that has been the focus of preceding group activities. **NOTE: PROFESSIONAL ATTIRE IS REQUIRED.**

## **CLINICAL SKILLS**

**CLINICAL SKILLS LAB:**

You will have Standardized Patient (SP) encounters in the clinical skills lab that are integrated into the modules and will sometimes correlate with PBL sessions. You are expected to dress as you would for patient care and will be evaluated on your performance and your attendance as well as participation in these encounters.

There are also scheduled Small Groups sessions during which you will be learning and practicing the clinical exam components that correlate with the modules. You will be evaluated on your attendance, your professionalism and your performance for these sessions. Skills Lab encounters are listed on the master calendar and all are required attendance.

For some clinical skills encounters, you will schedule your time for each event using the lab's LearningSpace software. You will receive information and instructions on how to use the software prior to your first SP event.

Many clinical skills activities have formative activities associated with them. These assignments will be sent out in an email after you have an encounter in the clinical skills lab. In order to receive points for the clinical skills activities, you must complete the assignment. If the assignment is late then you may not receive the total number of points for the clinical skills encounter. If you do not complete the assignment you will receive an incomplete in the module until you have completed the assignment.

If an emergency arises or you are ill and unable to attend a skills lab session, you will need to contact the following for an excused absence: Dr. Mark Meyer in Kansas City; Dr. Michael Robinson in Salina or Dr. Garold Minns in Wichita. They will then direct you to the appropriate person in the Skills Lab for rescheduling options.

### **PRECEPTOR VISITS:**

Clinical skills development is one of the most important tasks of medical school. Each visit to your community preceptor is an opportunity to practice what you are learning during lectures and in the clinical skills lab. It is also an opportunity to observe and learn how to be a medical professional. The goal of the preceptor visits is to provide general exposure to clinical skills in various settings. Preceptors represent a wide variety of disciplines that may not always directly address the content area specific to any given module. The visits, however, will still provide you with an opportunity to better understand clinical skills and professional practices.

You will be required to complete one visit per module. Each visit is worth 5 points. Preceptor visits must be completed by the last day of the module. Preceptor forms for each module are available in JayDocs. **Please take your device with access to the preceptor form to the visit and have your preceptor initial the form and print their name electronically.** Completed preceptor forms must be submitted electronically in JayDocs. If you are unable to complete the visit by the due date, you must contact the appropriate administrator on your campus in order to be considered for an excused absence. Administrator contacts:

Kansas City: Pam Shaw, MD, Medical Director of Neis Clinical Skills Lab  
Salina: Michael Robinson, PhD, Associate Director of Basic Sciences  
Wichita: Garold Minns, MD, Associate Dean for Academic and Student Affairs

The module director cannot provide you with an excused absence. If granted an excused absence, you will receive an "Incomplete" grade. Postponed visits must be completed by the end of the next module. If the visit is not completed by the end of the next module, you will receive 0 points. Upon completion of the visit, you will receive the full 5 points. If you fail to obtain an excused absence you will receive an "Incomplete" grade. You will still be required to complete the visit by the end of the next module but you will receive 0 points. You must complete the visit in order to receive a grade in the module.

**SIMULATION SESSIONS:** Two simulation sessions are scheduled during the module, with one during the cardiovascular section and one during the pulmonary section. Simulation sessions will be held on all three campuses. These sessions will use a computerized 'patient' situated in a hospital room to allow students to work in teams on a series of cases involving critical illness due to shock or respiratory disease. The cases will facilitate integration of several of the fundamental concepts of cardiovascular and respiratory physiology/pathology introduced during this module.

Student teams will have the opportunity to gain experience utilizing data from the physical exam, laboratory and radiology testing to create differential diagnoses for each case. The simulated environment will enable students to experiment with various therapies while discussing the underlying physiology and pharmacology with their basic science instructors. **Please bring your computer to the simulation sessions.**

## **SUPPLEMENTAL RESOURCES**

**PHARMACOLOGY REVIEW CHARTS AND FLASHCARDS:** PDF documents providing charts summarizing the properties of the drugs presented in the pharmacology tutorials are available on JayDocs. The charts will help you quickly look at all the information. In addition, there is a word document that provides instructions on how to upload and use the pharmacology flashcard software. To study the cards, you will use a program called Anki, which helps you study them in a structured way over a period of time. The strength of Anki comes with its review feature, which shows you cards again based on how well you knew it. After you answer each card, you will tell Anki if you thought the card was hard or easy, and it will show you the card again, either soon or in several days, based on your response. There are many ways to review your cards using Anki: you can use your computer, phone, or do it in browser anywhere. The review settings are very customizable, and there are even comprehensive statistics.

**PHYSIOLOGY PROBLEM SETS AND STUDY QUESTIONS (pdfs):** available in the **Supplemental Materials** on JayDocs.

A list of the topics covered in the problem sets and study questions is listed below.

Cardiovascular: 1) Body Fluids, 2) Cardiac Cycle, 3) Cardiac Output and Shunts, 4) Electrocardiography, 5) Hemodynamics, 6) Microcirculation, 7) Myocardial Performance, 8) Regional Circulations, 9) Shock, and 10) Cardiac Valve Dysfunction.

Respiration: 1) Acid-Base, 2) Blood Gas Transport, 3) Gas Exchange and Diffusion, 4) Mechanics of Ventilation, 5) Regulation of Respiration, and 6) Ventilation-Perfusion.

## **OPPORTUNITIES TO ASSESS YOUR KNOWLEDGE**

### **FORMATIVE QUIZZES:**

You can assess your grasp of concepts and content for each week's learning activities using the weekly **formative quiz**. The formative quiz will consist of 1-3 questions for each learning activity presented. It will be made available in JayDocs at noon on the last day of instruction that week. After completion, the quiz is scored and feedback on questions is provided. Multiple takes of the formative quiz are possible. The questions on the formative quiz are, for the most part, taken from previous summative exams, though some questions may not be typical of those used on summative exams. **Scores on the formative quizzes do not contribute to your final grade, they are for practice and personal assessment only.**

**OTHER WEEKLY ASSESSMENTS:** Additional quizzes designed to help you assess your understanding of each week's lecture, lab, and eLearning material are made available in JayDocs. These quizzes do not give formative feedback.

## **FORMAL ASSESSMENTS AND EXAMS**

### **HISTOPATHOLOGY LABORATORIES (PLEASE NOTE THE REVISED FORMAT):**

The University of Kansas, School of Medicine is a leader in virtual microscopy for the study of histopathology in undergraduate medical education. Students view virtual slides via the Aperio Digital Pathology software. Each laboratory integrates histology and pathology with a detailed protocol provided through the *JayDocs Learning Management System*. The protocol includes links to digital slides, a narrated overview of each virtual slide, and appropriate clinical cases. The difficulty and amount of pathology content in the cases increases as students advance; from the 4 basic tissues and the integumentary system in the Foundations module, to more complex organs and organ pathology in later modules. **Study Questions are derived from high-yield patient care/USMLE Step I topics.**

***The lab experience is focused on self-directed active learning, so each student should be prepared for laboratory and must be prepared with an atlas completed from the lab protocol before the live lab. The student atlas must include answers to the study questions, and insertion of appropriately labeled microscopic and macroscopic images. The atlases may be completed as a group or individual learning activity.***

The **key goals** of the histopathology laboratories are to:

- identify the key characteristics and related function of each tissue or organ
- differentiate normal from abnormal tissues
- identify key characteristics of common pathological conditions
- relate pathophysiology to the microanatomy/histopathology and where appropriate to the macroscopic pathology
- describe the pathognomonic features of the assigned slides and the related disease or syndrome
- describe the pathogenesis of the disease cases and possible treatments
- differentiate histology look-a-likes

#### **During each laboratory:**

- The instructor will ask the class for any issues or areas of concern with the videos or protocol that created difficulty or were unclear. The instructor will assure that those topics are covered.
- The instructor will then call on students to: use Aperio to identify structures; relate the structures to function; describe the pertinent cases; review the laboratory results and associated pathophysiology; and answer the study/review questions. Each student should be prepared for the major topics in each laboratory session.
- At 5 pm on the day of the laboratory, a 5 question quiz will open on ExamSoft. The quiz will remain open as a summative exam for 72 hours. The quiz will be timed and must be completed within 15 minutes from the start. The quiz will be worth 5 points and students will receive a grade of 0-5 points. After 72 hours, the quiz will be available as a formative activity

and will remain posted until the end of the Cardiovascular Pulmonary module. There will be **no** challenges on the quiz questions. The item analysis will be reviewed after each quiz and regrading will occur when appropriate as has occurred in previous modules.

- **All structures on the virtual slides that have been covered previously are possible quiz questions. A cumulative list of structures is provided at the end of each laboratory protocol.**

#### **Preparation for the summative exam:**

- Our Aperio imaging system provides an excellent tool to study histopathology and review the clinical cases and associated images before summative exams.
- Virtual slides in the protocol for each histopathology session are keyed to the normal atlas images from your textbook, *Histology: A Text and Atlas, by Ross & Pawlina (5<sup>th</sup> or 6<sup>th</sup> edition)*. Pathology is keyed to the E-textbook version of the 9th edition of *Robbins and Cotran: Pathologic Basis of Disease*.
- There will be histopathology questions on the summative exam. The summative exam questions are typically in the form of a clinical vignette and will incorporate lecture and lab content across the disciplines of pathology, histology and cell biology. They may use images similar, but not necessarily identical to those provided in lab and on the histopathology quizzes.

#### **Attendance:**

The histopathology laboratory small groups are an important part of your education as a physician. Attendance is mandatory; excused absences must be obtained from the appropriate student affairs official on each campus. In the case of an excused absence, a makeup assignment will be provided. In the case of an unexcused absence, a student will **not** earn points for the quiz.

**PULMONARY SMALL GROUP SESSION:** A small group session is scheduled during the pulmonary section of the module. Grading will be based on participation during discussion of the case as well as preparation of a work product at the end of the session by the students. The work product will be a series of questions to answer based on a vignette. Students will have the last 30 minutes of the 2 hr small group session to work together on the work product. The work product must be submitted to a dropbox on JayDocs within 30 minutes after the small group session ends.

#### **RADIOLOGICAL IMAGING SMALL GROUP SESSION:**

All modules that include gross anatomy will also have radiological small group sessions. The groups will meet for 50 minutes. The students will discuss several clinical cases in which radiological imaging plays a key role in disease diagnosis and patient management. The objective for the small group sessions is to help students gain a better appreciation for which imaging modalities are appropriate in the management of patients in common clinical scenarios, fundamental concepts of image interpretation, and review of pertinent anatomy.

The cases will be secured, not distributed before or after to the students. The radiologists will review the cases, highlighting how to interpret radiological images. After the 50-minute small group session, each student will have 10 minutes to answer 2 multiple-choice questions on-line (web based quiz) before 6 pm that same day as the small group.

Each student will receive 1 point for each of two multiple-choice on-line questions they answer correctly, thus for a total of 2 points.

**WEEKLY TAKE HOME QUIZZES:** A quiz over the material from each week of the module will be emailed to the students between 5 and 6 pm on each Monday, along with an answer sheet to return to a dropbox in JayDocs by 5 pm on the Monday of the following week (on Tuesday, January 20 in observance of the Martin Luther King Holiday). The goal of these quizzes is to help students learn the concepts and you are encouraged to discuss the questions with fellow students as well as to use powerpoints and other resources as you work on the questions. Each quiz is worth 1.5 points towards the total points in the module. You will receive the full grade for each quiz if your score is 71.5% or higher. Answers to the quiz with explanations of questions will be sent out to the class after each quiz is completed.

**HUMAN ANATOMY PROJECT:** One point of your grade may be received for producing a project that enhances your medical education. With no exceptions, this project is due by 5:00 pm on Monday, January 26, 2015. The project can be submitted via a dropbox in JayDocs (preferred method) or by e-mail to Dr. George Enders (Genders@kumc.edu). For the Cardiopulmonary Module, all students need to write a letter of appreciation to “The Families of Donors to the Willed Body Program”. Two or three of these student letters will be selected to be read at next year’s Willed Body Tribute Ceremony put on by the Class of 2018. Please wait to write this letter until after your first experience with human dissection.

**CARDIOVASCULAR WRITING ASSIGNMENT:** Identify an area where there is a gap in your knowledge regarding the concepts presented in the cardiovascular material. Based on this area, write a vignette-based exam question with 5 answer choices, as well as explanations of the correct answers and also why answers are incorrect. The vignette should include sufficient information to allow someone to predict possible correct answers. The following link is to a brief tutorial by the NBME on writing vignette-based questions: <http://download.usmle.org/IWTutorial/intro.htm>. Half of the grade will be based on the quality of the vignette and question, and half on the quality of the explanations of answer choices. The cardiovascular vignette question should be submitted to a dropbox on JayDocs by 5 pm on Friday, December 19, 2014.

The file for your vignette question should be named as follows:  
Your\_Last\_Name\_First\_Name\_CV\_Vignette. Your vignette question will be returned to you with a grade and with narrative feedback. If you did not receive full credit, you have the option to revise the vignette question based on the feedback and resubmit it to a dropbox by 5 pm on Friday, January 9, 2015 for regrading.

**EVIDENCE-BASED MEDICINE INDEPENDENT GROUP ACTIVITY (IGA) WORK PRODUCT:** The Evidence-based Medicine (EBM) independent group activity (IGA) is team-based and involves the critical review of a published key randomized control study and the contextualization of its findings within the scope of patient management. To demonstrate comprehension, each small group will complete and submit a work product addressing a series of questions. This will require the application of epidemiology principles previously introduced in Foundations of Medicine. The assignment will be released at noon on Friday, December 19. The deadline for submission to a JayDocs drop box is Monday, January 12, 2015 at 5 pm. Each work product will be graded by the

responsible faculty member and awarded a maximum of **10 points** based on timely submission and standardized grading criteria indicated on the worksheet.

**CASE PRESENTATION:** Each small group should identify a gap in their knowledge regarding the material presented in the pulmonary section of the module. The small group will prepare a case presentation to be presented to the entire class. A powerpoint template will be sent to the class before the pulmonary section begins. The goal is to present a case history along with a multiple choice question based on this case. The class will use webclickers to answer the question and then explanations to the question should be shown. The question can be related to pathophysiology, treatment, diagnosis, or any concept that you feel is important to the pulmonary section. Faculty will be present to give feedback and to assess the clinical relevance and quality of the case. More than one person in the small group can participate in presenting the case. The presentations should be brief (about 6 or 7 minutes) as there will be 25 presentations from all small groups during the mornings of Thursday, January 22, 2015 and Friday, January 23, 2015. The powerpoint presentation from each small group should be submitted to a dropbox on JayDocs by 5 pm on Wednesday, January 21, 2015. Please name the powerpoint file as follows: Small\_Group\_#XX\_Pulmonary\_Case where XX represents your small group number.

**SUMMATIVE EXAMS AND ANATOMY LAB PRACTICAL:** Concepts and content in this module are assessed formally by summative examination (multiple choice and anatomy lab practical). The first summative is in week 4 and will cover cardiovascular topics covered in weeks 1-3. The second exam in week 8 will cover topics covered in weeks 5-7. Each summative examination will consist of 100 multiple-choice questions, each question having a point value of 2 when answered correctly. These examinations will adhere, as closely as possible, to the current USMLE format. Questions will reflect the objectives, concepts, and content of the learning activities presented prior to the summative examination. Questions may also be written in a manner to integrate objectives, concepts, and content from multiple learning activities. The anatomy lab practical exam will be administered in the dissection labs on Thursday of week 8. The anatomy lab exam is worth 60 points. A practice practical exam will be given on Monday of week 8.

### **SPECIAL CONSIDERATIONS**

**CHALLENGES OF TEST QUESTIONS:** Concerns about individual summative examination questions must be raised during the time in the examination room and submitted on the form provided and then delivered to the room proctor. Challenges received after the conclusion of the examination will not be accepted. Question validation will be evaluated following each summative examination by the module in consultation with the question's author if necessary. Defective questions may be deleted or adjusted to permit alternative answers. Grades will be adjusted accordingly.

### **MAKE-UP OF SUMMATIVE EXAMINATION:**

A student who is unable to any reason to sit for one of the summative examinations must contact the appropriate administrator on their campus:

Kansas City: Mark Meyer, MD, Associate Dean for Student Affairs  
Salina: Dr. Michael Robinson, PhD, Associate Director for Basic Sciences  
Wichita: Dr. Garold Minns, MD, Associate Dean for Academic and Student Affairs

That office will determine whether the absence is excused or unexcused. If the absence is excused, arrangements for the make-up examinations will be coordinated among the student, module director and, if necessary, the testing center. The make-up may take the form of multiple-choice, essay, or oral examination. Summative examinations not made up or for which there is an unexcused absence will be recorded as a score of 0 (zero) in the compilation of points earned by the student.

**MAKE-UP OF GROUP LEARNING ACTIVITY:** A student who is unable to any reason to attend and participate in a group learning activity must contact the appropriate administrator on their campus:

Kansas City: Mark Meyer, MD, Associate Dean for Student Affairs  
Salina: Dr. Michael Robinson, PhD, Associate Director for Basic Sciences  
Wichita: Dr. Garold Minns, MD, Associate Dean for Academic and Student Affairs

That office will determine whether the absence is excused or unexcused. If the absence is excused, arrangements for the make-up examinations will be coordinated among the student, module director and, if necessary, the testing center. The make-up may take the form of multiple-choice, essay, or oral examination. Summative examinations not made up or for which there is an unexcused absence will be recorded as a score of 0 (zero) in the compilation of points earned by the student.

**SPECIAL ACCOMMODATION SERVICES:**

It is the policy of KUMC to accommodate students with disabilities, pursuant to federal and state law. Any student with a disability who needs an accommodation, for example in arrangements for exams, note taking, or access to events should contact, Cyn L. Ukoko @ [cukoko@kumc.edu](mailto:cukoko@kumc.edu), in the Academic Accommodations Services Office (1020C Student Center), 913-945-7035, as soon as possible to better ensure that such accommodations can be implemented in a timely fashion. Online appointments may also be made at <https://medconsult.kumc.edu>. For online information about academic accommodations, please go to [www.kumc.edu/accommodations](http://www.kumc.edu/accommodations).

All requests for accommodations are coordinated through the Equal Opportunity Office and the Office of Student Affairs. A student should first contact the Equal Opportunity Office at (913) 588-1206) with the request. That office will certify when the student qualifies for an accommodation.

**UNSATISFACTORY PERFORMANCE AND RETAKE:** A student who receives an Unsatisfactory grade in this module may be given the opportunity to retake the module in the summer following the module. The student is required to pass at the satisfactory or better level. The summer module will consist of directed, independent review of the course content as well as limited anatomical dissections. Weekly meetings with selected faculty are required. Following the review of the course material and anatomical dissections, the student will sit for a 100-question summative examination as well as an anatomy lab practical. Retakes of the summative exam and lab practical **will not** be provided.

## **MODULE AND FACULTY EVALUATIONS**

At the end of the module, you will receive by e-mail a module and a faculty evaluation. As a participant in these learning activities, it is your professional responsibility to complete these evaluations. Your constructive feedback is valuable, as it helps us to continually improve the experience(s) we offer our students. These evaluations are conducted by the Office of Medical Education (OME) and are independent of the module leaders. Your responses are completely anonymous. Evaluation results are reported to those responsible for making changes to the curriculum (i.e., module leader and curriculum oversight committees). It is important that professional standards of communication are used in your written comments. If a module or presenter has been especially effective in encouraging your learning, please describe what specific elements were helpful in your learning. Likewise, if a module or presenter has not been effective in facilitating your learning then it is important to outline the reasons that the module (or faculty member) was not effective in helping you learn the assigned material. The essence of good feedback is providing information that a person can use to make improvements in a specific domain while being supportive and non-judgmental.

- Be clear, specific, and focus on behaviors that can be changed and are under the recipient's control.
- Try to balance positive observations with areas that need improvement.
- Don't overwhelm the recipient: one or two well-crafted observations are better than a long list of generalities.

## **FINAL GRADE CRITERIA**

Grades are awarded in one of four categories: Superior, High Satisfactory, Satisfactory, or Unsatisfactory. Grades are based on the percent of total possible points earned by the student.

**In order to pass the module, students must achieve a minimum of 71.50 percent of all available summative exams points (this is equivalent to a total of at least 329 points earned on the two summative exams and anatomy lab final exam) and earn a total of 71.50 percent of all available points in the module.**

Summative exam points include points from module exams administered (mid-term exams and final exams). Non-summative exam points (points from small groups, histopathology labs, preceptor visits, PBLs, etc.) will contribute towards the module grade only if the student has achieved the minimum 71.50 percent of summative exam points. For example, if a student earns 71.499% or below on the summative exams, their grade will be Unsatisfactory for the module and non-summative exam points will not contribute to their module grade. If a student earns 71.50% or above on the summative exams, then their module grade will be based on both the summative exam and non-summative exam points. The percent is rounded to the nearest integral value, with >0.50 rounded up and <0.49 rounded down. The grading scheme shown in the following table is used by all modules (except for the point totals).

<b>Grade</b>	<b>Performance Range (%)</b>	<b>Performance Range (points)</b>
Superior (SUP)	89.50 and up to 100	478 - 533
High Satisfactory (HS)	79.50 - 89.499	424 - 477
Satisfactory (SAT)	71.50 - 79.499	382 - 423
Unsatisfactory (UN)	≤ 71.499	≤ 381

**POINT DISTRIBUTION FOR FINAL GRADE**

The total points considered for passing the module is 533. The distribution of points among graded activities is summarized in the table.

<b>Learning Activity</b>	<b>Assessment Criteria</b>	<b>Events</b>	<b>Point/event</b>	<b>Activity Points</b>	<b>% of Total</b>
Pulmonary small group session	preparation, participation, and professionalism, scored by faculty; preparation of work product scored by faculty	1	5	5	0.938
Radiological small group session	performance on quiz	1	2	2	0.375
Problem-based learning case session	preparation, participation, and professionalism, scored by faculty	2	2	4	0.750
Clinical Skills laboratory and Simulation sessions	competency and professionalism on medical interview, vital signs, scored by faculty; attendance and participation at simulation sessions scored by faculty	4	2	8	1.50
Clinical Skills CV assessment	assessment of CV exam by a faculty member	1	5	5	0.938
Anatomy dissection labs	preparation, participation, and professionalism, scored by faculty	1	2	2	0.375
Anatomy dissection team teaching	preparation, participation, and professionalism, scored by faculty	1	1	1	0.188
Anatomy Project	preparation, participation, and professionalism, scored by faculty	1	1	1	0.188
Histopathology quiz	performance on quiz	2	5	10	1.88
Preceptor logs	preparation, participation, and professionalism, scored by preceptor	1	5	5	0.938
Evidence-Based Medicine IGA Activity for Small Groups	evaluation of a work product addressing a series of questions by faculty member	1	10	10	1.88
CV writing assignment	vignette-based questions scored by faculty	1	5	5	0.938
Weekly quiz	knowledge based on material presented each week	6	1.5	9	1.69
Pulmonary case presentation by small groups	preparation of clinical case, presentation and multiple choice question: assessed by faculty	1	6	6	1.12

Anatomy Lab exam	knowledge based on lab practical	1	60	60	11.26
Summative exam 1	knowledge based on 100 multiple choice questions	1	200	200	37.52
Summative exam 2	knowledge based on 100 multiple choice questions	1	200	200	37.52
Total Points				533	100.00
Total Exam Points				460	86.30
Total Other Points				73	13.70