Stephen F. Austin State University
DeWitt School of Nursing
PATHOPHYSIOLOGY SYLLABUS
Course Number: NUR 304
Section Number: 001
Fall 2018
Debbie McCarthy, MSN, RN, CNM
Laurel Matthews, MSN, RN

ALL INFORMATION IN THIS SYLLABUS IS SUBJECT TO THE WRITTEN POLICIES AND PROCEDURES OF THE SCHOOL OF NURSING, STEPHEN F. AUSTIN STATE UNIVERSITY, NACOGDOCHES, TEXAS.

IN THE CASE OF COMMISSION, OMISSION, AMBIGUITY, VAGUENESS, OR CONFLICT, THE POLICIES AND PROCEDURES OF THE SCHOOL OF NURSING SHALL CONTROL.

EACH STUDENT SHALL BE RESPONSIBLE FOR ACTUAL AND/OR CONSTRUCTIVE KNOWLEDGE OF THE POLICIES AND PROCEDURES OF THE SCHOOL OF NURSING AND FOR COMPLIANCE THEREWITH.

EACH STUDENT IS RESPONSIBLE FOR ALL INFORMATION IN THIS SYLLABUS.

This syllabus is provided for informational purposes only.
Faculty Contact Information

<table>
<thead>
<tr>
<th>Name:</th>
<th>Debbie McCarthy MSN, RN, CNM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department:</td>
<td>Nursing</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:mccarthyde@sfasu.edu">mccarthyde@sfasu.edu</a></td>
</tr>
<tr>
<td>Phone:</td>
<td>(936) 468-7745</td>
</tr>
<tr>
<td>Office:</td>
<td>Room 116</td>
</tr>
</tbody>
</table>
| Office Hours: | Monday: 8:00-10:30; 1:00-3:00  
               | Thursday: 8:30-12:00  
               | Other times, call/email for an appointment.     |

<table>
<thead>
<tr>
<th>Name:</th>
<th>Laurel Matthews MSN, RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department:</td>
<td>Nursing</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:matthewsle2@sfasu.edu">matthewsle2@sfasu.edu</a></td>
</tr>
<tr>
<td>Phone:</td>
<td>(936) 468-7727</td>
</tr>
<tr>
<td>Office:</td>
<td>Room 156</td>
</tr>
</tbody>
</table>
| Office Hours: | Tuesday: 8:00-12:00 & 3-4  
               | Friday: 9:00-12:00  
               | Other times, call/email for an appointment.     |

Class Meeting Time and Place

| 304.001 Mondays and Wednesdays 9-1030  
| Nursing Building, Room 111/113       |

Textbooks and Materials (Required)

*Please have both books by the first day of class. You will need them both. It is best to have this edition.*


Recommended Textbook


Course Description
This course establishes an initial foundation for the pathophysiological aspects of evidence-based nursing. This course will apply basic concepts from core courses, anatomy and physiology, chemistry and microbiology to pathophysiological alterations.

**Number of Credit Hours**
3 credit hours (3 lecture)

**Course Prerequisites and Co-requisites**
**Prerequisites:** BIO 238 and 238
**Co-requisites:** BIO 308 or BIO 309

**Program Learning Outcomes**
The graduate will:
1. Apply knowledge of the physical, social, and behavioral sciences in the provision of nursing care based on theory and evidence based practice.
2. Deliver nursing care within established legal and ethical parameters in collaboration with clients and members of the interdisciplinary health care team.
3. Provide holistic nursing care to clients while respecting individual and cultural diversity.
4. Demonstrate effective leadership that fosters independent thinking, use of informatics, and collaborative communication in the management of nursing care.
5. Assure responsibility and accountability for quality improvement and delivery of safe and effective nursing care.
6. Serve as an advocate for clients and for the profession of nursing.
7. Demonstrate continuing competence, growth, and development in the profession of nursing.

**General Education Core Curriculum Objectives/Outcomes**
None

**Student Learning Outcomes**
The student will:
1. Relate previously acquired concepts and principles of the arts, sciences, and humanities as foundational content for an understanding of pathophysiological alterations.
2. Describe moral, ethical, economic, political and legal issues involved in pathophysiological alterations.
3. Explain how holistic, socio-economic, spiritual, and ethno-cultural characteristics of a client affect pathophysiological alterations.
4. Introduce critical thinking concepts related to the effects of pathophysiological alterations on the complete body system.
5. Define biological, chemical and medical terms used in nursing practice.
Course Requirements

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test I</td>
<td>85</td>
<td>17%</td>
</tr>
<tr>
<td>Test II</td>
<td>85</td>
<td>17%</td>
</tr>
<tr>
<td>Test III</td>
<td>85</td>
<td>17%</td>
</tr>
<tr>
<td>Test IV</td>
<td>85</td>
<td>17%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>85</td>
<td>17%</td>
</tr>
<tr>
<td>Quiz Average</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Case Study Quiz Average</td>
<td>25</td>
<td>5%</td>
</tr>
</tbody>
</table>

Total 500 points

Policy 66 (effective June 1, 2017) for all courses:

1. Rounding is confined to the final course grade.
   Grades on individual exams, assignments, quizzes, and projects are recorded in the gradebook (D2L) in their original form without rounding.

2. Final course grades are rounded to the closest whole number using the 0.5 math rule and using one decimal point to the right of the whole number. If the final course grade is not a whole number, the following rounding rules apply:
   a. If the decimal attached to a whole number is 0.5 or greater, then round up to the next whole number (equal to or greater than 85.50 = 86)
   b. If the decimal attached to a whole number is less than 0.5, then round down to the previous whole number (equal to or less than 85.49 = 85).

Grading Policy

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>89.5 - 100%</td>
</tr>
<tr>
<td>B</td>
<td>79.5 - 89.4%</td>
</tr>
<tr>
<td>C</td>
<td>69.5 - 79.4%</td>
</tr>
<tr>
<td>D</td>
<td>59.5 - 69.4%</td>
</tr>
<tr>
<td>F</td>
<td>Below a 59.5</td>
</tr>
</tbody>
</table>

NURSING STUDENTS MUST HAVE A MINIMUM GRADE OF “C” IN THIS COURSE TO PROGRESS.

EXAMS

All exams will be given in room 115 on the testing platform – Exam Soft. Each student will be given a login at the beginning of the semester. The student is responsible
for keeping up with it and keeping it secure. You must also know how to log into a
university computer with your personal login information.

Unexcused absences from exams will not be made up. The student must notify the
instructor before the exam if they cannot attend. Excused absences include illness,
family emergency or scheduled sanctioned University events. Faculty may require a
doctor’s note in order for the student to make up the exam. Faculty reserve the
right to substitute alternate exam format for make-up exams. The student must
make arrangements with the faculty to make up an exam within a week of the
missed exam.

Final Exam
A final exam will be given the week of finals week. This exam will be comprehensive,
testing all the content covered this semester.

Quizzes
Quizzes will be given throughout the semester to encourage the student to keep up with
the material. The average of the quiz grades will count for 10 percent of the overall
course grade. Due dates for the quizzes are listed here. **NO LATE
SUBMISSIONS WILL BE ACCEPTED. NO MAKE UP
QUIZZES WILL BE ALLOWED FOR ANY REASON.**
It is recommended that you take the quizzes on a computer instead of your phone.

The quizzes will be given through D2L.
Go to your course, course tools, quizzes and find the available quiz. The quizzes will
be available from noon one day until 11:59 pm on a later day. Once logged into the
quiz you will have an allotted amount of time to complete the quiz. Please pace
yourself so you will have time to complete all questions.

<table>
<thead>
<tr>
<th>Quiz Name</th>
<th>Open date and time</th>
<th>Close date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Pathophysiology</td>
<td>Sept 1 12 noon</td>
<td>Sept 2 11:59 pm</td>
</tr>
<tr>
<td>Cellular Biology</td>
<td>Sept 1 12 noon</td>
<td>Sept 2 11:59 pm</td>
</tr>
<tr>
<td>Fluid &amp; Electrolytes</td>
<td>Sept 4 12 noon</td>
<td>Sept 5 11:59 pm</td>
</tr>
<tr>
<td>Innate &amp; Active immunity</td>
<td>Sept 8 12 noon</td>
<td>Sept 9 11:59 pm</td>
</tr>
<tr>
<td>Pre Neuro</td>
<td>Sept 22 12 noon</td>
<td>Sept 23 11:59 pm</td>
</tr>
<tr>
<td>Post Neuro</td>
<td>Sept 28 12 noon</td>
<td>Sept 29 11:59 pm</td>
</tr>
<tr>
<td>Pre Endocrine</td>
<td>Sept 29 12 noon</td>
<td>Sept 30 11:59 pm</td>
</tr>
<tr>
<td>Post Endocrine</td>
<td>Oct 4 12 noon</td>
<td>Oct 5 11:59 pm</td>
</tr>
<tr>
<td>Hematology</td>
<td>Oct 8 12 noon</td>
<td>Oct 9 11:59 pm</td>
</tr>
<tr>
<td>Pre Cardiac</td>
<td>Oct 13 12 noon</td>
<td>Oct 14 11:59 pm</td>
</tr>
<tr>
<td>Post Cardiac</td>
<td>Oct 26 12 noon</td>
<td>Oct 27 11:59 pm</td>
</tr>
</tbody>
</table>
CASE STUDY QUIZZES
There will be 4 sets of case studies posted on D2L this semester. There will be one before each exam. You will need to read each case study and understand the content presented. After you have studied the case studies and looked up the information you need to know regarding each disease process, you will complete the case study quiz on D2L. The average of the case study quiz grades will count for 5 percent of the overall course grade. Due dates for the quizzes are listed here. **NO LATE SUBMISSIONS WILL BE ACCEPTED. NO MAKE UP QUIZES WILL BE ALLOWED FOR ANY REASON.**

I would suggest that you take the quizzes on a computer instead of your phone.

The case study quizzes will be given through D2L. Go to you course, course tools, quizzes and find the available quiz. The quizzes will be available from noon one day until 11:59 pm a day or two later. Once logged into the quiz you will have an allotted amount of time to complete the quiz. Please pace yourself so you will have time to complete all questions. **Be sure you submit each question. If you fail to do this you may not get credit for the question.**

<table>
<thead>
<tr>
<th>Quiz Name</th>
<th>Open date and time</th>
<th>Close date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>Sept 15 12 noon</td>
<td>Sept 16 11:59 pm</td>
</tr>
<tr>
<td>Exam 2</td>
<td>Oct 6 12 noon</td>
<td>Oct 7 11:59 pm</td>
</tr>
<tr>
<td>Exam 3</td>
<td>Nov 3 12 noon</td>
<td>Nov 4 11:59 pm</td>
</tr>
<tr>
<td>Exam 4</td>
<td>Dec 1 12 noon</td>
<td>Dec 2 11:59 pm</td>
</tr>
</tbody>
</table>
STUDY HELPS

Chapter Objectives
One way to study is to look up and put on paper all information available on each objective listed for each chapter. If you know that material you should do well on the exam.

Lectures
All lectures are posted on D2L. The student should bring them to class. Please stay ahead by at least one week in case we finish a chapter and want to progress to the next.

Topic outlines
The topic outlines for each chapter are meant to help the student focus on what will be covered in class and on exams. Only the content listed (with page numbers) will be covered.

Study guide
The study guide is meant to help the student learn the content. It will not be graded; however, I strongly suggest that if you are finding the content difficult, this will assist in learning. Many students have said that it really helped them to study and pass the exams.

Online resources
There will be links posted on D2L meant to be used as supplemental study helps. Please utilize these for content you do not understand.

Pathophysiology Reviews and Rationales
This text is listed in the book list as recommended. It gives the content in outline form and is good as a last minute review for the exams.
## TENTATIVE SCHEDULE  
NUR 304.001

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 27</td>
<td>Course Overview and begin cellular biology (chapter 1)</td>
</tr>
</tbody>
</table>
| Aug 29  | Cellular Biology and Alterations in Cellular and Tissue Biology (Chapters 1 & 4)  
Beginning of Fluid and Electrolytes (Chapter 5)    |
| Sept 3  | Fluid and Electrolytes (Chapter 5)                                   |
| Sept 5  | Innate Immunity (Chapter 6)                                          |
| Sept 10 | Adaptive Immunity (Chapter 7) & Stress and Disease (Chapter 9)       |
| Sept 12 | Biology of Cancer (Chapter 10) Cancer Epidemiology (Chapter 11)     |
| Sept 17 | AIDS (Chapter 8) and Exam Review                                     |
| **Sept 19** | **Exam 1**                                                      |
| Sept 24 | Pain and Temperature (Chapter 14),                                   |
| Sept 26 | Alterations in Cognitive Systems, Cerebral Hemodynamics (Chapter 15),  
& Disorders of the Central and Peripheral Nervous Systems and the Neuromuscular Junction (Chapter 16) |
| Oct 1   | Alterations of Hormonal Regulation (Chapter 18 & 19)                 |
| Oct 3   | Alterations of Hormonal Regulation (Chapter 18 & 19) continued      |
| Oct 8   | Alterations of Hematologic Function (Chapter 21)                     |
| **Oct 10** | **Exam 2**                                                         |
| Oct 15  | Structure and Function of the Cardiovascular and Lymphatic Systems (Chapter 23) |
| Oct 17  | Alterations in Cardiovascular Function (Chapter 24)                  |
| Oct 22  | Alterations in Cardiovascular Function (Chapter 24) continued        |
| Oct 24  | Structure and Function of the Pulmonary System (Chapter 26)          |
| Oct 29  | Alterations in Pulmonary Function (Chapter 27) continued             |
| Oct 31  | Alterations in Pulmonary Function (Chapter 27) continued and Exam Review |
| Nov 5   | Structure and Function of the Renal and Urologic Systems (Chapter 29)  
Alterations in Renal and Urinary Function (Chapter 30) |
| **Nov 7** | **Exam 3**                                                        |
| Nov 12  | Structure and Function of the Renal and Urologic Systems (Chapter 29)  
Alterations in Renal and Urinary Function (Chapter 30) continued    |
| Nov 14  | Alterations in Digestive Function (Chapter 36)                       |
| **Nov 17-25** | **Thanksgiving Break**                                               |
| Nov 26  | Alterations in Digestive Function (Chapter 36) continued             |
| Nov 28  | Alterations in Musculoskeletal Function (Chapter 39)                 |
| Dec 3   | Exam Review                                                          |
| **Dec 5** | **Exam 4**                                                       |
| Dec 10  | Comprehensive Exam (Nursing 304.001) 8:00 -10:00 AM                  |
**Attendance Policy**
Class attendance and participation is important and is expected of each student. Role will be taken daily.

**Academic Integrity (A-9.1)**
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy of penalties for cheating and plagiarism.

**Definition of Academic Dishonesty**
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to held another is an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from a internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.

Please read the complete policy at [http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf](http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf)

**Withheld Grades (Semester Grades Policy A – 54)**
Ordinarily, at the discretion of the instructor of record and with approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human
Services Building, and Room 325, 468-3004/ 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aides to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D – 34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Cell Phones
Cell phones should be turned off and out of sight during this class. Their use is forbidden.

Electronics
Computers are allowed in the class room to take notes and complete in-class assignments. All other use is forbidden and the computer may be confiscated until the end of class.
Chapter Objectives

The following pages are the chapter objectives that coincide with the book. Also listed are topic outlines. The outlines are to guide your readings. You will only be required to know what is outlined in the objectives and the topic outlines. You will not be required to know anything in the chapter that is not given on the topic outline.
Chapter 01: Cellular Biology

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Discuss the functions of cell membrane receptors and principal types of ligands.
2. Describe methods and processes of cellular communication and types of signaling.
3. Describe the process of energy generation and utilization by the cell to support cellular function.
4. Describe the role of ATP in the cell.
5. Describe the processes of passive transport, diffusion, hydrostatic pressure, and osmosis.
6. Name the four basic tissue types.

Topic outline:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cellular Receptors</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>2. Cellular Communication and Signal Transduction</td>
<td>12-14</td>
<td></td>
</tr>
<tr>
<td>3. Cellular Metabolism</td>
<td>14-17</td>
<td></td>
</tr>
<tr>
<td>4. Membrane Transport: Cellular Intake and Output</td>
<td>17-21</td>
<td></td>
</tr>
<tr>
<td>• Electrolytes as Solute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Passive transport: Diffusion, Filtration, and Osmosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Tissues</td>
<td>27-34</td>
<td></td>
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</tbody>
</table>
Chapter 04: Altered Cellular and Tissue Biology

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Describe the cellular adaptations made in each of the following processes: atrophy, hypertrophy, hyperplasia, dysplasia, and metaplasia.
2. Discuss causative factors of each of the above cellular adaptations.
3. Identify the most common cause of cellular injury.
4. Describe the mechanism of cellular injury that can occur as a result of the following causes: hypoxia, free radicals, and reactive oxygen species.

Topic Outline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cellular Adaptation</td>
<td>73-77</td>
<td></td>
</tr>
<tr>
<td>2. Cellular Injury</td>
<td>77-82</td>
<td>General mechanisms of cell injury, Hypoxic injury, Free radicals and reactive oxygen species-oxidative stress</td>
</tr>
</tbody>
</table>
Chapter 05: Fluids and Electrolytes, Acids and Bases

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Discuss the two functional fluid compartments of the body.
2. Discuss the ways water moves between plasma and interstitial fluid.
3. Explain Starling forces.
4. Describe the causation, pathophysiologic process, and clinical manifestations of edema.
5. Discuss the regulatory processes for sodium and water balance in the body, including the role of antidiuretic hormone, renin-angiotensin-aldosterone, and atrial natriuretic hormone.
6. Define hypotonic, isotonic, and hypertonic alterations in water balance and give an example of each.
7. Identify the basic causes and clinical manifestations of hypernatremia, hyponatremia, hyperchloremia, and hypochloremia.
8. Discuss the causes and clinical manifestations of water deficit.
9. Discuss the causes and clinical manifestations of water excess.
10. Discuss the clinical manifestations and treatments for the syndrome of inappropriate secretion of ADH (SIADH).
11. Discuss the distribution, function, and regulation of potassium in the body.
12. Identify the basic causes and clinical manifestations of hyperkalemia and hypokalemia.
13. Discuss the role of hydrogen ion concentration in cellular function and dysfunction.
14. Describe how the plasma buffering systems help prevent significant fluctuations in pH.
15. Explain how the lungs and the kidneys regulate acid-base balance.
16. Differentiate between respiratory and metabolic acid-base disorders by causes and mechanisms of compensation.

Topic Outline: The complete chapter.
Chapter 06: Innate Immunity: Inflammation and Wound Healing

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Identify innate immunity versus adaptive immunity.
2. Describe the composition, function, and purpose of physical, mechanical, and biochemical barriers.
3. Discuss the importance of normal flora in relation to opportunistic infections.
4. Describe the process of inflammation.
5. Describe the steps of the acute inflammatory response.
6. Identify the three plasma protein systems that mediate the inflammation response.
7. Discuss what is meant by the term cascade.
8. Diagram the complement, clotting, and kinin systems, noting where they converge.
9. Describe two control mechanisms for the protein systems, and explain how they provide a check and balance system for inflammation.
10. Discuss each of the cell types (granulocytes, platelets, lymphocytes, natural killer cells, and monocytes) involved in the inflammatory response, and explain their individual roles and relative importance to the process.
11. Discuss how phagocytosis can actually promote the inflammatory process.
12. Compare and contrast the roles of cellular products, particularly cytokines, in the inflammatory process.
13. Describe the process and sequence of phagocytosis.
14. Differentiate between local and systemic responses to acute inflammation on the basis of clinical manifestations.
15. Identify the histologic characteristics of chronic inflammation, focusing on the differences between resolution and repair.
16. Describe tissue healing by primary and secondary intention.
17. Describe the different types of dysfunctional wound healing that can occur during the reconstructive phase.

Topic Outline: The complete chapter.
Chapter 07: Adaptive Immunity

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Distinguish between natural and acquired immunity.
2. Define and describe humoral and cell-mediated immunity.
3. Describe the differences between active and passive immunity.
4. Define antigen and differentiate between the various types of antigens.
5. Identify the classes of immunoglobulins.
6. Describe what is meant by direct and indirect effects of an antibody.
7. Define and describe the differences between secretory and systemic immune systems.
8. Define and describe clonal diversity and clonal selection.
9. Differentiate between a primary and secondary immune response.
10. Discuss the alterations in immunity for infants and the elderly.

Topic Outline:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Third line of defense: Adaptive immunity</td>
<td>158-160</td>
<td></td>
</tr>
<tr>
<td>2. Antigens and Immunogens</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>3. Antibodies</td>
<td>161</td>
<td>Do not include molecular structure or antigen-antibody binding</td>
</tr>
<tr>
<td>4. Function of Antibodies</td>
<td>162-165</td>
<td>Stop at paragraph that begins with “IgE”</td>
</tr>
<tr>
<td>6. Pediatric considerations</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>7. Geriatric Considerations</td>
<td>173</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 8: Infection and Defects in Mechanisms of Defense

Learning Objectives

1. Discuss the pathogenesis of acquired immune deficiency syndrome (AIDS).
2. Describe clinical symptoms that indicate potential HIV infection and its progression to AIDS.
3. Describe the treatment for AIDS.

Topic Outline:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Secondary (Acquired) Immune Deficiencies</td>
<td>192-194</td>
<td></td>
</tr>
<tr>
<td>2. Acquired Immunodeficiency Syndrome (AIDS)</td>
<td>194-199</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 09: Stress and Disease

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Discuss the neuroendocrine stress response from initiation (by recognition of a stressor) through resolution (by exhaustion or adaptation).
2. List the effects of cortisol, epinephrine, and norepinephrine on the individual under stress.
3. Identify hormones, other than epinephrine and cortisol, affected by the physiologic response to a stressor.
4. Describe the known mechanisms of interaction between the neuroendocrine and immune responses to stress.
5. Apply understanding of the stress response to a clinical or personal situation by describing the factors involved in the initiation of the response and manifestations observed or experienced.
6. Describe the importance and functions of T helper 1 and T helper 2 cells and associated cytokines.

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<tr>
<td>1. The stress response</td>
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Chapter 10: Biology of Cancer

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Differentiate benign from malignant tumors.
2. Identify and differentiate among types of cancers based on cell type, such as adenocarcinoma, lymphoma, or sarcoma.
3. Identify the importance of tumor markers.
4. Describe the function of stem cells in cancer.
5. Discuss the role of chronic inflammation and the development of cancer cells.
7. Discuss the factors implicated in metastasis of tumors: rate of growth, angiogenesis, lack of cellular adhesion, and absence of cellular barriers.
8. Discuss mechanisms that favor or inhibit the metastasis of cancer cells.
9. Describe the manifestations of cancer that lead to diagnosis.
10. Describe the treatment strategies for cancer.
11. Describe the side effects associated with cancer treatment.

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<td>2. Biology of Cancer Cells</td>
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<td>The slides cover what you need to know in this section.</td>
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<td>Cancer Stem Cells</td>
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<td>3. Tumor-Promoting Inflammation</td>
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<td>4. Activation Invasion and Metastasis</td>
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<td>5. Clinical Manifestations of Cancer</td>
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<tr>
<td>Diagnosis, Characterization and Treatment of Cancer</td>
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Chapter 11: Cancer Epidemiology

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Describe why smoking and exposure to radiation are major risk factors for cancer and how they alter cellular structure and function.
2. Identify why lifestyle factors and environment are thought to be more important than genetics.
3. Discuss the importance of diet in relation to cancer.
4. Identify why obesity increases mortality rates in some cancer types.
5. Discuss the effects of alcohol consumption on cancer risk.
6. Describe the bystander effect.
7. Describe the effects of ultraviolet radiation on the skin.
8. Identify potential sources of electromagnetic radiation and why they might be controversial.
9. Identify risk factors for HPV and cervical cancer.

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<td>2. Environmental-Lifestyle Factors</td>
<td>274-290</td>
<td>Leave out Carcinogenesis: Genomic Instability</td>
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<td>3. Sexual and reproductive behavior, other viruses, air pollution, chemicals and occupational hazards</td>
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</table>
Chapter 14: Pain, Temperature, Sleep, and Sensory Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Describe the difference between the two major types of nociceptors.
2. Identify the three systems involved in pain perception.
3. Describe the effect that endorphins have on the transmission of pain impulses.
4. Differentiate between acute and chronic pain.
5. Differentiate between somatic pain, visceral pain, and referred pain.
6. Differentiate between neuropathic pain, peripheral pain, and central pain.
7. Describe the process of normal thermoregulation.
8. Describe the mechanisms of heat production and loss as well as heat conservation.
9. Discuss the effects of the three major alterations in body temperature: fever, hyperthermia, and hypothermia.

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<td>3</td>
<td>Temperature regulation</td>
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Chapter 15: Alterations in Cognitive Systems, Cerebral Hemodynamics and Motor Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Differentiate among the different types of seizures.
2. Describe the causes and manifestations of dementia.
3. Describe the pathophysiology of Alzheimer disease.
4. Define cerebral perfusion pressure.
5. List the causes of increased intracranial pressure (ICP) and the associated clinical manifestations.
6. Describe the normal process of autoregulation in the cerebral blood vessels and explain how autoregulation fails when ICP rises dramatically.
7. Describe the mechanisms and manifestations of the herniation syndromes.
8. List the causes of cerebral edema and give examples of the pathophysiology producing each cause.
9. Describe the causes and manifestations of hydrocephalus.
10. Describe the causes and manifestations of Parkinson disease.

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<td>4. Alterations in Cerebral Hemodynamics</td>
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<td>6. Parkinson Disease</td>
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</table>
Chapter 16: Disorders of the Central and Peripheral Nervous Systems and the Neuromuscular Junction

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Identify the causes of low back pain.
2. Describe the disorders produced by interruption to cerebral vascular flow with reference to location, manifestations, and rehabilitation potential.
3. Describe the differences between types of headaches.
4. Describe infectious processes that occur in the central nervous system.
5. Explain the pathophysiology of a brain abscess.
6. Explain how an HIV infection can affect the nervous system.
7. Explain the pathophysiology of the degenerative disorders of the spine.
8. Explain the pathophysiology and clinical manifestations of multiple sclerosis.
9. Explain the pathophysiology of amyotrophic lateral sclerosis.
10. Describe the pathophysiology and clinical manifestations of myasthenia gravis.

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<td>3. Headache</td>
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<td>4. Infection and inflammation of the central nervous system</td>
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<td>5. Demyelination disorders</td>
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<td>• Neuromuscular junction disorders</td>
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</table>

Chapter 19: Alterations of Hormonal Regulation
Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Identify three ways target cells fail to respond to hormones, creating hormonal dysfunction.
2. Compare the syndrome of inappropriate antidiuretic hormone secretion (SIADH) and diabetes insipidus in regard to causative factors, pathophysiology, manifestations, treatment, and prognosis.
3. Discuss the causes of hyper- and hypopituitarism while considering the populations at highest risk for developing these disorders.
4. Discuss the manifestations and consequences of pituitary adenomas and prolactinomas.
5. Explain the progression of hyperthyroidism through Graves disease and thyroid storm in relation to cellular changes, manifestations, treatments, and complications.
6. Discuss the causes, treatment options, and outcomes for disorders that produce hypothyroidism.
7. Differentiate between primary and secondary hyperparathyroidism.
8. Discuss the similarities and differences in the onset, etiology, and pathophysiology of type 1 and type 2 diabetes mellitus.
9. Describe the acute complications of diabetes mellitus with a focus on differential detection and treatment.
10. List the chronic complications of diabetes mellitus and discuss how good control of blood glucose limits the cellular degeneration in each instance.
11. Describe the function, uses, and mechanisms of the polyol pathway.
12. Compare hypercortical function (Cushing disease and syndrome) and hypocortical function (Addison disease), including causative factors, pathophysiology, manifestations, treatment, and prognosis.
15. Describe tumors of the adrenal medulla.

Topic Outline: Complete chapter.

Chapter 21: Alterations of Hematologic Function


Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Define anemia.
2. List the various methods of classifying the anemias.
3. Describe the manifestations of anemia and discuss the pathophysiology that generates them.
4. Compare and contrast the pathophysiology underlying iron deficiency, pernicious, and folate deficiency anemias.
5. Describe the normocytic-normochromic anemias.
6. Describe the different types of alterations in leukocyte function.
7. Classify leukemia as it relates to the maturity of the cells and appearance of the total leukocyte count and differential.
8. Identify the causes of thrombocytopenia.
9. List the various causes of impaired hemostasis.
10. Discuss the pathophysiology and manifestations of disseminated intravascular coagulation.
11. Discuss the conditions that predispose an individual to the development of thrombi.

Topic Outline: Just follow the revised objectives and my notes.

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<td>3. Alterations in Leukocyte Function</td>
<td>523-531</td>
<td>Do not need to know the different types of leukemia in detail.</td>
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<tr>
<td>4. Hemorrhagic Disorders and Alterations of Platelets and Coagulation</td>
<td>540-548</td>
<td>Stop at Thromboembolic Disorders</td>
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</table>
Chapter 23: Structure and Function of the Cardiovascular and Lymphatic Systems

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Diagram the circulatory system, describing the functions of the heart and the pulmonary and systemic circulatory systems.
2. Describe the cardiac cycle.
3. Diagram the structures of the heart and location of the great vessels.
4. Describe the function and location of the components of the cardiac conduction system.
5. Identify the components of an electrocardiogram.
6. Discuss how factors influencing cardiac output reflect cardiac performance; include ejection fraction, preload, afterload, stroke volume, heart rate, and the neurological and hormonal regulation of the heart rate.
7. Use the Frank-Starling law to demonstrate the interrelationship between preload, afterload, and contractility.
8. Compare and contrast the structure and function of arteries, veins, and capillaries.
9. Describe the critical role of the endothelium for vascular function.
10. Discuss factors influencing the systemic blood pressure and blood flow.
11. Identify the factors that regulate blood pressure.
12. Discuss the function of the renin-angiotensin-aldosterone system in regulating blood pressure.

We may not cover this content in its entirety but you will be expected to know it in order to understand the next chapter.
Chapter 24: Alterations of Cardiovascular Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:

1. Describe the alterations in vascular flow (including thrombus formation, emboli, traumatic injury, atherosclerotic plaques, vasospastic disease, and varicosities) that result in outcomes such as deep venous thrombosis (DVT), stasis ulcers, chronic insufficiencies, and superior vena cava syndrome.
2. Discuss the differences between primary, secondary, complicated, and isolated systolic hypertension.
3. Discuss the importance of malignant hypertension.
4. Describe the clinical symptoms and underlying pathophysiology of postural and idiopathic hypotension.
5. Describe the differences between true and false aneurysms.
6. Describe the differences between a thrombus and an embolus.
7. Describe the symptoms and pathophysiology of Buerger and Raynaud disease.
8. Identify the risk factors for atherosclerosis and the progression to myocardial infarction.
9. Identify the characteristics of peripheral arterial disease.
10. Discuss the progression of coronary artery disease from ischemia to infarction, including clinical symptoms, diagnostic evaluation of myocardial infarction, and critical timing for intervention.
11. Compare and contrast the acute coronary syndromes.
12. Describe the pathophysiology, symptoms, and evaluation for the pericardial disorders.
13. Compare and contrast dilated, hypertrophic, and restrictive cardiomyopathy in terms of etiology, pathophysiology, and clinical manifestations.
14. Identify the different types of valvular dysfunction and describe the alterations in blood flow through the heart seen in each disorder; include the clinical manifestations of each disorder.
15. Describe how acute rheumatic fever is contracted and how it leads to rheumatic heart disease and valvular injury.
16. Discuss the pathophysiology and manifestations of infective endocarditis.
17. Compare left and right heart failure, including causation, manifestations, treatment, and complications.

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<td>2. Diseases of the Arteries</td>
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<td>3. Disorders of the Heart Wall</td>
<td>609-631</td>
<td>Do not include disorders of the Myocardium: The cardiomyopathies. Do not include Cardiac complications in AIDS.</td>
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<td></td>
<td>Manifestations of Heart Disease</td>
<td>632-637</td>
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<td>4.</td>
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<td>5.</td>
<td>Shock Overview</td>
<td>637-641</td>
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</table>
Chapter 26: Structure and Function of the Pulmonary System

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:

1. Trace a molecule of air inhaled from the environment as it travels through the pulmonary system; list the conducting airways, their location, and their function.
2. Identify the structures involved in gas exchange.
3. Discuss the importance of surfactant.
4. Describe the structures that surround the pulmonary system.
5. Identify the factors essential to successful ventilation, perfusion, and diffusion.
6. Discuss mechanical receptors and chemoreceptors, noting the location, function, and importance of each in respiration.
7. Discuss the properties of compliance and elastic recoil as they relate to the normal function of the lung in ventilation.
8. Describe the mechanics of breathing.
9. Describe the partial pressure of oxygen and its measurement.
10. Discuss how ventilation and perfusion are interrelated.
11. Discuss the importance of the oxyhemoglobin dissociation curve for evaluating effective gas exchange.
12. Describe the mechanisms of carbon dioxide transport from the body tissues to the lungs and factors affecting carbon dioxide diffusion across the alveolar membrane.
13. Discuss the major causes of pulmonary vasoconstriction.

We may not cover this content in its entirety but you will be expected to know it in order to understand the next chapter.
Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Identify the clinical indicators of pulmonary disease.
2. Define hyperventilation and hypoventilation.
3. Discuss alterations in arterial blood gas values that indicate pulmonary disease.
4. Differentiate among ischemia, hypoxia, and hypoxemia.
5. Define acute respiratory failure and identify risk factors.
6. Discuss the clinical manifestations and underlying mechanisms of atelectasis.
7. Describe how inhaling toxic or allergenic substances causes respiratory dysfunction.
8. Describe the pathophysiology associated with pulmonary edema.
9. Describe similarities, clinical manifestations, underlying mechanisms, and consequences of obstructive pulmonary diseases.
10. Discuss the role of inflammation in asthma.
11. Compare and contrast the clinical symptoms and underlying mechanisms of bacterial pneumonia, viral pneumonia, and tuberculosis.
12. Describe the cellular changes, clinical manifestations, treatments, outcomes, and complications of pulmonary embolus.
13. Discuss the risk factors and pathologic changes associated with pulmonary hypertension.

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<td>698-703</td>
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<td>706-708</td>
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</table>
Chapter 30: Alterations of Renal and Urinary Tract Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Discuss the causes and effects of obstruction in various locations within the urinary tract.
2. Describe the pathophysiology of kidney stone formation.
3. Compare and contrast the types of stones.
4. Describe what is meant by neurogenic bladder and overactive bladder syndrome.
5. List the anatomic causes of resistance to urine flow and the signs of urinary obstruction.
6. Describe the two most common tumors of the renal and urologic systems: renal carcinoma and bladder tumors.
7. Discuss the etiology, infectious agents, manifestations, treatments, and complications of urinary tract infections.
8. Describe acute and chronic pyelonephritis; include the pathophysiology, clinical manifestations, evaluation, and treatments of each.
9. Identify the causes of glomerulonephritis and the resulting changes in glomerular structure and function.
10. Compare and contrast acute, rapidly progressive, and chronic glomerulonephritis.
11. Describe the progression of nephrotic syndrome from causation through complications.
12. Differentiate between prerenal, intrarenal, and postrenal causes of acute renal failure.
13. Describe the pathophysiology of acute tubular necrosis (ATN).
14. Discuss the clinical manifestations, treatment options, outcomes, and complications of acute renal failure.
15. Discuss the clinical manifestations of chronic renal failure and explain what is meant by the term uremia.

Topic Outline: The complete chapter

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<td>5. Chronic Kidney Disease</td>
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</table>
Chapter 36: Alterations of Digestive Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Describe the pathophysiologic alterations that lead to diarrhea, constipation, and abdominal pain.
2. Differentiate between parietal pain, visceral pain, and referred pain.
3. Discuss the signs and symptoms and physiologic response to acute gastrointestinal bleeding.
4. List and briefly explain the various disorders of motility of the gastrointestinal tract.
5. Identify the consequences of obstruction at various sites in the gastrointestinal tract.
6. Describe the causes, manifestations, treatments, outcomes, and complications of gastritis.
7. Compare the three main types of peptic ulcers: duodenal, gastric, and stress.
8. Discuss the postgastrectomy syndromes as they relate to long-term complications of partial or complete gastrectomy.
9. Discuss the clinical effects of pancreatic insufficiency, lactase deficiency, and bile salt deficiency.
10. Compare and contrast ulcerative colitis and Crohn disease.
11. Discuss the pathophysiology, clinical manifestations, and treatment of diverticulitis, appendicitis, irritable bowel syndrome, and vascular insufficiency.
12. Discuss the pathophysiology, clinical manifestations, and treatment of obesity.
14. Discuss the five major complications of liver dysfunction: portal hypertension, ascites, hepatic encephalopathy, jaundice, and hepatorenal syndrome.
15. Discuss the pathophysiology of viral hepatitis and fulminant hepatitis.
16. Discuss the causation, treatment options, and prognosis for alcoholic and biliary cirrhosis.
17. Discuss the pathophysiology of cholelithiasis and cholecystitis.
18. Compare and contrast acute and chronic pancreatitis.
19. Discuss the risk factors, incidence, manifestations, treatment, morbidity, and mortality of the various cancers of the digestive system.

Topic Outline: Complete Chapter
Chapter 39: Alterations of Musculoskeletal Function

Learning Objectives

After reviewing this chapter, the learner will be able to do the following:
1. Compare and contrast the different types of fractures.
2. Describe the process of bone healing following a fracture.
3. Define dislocation and subluxation.
4. Differentiate between a strain, a sprain, and an avulsion.
5. Differentiate between the types of joint inflammation.
6. Describe the pathophysiology, physical manifestations, evaluation, and treatment of rhabdomyolysis.
7. Describe the pathophysiology and manifestations of malignant hyperthermia and compartment syndrome.
8. Differentiate between osteoporosis and osteomalacia.
9. Describe the pathophysiology and clinical manifestations of ankylosis spondylitis and Paget disease.
10. Describe the pathophysiology of osteomyelitis, and differentiate between exogenous and endogenous osteomyelitis.
11. Differentiate between inflammatory and noninflammatory joint disease and discuss a specific example of each.
12. Describe the pathophysiology of osteoarthritis and rheumatoid arthritis.
13. Describe the pathophysiology of gout.
14. Identify the causes of contractures.
15. Discuss techniques for limiting or decreasing muscle atrophy caused by inactivity.
16. Describe the most common precipitating factors and pathophysiology of fibromyalgia.

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