

**The University of Texas at Tyler  
School of Nursing**

**RNBS 3303.060  
Pathophysiology of Acute Care  
Spring 2019**

**Internet Course**

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Office Hours: By appointment as needed

The content of this syllabus and course WEB site is subject to change at the discretion of the faculty leaders according to current learning needs.

### **SEMESTER CREDIT HOURS**

Three (3) hours didactic

### **PREREQUISITES**

Admission to the RN-BSN Track. Special permission is required from the UTT School of Nursing to take courses out of sequence. Co-requisite RNBS 3415, RNBS 3312.

Successful completion of Anatomy and Physiology 1 & 2, Microbiology, and Chemistry

### **COURSE DESCRIPTION**

RNBS 3303 is a 7 week on- line course that focuses on the etiologic, symptomatologic, and pathologic aspects of selected human diseases across the life span. Concepts of health promotion, disease prevention, disease progression, and treatment are approached from a cellular and multi-system perspective. Influences of genetic, ethnic, and cultural variables on human diseases is analyzed. Content aims at stimulating critical thinking for application to nursing practice.

### **COURSE OBJECTIVES**

Upon successful completion of the course, students will have demonstrated the ability to:

1. Integrate knowledge and concepts from anatomy and physiology, microbiology, and basic physiology into the study of pathophysiology of human diseases.
2. Understand the pathologic origins of selected diseases at the cellular and systemic level
3. Demonstrate an understanding of compensatory mechanisms in response to alterations in physiology.
4. Synthesize evidence based, disease specific research findings and pathophysiology concepts to nursing practice
5. Demonstrates an understanding of the impact of genetics and environmental risk factors on health promotion, disease development, progression and treatment.
6. Correlate diagnostic test results to objective and subjective disease symptoms

### **REQUIRED TEXT and MATERIALS**

The following are required for this course:

**Syllabus:** NURS 3303: Pathophysiology of Acute Care - located in the canvas course site

**Course Schedule:** The official course schedule is located in the canvas site in the Start Here module. Students are required to follow the due dates and course content as outlined in the course schedule.

### **REQUIRED TEXTBOOK:**

Hubert, R, (2018) Gould's Pathophysiology for the Health Professions (5<sup>th</sup> ed.). Elsevier Saunders. ISBN 9781455754113. Text available from the UT Tyler Bookstore or Elsevier <https://evolve.elsevier.com/cs/>

Course Schedule:

Official course schedule is available in the canvas course – note that the following schedule is subject to change prior to the start of the course.

## NURS 3303.060 RNBS Pathophysiology Spring 2019

**EXAMS and Quizzes – open on Tuesday 0800 and close the following Tuesday at 1700**

| Week # | Week of (Monday) | Module/Title  | Chapters    | Quizzes/ Exams/Assignment<br>DUE Dates  |
|--------|------------------|---|-------------|---|
| 1      | 3/18             | <b>Module 1:</b><br>Introduction to Pathophysiology – Cellular Adaptation<br>Complications of Aging<br><br><b>Module 2:</b><br>Fluid and Electrolytes<br>Acid Base Imbalances | 1, 2, 24    | Complete Student Forms quiz in Start Here module.<br><br>Complete interactive activity Module 1<br><b>Quiz 1</b> - due 3/26 @ 1700 - Module 1 and 2<br><br>Complete interactive activity Module 1 & 2 |
| 2      | 3/25             | <b>Module 3:</b><br>Inflammation and Healing, Infection<br><br><b>Module 4:</b><br>Immune System<br>Congenital and Genetic Disorders  | 5, 6, 7, 21 | <b>Quiz 2</b> – due 4/2@ 1700 – Module 3 & 4<br><br>Complete interactive activity Module 3 & 4  |
| 3      | 4/1              | <b>Module 5:</b><br>Neoplasms and Cancer<br>Blood and Circulatory System Disorders<br><br><b>Module 6:</b><br>Renal and Urinary System Disorders                              | 20,10, 18   | <u><b>EXAM 1 – opens 4/2 – closes 4/9 at 1700</b></u><br><br>Complete interactive activity Module 5 & 6   |
| 4      | 4/8              | <b>Module 7:</b><br>Lymphatic System<br>Cardiovascular Disorders<br><br><b>Module 8:</b><br>Musculoskeletal Disorders   | 11, 12, 9   | <b>Quiz 3</b> – due 4/16 @ 1700 – Module 5, 6, 7 & 8<br><br>Complete interactive activity Module 7 & 8  |
| 5      | 4/15             | <b>Module 9:</b><br>Nervous System Disorders<br>Pain<br><br><b>Module 10:</b><br>Endocrine  | 14, 16, 4   | <u><b>EXAM 2 – opens 4/16 – closes 4/23 @ 1700</b></u><br>Complete interactive activities Module 9  |
| 6      | 4/22             | <b>Module 11:</b><br>Respiratory Disorders  | 13, 17      | <b>Quiz 4</b> – due 4/23 @ 1700 – Modules 9,10,11,12<br>Complete interactive activities Module 12   |

|   |      |  |  |  |
|---|------|--|--|--|
|   |      | <b>Module 12:</b> Digestive System Disorders |  |  |
| 7 | 4/29 |  |  | <b>Exam 3 – Opens 4/23 – CLOSES 5/2<br/>(note shorter timeframe for this exam)</b> |

**Important Dates:**

March 22 – Census Date

April 18 – LAST Day to withdraw from class with a “W” on your transcript

**Quizzes - open in CANVAS on TUESDAY at 0800, close the following TUESDAY at 1700**

**EXAMS: open in Examplify at 0800 on TUESDAY, close the following TUESDAY at 1700 with exception of exam 3**

**Exam Content:**

Exam 1 – Cell biology, cellular adaptaton, aging, fluid and electrolytes, acid –base, inflammation, healing, infection, immune and genetics (Modules 1, 2, 3 and 4)

Exam 2 – Neoplasms, blood and lymph, renal, cardiovascular, musculoskeletal (Modules 5,6,7, 8)

Exam 3 – Nervous system, pain, endocrine, respiratory and digestive (Modules 9,10,11,12)

**Computer Requirements:**

Access to a current, working computer or laptop with internet access using Firefox or Chrome browser is required for this internet based course. The canvas learning system works best using Firefox or Chrome browsers. Exams are taken in a separate program Examsoft Examplify and must be taken using a laptop or PC. **Examsoft will not work with Chrombook, cell phones or iPads.** *It is essential to have access to a reliable PC/laptop and internet access for this course. Students are required to download the Examplify exam program on a PC or laptop and use the same device for all exams.*

**Internet Instructions:**

Course modules are on line in Canvas (see course calendar). UT Tyler online canvas courses use Java, JavaScript, browser plug-ins, helper application and cookies. Canvas works best using Chrome or Firefox browser. It is essential that you have these elements installed and enabled in your web browser for optimal viewing of the content and functions of your online course content. Lecture videos are optimally viewed in high definition.

- **Adobe Reader** allows you to view, save, and print Portable Document Format (PDF) files. <http://get.adobe.com/reader/>
- **Java Runtime Environment (JRE)** allows you to use interactive tools on the web. <http://www.java.com/en/download/>
- **Adobe Flash Player** allows you to view content created with Flash such as interactive web applications and animations. <http://get.adobe.com/flashplayer/>
- **QuickTime** allows users to play back audio and video files. <http://www.apple.com/quicktime/download/>

**Examsoft (Examplify)** – the following anti-virus programs cannot be used with this program during exams: Kaspersky, Symantec/Norton, AVG, McAfee, Avast, Webroot. If the PC has these programs running, you must disable them before taking an exam. Instructions and additional information is located in the canvas course.

## **General Policies**

These policies apply to all students of the university. Students should access and review these policies at: <http://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf>

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

## ***Student Accessibility and Resources***

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079. **Students should inquire about accommodations before the first exam.**

## ***UT Tyler Honor Code***

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

## ***Campus Carry***

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

## ***UT Tyler a Tobacco-Free University***

All forms of tobacco **will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler.** This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit [www.uttyler.edu/tobacco-free](http://www.uttyler.edu/tobacco-free).

## ***Grade Replacement/Forgiveness and Census Date Policies***

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) **on or before the Census Date of the semester in which the course will be repeated.** **Spring 2019 census date is April 18, 2019.** Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler;

graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

### ***State-Mandated Course Drop Policy***

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

### ***Student Absence due to Religious Observance***

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

### ***Student Absence for University-Sponsored Events and Activities***

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

### ***Social Security and FERPA Statement***

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

### ***Emergency Exits and Evacuation***

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

### ***Student Standards of Academic Conduct***

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an

examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

"Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

"Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty. All written work that is submitted will be subject to review by Turnitin in Canvas.

UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), [writingcenter@uttyler.edu](mailto:writingcenter@uttyler.edu)
- UT Tyler Tutoring Center (903.565.5964), [tutoring@uttyler.edu](mailto:tutoring@uttyler.edu)
- UT Counseling Center (903-566-7254)

## **ACADEMIC INTEGRITY**

1. Students are expected to assume full responsibility for the content and integrity of all academic work submitted as assignments and examinations.
2. Students are advised to review the Scholastic Conduct and Discipline Policy in the current CON [Guide for Baccalaureate Students](#) and [UT Tyler Student Conduct and](#)

Discipline Policy. These policies are fully endorsed and enforced by all faculty members within the School of Nursing.

3. Plagiarism, cheating and collusion are unacceptable and if found violating any of these standards the student will be disciplined accordingly (see *Guide for Baccalaureate Students* for definitions).
4. The CON has the right to dismiss students from the program for any infraction of a legal, moral, social, or safety nature, pursuant to the procedures detailed in the *Regent's Rules*

### **Repeating a Course**

Students repeating a course may not use previously submitted assignments in the current course or previous courses nor utilize the same patients for an assignment. Submitting the same or slightly modified assignments from previous semesters is considered self-plagiarism and is subject to academic discipline, including failing the assignment or the course.

### **UT Tyler Judicial Affairs and Scholastic Dishonesty**

UT Tyler Honor Code: I embrace honor and integrity. Therefore, I choose not to lie, cheat, or steal, nor to accept the actions of those who do.

It is the student's responsibility to abide by and be aware of The University of Texas at Tyler's academic dishonesty policies:

<http://www.uttyler.edu/judicialaffairs/scholasticdishonesty.php>

### **Student Affirmation, Social Media Policy—Documentation of Compliance**

All students are required to read and sign the Student Affirmation, Audio-Video Recording Agreement, and Social Media Policy and complete the Student Forms quiz located in the Start Here module in canvas. Completion of the quiz questions indicates the student has read and understands UTT policy and procedure. Failure to complete the Student Forms quiz will result in an "Incomplete" grade for the course.

### **GRADING POLICY-**

Completion of RNBS 3303 is based on satisfactory attainment of all course criteria. Any student failing to meet the course objectives and expectations must repeat the course in order to complete the UT Tyler RN to BSN track.

#### **Grading Policy:**

1. **Final grades are calculated as a weighted score for exams, interactive activities and quizzes. A grade of 75% (a letter grade of C) or higher is required to pass the course. Grades below 75 are not rounded (74.5 -74.9 is not rounded to 75).**
2. The weighted values of course work are as follows:

#### Grade Calculation

|                                 |     |
|---------------------------------|-----|
| 3 Exams—28% each                | 85% |
| Interactive Learning Activities | 5%  |
| Graded Quizzes                  | 10% |

Letter grades are assigned according to the following scale:

|   |        |
|---|--------|
| A | 90-100 |
| B | 80-89  |
| C | 75-79  |
| D | 60-74  |

F 59 and below  
(Approved Faculty Organization: Fall 1999, implemented Spring 2000)

3. Interactive Learning - This grade represents the percent of completion of the interactive activities developed for each course module. .
4. Weekly on-line quizzes are taken in canvas as indicated on the course schedule. Each quiz will be worth 100 points. Quizzes will open and close in accordance with the course schedule (see course schedule). Failure to complete the quiz within this time frame will result in 0 points for that quiz. It is recommended that the student take the quizzes on a laptop or PC to avoid technical difficulties in canvas. The UTT IT department recommends using Firefox or Chrome for Canvas applications. *Class notes and textbooks may be used for the weekly on-line quizzes.*
5. Evidence of plagiarism on any submitted assignment may result in failure of the course and/or removal from the nursing program. See Scholastic Conduct and Discipline Policy in the current School of Nursing (CON) [Guide for Baccalaureate Students, pp. 44-46.](#)
6. PENALTY FOR LATE WORK -A deduction of 5 points per day will be taken off assignments that are submitted after the deadline.

### **EXAMINATION and EXAMINATION REVIEW POLICY**

1. **Exams will be administered online** through ExamSoft (testing software). Students are required to download ExamSoft onto a **reliable PC, laptop prior to the day of the first exam.** **Firefox or Chrome browsers are required** for the use of ExamSoft. Instructions for downloading the program is located in the Start Here module. Students may take exams on the UT Campus in the designated computer labs including the computer lab located in the Braithwaite Nursing Building.
2. **Exams must be taken within the announced timeframe.** Make-up time for an exam will be given at the discretion of faculty. If a student cannot complete an exam during the scheduled timeframe, the student must notify faculty in advance with an acceptable reason. **Failure to notify faculty of the need to take an exam on an alternate date or time will result in a grade of 0 for that exam.**
3. Exam blueprints will be posted to Canvas one week prior to the exam.
4. Students will be able to review the questions missed and correct answer rationale immediately after the exam is completed in Examplify. Exam reviews may be scheduled with faculty during office hours within 10 school days from the return of exam grades if needed.

### **EXPECTATIONS OF STUDENTS IN RNBS 3303**

1. Students are responsible for all course assignments and content, including announcements posted in Canvas learning management system.
2. Weekly module content, including video lectures and interactive learning material are posted in Canvas by module. Students are responsible for viewing the lecture video and any other required videos then completing the Check for Understanding activities including the quiz. Completion of ALL components of the interactive learning activities results in a percentage of completion grade in the grade center. Completion of the course work for each module is recommended for successful completion of the course.
3. Late assignments will only be accepted at the discretion of faculty:  
There will be a 5 point penalty for assignments submitted after the due time unless special permission obtained from faculty.  
There will be a 10 point penalty each day for assignments submitted after the due date unless special permission obtained from faculty.

4. All submitted written material (papers, assignments, examinations, etc.) are the property of the School of Nursing.
5. Communication with faculty will be via canvas, phone, scheduled Zoom meetings, UTT Patriot email or scheduled appointment. Students are required to use their student Patriot or Canvas email accounts for all correspondence. Email communication should include NURS 3303 RNBS in the subject line. Students are expected to check their university email at least every two business days. Faculty will respond to email correspondence within two business days.

**MODULE OBJECTIVES:**

Due dates – follow the course schedule

**Introduction to Pathophysiology: Cell Biology Review**

| Module 1 Objectives  | Outline  | Preparation and Evaluation   |
|--|--|--|
| <ol style="list-style-type: none"> <li>1. Describe the cellular components and the functions of each.</li> <li>2. Discuss the functions of the cell membrane.</li> <li>3. Explain how cells communicate.</li> <li>4. Explain how tissues are formed.</li> <li>5. Identify types of tissue and state examples of each.</li> </ol> | <ol style="list-style-type: none"> <li>1. Cell function                             <ol style="list-style-type: none"> <li>a. all cells</li> <li>b. specialized</li> </ol> </li> <li>2. Cell Components                             <ol style="list-style-type: none"> <li>a. structures</li> <li>b. functions</li> </ol> </li> <li>3. Cell Membrane                             <ol style="list-style-type: none"> <li>a. control</li> <li>b. communication</li> <li>c. conductivity</li> </ol> </li> <li>4. Tissues and Organs                             <ol style="list-style-type: none"> <li>a. epithelial</li> <li>b. connective</li> <li>c. muscular</li> <li>d. nerve</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Chapter 1</p> <p><b>Evaluation:</b><br/>Exam 1 and Quiz 1</p> |

**Cellular Adaptation**

| Module 1 Objectives   | Outline   | Preparation and Evaluation  |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Describe common cellular adaptations and possible reasons for the occurrence of each.</li> <li>2. Identify precancerous cellular changes.</li> <li>3. List the common causes of cell damage</li> <li>4. Describe the common types of cell necrosis and possible outcomes</li> <li>5. Differentiate between apoptosis and necrosis.</li> </ol> | <ol style="list-style-type: none"> <li>1. Cell Adaptation                             <ol style="list-style-type: none"> <li>a. healthy</li> <li>b. pathologic</li> </ol> </li> <li>2. Cell Damage Mechanisms                             <ol style="list-style-type: none"> <li>a. hypoxia</li> <li>b. free radicals</li> <li>c. physical injury</li> </ol> </li> <li>3. Necrosis                             <ol style="list-style-type: none"> <li>a. liquification</li> <li>b. coagulative</li> <li>c. caseous</li> <li>d. infarction</li> <li>e. gangrene</li> </ol> </li> <li>4. Apoptosis and aging</li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Chapter 1 and 24</p> <p><b>Evaluation:</b><br/>Exam 1 and Quiz 1</p> |

**Fluid Movement**

| Module 2 Objectives  | Outline   | Preparation and Evaluation   |
|--|---|--|
| <ol style="list-style-type: none"> <li>1. Explain the movement of water between body compartments.</li> <li>2. Describe the mechanism of edema.</li> <li>3. Discuss the causes and effects of dehydration</li> </ol> | <ol style="list-style-type: none"> <li>1. Body Water               <ol style="list-style-type: none"> <li>a. compartments</li> <li>b. movement                   <ol style="list-style-type: none"> <li>1. mechanisms</li> <li>2. controls</li> </ol> </li> <li>c. Edema                   <ol style="list-style-type: none"> <li>1. mechanism</li> <li>2. consequences</li> </ol> </li> <li>d. Dehydration                   <ol style="list-style-type: none"> <li>1. mechanism</li> <li>2. consequences</li> </ol> </li> </ol> </li> </ol> | <b>READ:</b><br>Hubert (2018), Chapter 2<br><br>Evaluation:<br>Exam 1 and Quiz 1 |

### Electrolyte and Acid Base Balance

| Module 2 Objectives  | Outline  | Preparation and Evaluation   |
|--|--|--|
| <ol style="list-style-type: none"> <li>1. Explain the movement of water between body compartments.</li> <li>2. Describe the mechanism of edema.</li> <li>3. Discuss the causes and effects of dehydration</li> <li>4. Compare and contrast the causes, signs and symptoms of hyponatremia and hypernatremia.</li> <li>5. Compare and contrast the causes, signs and symptoms of hypokalemia and hyperkalemia.</li> <li>6. Compare and contrast the causes, signs and symptoms of hypocalcemia and hypercalcemia.</li> <li>7. Describe the relationship of phosphorus to calcium.</li> <li>8. Describe the compensatory mechanism of acid-base homeostasis.</li> <li>9. Explain the effects of the primary types of alterations of acid-base balance on body function.</li> </ol> | <ol style="list-style-type: none"> <li>1. Body Water               <ol style="list-style-type: none"> <li>a. compartments</li> <li>b. movement                   <ol style="list-style-type: none"> <li>1. mechanisms</li> <li>2. controls</li> </ol> </li> <li>c. Edema                   <ol style="list-style-type: none"> <li>1. mechanism</li> <li>2. consequences</li> </ol> </li> <li>d. Dehydration                   <ol style="list-style-type: none"> <li>1. mechanism</li> <li>2. consequences</li> </ol> </li> </ol> </li> <li>2. Electrolytes               <ol style="list-style-type: none"> <li>a. Sodium                   <ol style="list-style-type: none"> <li>1. function</li> <li>2. hyponatremia</li> <li>3. hypernatremia</li> </ol> </li> <li>b. Potassium                   <ol style="list-style-type: none"> <li>1. function</li> <li>2. hypokalemia</li> <li>3. hyperkalemia</li> </ol> </li> <li>c. Calcium                   <ol style="list-style-type: none"> <li>1. function</li> <li>2. hypocalcemia</li> <li>3. hypercalcemia</li> </ol> </li> <li>d. Phosphorus                   <ol style="list-style-type: none"> <li>1. function</li> <li>2. relationship with calcium</li> </ol> </li> </ol> </li> <li>3. Acid- Base Balance               <ol style="list-style-type: none"> <li>a. compensatory mechanisms</li> <li>b. acidosis                   <ol style="list-style-type: none"> <li>1. respiratory</li> <li>2. metabolic</li> </ol> </li> <li>c. alkalosis                   <ol style="list-style-type: none"> <li>1. respiratory</li> <li>2. metabolic</li> </ol> </li> <li>d. compensation</li> </ol> </li> </ol> | <b>READ:</b><br>Hubert (2018), Chapter 2<br><br>Evaluation:<br>Exam 1 and Quiz 1 |

**Inflammation, Healing and Infection**

| Module 3 Objectives   | Outline  | Preparation and Evaluation   |
|---|--|--|
| <ol style="list-style-type: none"> <li>1. Explain the role of normal defenses in preventing disease.</li> <li>2. Describe the chemical and cellular responses to injury.</li> <li>3. Discuss normal capillary exchange and this exchange during the inflammatory response.</li> <li>4. Describe the local and systemic effects of inflammation.</li> <li>5. Describe the types of healing and complications of each.</li> </ol> | <ol style="list-style-type: none"> <li>1. Normal Defenses</li> <li>2. Inflammatory Process               <ol style="list-style-type: none"> <li>a. Chemical mediators</li> <li>b. Cellular responses</li> <li>c. Capillary responses</li> <li>d. Signs and Symptoms                   <ol style="list-style-type: none"> <li>1. local</li> <li>2. systemic</li> </ol> </li> </ol> </li> <li>3. Healing               <ol style="list-style-type: none"> <li>a. Types</li> <li>b. Process</li> <li>c. Scar tissue                   <ol style="list-style-type: none"> <li>1. function</li> <li>2. complications</li> </ol> </li> </ol> </li> <li>4. Infection</li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Chapter 5, 6</p> <p>Evaluation:<br/>Exam 1 and Quiz 2</p> |

**Congenital and Genetic Disorders**

| Module 4 Objectives   | Outline  | Preparation and Evaluation   |
|---|--|--|
| <ol style="list-style-type: none"> <li>1. Describe the interrelationships of DNA, RNA and proteins.</li> <li>2. Discuss prediction of inheritance.</li> <li>3. Describe and cite examples of chromosomal disorders.</li> <li>4. Describe and cite examples of single-gene disorders.</li> <li>5. Discuss the Human Genome Project and possible impacts on health care.</li> </ol> | <ol style="list-style-type: none"> <li>1) Genetic Building Blocks           <ol style="list-style-type: none"> <li>a) DNA</li> <li>b) Chromosomes</li> <li>c) Genes</li> </ol> </li> <li>2) Principles of predication           <ol style="list-style-type: none"> <li>a) Autosomal dominant</li> <li>b) Autosomal recessive</li> <li>c) X- linked</li> </ol> </li> <li>3) Chromosomal abnormality           <ol style="list-style-type: none"> <li>a) Downs syndrome</li> </ol> </li> <li>4) Gene abnormality           <ol style="list-style-type: none"> <li>a) Duchenne's Muscular Dystrophy</li> </ol> </li> <li>5) Human Genome Project</li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Ch 21</p> <p>Evaluation:<br/>Exam 1</p> |

**Immune and Abnormal Responses**

| Module 4 Objectives   | Outline   | Preparation and Evaluation  |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Describe the normal immune response.</li> <li>2. Differentiate between cell mediated and humoral responses.</li> <li>3. Explain the methods of acquiring immunity.</li> <li>4. Describe the mechanisms of the four types of hypersensitivity</li> <li>5. Reactions and give examples of each.</li> <li>6. Discuss the mechanism of autoimmune disorders.</li> <li>7. Explain the causes and effects of immunodeficiency.</li> </ol> | <ol style="list-style-type: none"> <li>1. Immune Response           <ol style="list-style-type: none"> <li>a. Cell mediated</li> <li>b. Humoral</li> </ol> </li> <li>2. Immunity           <ol style="list-style-type: none"> <li>a. Acquisition</li> <li>b. Types               <ol style="list-style-type: none"> <li>1. I – hay fever</li> <li>2. II – Blood incompatibility</li> <li>3. III – Autoimmune Disorders</li> <li>4. IV – transplant rejection</li> </ol> </li> </ol> </li> <li>3. Immunodeficiency           <ol style="list-style-type: none"> <li>a. Causes</li> <li>b. Effects</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert (2018) Ch 7</p> <p><b>Evaluation:</b><br/>Exam 2</p> |

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| 8. Describe the course, effect and complications of HIV –AIDS. | c. HIV- AIDS<br>1. course<br>2. effects<br>3. complications |  |
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### Neoplasms

| Module 5 Objectives  | Outline  | Preparation and Evaluation   |
|--|--|--|
| <ol style="list-style-type: none"> <li>1. Define "cancer" in terms of abnormal tissue growth, cell types of origin and benign vs. malignant tumor properties.</li> <li>2. Explain the methods of staging and grading tumors.</li> <li>3. Identify viral, bacterial and environmental risk factors for cancer.</li> <li>4. Review the clinical manifestations of cancer.</li> </ol> | <ol style="list-style-type: none"> <li>1) Cancer characteristics               <ol style="list-style-type: none"> <li>a) Cell abnormalities</li> <li>b) Tumor properties                   <ol style="list-style-type: none"> <li>i) Benign</li> <li>ii) Metastatic</li> </ol> </li> </ol> </li> <li>2) Categorizing Cancers               <ol style="list-style-type: none"> <li>a) staging</li> <li>b) grading</li> <li>c) prognosis</li> </ol> </li> <li>3) Risk Factors               <ol style="list-style-type: none"> <li>a) Viral</li> <li>b) Bacterial</li> <li>c) Environmental</li> </ol> </li> <li>4) Clinical Manifestations</li> </ol> | <p><b>READ:</b><br/>Hubert, Ch 20</p> <p><b>Evaluation:</b><br/>Exam 2</p> |

### Blood and Circulatory Disorders

| Module 5 Objectives  | Outline   | Preparation and Evaluation   |
|--|---|--|
| <ol style="list-style-type: none"> <li>1. Define anemia and describe the manifestations of anemia and the pathophysiology that generates them.</li> <li>2. Compare and contrast the pathophysiology underlying iron deficiency, pernicious, and folate deficiency anemias.</li> <li>3. Differentiate the leukemias by manifestations, treatment options, and prognosis.</li> <li>4. Identify the causes of thrombocytopenia and its signs and symptoms related to its pathophysiology.</li> <li>5. Discuss the conditions that predispose and individual to the development of thrombi.</li> </ol> | <ol style="list-style-type: none"> <li>1) Blood Characteristics               <ol style="list-style-type: none"> <li>a) Red blood cells</li> <li>b) White blood cells</li> <li>c) Platelets</li> <li>d) plasma</li> </ol> </li> <li>2) Problems of red blood cells               <ol style="list-style-type: none"> <li>a) Iron deficiency anemia</li> <li>b) Pernicious anemia</li> <li>c) Sickle Cell anemia</li> </ol> </li> <li>3) Problems of white blood cells               <ol style="list-style-type: none"> <li>a) leukemia</li> </ol> </li> <li>4) Problems with platelets               <ol style="list-style-type: none"> <li>a) Thrombocytopenia</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Ch 10,</p> <p><b>Evaluation:</b><br/>Exam 2</p> |

### Renal/Urinary Disorders

| Module 6 Objectives   | Outline  | Preparation and Evaluation  |
|---|--|---|
| <ol style="list-style-type: none"> <li>1. Describe the pathophysiology, symptoms and treatments for urinary tract obstructions.</li> <li>2. Review causes, types and treatments of urinary tract infections.</li> </ol> | <ol style="list-style-type: none"> <li>1) Inflammatory Problems               <ol style="list-style-type: none"> <li>a) Kidney                   <ol style="list-style-type: none"> <li>i) nephritis</li> </ol> </li> <li>b) bladder                   <ol style="list-style-type: none"> <li>i) UTI</li> </ol> </li> </ol> </li> <li>2) Blockage of system               <ol style="list-style-type: none"> <li>a) calculi</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Ch 18</p> <p><b>Evaluation</b><br/>Exam 2 and Quiz 3</p> |

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| <p>3. Discuss types and causes of nephritis</p> <p>4. Explain the pathophysiology, causes, symptoms and treatment for acute and chronic renal failure.</p> <p>5. Discuss the role of the kidney in red blood cell production and control of blood pressure.</p> | <p>b) Benign Prostatic Hypertrophy</p> <p>c) Prostatic cancer</p> <p>3) Failure</p> <p>a) bacterial</p> <p>b) viral</p> <p>4) Other functions</p> <p>a) hematopoiesis</p> <p><b>b) blood pressure</b></p> |  |
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### Cardiovascular Disorders

| Module 7 Objectives   | Outline  | Preparation and Evaluation   |
|---|--|--|
| <p>1. Describe the principles that govern blood flow and pump function.</p> <p>2. Discuss the factors influencing the systemic blood pressure and blood flow.</p> <p>3. Identify the risk factors for atherosclerosis and discuss the progression of atherosclerotic heart disease from risk factor identification through the complications of acute myocardial infarction.</p> <p>4. Discuss the physiologic effects of hypertension.</p> <p>5. Describe venous flow disturbances and potential complications.</p> <p>6. Discuss the factors that determine effective heart pumping functions, including dysrhythmias and structural defects.</p> <p>7. Compare left and right heart failure, including causation, manifestations, treatment, and complications.</p> <p>8. Identify and describe the pathophysiologic effects of shock.</p> | <p>1) Alterations of flow</p> <p>a) Principles</p> <p>b) Atherosclerosis</p> <p>c) Ischemia vs. infarction</p> <p>d) Aneurysm</p> <p>e) Hypertension</p> <p>f) Venous flow</p> <p>i) Varicose Veins</p> <p>ii) Deep Vein Thrombosis</p> <p>2) Alterations in Pump</p> <p>a) principles</p> <p>b) impulse conduction</p> <p>c) structural defects</p> <p>i) valves</p> <p>ii) congenital defects</p> <p>d) pump failure</p> <p>i) left sided</p> <p>ii) right sided</p> <p>e) cardiomyopathy</p> <p>f) restriction</p> <p>3) Shock</p> <p>a) processes</p> <p>b) origins</p> <p>i) cardiogenic</p> <p>ii) hypovolemic</p> <p>iii) neurogenic</p> <p><b>iv) septic</b></p> | <p><b>Read:</b><br/><i>Hubert (2018) Ch 12</i></p> <p><b>Evaluation:</b><br/>Exam 2 and Quiz 3</p> |

### Musculoskeletal Disorders

| Module 8 Objectives   | Outline  | Preparation and Evaluation   |
|---|--|--|
| <p>1. Describe the structure and function of bones and muscles, including interaction of systems.</p> <p>2. Describe the process of bone fractures and healing.</p> | <p>1) Structure and Function</p> <p>a) Bones</p> <p>b) Joints</p> <p>c) Muscles</p> <p>2) Bones and Joints</p> <p>a) Fractures</p> | <p><b>READ:</b><br/>Hubert (2018), Ch 9</p> <p><b>Evaluation:</b><br/>Exam 3</p> |

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| <p>3. Discuss degenerative conditions of the bone and joints.</p> | <p>b) Degenerative Bones and Joints<br/>                     i) Osteoporosis<br/>                     ii) Osteoarthritis<br/>                     iii) Rheumatoid Arthritis<br/>                     iv) Gout</p> <p>3) Muscles<br/>                     a) Fibromyalgia</p> |  |
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**Neurological Disorders**

| Module 9 Objectives   | Outline   | Preparation and Evaluation  |
|---|---|---|
| <p>1. Discuss causes and outcomes of increased intracranial pressure, including causes.</p> <p>2. Explain causes and outcomes of alterations in cranial blood flow focusing on ischemic events.</p> <p>3. Discuss clinical symptoms of spinal cord injuries including differentiation, loss of function and levels of disability.</p> <p>4. Discuss causes and outcomes of seizure disorders.</p> <p>5. Explain causes and outcomes of dementias.</p> <p>6. Discuss causes and outcomes of chronic degenerative neuromuscular conditions.</p> | <p>1) Increased Intracranial Pressure<br/>                     a) causes<br/>                     i) brain trauma<br/>                     ii) space occupying lesions<br/>                     iii) hemorrhage<br/>                     iv) edema<br/>                     b) compensatory mechanisms<br/>                     c) manifestations of ICP<br/>                     i) early<br/>                     ii) late</p> <p>2) Cranial blood flow<br/>                     a) Cerebral Vascular Accident</p> <p>3) Spinal Cord Injuries<br/>                     a) partial<br/>                     b) transaction<br/>                     c) neurogenic shock</p> <p>4) Seizure Disorders<br/>                     a) Risk Factors<br/>                     b) Neurologic alterations<br/>                     c) Characteristics</p> <p>5) Dementias<br/>                     a) Neurologic manifestations<br/>                     b) Phases<br/>                     i) Early<br/>                     ii) late</p> <p>6) Chronic Neuromuscular Disorders<br/>                     a) Neurotransmitters<br/>                     i) Parkinson's<br/>                     b) Nerve degeneration</p> <p>7) Multiple Sclerosis</p> | <p><b>READ:</b><br/>                     Hubert, Ch 14</p> <p><b>Evaluation:</b><br/>                     Exam 4 and Quiz</p> |

**Pain**

| Module 9 Objectives  | Outline  | Preparation and Evaluation  |
|--|--|---|
| <p>1. Explore concepts of pain perception, modulation and clinical manifestations.</p> | <p>1) Pain<br/>                     a) transmission<br/>                     i) reflex arcs<br/>                     ii) sensory tracts<br/>                     b) Interpretation</p> | <p><b>READ:</b><br/>                     Hubert (2018), Ch 4</p> <p><b>Evaluation:</b><br/>                     Exam 3 and Quiz 4</p> |

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|  | 2) manifestations |  |
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### Endocrine Disorders

| Module 10 Objectives  | Outline   | Preparation and Evaluation   |
|---|---|--|
| <ol style="list-style-type: none"> <li>1. Discuss the regulation of hormone secretion by positive and negative feedback loops.</li> <li>2. Compare and contrast Type 1 and Type 2 diabetes mellitus.</li> <li>3. Describe the degenerative complications of diabetes mellitus.</li> <li>4. Describe the condition of alterations in ADH on body function.</li> <li>5. Discuss the effects of thyroid hormone and effects of alterations on the metabolism.</li> <li>6. Discuss the role of corticosteroids in body function and changes when levels are altered.</li> <li>7. Discuss the functions of aldosterone on body functions.</li> </ol> | <ol style="list-style-type: none"> <li>4) Hormonal control               <ol style="list-style-type: none"> <li>a) Feedback loops</li> <li>b) Target cell receptors</li> </ol> </li> <li>5) Pancreas - Insulin               <ol style="list-style-type: none"> <li>a) Diabetes Mellitus, type 1</li> <li>b) Diabetes Mellitus, type 2</li> <li>c) Complications</li> </ol> </li> <li>6) Pituitary – Antidiuretic Hormone               <ol style="list-style-type: none"> <li>a) SIADH</li> <li>b) Diabetes Insipidus</li> </ol> </li> <li>7) Thyroid – thyroxine               <ol style="list-style-type: none"> <li>a) Hyperthyroid (Graves)</li> <li>b) Hypothyroid (Myxedema)</li> </ol> </li> <li>8) Adrenal -               <ol style="list-style-type: none"> <li>a) Corticosteroids                   <ol style="list-style-type: none"> <li>i) Too much</li> <li>ii) Too Little</li> </ol> </li> <li>b) Aldosterone</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Ch 16</p> <p><b>Evaluation:</b><br/>Exam 3 and quiz 4</p> |

### Respiratory Disorders

| Module 11 Objectives  | Outline   | Preparation and Evaluation   |
|---|---|--|
| <ol style="list-style-type: none"> <li>1. Explain the mechanics and controls of ventilation.</li> <li>2. Discuss the pathological processes of inflammation and how it effects air movement in the lungs.</li> <li>3. Describe the mechanical changes of lung or chest trauma that interfere with air movement.</li> <li>4. Discuss the pathological processes that precipitate a change in gas exchange in the lung.</li> <li>5. Describe the pathological mechanisms and effects of changes in pulmonary blood flow.</li> </ol> | <ol style="list-style-type: none"> <li>1. Controls               <ol style="list-style-type: none"> <li>a. Thoracic mechanics</li> <li>b. Chemical controls</li> </ol> </li> <li>2. Inflammation               <ol style="list-style-type: none"> <li>a. Processes and Effects</li> <li>b. Conditions                   <ol style="list-style-type: none"> <li>1. Asthma</li> <li>2. Pneumonia</li> <li>3. Tuberculosis</li> <li>4. Lung Cancer</li> </ol> </li> </ol> </li> <li>3. Mechanical Alterations               <ol style="list-style-type: none"> <li>a. Causes and effects</li> <li>b. Conditions                   <ol style="list-style-type: none"> <li>1. Pneumothorax</li> <li>2. Chest wall trauma</li> </ol> </li> </ol> </li> <li>4. Gas Exchange Alterations               <ol style="list-style-type: none"> <li>a. Causes and Effects</li> <li>b. Conditions                   <ol style="list-style-type: none"> <li>1. Cystic Fibrosis</li> <li>2. Chronic Bronchitis</li> <li>3. Emphysema</li> <li>4. Pulmonary Edema</li> </ol> </li> </ol> </li> <li>5. Blood Flow Alterations</li> </ol> | <p><b>READ:</b><br/>Hubert (2018), Ch 13</p> <p><b>Evaluation:</b><br/>Exam 3 and quiz 4</p> |

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|  | <ul style="list-style-type: none"> <li>a. Causes and effects</li> <li>b. Conditions                         <ul style="list-style-type: none"> <li>1. Pulmonary Embolus</li> <li>2. Pulmonary Hypertension</li> </ul> </li> </ul> |  |
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### Digestive System Disorders

| Module 12 Objectives  | Outline   | Preparation and Evaluation   |
|---|---|--|
| <ol style="list-style-type: none"> <li>1. Describe the physiologic alterations that occur in relation to infectious processes that cause gastroenteritis, hepatitis and pancreatitis.</li> <li>2. Identify the consequences of obstruction at various sites in the GI tract.</li> <li>3. Describe the causes, manifestations, treatments, outcomes, and complications of gastritis including ulcer disease and reflux problems.</li> <li>4. Describe inflammatory bowel diseases-- ulcerative colitis and Crohn's disease—and diverticular disease.</li> <li>5. Discuss the similarities and differences between acute and chronic pancreatitis.</li> <li>6. Discuss the pathophysiologic alterations that occur with liver failure.</li> </ol> | <ol style="list-style-type: none"> <li>1) Conditions of Upper Gastrointestinal System                         <ol style="list-style-type: none"> <li>a) Gastroesophageal Reflux (GERD)</li> <li>b) Peptic Ulcer Disease (PUD)</li> <li>c) Gastroenteritis                                 <ol style="list-style-type: none"> <li>(a) Bacterial</li> <li>(b) viral</li> </ol> </li> </ol> </li> <li>2) Conditions of Lower Gastrointestinal System                         <ol style="list-style-type: none"> <li>a) Inflammatory Bowel Disease</li> <li>b) Diverticulosis</li> <li>c) Bowel Obstruction</li> </ol> </li> <li>3) Conditions of Accessory Organs                         <ol style="list-style-type: none"> <li>a) Liver                                 <ol style="list-style-type: none"> <li>i) Hepatitis</li> <li>ii) Cirrhosis</li> <li>iii) Failure</li> </ol> </li> <li>b) Pancreatitis</li> <li>c) Cholecystitis</li> </ol> </li> </ol> | <p><b>READ:</b><br/>Hubert, Ch 17</p> <p><b>Evaluation:</b><br/>Exam 3</p> |