

# I - ORIENTATION

## A. COURSE TITLE

BI 360, Pathophysiology for Nursing

## B. TIME

Lecture: Monday, Wednesday, Friday  
Section B: 07:50-08:40, Section A: 9:50-10:40

## C. INSTRUCTOR

Carlos F. A. Pinkham, PhD

### C.a. OFFICE

Science 150, Norwich University, Northfield, VT

### C.b. OFFICE HOURS TP I-1

By appointment; schedule meetings before or after class (most preferred), by phone (preferred) or by e-mail (takes more time)

### C.c. PHONE, E-MAIL & WEBSITE

485-2319 (Office) if no answer, let it ring through to voice mail  
485-2333 (FAX)  
485-7330 (Home) if not there, leave a message on answering machine  
[pinkhamc@norwich.edu](mailto:pinkhamc@norwich.edu)  
<http://www2.norwich.edu/pinkhamc/> TP I-2

## D. TEXT

Nowak & Handford. 2004. [Essentials of Pathophysiology, Concepts and Applications for Health Care Professionals](#), 3<sup>rd</sup> ed, Wm. C. Brown, Publishers, Dubuque, IA.

## E. COURSE DESCRIPTION

The study of human pathology with primary emphasis on the pathogenesis of the most commonly-encountered pathological states in the hospital setting, their disruption of normal physiology and the body's mechanism for restoring the steady state. The biology of the disease process is examined at the **molecular, cellular, tissue, organ and organ system level**.

## F. OBJECTIVES

(1) To have the student understand the basis for health and disease by learning the body's major mechanisms that promote the steady state and by learning how these mechanisms are affected by those disease states most likely encountered in a clinical setting.

(2) To have the student understand the disease biology of each of the following subject areas:

Alterations in Cell Function and Growth  
Alterations in Body Fluids  
Alterations in Body Defenses  
Alterations in Oxygenation of Tissues

Alterations in Metabolism, Endocrine Function and Nutrition  
Alterations in Renal Function  
Alterations in Reproductive Functions  
Alterations in Neurological Functions  
Alterations in Skeletal Support and Movement

(3) To have the student learn how to determine the pathophysiological aspects of one pathological state in depth by preparation of one, three-part research paper.

## G. DETAILED COURSE SYLLABUS

Pathological states taken from:

- 1) Suggestions from personnel in the Biology and Nursing Departments
- 2) Recommendations by local physicians
- 3) First-listed diagnosis discharges reported per year in:

US Department of Health and Human Services, Center for Disease Control and Epidemiology, National Center for Health Statistics. 2003. Hospital Utilization (in non-Federal short-stay hospitals) available at: <http://www.cdc.gov/nchs/fastats/hospital.htm>

- 4) States necessary to understand pathological states identified in 1) to 3)

Text Pages	Subject (Disease states in bold letters will be emphasized)
None	I ORIENTATION
2-3	II INTRODUCTION & PATHOPHYSIOLOGY
	III ALTERATIONS IN CELL & TISSUE FUNCTION & GROWTH
5-25	A Cell & Tissue Characteristics & Their Adaptation & Response to Injury
130-132	<b>Cellular Swelling, Hypoxia I, Necrosis, Ionic Radiation</b>
None	B Genetic Control of Cell Function & Inheritance & Genetic & Congenital Disorders
	<b>General Understanding</b>
132-165	C Cell Differentiation & its Dysfunction: Neoplasia
	<b>General Understanding</b>
	IV ALTERATIONS IN BODY FLUIDS & ELECTROLYTES
28-30	A Body Fluids & Their Dysfunction
	<b>Dehydration, Edema</b>
422-436	B Electrolytes & their Dysfunction
	<b>Na<sup>+</sup>, K<sup>+</sup>, &amp; Ca<sup>++</sup> Imbalance</b>
437-444	C Acid-Base Balance & its Dysfunction
	<b>General Understanding</b>
	V ALTERATIONS IN BODY DEFENSES
None	A Stress & Adaptation
	<b>General Understanding</b>
None	B Mechanisms of Infectious Disease
	<b>General Understanding, Rheumatic Fever (Rheumatic Heart Disease I)</b>
67-70	C Skin Function & Integrity & their Dysfunction
	<b>Impetigo, Acne, Psoriasis, Contact Dermatitis, Ectoparasites, Cancer</b>
51-60	D Temperature Regulation & its Dysfunction
	<b>Fever, Hypothermia</b>
28-48, 70-79	E Inflammation & Repair & its Dysfunction
	<b>General Understanding, Sinusitis</b>
168-170;194-199	F White Blood Cells & their Dysfunction
	<b>General Understanding, Leukemia</b>
82-94	G Lymphoid Tissues & the Immune Response
	<b>General Understanding</b>
94-128	H Dysfunctions of the Immune Response
	<b>AIDS &amp; Opportunistic Diseases, Allergic Rhinitis, Atopic Dermatitis, Transplant Rejection, Autoimmune Disease</b>
171-185	I Hemostasis & its Dysfunction
	<b>DIC, Transfusion Therapy</b>
	VI ALTERATIONS IN OXYGENATION OF TISSUES
157-158;173-182	A Red Blood Cell & Dysfunctions in Oxygen Transport
	<b>Anemias</b>
191-201;	B Blood Flow & its Control & their Dysfunctions
205-206;210-227	<b>HDL &amp; LDL, Atherosclerosis, Pressure Sores</b>
206-210	C Blood Pressure & its Dysfunction
	<b>Essential Hypertension</b>
231-251;263-271	D Cardiac Function, its Control & their Dysfunction
	<b>Cardiac Dysrhythmias, Angina Pectoris, Acute Myocardial Infarction, Rheumatic Heart Disease II, Mitral Valve Defects</b>
245-257	E Heart Failure
	<b>Congestive Heart Failure, Acute Pulmonary Edema</b>
274-285	E Circulatory Shock
	<b>Hypovolemic, Cardiogenic, Obstructive, Distributive</b>
288-321	G Respiratory Function, its Control & their Dysfunction
	<b>Hypoxia II, Cough Reflex, Bronchiolitis, Pneumonias, TB, Asthma, Bronchitis, Bronchogenic Carcinoma</b>
	VII ALTERATIONS IN METABOLISM, ENDOCRINE FUNCTION, & NUTRITION
324-348	A Gastrointestinal Function, its Control & Their Dysfunction
	<b>Nausea, Vomiting, Diarrhea, Constipation, Strep Throat, Hiatal Hernia, Gastritis, Peptic Ulcers, Inflammatory Bowel Disorder, Diverticular Disease, Appendicitis, Colorectal Cancers</b>
351-376	B Hepatobiliary System, Exocrine Pancreas, Their Control & Their Dysfunction
	<b>Hepatitis, Cirrhosis, Gallstones, Pancreatitis</b>
10	C Nutritional Status & its Dysfunction
	<b>Achlorhydria B<sub>12</sub> Deficiency, Obesity</b>

Continued.

Continued:

Text

Pages Subject (Disease states in bold letters will be emphasized)

429-462	D Endocrine Function, its Control & Their Dysfunction <b>Goiter, Grave's Disease, Diabetes Mellitus</b>
VIII ALTERATIONS IN RENAL FUNCTION	
379-392;398-401	A Renal Function, its Control & Their Dysfunction <b>Renal Calculi, Glomerulonephritis, Pyelonephritis</b>
385-394	B. Renal Failure <b>Acute, Chronic</b>
IX ALTERATIONS IN REPRODUCTIVE FUNCTIONS	
489-493	A Structure & Control of the Male Genitourinary System & Their Dysfunction <b>Prostatitis, Benign Prostatic Hyperplasia, Inguinal Hernia</b>
493-511	B Structure & Control of the Female Reproductive System & Their Dysfunction <b>Vaginitis, Endometriosis, Endometrial Cancer, PID, Ovarian Cysts, Ovarian Cancer, Dysfunctional Menstrual Cycles, Breast Cancer</b>
None	C Sexually Transmitted Diseases <b>Papilloma Virus, Herpes Complex, Chlamydia</b>
X ALTERATIONS IN MUSCULAR, SKELETAL & NEUROLOGICAL FUNCTIONS	
465-486	A Muscular & Skeletal Pathophysiology <b>Muscular Dystrophy, Multiple Sclerosis, Rheumatoid Arthritis, Osteoarthritis, Osteoporosis</b>
514-565	B Dysfunction of the CNS & its Vascular Support & Protection <b>Cerebrovascular Disease, CVA, Drug Abuse</b>
569-606	C Dysfunction of Sensation & Mental Function <b>Ruptured Intervertebral Disk, Guillan-Barre Syndrome, Alzheimer's Disease, Lead Poisoning, Otitis media, Vertigo, Glaucoma, Cataracts</b>
610-627	D Seizures & Epilepsy <b>Epilepsy</b>
631-648	E Pain & Pain Management <b>Headache</b>
651-672	F Trauma <b>Fractures, Pathological Fractures</b>

## H. LECTURE

### H.a. TENTATIVE LECTURE SCHEDULE

Start Date	Subject	Material Covered
25 Aug	I Orientation	
25-27 Aug	II Introduction & Pathophysiology	
29 Aug-17 Sep	III Alterations in Cell Function & Growth	
<u>19 Sep</u>	FIRST HOUR EXAM ( <b>Research Topic Selection Due</b> )	II, III
22 Sep-15 Oct	IV Alterations in Body Fluids	
17 Oct-12 Nov	V Alterations in Body Defenses	
<u>29 Oct</u>	SECOND HOUR EXAM ( <b>Part A: Cover Sheet, I: Passages for the Path and Paper, &amp; References due</b> )	IV
14 Nov-1 Dec	VI Alterations in Oxygenation of Tissues	
<u>28 Nov</u>	THIRD HOUR EXAM ( <b>Part B: II: Basic Information, and corrected Part A due</b> )	V
3-5 Dec	VII Alterations in Metabolism, Endocrine & Nutrition	
8 Dec	VIII Alterations in Renal Functions	
9 Dec	IX Alterations in Reproductive Functions ( <b>Part C: III: Path Diagram and Notes, and corrected Parts A and B due</b> )	
TBA	FOURTH HOUR EXAM FINAL EXAM	VI ALL

TP I-3

## H.b. HANDOUT NOTES Available for downloading & printing from my website

Add information as required, but most is already there for you.

Ask questions.

Share your experiences.

## H.c. OUTLINE

I will not put it on board if it's in outline.

There are numerous conventions I will use. I'll explain them as we encounter them in first lecture topic, and they are summarized for you on page 360.II-5.

## H.d. TEXT

Use Nowak & Handford in class; dig out your HA&P text for reference while you're studying.

## I. GRADING POLICY

Hour Exams (4) (100 pts each)	400 pts (40%)	900 - 1000 = A
Homework assignments*	200 pts (20%)	800 - < 900 = B
Final Exam	200 pts (20%)	700 - < 800 = C
Research Paper	200 pts (20%)	600 - < 700 = D
(1% off for each day late - see schedule for deadlines)		< 600 = F

## J. LECTURE EXAMS

### J.a. CONTENT

Each exam, including the final exam, will contain approximately 1/3 matching, 1/3 multiple choice and 1/3 fill-in.

### J.b. SOURCES OF QUESTIONS

#### J.b.A. HANDOUT NOTES

#### J.b.A.a. OUTLINE & INFORMATION

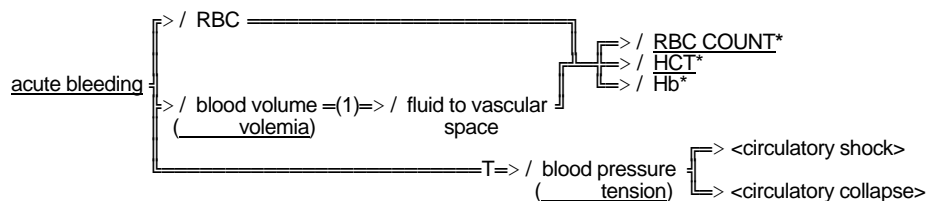
Be able to:

- 1) define terms there (underlined ones, w/out fail).
- 2) provide what abbreviations mean.
- 3) give at least 2/3rds of the terms in each list.

#### J.b.A.b. WORD ROOTS

Know etymology of roots used often (whether G or L not necessary)

#### J.b.A.c. PATHS (conventions are given on page II-4) Sample path follows:



KEY 1: CP IVA-3: ↓ blood vol → / ADH → / renal retention of H<sub>2</sub>O

#### Critical Path VIA-2. Pathophysiology of Acute Anemia TP I-4

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For common paths (=>) of Critical Path, be able to:

- 1) give direction of ↑ or ↓ arrows.
- 2) fill in any missing step from an underlined (major) etiologic factor to a bold (cardinal/diagnostic) **SIGN/SYMPTOM**.
- 3) recall at least 2/3rds of the underlined etiologic factors and SIGNS/SYMPTOMS.
- 4) give information indicated by underlined words or phrases.

#### J.b.A.d. FIGURES, TABLES & CHARTS

- 1) Be able to label & discuss it if it's a Critical Figure.
- 2) Be able to discuss it as if you were lecturing from it if it's a Table or Chart, to include being able to identify what pathophysiological state is being demonstrated.
- 3) Know the underlined terms or phrases

## J.b.B. BOOK

Know points in those topics referred to in outline or lecture and bring to lecture. Otherwise, use it as a reference.

## J.b.C. PRIOR EXAMS YOU HAVE TAKEN

On final exam: 1/2 on material since last exam, 1/2 from prior exams.

## K. RESEARCH PAPER

### K.a. LAYOUT

Research Papers will consist of five components in MS Word: COVER SHEET, I, II, III, and REFERENCES ([see our web site details](#)). These five components will be due in the three parts indicated in the syllabus. The three parts will be handed in as an electronic version, which must be emailed to Prof Pinkham. The emailed version will be used as the form that is used to work on the next part when you come to Professor Pinkham for help (which, you will need to do) and the time that the emailed version is received relative to the deadline will determine penalties if it is received after the deadline.

### K.b. REFERENCES

Besides your text, class handouts, a human anatomy and physiology text, a medical dictionary, and a word root dictionary, you should have two other sources specific to your chosen disease state. None can come from an unrefereed article on the internet and only one can come from a refereed article on the internet. All sources of all information should be acknowledged in the paper at the point where they are used via numbered entries set up in the following manner: (1, pp. 110-115; 7, p 305).

#### K.b.A. FORMAT

All references used (see K.h.B. SUGGESTED SOURCES, below) will be typed, single spaced (Courier, New, 12 pt). Consecutive citations will be numbered and separated by a blank line.

Note that this only requires you to assign the number "1" to the first reference you get, "2" to the second and so on. Every time that you use this reference for a source, you merely use its number and include the page number (see SOURCES). This is not the standard way, but it will make your job immensely easier, as all you have to do is maintain a running bibliography.

The methods used to cite literature in the REFERENCES component vary tremendously from one scientific journal to another. Except for the numbering system discussed above, use the [citation-maker](#) on our web site and use "APA style". (See APA reference under BIBLIOGRAPHICAL METHOD in K.h.B. SUGGESTED SOURCES)

#### K.b.B. SUGGESTED SOURCES

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GENERAL PATHOPHYSIOLOGY AND MEDICAL PHYSIOLOGY	
Call # <sup>a</sup>	
616.07 B938p	Bullock, B, <i>et al.</i> , 1984. <u>Pathophysiology Adaptations and Alterations in Function</u> , Little, Brown and Company, Boston.
616.07 B874b	Groer, Maureen W. and Maureen E. Shekleton, 1983. <u>Basic Pathophysiology, A Conceptual Approach</u> , 2nd Ed., C.V. Mosby, St. Louis.
612 G992t8	Guyton, A.C., 1991. <u>Textbook of Medical Physiology</u> , 8th Ed., W.B. Saunders Company, Philadelphia.
616.07 R454	Kaufman, C.E. and S. Papper, (eds.) <u>Review of Pathophysiology</u> , Little, Brown and Company, Boston.
YT <sup>c</sup>	Nowak, T.J., and A.G. Hanford. 2004. <u>Essentials of Pathophysiology, Concepts and Applications for Health Care Professionals</u> , Wm. C. Brown, Publishers, Dubuque, IA.
Pers	Porth, C.M. 2005. <u>Pathophysiology: Concepts of Altered Health States</u> , 7th Ed., J.B. Lippincott, Philadelphia. <b>Porth has great tables for lists of etiologic factors and manifestations</b>
616.07 P297p	Price, S.A. and L.A. Wilson. 1982. <u>Pathophysiology, Clinical Concepts of Disease Processes</u> , McGraw-Hill Book Company, New York.
616.07 S679p4	Sodeman, W.A. and T.M. Sodeman, 1981. <u>Pathologic Physiology</u> , 3rd Ed., W.B. Saunders Company, Philadelphia.
Pers	West, John B. (ed), 1990. <u>Best and Taylor's Physiological Basis of Medical Practice</u> , 12th Ed., Williams and Wilkins, Baltimore.
616 T355 1982	Wyngaarden, James and Smith. 1982. <u>Cecil's Textbook of Medicine</u> , W.B. Saunders Company, Philadelphia.

## MEDICAL DICTIONARIES & ENCYCLOPEDIAS

- Ref<sup>d</sup> Anonymous, 1989. The American Medical Association Encyclopedia of Medicine, Random House, City  
610.321 Unknown.  
A512
- Ref. Dox, Melloni, and Eisner, 1985. Melloni's Illustrated Medical Dictionary, 2nd Ed., Williams and  
610.321 Wilkins, Baltimore.  
D752
- Ref Miller, B.F. and C.B. Keane, 1992. Encyclopedia and Dictionary of Medicine and Nursing, 5th Ed.,  
610.3 W.B. Saunders Company, Philadelphia.  
M647e
- Ref Thomas, Clayton L. (ed), 1997. Taber's Cyclopedic Medical Dictionary, 18th Ed., F.A. Davis Company,  
610.3 Philadelphia.  
T113
- Ref Thompson, William, 1984. Black's Medical Dictionary, Barnes and Noble Totowa, NJ.  
610.321  
B631
- Ref Williams and ????, 1976. Stedman's Medical Dictionary, 23rd Ed., Publisher Unknown, Baltimore.  
610.3  
S812s23

## ETYMOLOGY

- Pers [Borror, D.J., 1960. Dictionary of Word Roots and Combining Forms, N-P Publications, Palo Alto, CA.](#)
- Pers [Morris, W. \(Ed\), 1970. The American Heritage Dictionary of the English Language, American Heritage Publishing Co., Inc., Boston, MA.](#)

## SIGNS AND SYMPTOMS

- Ref Cohen, Lisa A., Kathy E. Goldberg and Virginia P. Peck (eds), 1985. Signs and Symptoms, Clinical  
616.075 Pocket Manual Series, Nursing 85 Books, Springhouse Corporation, Springhouse, PA.  
Si 578
- Pers Leibrandt, Thomas (Sr. ed.), 1985. Diseases, Causes and Diagnosis, Current Therapy, Nursing  
Management and Patient Education, Nurse's Reference Library, Springhouse Corporation, Springhouse, PA.
- Ref Magalini, Sergio, 1990. Dictionary of Medical Syndromes, 3rd Ed., J.B. Lippincott Company,  
616.072 Philadelphia.  
M118d3
- Pers Pagana, K.D. and T.J. Pagana, 1991. Mosby's Diagnostic and Laboratory Test Reference, Mosby Year  
Book, St. Louis.
- Pers Wallach, J. 1992. Interpretation of Diagnostic Tests, A Synopsis of Laboratory Medicine, 5th Ed.,  
Little, Brown and Company, Boston.

## PHARMACOLOGY

- Pers Malseed, Roger T. and Gail S. Harrigan, 1989. Textbook of Pharmacology and Nursing Care Using the  
Nursing Process, J.B. Lippincott Company, Philadelphia.
- Pers American Psychological Association, 1994. Publication Manual, 4th ed., ASA, Washington, D.C.

## BIBLIOGRAPHICAL METHOD

- Pers American Psychological Association, 1994. Publication Manual, 4th ed., ASA, Washington, D.C.

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pers: in Dr. Pinkham's personal library

<sup>a</sup>Call Number in Kreitzberg Library

<sup>b</sup>This reference is in my personal library. I will make it available upon appointment.

<sup>c</sup>Your Text.

<sup>d</sup>Reference Source in the Kreitzberg Library, it cannot be taken out of the library.