BIOLOGY 253 - PATHOPHYSIOLOGY FOR NURSING 1
WINTER 2003

INTRODUCTION

Biology 253 (Pathophysiology) is the second half of a two-semester course for students in the second year of the Collaborative Curriculum for the Bachelor of Science in Nursing Program. The course focuses on the basic concepts of pathology that are used to define dysfunction of the major organ systems.

The course is taught jointly by a faculty member from Biology and one faculty from Nursing. The intent is to enable students to apply and integrate the theory of pathology to the clients they care for during clinical practice. Physical assessment skills, use of diagnostic test results, pharmacology and treatment regimes used by the health team will be included with each unit. It is important to note that this is an integrated course comprising both pathology and nursing components.

During the course, you will obtain information from several sources including lectures, class discussions, textbooks, client profiles and clinical practice. Do not rely exclusively on any one, or only some, of these sources. The course outline lists the various topics that will be covered. You are urged to review these topics in the text before classes and to consolidate information obtained in lectures with that in the text after each class. **Some of the topics involve self-study (indicated in the outline) and will not be covered in lectures. They too are examinable.**

It is essential that students have a good understanding of normal physiology and some of the associated anatomy of the organ systems being covered as this forms the basis for studying pathophysiology. There will be no time to review or re-teach this in class. If necessary, you must review this information. There are several Anatomy/Physiology texts available in the library but Anatomy and Physiology by Martini is recommended.

REQUIRED TEXTS

Black, J.M., Hawks, J.H. & Keene, A.M. (2001). *Medical-Surgical Nursing: Clinical Management for Positive Outcomes* (6^{th} ed.). W.B. Saunders Company, Toronto.

Eisenhauer, L., Nicols, L., Spencer, R., Bergan F., (1998). *Clinical Pharmacology and Nursing Managment* (5^{th} ed.). Lippincott, New York.

Estes, M. (2002). *Health Assessment and Physical Examination.* (2^{nd} ed) Delmar, New York.

Pagana, K. & Pagana, J. (2001). *Diagnostic and Laboratory Test Reference* (5th ed.). Mosby, New York.

Pillitteri, A. (2003**).** *Maternal & Child Health Nursing. Care of the Childbearing and Childrearing Family*.(4^{th} ed) Lippincott, Philadelphia.

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EVALUATION

Client Profiles	20%
Mid-term exam **(February, 24)**	35%
Comprehensive final exam (college exam period)	45%

Tests and exams will integrate both the pathology and nursing components of the course. However, the OVERALL weighting will reflect the disparity in number of lectures for each component. Examinations must be written at the time specified, unless there is a medical emergency that prevents you from doing so. **You must notify the Instructors before the time of the examination and submit a doctor's note that indicates the doctor's evaluation that you were unable to write.**

Although the pass mark for this course is 60%, in order to continue in the nursing program, you must "achieve a cumulative GPA of at least 3.5 on a 9.0 scale". This translates to an overall grade of C+ and must be considered an absolute minimum.

LETTER GRADES

The following percentage conversion to letter grade based on the college standard will be used for this course:

A+	95 - 100%	B	75 - 79%	D	50 - 59%
A	90 - 94%	B-	70 - 74%	F	0 - 49%
A-	85 - 89%	C+	65 - 69%		
B+	80 - 84%	C	60 - 64%		

CLIENT PROFILES

As a learning and evaluation tool, client profiles will be used to link the Pathology and Nursing components. There will be three profiles during the term, each marked out of 100, and contributing 20% to the total course mark.

Due dates:

January, 27
February, 17
March, 24

COURSE OUTLINE

Cardiovascular System (continued)

Nursing applications
Hemophilia
Valvular disease

Respiratory System

Chronic obstructive pulmonary disease COPD
Sinusitis, rhinitis, pharangitis, tonsillitis, laryngitis **(self-study, Black pages 1676-1680)**
Lung cancer
Atelectasis
Restrictive lung disease
Pleural effusion
Pulmonary edema
Acute respiratory failure (ARDS)
Pulmonary embolism
Pulmonary hypertension
Asthma
Sarcoidosis
Chest wall deformaties
Cystic fibrosis
Influenza
Pneumonia
Pulmonary tuberculosis **(self-study, Black page 1716)**

Urinary and Genital Disorders

Male:

Hydrocele, spermatocele
Benign prostatic hyperplasia (BPH)
Prostate cancer

Female:

Menstrual disorders
Pelvic inflammatory disease (PID)
Cancers
- Breast
- Ovary
- Uterus
- Cervix

Infertility and assisted conception

Renal:

- Acute renal failure
- Chronic renal failure
- Pyelonephritis
- Glomerulonephritis
- Urinary tract infection (UTI)
- Renal calculi
- Hydronephrosis
- Urinary incontinence
- Urinary retention
- Cancers **(self-study)**
  - Renal (Black, page 858)
  - Bladder (Black, page 809)
- Hypospadias
- Vesicoureteric reflux **(self-study, Black page 829)**

Sexually transmitted diseases (STD's):

- Genital herpes
- Genital warts
- Syphilis
- Chlamydia
- Gonorrhea
- Urethritis

Gastrointestinal Disorders

Inflammatory disorders:

- Appendicitis
- Peritonitis
- Inflammatory bowel disease
- Irritable bowel syndrome
- Diverticular disease

Hiatus / Inguinal hernia

Peptic ulcer

Congenital disorders:

- Cleft lip and palate
- Pyloric stenosis
- Gastro-esophageal reflux
- Tracheo-eosophageal fistula
- Hirschprung's disease
- Intussusception

Cancer

- Esophageal
- Stomach **(self-study, Black page 724)**
- Bowel (colon) **(self-study, Black page 780)**
- Liver
- Pancreas

Hepatitis

Cirrhosis:

- Portal hypertension and Ascites

Cholelithiasis

Pancreatitis

Musculoskeletal Disorders

Fractures
Osteoporosis
Gout
Osteoarthritis
Rheumatoid arthritis
Fibromyalgia
Systemic lupus erythematosis **(self-study, Black page 2156)**
Muscular dystrophy
Repetitive motion injuries
Bone cancers

Integumentary Disorders

Necrotizing fasciitis (Stephen)
Eczema and Dermitis
Cellulitis
Psoriasis
Acne
Skin cancer

CLIENT PROFILES

Of the three Client Profiles, the first and third will be done in groups of 4 (one half of a clinical group) and the second will be done individually. Select a patient for whom you or a group member is caring, and with whom members of the group are familiar and can all research. The purpose of this is to encourage clinical team work, and wider ranging exploration of clinical care. Please note that the mark distribution is 5% each for the two group projects, and 10% for the individual one.

Please note that **the whole group is responsible** for all of the information presented. The paper should be a cohesive whole, not a collection of separate parts.

Please be aware that group work can be challenging. If you are having difficulties, for instance about division of labour, discuss them with me sooner rather than later.

Each profile is to be typewritten/computer generated, **10 pages maximum**, not including title and reference pages, 11 font minimum, 1.5 spacing, 2" right margin (to allow for legible comments). Excessive length will be penalised unless you have a very complex client and have discussed it with me. Spelling and grammar are important and do influence how I view your paper. Please be careful with your final proof reading and editing. Where appropriate you can use point form, columns and/or tables. Please note that plagiarism will not be tolerated. If you use information from a text or other source, cite it properly, using the APA format. **Please include a reference page.** If you quote something, place the passage in quotation marks, and cite author and page number correctly.

Your attention is drawn to the academic conduct policy of the College

ACADEMIC CONDUCT POLICY

There is an Academic Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section.

www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html

Don't forget

- Identify yourself!! Include your section, please.
- Please just staple sheets together, don't put them in a binder, folder, etc.
- If you've discussed a specific issue about a profile with me, include a note making reference to the discussion. (There are 100 + of you – I'll probably remember, but… ☺)
- Do not allow your search for the 'perfect patient' for your client profile to interfere with or distract from your needs as a student in your clinical setting. While you are out clinically your clinical learning needs come first.
- Please do not use clinical time to do research specific to your client profile. However when appropriate do combine your research for your client profile with your research on your clinical assignment – don't repeat work unnecessarily.

Format

At top: Patient initials or a pseudonym, gender, age, allergies, admission diagnosis, admission date, your information collection date, and any surgical or procedure date. The idea here is to give me reference points so I know how many days post-op, post-admission or post-event the bloodwork, tests and your assessment are. Please be sure to remove **any and all** information that might jeopardise client confidentiality, including physician's names.

Next: Patient's admitting complaints, which may be the same as or different from the diagnosis. For example, the diagnosis may be lung cancer, but what brought the patient in was uncontrolled pain and constipation. Also a brief description of past medical history.

Then: in whatever order seems most appropriate to you, and fits with the particular patient, explore the patient's **diagnostics**, **medications**, a **physical assessment**, their **nursing care** and **pathophysiology links** in some depth.

- I want to see that you understand the relationships between tests and diagnostics, your own assessments, the patient's treatments and medications, and the nursing care you and others are providing. What is all this telling you about the patient's condition? For example, what do an elevated bilirubin and a palpable, tender liver tell you about your patient with Hepatitis? What concerns might you have about treating that patient's fever with Tylenol?
- In the "patho links" section I want to see that you understand the primary diagnosis, surgeries, care and any additional conditions that increase the complexity of the patient's condition. For example, what is the relationship between your patient's diabetes and her renal failure? How do they interact? How is treatment compromised? How are medications affected? Do you understand the implications for any surgical procedure?
- In the medication section include medication name(s), classification and mode of action. Mode of action is how it does whatever it does. If not known, according to the references, it is ok to say mode of action unknown. In addition I want to see that you know why this medication is being given to this patient. If you don't think a particular med is benefiting your patient, you could discuss this here, or in the "advocacy" section.
- Nursing care may be included throughout, or discussed in a separate section, but do ensure that the care of your client, and the connections between pathology and nursing actions, is discussed.
- Patient Advocacy: This piece is so that you can discuss what is missing and/or what you disagree with about your patient's care. You may do this as a separate section, or in questions and comments you pose (clearly) throughout the paper. Include what you will do, or would like to do about it. If you are content with the completeness of the patient's care, say so. This is a section where it is ok to go out on a limb a bit and speculate, or to ask questions that you haven't been able to find an answer to. I expect evidence, however, that you have looked!

Marking

- Marked out of 100.
- An 'A' paper will go into depth in all areas, but particularly into patho links, nursing care and pharmacology. Papers >90% make connections which show great insight into patho links, meds, diagnostics and patient care.
- Depth counts – **Note that you can go into great depth on what appears to be a "simple" patient. For instance if your patient only has a fractured leg, discuss the mechanisms of bone regeneration, issues of pain control, the risks of fatty embolism and the impact of decreased mobility on their overall health (eg risk of pneumonia, constipation).**

Suggestions

- You do not need to explore every condition of the patient – some may have 5 or 6. Pick the most significant two or three. Mention the others as they affect your patient, or interact with the primary conditions.
- You do need to mention all the medications. If there are lots (>10) you may note that you are not going into detail on some that are unused PRN medications, or which are quite common and do not impact the patient's condition severely. Use judgement here – eg If your patient has hepatitis, you should discuss Tylenol, even though it is a commonly used medication.
- With PRN meds, include an indication of how often they are being used. (eg "Tylenol ordered q4h PRN; being used once or twice a day")

- Resources: remember that you can discuss your patient with their surgeon, the pharmacist, and so on. Use the resources available to you to fully understand your patient. If you have information from a person that you were unable to collaborate in a written source, let me know where it came from. (ie "in talking with the surgeon I discovered that ….)
- If a surgery or unusual test is mentioned, make sure it is described or explained. I want to know that you know what it is and why it was done.

These are challenging and time consuming assignments, but they are also a wonderful learning tool where you can really delve into the pathophysiology and pharmacology which you are seeing and working with each day. I hope you get as much from writing them as I know I will from marking them.

Hints (taken from several years of marking these)

1. **Presentation** Consider combining "priority nursing care" and patho links as one heading. Several students did this and it was very effective at allowing them to draw conclusions about the relationships between the patho and the care they were giving. **Also,** discuss any OR procedures early and clearly!

2. **Evidence** If you say "I think…." (eg I think the patient has anemia due to malnutrition) explain why you thing that. ("The patient's weight is down, their lab values reflect poor iron absorption, and they aren't eating much off their tray.") Also, don't just say "monitor or observe for signs of ….(eg "bleeding"). Explain what you are looking for. (eg observe for signs of intra-abdominal bleeding, such as abdominal distension, tachycardia, hypotension…)

3. **Grammar and spelling** These are informal papers. Point form is fine. However, it is important that you use good grammar, and that your spelling is reasonable. Consider adding some common medical terms to your spell check, including things like "IVs" or "PCA". Consider having someone proofread any paper you hand in.

4. **Drugs** Mention <u>allergies</u>, or lack of them. Give details about drugs; ie classification, mode of action, etc. eg antibiotics ➔ gram neg/pos, broad/narrow spectrum, route etc; cardiac meds ➔ what type – beta blockers, calcium channel blockers, etc. Mention how much use is made of PRNs and PCAs, and with what effect**. This is the one of the places you can add a bit of pharmacology to this program.** If you can't find information about a drug remember that you can, as a last resort and with consideration for their workload, call the Drug Information Line or the pharmacist at the hospitals. Another piece of information to consider including is "things the nurse should know" from your drug book, if they are critical.

5. **Tables/Charts** Consider using tables or charts for VS and bloodwork, and even for physical assessments, especially if you are listing several days worth – really shows up trends, which is a help to both of us in identifying what is going on. Note - give the route for temps - eg 38.7T or 38.7PO. There's a difference in clinical significance. Discuss the implications of tests immediately if possible.

6. **Narcotic Pain Control** When you are assessing for respiratory depression, dizziness, confusion and all those other side effects of morphine et al, don't forget to assess the effectiveness of the analgesia. Don't be so concerned about potential for overdose, or addiction (which is **very** rare if narcotics are used appropriately) that you don't achieve effective pain management. (One of the anaesthetists calls this establishing the **maximum ineffective dose** ☺) Used properly narcotics are safe and useful drugs. Respect them, but don't be afraid of them.

7. **Priority Nursing Care** Record and discuss this in order of your nursing priorities; eg talk about pain before you talk about drains if pain is a greater concern. What are the most important pieces of care for this person?

8. **Client advocacy/what's missing** This may be big things ("No neurology referral was made for my stroke patient") or "small" ones (My patient's catheter was blocked catheter.) Be aware also of family issues ➔ is this client/family getting what she/he/they need? How will you respond?

9. **Patients** If possible include some younger (<60) clients in at least 1 of the profiles. (I know, most of your patients are elderly. But try.) Don't forget to tell me the patient's gender. Consider including "general appearance" as part of your assessment.

10. **Discharge Planning** Discharge planning is a priority part of nursing care right from admission. Be sure to be aware of this.

11. **Psychosocial** State of mind? Support systems? Feelings about prognosis and treatment? Family concerns? And so on. Few of you addressed these issues. Don't be so task oriented that you forget about the person!

12. **Respect** People are not their disease, so please don't identify them as "the bowel resection" etc.

13. **Code Status** Please include this info. It is relevant to how you anticipate/approach their care.

14. **Terminology** Consider stating what the patient expresses in positive terms rather than negative. "Patient states he does not drink" carries a different emphasis than "Patient denies drinking". (Unless, of course, you intend to convey that the patient is drinking and denying it, in which case say so!) Note the difference in attitude certain words and phrases convey.

15. **Dates** I appreciate the inclusion of admission and OR dates as well as the date you are writing. It helps to know how long the patient has been in hospital/post-op.

16. **Initials/Jargon** Unless very common please spell a term for a medical condition out the first time you use it, then put the initials in brackets, after which you can use them. (eg congestive heart failure (CHF)) Some initials have more than one meaning, and lots of floors have "short hand" they use in their area, which means something else somewhere else. For example **OD** means "daily", "right eye" and "overdose")

17. **IVs** If IVs are in situ, mention rates, solutions and purpose. Also, be aware of total fluid intake – what it is and what it should be for your patient.

18. **Diagnosis vs Presenting Complaint** Distinguish between these, they are different ➔ doctors make diagnoses, people have complaints. The patient is often just as concerned about symptoms as they are about diagnoses. Sometimes, if people have lots of complaints, they all get ignored – "oh it's just him again".

19. **Ageism** Age is not an illness!! Don't confuse the fact that someone is elderly with the fact that they are ill. Increased age may **increase the risk** of some things, such as hypertension or NIDDM, but it doesn't, by itself, **cause** them.

20. **Finally:**
    Always!! Back up your work onto a floppy or CD. Nothing hurts more than losing a completed paper to a computer glitch. (Well, actually lots of things hurt more, but you catch my drift.)

Never!! Hand in the only copy of any of your papers – always have a copy, on paper or on disc, somewhere it can be retrieved