

Health Sciences



Western  
HealthSciences

**4351B**

# DISEASE MECHANISMS

Course Instructor: Daniel Belliveau, Ph.D.

School of Health Studies  
Arthur and Sonia Labatt Health Sciences Bldg  
Room 221  
Faculty of Health Sciences

Class Location: HSB 322

Date and Time: Wednesday and Friday 9:30 – 11:30

**2014**

## HS 4351B

### Disease Mechanisms

*Unless you have either the requisites for this course or written special permission from your Dean to enrol in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.*

*The prerequisite for this course is HS 3300A. If you do not have this prerequisite (or special permission to take the course), you are not eligible to take this course and must drop it immediately in order to make room for fellow students who have the prerequisite. Taking a course without the prerequisite is not grounds for appeal.*

*January to April 2014*

## COURSE OUTLINE

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This course will provide a fundamental understanding of disease processes and their effects on the health of individuals. General concepts of disease, including etiology, pathogenesis, and clinical significance will be critically discussed in this seminar style course. These concepts will be applied in both a systems and regional approach to disease progression.

There are 4 lecture hours per week. (**Wednesday and Friday, 9:30 – 11:30; Health Sciences Building – room 322 [anatorium]**). The course will explore fundamental processes that lead to disease and the general terminology associated with this science. The class will be divided into seminar groups where specific diseases of systems will be examined in greater detail. The evaluation for the course will comprise examinations, group participation and discussion and the creation of review notes for distribution to the course participants.

The course is divided into sections in order to cover the greatest amount of information on disease. All students will attend the first block of lectures (from January 10 – 24) where we will establish a foundation of knowledge on disease and their mechanisms of action. The remainder of the course is divided into three sections where students will have the opportunity to select one of two areas of study. Section 1 (January 31 – February 16) will investigate diseases of the nervous system or musculoskeletal system; section 2 (February 28 – March 22) will examine respiratory or cardiovascular disease and section 3 (March 27 – April 5) will explore digestive or urinary tract disorders. Students will work in groups to create a comprehensive set of study notes on their area of investigation that will be provided to the other group of students in preparation for the final exam.

## COURSE OBJECTIVE

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The purpose of this course is to provide the student with an advanced understanding of the key disease phenomena that impact human health.

Following completion of this course, students will be able to

- Describe key events during stages of disease manifestation
- Differentiate between systemic and regional effects of disease
- Extrapolate from signs and conditions, the state of disease progression
- Synthesize concise study notes on specific disease issues
- Create evaluation questions to test knowledge about disease

## COURSE ADMINISTRATION

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### INSTRUCTOR

Dr. Dan Belliveau  
Health Sciences Building, room 221  
Ext. 88235

### OFFICE HOURS

Wednesday 1:30 – 4:30 OR by appointment

Due to the nature of the professoriate, there are times when unforeseen circumstances may prevent me from being present during scheduled office hours. I am always interested in hearing from students so feel free to contact me with some potential meetings times and I will respond with a mutually suitable date and time.

### COURSE CONTACT

**Course E-mail address:** use the web site mail for course related questions. Anything of a sensitive nature may be addressed to the instructor's personal e-mail ([dbellive@uwo.ca](mailto:dbellive@uwo.ca)). Responses to inquiries via the web site email are sent to a mailbox on the web site and NOT to your personal account. Some external email services may encounter SPAM blocking or filtering. Important and timely information may not get to you if you are using another email service.

**Web site address:** Log onto Sakai OWL using your user name and password. You must be registered in this course to have access to the site and you must have an account established with UWO. All course-related materials are delivered through OWL.

## COURSE EVALUATION

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Exams will consist of multiple-choice questions and may include a combination of standard, k-type questions (multiple-multiple), n-type (long list) as well as short-answer questions. In addition there will be diagrams associated with some questions. The final exam will assess material learned throughout the course including clinical examples, discussion points and the Wiki site on Disease.

<b>GRADING:</b>	Pre-section exam <b>January 24<sup>th</sup></b> (online exam)	<b>15%</b>	Multiple choice and short answer style exam based upon lecture material covered up to and including January 22 <sup>nd</sup> .
	Final Exam (cumulative) <b>April exam period</b>	<b>40%</b>	Exam will be comprised of multiple choice style questions and short answer questions.
	Wiki on Disease Due: <b>variable</b> (see OWL)	<b>25%</b>	Groups of students will work together to create a comprehensive Wiki site for their peers. This site will include study aids, presentation slides, a concept map summary and sample exam questions. The evaluation is spread between two separate diseases Wiki sections created during the course (see assignment section for more details).
	Section quizzes Due: <b>variable</b> (see below)	<b>10%</b>	Two online quizzes, each worth 5% will be assigned midway through section 1 and section 2 of the course.
	In-class participation	<b>10%</b>	Substantial components of the course are based upon the reading of critical reviews and journal articles on specific diseases. Your contributions on the issues found within those readings and integration within the course content is essential to a successful course.

### MAKE-UP EXAMINATIONS

Only under exceptional circumstances will permission be granted for writing an exam on an alternate date. If the exam was missed due to illness, **proper documentation** must be provided to the School office (academic counselor) as soon as physically possible (see university policies below for further instruction). The counselor will contact me with their decision regarding accommodation. ***If approved, written makeup examinations will consist of short and long answer questions, case studies and image-based questions based on anatomical and clinical material from lectures.***

Depending on the amount of time that has passed after missing an examination, it may not be possible to administer online tests for makeup. In that case, the *percentage weighting of the online test will be moved to the final exam.*

## **ROUNDING OF GRADES**

This is a practice (for example, bumping a 79 to 80%) some students request. The practice will not occur in this course. The mark attained is the mark you achieved and the mark assigned; there is no rounding to the next grade level. Please don't ask me to do this for you. It degrades my experience as your professor and your experience as a student. We both have an appreciation of high standards

## **DISEASE WIKI**

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A complete description (including grading rubric) can be found under the assignment tab on OWL. This is a group assignment where 10-12 students work together to create a set of comprehensive Wiki on their assigned section. The Wiki will contain all of the following key components:

1. A detailed account of the conditions and factors affecting the disease(s) discussed in the section. The document must be referenced and will include 5-10 sources (from reference text, peer-reviewed articles, clinical updates and reviews or reputable online resources). The maximum length is difficult to assess in a Wiki but generally no longer than 2500 words.
2. Study aids. It is expected that this section will complement the written account and offer an opportunity to include valuable images, animations, linkages and summary notes that would reinforce the learners development of a firm grasp of the concepts.
3. A concept map (mind map) that summarizes the entire report. This is a single figure. Several online resources are available to assist in creating concept maps.
4. Sample exam questions. Five questions will be prepared that allow students to test their knowledge acquisition. The style of questions is flexible (multiple choice, fill-in-the-blank, matching, ordered list, etc.). One additional question (sixth question) will be a clinical scenario where a short answer response is expected. An answer key must be provided along with the questions.

The due dates for the assignment varies – please see Assignment tab on OWL for more details. The value for each of the assignments follows:

- Section 1: 12.5% of course grade
- Section 2: 12.5% of course grade
- Total value: 25% of course grade

An opportunity to offer commentary on group dynamics and team participation will be made available. Such information may influence the grade of an assignment if it is deemed that a student or group of students did not contribute appropriately to the report.

## EXPECTATIONS

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You can expect me to be on time, answer your questions to the best of my ability, start class on time, and end class on time. I will arrive in the classroom 10 minutes prior to class time to field questions before the lecture. Class will begin promptly and end with sufficient time to exit the classroom and make your way to your next class. I may not know the answer to every one of your questions. I will however do my best to obtain an answer and discuss it at the next lecture.

I expect you to be on time for class, respect the instructor and your classmates when sharing an idea in class, and listen without disturbing others in class. I expect you to manage your electronic communications – incoming cell phone calls *will no be tolerated* so please set your phones to work in quiet mode. I welcome the use of computers to take notes and for research related to class activities. I *do not condone* their use for social networking or other non-academic use while in class. There is absolutely no need to tweet or post on Facebook during class, or check/send e-mail. It is disrespectful to me, your instructor, and even more so to your peers sitting around you who may be distracted by your actions.

## THE TEXTBOOK

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### Recommended Textbook

There is no assigned text for this course. Reading material and lecture notes will be provided through OWL as appropriate.

## UNIVERSITY POLICIES

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### STUDENT CODE OF CONDUCT

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at The University of Western Ontario, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed, and set out the disciplinary procedures that the University will follow. For more information, visit <http://www.uwo.ca/univsec/board/code.pdf>

### ENGLISH PROFICIENCY FOR THE ASSIGNMENT OF GRADES

Visit the website <http://www.uwo.ca/univsec/handbook/exam/english.pdf>

### ACCOMMODATION FOR MEDICAL ILLNESS OR NON-MEDICAL ABSENCES

[http://www.uwo.ca/univsec/handbook/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf)

The University recognizes that a student's ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet his/her academic responsibilities.

A UWO Student Medical Certificate (SMC) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. An SMC can be downloaded under the Medical Documentation heading of the following website: <https://studentservices.uwo.ca/secure/index.cfm>.

Documentation is required for non-medical absences where the course work missed is more than 10% of the overall grade. Students may contact their Faculty Academic Counselling Office for what documentation is needed. Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. Students must follow up with their professors and their Academic Counselling office in a timely manner. Documentation for any request for accommodation shall be submitted, as soon as possible, to the appropriate Academic Counselling Office of the student's Faculty of registration. For BHSc students, you may go to the School of Health Studies Office in HSB room 222.

## **SCHOLASTIC OFFENCES**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: [http://www.uwo.ca/univsec/handbook/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf)

Additionally,

1. All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).
2. Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

## **SUPPORT SERVICES**

There are various support services around campus and these include, but are not limited to:

1. Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>
2. Student Health -- <http://www.shs.uwo.ca/student/studenthealthservices.html>
3. Registrar's Office -- <http://www.registrar.uwo.ca/>
4. Ombuds Office -- <http://www.uwo.ca/ombuds/>

# COURSE ORGANIZATION

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The course is divided into a number of sections where students can select the area of study of greatest interest to them. The first part of the course is designed to provide a background for all of the students in the course.

January	8	Course introduction and organization; the nature of disease
	10	Regional versus systemic disease
	15	Cancer
	17	Systemic conditions – inflammation, infection, lead poisoning
	22	Systemic disease – cystic fibrosis, leukemia
January	24	Pre-section exam (online exam; 15% of course grade) 1:30 – 2:30 PM (during regular class time)

## SECTION 1

Students will need to **choose between musculoskeletal or central nervous system diseases**. A sign up sheet will be available on OWL to join up into one of the systems in this section. **Please follow the outline below for the specific group that you have joined.**

### Musculoskeletal Disease

January	29	Lecture and introduction to musculoskeletal diseases <i>(All students are invited to attend the lecture)</i>
February	5	Seminar 1: Readings and discussion on musculoskeletal diseases  <i>Wiki on Disease (group 1):</i> Group 1 is responsible for creating a set of study notes on all of the information discussed during this seminar.
	7	Section 1 online quiz (1:30 PM) (no class)
	12	Seminar 2: Readings and discussion on musculoskeletal diseases  <i>Wiki on Disease (group 2):</i> Group 2 is responsible for creating a set of study notes on all of the information discussed during this seminar.
<b>Nervous System Disease</b>		
January	31	Lecture and introduction to nervous system diseases <i>(All Students are invited to attend the lecture)</i>
February	7	Seminar 1: Readings and discussion on nervous system diseases

*Wiki on Disease (group 1):* Group 1 is responsible for creating a set of study notes on all of the information discussed during this seminar.

12 Section 1 online quiz (1:30 PM) (no class)

14 Seminar 2: Readings and discussion on nervous system diseases

*Wiki on Disease (group 2):* Group 2 is responsible for creating a set of study notes on all of the information discussed during this seminar.

## SECTION 2

Students will need to choose between **respiratory or cardiovascular diseases**. A sign up sheet will be available on OWL to join up into one of the systems in this section. **Please follow the outline below for the specific group that you have joined.**

### Respiratory Disease

February 26 Lecture and introduction to respiratory diseases  
(*All students are invited to attend the lecture*)

March 5 Seminar 1: Readings and discussion on respiratory diseases

*Wiki on Disease (group 1):* Group 1 is responsible for creating a set of study notes on all of the information discussed during this seminar.

12 Section 2 online quiz (1:30 PM) (no class)

21 Seminar 2: Readings and discussion on respiratory diseases

*Wiki on Disease (group 2):* Group 2 is responsible for creating a set of study notes on all of the information discussed during this seminar.

### Cardiovascular Disease

February 28 Lecture and introduction to cardiovascular diseases  
(*All students are invited to attend the lecture*)

March 7 **No class**

14 Section 2 online quiz (1:30 PM) (no class)

19 Seminar 1: Readings and discussion on cardiovascular diseases

*Wiki on Disease (group 1):* Group 1 is responsible for creating a set of study notes on all of the information discussed during this seminar.

26 Seminar 2: Readings and discussion on cardiovascular diseases

*Wiki on Disease (group 2):* Group 2 is responsible for creating a set of study notes on all of the information discussed during this seminar.

**SECTION 3**

All students will attend the following classes on **digestive and urinary diseases**.

**Digestive Disease**

April 2 Lecture and introduction to digestive tract diseases

**Urinary Disease**

April 4 Lecture and introduction to urinary tract diseases

4 Course review and exam prep