

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**SAULT  
COLLEGE**

**COURSE OUTLINE**

<b>COURSE TITLE:</b>	Pathophysiology I		
<b>CODE NO. :</b>	PNG233	<b>SEMESTER:</b>	3
<b>PROGRAM:</b>	Practical Nursing		
<b>AUTHOR:</b>	Ann Boyonoski		
<b>DATE:</b>	Sept/10	<b>PREVIOUS OUTLINE DATED:</b>	Sept/09
<b>APPROVED:</b>	"Marilyn King"		Jul/10
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	<b>CHAIR, HEALTH SCIENCES</b>		<b>DATE</b>
<b>TOTAL CREDITS:</b>	4		
<b>PREREQUISITE(S):</b>	PNG126		
<b>HOURS/WEEK:</b>	4		

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*For additional information, please contact the Chair, Health Sciences*  
*School of Health and Human Services*  
*(705) 759-2554, Ext. 2689*

**I. COURSE DESCRIPTION:**

This course provides the learner with a general understanding and working knowledge of the structure and function of the human body experiencing an **acute** health challenge. The learner will examine changes that occur in the human body and explore how the body compensates for those challenges. Included in this course is the study of the basic principles of microbiology.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. Use the appropriate terminology related to how normal physiological processes are altered by acute health challenges (disease).
2. Explain the basic pathophysiological concepts of an acute health challenge.
3. Describe how the human body compensates for an acute health challenge.
4. Examine common acute health challenges and their effect on the human body.
5. Examine typical diagnostic testing for common acute health challenges.
6. Examine the effects of microbes on the body.

**Review the selected key terms (vocabulary) for each specific concept/system.**

**The requirements of the learning outcomes will be met by the defined elements of performance under the following :**

**CONCEPTS OF DISEASE**

**1. Introduction to Pathophysiology**

- Explain the role of pathophysiology in the diagnosis and treatment of disease
- Review normal defences of the body
- Identify specific and non-specific defences
- Discuss the stress response and its relationship to disease

**2. Inflammation**

- Define inflammation
- Explain the steps of the inflammatory process
- Identify common causes of inflammation
- Describe the signs and symptoms of inflammation (local and systemic effects)
- Describe the characteristics of exudates
- Discuss diagnostic tests used to diagnose and monitor inflammation

**3. Infection**

- Define microbiology
- Describe the typical characteristics of a bacteria, virus, fungus, parasite
- Define resident flora
- Examine the transmission of infectious agents
- Describe the chain of infection
- List factors contributing to host resistance to infection
- Discuss interventions to prevent spread of infection ( Guidelines for standard and transmission based precautions)
- Describe the progression of infection
- Identify common nosocomial infections
- Discuss diagnostic tests used to diagnose and monitor infection

**4. Healing**

- Describe the types of healing
- Explain the healing process
- Identify factors that effect healing

**5. Fluid and electrolyte balance – Acid /base imbalance**

- Identify functions and regulatory mechanisms that maintain fluid and electrolyte balance
- Identify the common causes of fluid volume excess
- Describe the signs and symptoms and complications of fluid volume excess
- Identify the common causes of fluid volume deficit
- Describe the signs and symptoms and complications of fluid volume deficit
- Compare and contrast the effects of fluid volume excess/deficit
- Identify the common causes, signs and symptoms and complications of the following electrolyte imbalances – hypo/hyponatremia, hypo/hyperkalemia and hypo/hypercalcemia
- Define acidosis and alkalosis (metabolic and respiratory)
- Identify the common causes, signs and symptoms and complications of acidosis and alkalosis (metabolic and respiratory)
- Discuss diagnostic tests used to diagnose and monitor fluid, electrolyte and acid/base imbalances

**6. Pain**

- Define acute pain
- Identify the causes, signs and symptoms of acute pain
- Describe the pain pathway
- Relate the methods of pain control to the gate control theory
- Discuss factors that may alter perception of acute pain
- Compare acute and chronic pain

## **ACUTE ALTERATIONS IN SYSTEMS FUNCTIONING**

### **1. Immunological**

- Identify the etiology, contributing factors, signs and symptoms, complications of common chronic immune disorders (HIV, SLE, allergic/herpersensitivity reactions)
- Examine diagnostic tests used to diagnose and monitor chronic immune disorders

### **2. Respiratory**

- Identify the etiology, contributing factors, signs and symptoms of common acute respiratory disorders (upper and lower) eg. croup, epiglottitis, pneumonia , asthma, RSV
- Explain the progressive airway response to a stimulus
- Compare intrinsic and extrinsic asthma
- Discuss the complications of asthma
- Compare hemothorax and pneumothorax
- Discuss diagnostic tests used to diagnose and monitor respiratory disorders

### **3. Hematological**

- Identify the etiology, contributing factors, signs & symptoms of the chronic blood disorders (anemias)

### **4. Cardiovascular**

- Define hypertension
- Discuss the development/risk factors of hypertension
- Compare primary and secondary hypertension
- Identify the complications and pathological changes of hypertension
- Examine the etiology, contributing factors, signs and symptoms of common occlusive disorders (atherosclerosis, angina, coronary artery disease, myocardial infarction)
- Compare angina and myocardial infarction
- Describe the etiology, contributing factors, signs and symptoms and complications of common peripheral vascular disease (arterial and venous)
- Identify the etiology, contributing factors, signs and symptoms and complications of chronic congestive heart failure
- Compare and contrast right and left-sided heart failure
- Discuss the etiology, contributing factors, signs and symptoms and complications of pulmonary edema
- Examine the diagnostic tests used to diagnose and monitor cardiovascular disorders
- Define shock
- Identify the etiology, contributing factors, signs and symptoms and complications of the various types of shock (hypovolemic, anaphylactic, cardiogenic, septic and neurogenic)

**5. Gastrointestinal**

- Examine the etiology, contributing factors, signs and symptoms and complications of common gastrointestinal disorders (appendicitis, cholecystitis, cholelithiasis, intestinal obstruction, hernia, pancreatitis)
- Compare mechanical and functional obstruction
- Define jaundice
- Identify the common disorders that cause jaundice
- Describe the typical changes of acute and chronic liver disease
- Examine the diagnostic tests used to diagnose and monitor gastrointestinal disorders
- Identify the causes of viral hepatitis
- Compare viral hepatitis A with viral hepatitis B and C
- Explain the significance of serologic tests and preventative immunization for viral hepatitis

**6. Genitourinary**

- Identify the etiology, contributing factors, signs and symptoms and complications of common urinary tract disorders (cystitis, pyelonephritis, UTI, renal calculus)
- Identify the etiology, contributing factors, signs and symptoms, progression and complications of common sexually transmitted diseases (chlamydia, gonorrhea, syphilis, genital herpes, genital warts, trichomoniasis)
- List the most common causes of vaginal bleeding
- Discuss the contributing factors, signs and symptoms of the common complications of pregnancy (PIH, ectopic, toxemia, eclampsia, placental alterations)
- Examine the diagnostic tests used to diagnose disorders of the urinary tract, STD and complications of pregnancy

**7. Musculoskeletal**

- Describe the types of fractures
- Describe the complications of fractures
- Discuss the process of bone healing
- Compare dislocations, sprains and strains
- Examine the diagnostic tests used to diagnose and monitor musculoskeletal disorders

**8. Neurological**

- Identify the etiology, contributing factors, signs and symptoms of the various types of headaches
- Identify the etiology, contributing factors, signs and symptoms and complications of common neurologic alterations (head injury, TIA, CVA, spinal cord injury)
- Compare TIA and CVA
- Discuss the early and late manifestations of increased intracranial pressure
- Examine the diagnostic tests used to diagnose and monitor acute neurologic disorders

**9. Psychological**

- Discuss the biologic and psychosocial theories about the etiology of mood disorders (major depression and bipolar disorders)

- Identify the signs and symptoms of common mood disorders
- Describe the assessment of suicide risk
- Discuss the biologic and psychosocial theories about the etiology of anxiety (panic, phobias, post –traumatic stress disorder, obsessive-compulsive disorder, generalized anxiety disorder)
- Identify the signs and symptoms of anxiety
- Examine the common diagnostic tests/tools used to diagnose and monitor mood disorders and anxiety

### III. TOPICS:

1. Introduction to Pathophysiology
2. Inflammation
3. Infection
4. Healing
5. Fluid and electrolyte balance – Acid /base imbalance
6. Pain
7. Disorders of the Integument
8. Respiratory Disorders
9. Cardiovascular Disorders
10. Gastrointestinal Disorders
11. Genitourinary Disorders
12. Musculoskeletal Disorders
13. Neurological Disorders
14. Psychological Disorders

### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Gould B. E. (2006). *Pathophysiology for the Health Professions* (4<sup>th</sup> ed.). Saunders.

Marieb, E. N. (2008). *Essentials of Human Anatomy and Physiology* (9<sup>th</sup> ed.). Benjamin-Cummings.

Sault College LMS (course notes, online quizzes, important announcements)

Sault College Student Portal – [www.mysaultcollege.ca](http://www.mysaultcollege.ca)

### USEFUL:

Springhouse (2002). *Pathophysiology made Incredibly Easy* (2<sup>nd</sup> ed.). Lippincott, William and Wilkins.

Kee Lefever, Joyce (2001). *Handbook of laboratory and diagnostic tests* (4<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall. (used in Semester 4)

V. EVALUATION PROCESS/GRADING SYSTEM:

1. **The pass mark for this course is 60%.** It is composed of term tests and a final exam.

2. Evaluation Methods:

4 Tests ( MC & short answer)                      60%

Final Exam    (multiple choice)                      30%

Online Tests 10%

Bonus: Case Study 5%

TOTAL                      100%

Online quizzes:

Two attempts for each quiz, the highest mark will count.

Case Study – (optional for bonus marks):

Case studies should be completed in groups of 2. If there are identical versions (90% similarity); the case study grade will be divided equally between the groups. (ie if there are 3 identical case studies; one will be marked and that grade will be divided by 3). **Case studies must be written in your own words; copying from texts will NOT be accepted.**

Final exam will consist of material from the **entire** course.

3. Students missing the tests or the final exam because of illness or other serious reason must inform the professor at least one hour **before** (759-2554, Ext. 2635 OR via email/LMS). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity to write **as soon as possible** upon return to the college. Those students who **do not notify** the professor will receive a zero for that evaluation. See Student Success Guide.

The following semester grades will be assigned to students in postsecondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 - 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**VI. SPECIAL NOTES:**

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. *It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers may not be granted admission to the room.*

**VII COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline. [www.mysaultcollege.ca](http://www.mysaultcollege.ca)